UK Government

RAF002/2425: Domestic energy affordability support schemes

Impact and Economic Evaluation
Final report

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Executive summary

This report presents findings from the impact and economic evaluation of a series of energy affordability support schemes implemented from October 2022 for households in the United Kingdom. This final evaluation follows on from interim evaluations for Great Britain and Northern Ireland published in April 2025[1] [2]. The Department for Energy Security and Net Zero (DESNZ) commissioned Ipsos, in association with London Economics, to undertake the package of evaluations of the domestic schemes[3].

The energy affordability schemes were implemented in response to energy price rises in 2022, with the primary objective to mitigate potential increases in the underconsumption of energy and its associated negative impacts. The Energy Price Guarantee (EPG) reduced the unit cost of electricity and gas by requiring UK energy suppliers to apply a discount to the tariffs they set (for which they were later compensated). In addition, in Great Britain (GB) £400 of energy bill support was distributed through the Energy Bills Support Scheme (EBSS GB) to households via electricity suppliers. Support was also made available to households not able to access the above schemes. This included the Energy Bills Support Scheme Alternative Funding (EBSS AF), for households without a direct relationship with an energy supplier, or the Alternative Fuel Payment (AFP) and the Alternative Fuel Payment Alternative Funding (AFP AF) schemes for households who relied on alternative fuels such as heating oil or liquid petroleum gas for their heating needs.

Most households in Northern Ireland (NI) received £600 through the schemes, in addition to discounted mains gas or electricity tariffs from EPG. In NI, the EPG scheme was delivered through NI electricity suppliers. For households with a relationship with an energy supplier, a single £600 payment was delivered to help with their energy bills through the EBSS AFP scheme. This was made up of £400 Energy Bills Support Scheme (EBSS NI) and £200 Alternative Fuel Payment (AFP), the additional value reflecting the greater prevalence of consumers in NI using alternative fuels. For those without a relationship with an energy supplier, the Energy Bills Support Scheme Alternative Funding (EBSS AF) was also delivered in NI, and matched the EBSS AFP support available at £600.

Methodology

This impact and economic evaluation combined theory-based and modelling approaches to assess the impacts of the energy affordability schemes. It also draws on evidence from the surveys, research and analysis in the interim evaluations.

[1] Domestic energy affordability support schemes in Great Britain: interim evaluation.
[2] Domestic energy affordability support schemes in Northern Ireland: interim evaluation
[3] Note that the energy affordability support provided to non-domestic organisations (e.g. businesses, public or voluntary sector organisations) was out of scope. This has been published under a separate evaluation Non-domestic energy affordability support schemes: evaluation.

The universal nature of the schemes (with all UK households being eligible) meant that it was not possible to empirically define or artificially construct a control group using statistical comparators. Instead, indicative evidence of a 'no intervention scenario' (i.e. if the schemes had not been implemented) was derived for from (a) modelling the price elasticities of demand for energy and non-energy goods and services using data from DESNZ and other national datasets, (b) an analysis of trends immediately prior to the introduction of the schemes, and/or (c) research (from this and the interim evaluations) with households, experts, advocacy organisations and key stakeholders about what they believe would have happened based on lived experience or expertise.

This evaluation also includes a Social Cost Benefit Analysis (SCBA) conducted alongside a broader exploration of value for money using the 4Es framework (economy, efficiency, effectiveness and equity).

Key findings

Household energy consumption and home heating

Collectively, the evidence from the modelling and from the interim evaluations indicates the schemes contributed to helping households maintain safe and comfortable energy consumption.

- The modelling predicted that without the schemes households using mains gas or electricity for heating would have reduced their energy consumption by around a quarter over winter 2022/23 (25% for those using gas and 17% for electricity). In addition, it suggests that the energy affordability schemes helped lower-income households to avoid the harmful effects of reducing energy consumption likely to have occurred in response to increases in energy prices.
- The findings from the interim evaluation surveys support the modelling evidence: amongst those reporting that they could heat their homes comfortably all of the time in winter 2022/23, 28% of GB and 36% of NI households said they would not have been able to afford to do this without the energy affordability schemes.

Fuel poverty

The schemes aimed to limit a potential increase in the extent of fuel poverty due to the rise in energy prices. This evaluation used an energy burden metric as a proxy for fuel poverty[4]. The evidence from this evaluation suggests that the schemes contributed to limiting an increase in the proportion of households experiencing fuel poverty (compared to a no intervention scenario). The modelling indicates that:

[4] Energy burden is defined for this evaluation as households spending more than 10% of their household income on energy (after housing costs).

- Without the schemes, 3.8 million more households would have been classed as being in energy burden during the winter of 2022-23. This equates to around 14% of the UK population.
- The scale of the estimated impact was greater for mains gas and electricity-heated homes than for oil-heated homes.
- For households using gas and electricity for heating there was an effect of the schemes on fuel poverty across all income levels, however, the impact was greater for lower- and middle-income households.

Household non-energy expenditure, borrowing and saving

The evidence in this evaluation suggests that the energy affordability schemes played a role in limiting the impact of rising energy costs on households' disposable income and thereby limited households' reductions in spending on goods and services, reductions in savings, or increases in borrowing.

The modelling estimated that during Q4 2022 and Q1 2023, in the absence of the energy affordability schemes, UK households would have reduced their spending further, across most categories of household consumption. From the interim evaluation surveys, when asked about what would have happened in the absence of the schemes: 40% of GB and 44% of NI households stated they would have had to reduce spending on necessities (e.g. food, clothing, medicines) to a greater extent, 11% of GB and 19% of NI households would have had to borrow or take on new or additional household debt, and half of GB or NI households would have stopped putting money into savings or reduced the amount they saved.

Inflation

The impacts of the schemes on inflation were considered qualitatively as part of this evaluation. EPG had a direct impact on inflation due to the reduction in energy prices. The ONS estimated that without the EPG, CPI inflation would have been 13.8% in October 2022 instead of the observed 11.1%.[5] However, by boosting households' disposable income or providing direct income support the schemes, especially EBSS (but also including EPG), could also have contributed to raising inflation, albeit indirectly. It was outside the scope of this evaluation to quantify the net effect of the schemes on inflation.

Health and wellbeing

The evaluation drew on the University College London (UCL) Health Impact of Domestic Energy Efficiency Model (HIDEEM). This model estimates changes in indoor conditions due to energy efficiency or expenditure changes, and based on the age-specific mortality probabilities and changes in disease prevalence, translates these into health impacts expressed in Quality Adjusted Life Years (QALYs).[6] The evidence from this evaluation suggests that the schemes

[5] Consumer price inflation, UK - Office for National Statistics
[6] Hamilton, Ian, et al. (2015). Health effects of home energy efficiency interventions in England: a modelling study. BMJ open 5.4: e007298.

contributed to limiting the underheating of homes, thereby reducing the extent of increases in cold and humidity related disease and mortality.

- **Mortality**: HIDEEM modelling predicted that, without the energy affordability schemes, the UK population would have lost the equivalent of 140 QALYs over the 2022–23 period due to temperature- and humidity-related deaths. This corresponds to an avoided mortality burden of £9.8 million.
- **Morbidity**: The model also estimated that, in the absence of the schemes, an additional 18,666 QALYs would have been lost due to temperature- and humidity-related disease over the same period. This equates to an avoided morbidity impact of £1.3 billion.
- **NHS Cost Savings**: Improvements in physical and mental health outcomes associated with the schemes are estimated to have generated £325 million in savings to the NHS.

Household energy debt

Evidence indicates that the schemes contributed somewhat to limiting increases in energy debt and arrears during the intervention period. This evidence included Ofgem debt indicators, and survey and qualitative evidence collected for the interim evaluations:

- Ofgem indicators tracking GB debt and arrears before, during, and after the schemes suggest that their implementation coincided with the continuation of the downward trend (from Q2 2022) in the number of accounts in debt or arrears. Although the total value of amounts owed by consumers in energy debt and arrears had been increasing since 2020, the schemes also coincided with a slowing of the pace of those increases during winter 2022/23.
- Survey data from the interim evaluation shows that 26% of respondents in Great Britain and 17% in Northern Ireland reported being *very or fairly likely* to fall into energy debt without government support during winter 2022/23.
- This was supported by qualitative interviews with households, advocacy organisations and energy suppliers. Some household interviewees directly attributed their ability to avoid energy debt to the schemes, while others described the support as essential in helping them manage bills without falling into arrears. GB advocacy organisations reported that the schemes had a positive impact on households' ability to afford energy bills, particularly among lower-income groups. Interviews with NI suppliers and regulators also highlighted the view that the schemes helped to limit energy debt.

Energy supplier solvency

The schemes were intended to limit increases in household energy debt and thereby limit additional supplier insolvency or reduced cashflow, and the risk of this increasing the number of exits from the energy market (as there had been multiple instances of this in GB before the energy crisis). The evidence analysed for this evaluation suggests that the schemes contributed to supporting financial stability for suppliers in GB.

- Ofgem conducted stress tests of suppliers' finances in summer 2022. This concluded that two of the top 13 retail suppliers in the GB domestic market may have been protected by the introduction of EBSS GB alone. At least two more may have been saved by EPG, based on the forecasts of liquidity, received in August 2022.
- In NI, the interim evaluation concluded that the energy affordability schemes helped limit increases in energy debt and disconnections - factors which could have negatively impacted supplier profits. However, the risk of supplier insolvency was lower in NI due to the very different energy market context there, so the schemes were less critical as an intervention for mitigating supplier insolvency risk than they were in GB.
- Interviews with suppliers in both GB and NI corroborated that the schemes helped reduce supplier insolvency risk by decreasing the number of customers reducing their energy consumption, disconnecting from the energy supply, or not paying their energy bills.

Value for Money

- The evaluation assessed the value for money of the schemes through a social cost-benefit analysis (CBA). The CBA indicates that the schemes generated social benefits in excess of the costs, with a net present value of £4.2 billion and a benefit-cost ratio of £4.24 for every £1 spent. These findings suggest that the schemes delivered substantial welfare gains, particularly in mitigating underheating and preserving household consumption during a period of economic stress.
- Looking at just the impact on exchequer finances, the NPV and BCR are much lower. The NPV is -£33.9bn with a BCR of £0.07 return to the Exchequer for every £1 spent. This reflects the considerable fiscal outlay of the schemes.
- This value for money assessment also used the dimensions from the 4Es framework to explore the wider aspects of the schemes' performance: Effectiveness, Economy, Efficiency and Equity:
    - Effectiveness: The energy affordability schemes were broadly effective in achieving their core objectives, helping households maintain energy consumption, avoid fuel poverty, and reduce health risks associated with underheating.
    - Economy: Although the schemes delivered good value for money from a social perspective they came at a significant fiscal cost of £36.3 billion, and the universal design reduced cost-effectiveness by providing support to households regardless of need.
    - Efficiency: The schemes achieved high levels of reach through the automatically-delivered schemes (EBSS and EPG) and there was low fraud and error across the whole package of schemes. However, the rapid rollout placed significant resource demands on delivery partners. The application-based schemes faced limited awareness and lower than expected uptake. There were also barriers to access, particularly amongst some vulnerable groups and for some household groups in redeeming vouchers.

- Equity: As noted under efficiency, some vulnerable groups faced barriers to accessing the application-based schemes. In addition, although the schemes were universally applied, their benefits were not evenly distributed. Higher-income households received more support in absolute terms, despite being less likely to be at risk of energy underconsumption or fuel poverty.

Glossary

Term	Definition
Consumer surplus	The difference between the total amount that consumers are willing and able to pay for a good or service.
Continuous Cruiser	A continuous cruiser is a boater on UK inland waterways, specifically those managed by the Canal & River Trust, who operates under a continuous cruiser licence. This licence is designed for boaters who are constantly traveling and do not have a fixed home mooring.
Contribution Analysis	A contribution analysis assesses evidence against the interventions' ToC and the hypothesised pathways to outcomes derived from the ToC. Contribution analysis can also be used to help explain how and why changes did, or did not, occur, and to assess what other factors may also have contributed to outcomes.
Contribution Claim	A contribution claim is a testable statement about how an intervention's activities contribute to intended outcomes. It asserts a cause-and-effect relationship between intervention activities and observed results, explaining how and why a program works within a specific context.
Energy Price Cap	The energy price cap – set by Ofgem for domestic suppliers in Great Britain - limits how much suppliers can charge for each unit of electricity or gas used.
Energy Suppliers	An energy supplier is a company that sells energy, like electricity and natural gas, to consumers. They buy this energy wholesale from generators and resell it to homes and businesses in the areas they are licensed to operate.
EV	Equivalent variation is the adjustment in income that changes the consumer's utility equal to the level that would occur if the event had happened
Heat network	Heat networks supply heat from a central source to consumers, often via a network of pipes carrying hot water.
Intermediary	In this context, an intermediary would be the individual who would pass on the cost of electricity or gas (or other types of energy) - and likewise the financial support received through the energy affordability schemes - to a household. For example, a landlord

	could be the intermediary between the renter and an energy supplier.
LCFS	Living Costs and Food Survey run by ONS collects information on spending patterns and the cost of living that reflect household budgets
NEED	National Energy Efficiency Data framework
Ofgem	Office of Gas and Electricity Markets. The energy regulator for Great Britain.
ONS	Office for National Statistics. The UK's largest independent producer of official statistics and the recognised national statistical institute of the UK.
Pre-payment meters (PPMs)	Prepayment meters are a type of domestic energy meter that requires users to pay in advance for the energy they use. A traditional prepayment meter is operated 'pay as you go' using a smartcard, token or key that can be topped up at a shop or via a smartphone app. A prepayment meters also required payment in advance but can be topped up online or via an app.
Scheme Administration	The person(s) responsible for the day-to-day management and deployment of the energy affordability schemes.
Theory of Change (ToC)	A Theory of Change (ToC) provides a simplified overview of the schemes' inputs (such as financial inputs, people or organisational inputs, infrastructure utilised), activities (activities that use inputs and result in outputs) and outputs (products of the programme activities), as well as the hypothesised outcomes (expected social, economic, environmental, etc. changes experienced by beneficiaries and other stakeholders) and impacts (systematic changes expected in the long-term).
UREGNI	Northern Ireland Authority for Utility Regulation
Value for Money	Value for Money (VfM) is defined as the optimal use of resources to achieve the best possible combination of economy, efficiency, and effectiveness in delivering public services and achieving policy objectives. A single metric cannot on its own explain the nuance of how the energy affordability schemes were delivered, the range of approaches of households in dealing with rising energy costs and the distribution of impacts. The 4Es framework (economy,

	efficiency, effectiveness, and equity) take account of wide sources of information from across the evaluation to give a more complete picture of value for money.
Welfare weighting	Welfare weighting is a value assigned to an individual's gain or loss in consumption that represents how much society values that gain or loss

1. Introduction

1.1. Overview of study

The Department for Energy Security and Net Zero (DESNZ) commissioned Ipsos, in association with London Economics, to undertake the impact and economic evaluation of the domestic Energy Affordability Support schemes implemented in the UK from autumn 2022.

This impact and economic evaluation applies a theory-based evaluation approach, assessing the causal links between the schemes and a set of outcomes related to energy and household energy behaviours, fuel poverty, health and wellbeing, energy supplier solvency, and the wider economy. This evaluation addresses these research outcomes by synthesising evidence collated from a broad range of sources. Sources included price elasticity modelling using a large administrative dataset of energy meter readings for Great Britain and a nationally representative survey of household spending for the UK (Living Costs and Food Survey), a Social Cost-Benefit Analysis, qualitative interviews with stakeholders and data from bespoke quantitative household surveys that were conducted by Ipsos as part of the initial interim evaluations of the energy affordability schemes.

This impact and economic evaluation is the third component of a comprehensive evaluation examining the domestic energy affordability schemes. Two separate interim evaluations were published in April 2025, one focusing on the schemes in Great Britain[7] and another on the schemes available in Northern Ireland.[8] These evaluations ran in parallel, each incorporating its own regional nuances and specific outcomes. They provided detailed process evaluations of the schemes and assessed immediate outcomes through contribution analysis, using quantitative household surveys and in-depth interviews commissioned specifically for the evaluations, as well as analysing a variety of secondary data sources.

The domestic energy affordability schemes are a unique policy intervention to evaluate for a number of reasons. First, they were designed at pace in response to a fast-moving emergency situation of rising energy prices. Second, the main schemes (EPG and EBSS) were designed to be near universal, due to the fact that means testing of support would have introduced additional delays, administrative costs, risk of error, and gaps in delivery. Third, risks around delays and delivery gaps were more challenging due to the potential impact of inaction on the health and wellbeing of the population, especially those at higher risk of fuel poverty and cold related morbidity and mortality. Fourth, due to the challenges of reaching all types of energy users – both those on and off the energy grid, and across the four UK nations – a range of different measures were required. The EPG scheme targeted energy prices, introducing a maximum unit price for energy, which is therefore framed as a ‘price effect’ in the energy demand modelling. Other interventions provided direct financial support into people’s energy accounts or via vouchers or direct bank transfer (e.g., the Energy Bills Support Scheme) which

[7] Domestic energy affordability support schemes in Great Britain: interim evaluation.
[8] Domestic energy affordability support schemes in Northern Ireland: interim evaluation

would be regarded as an ‘income effect’ in the modelling. These different forms of support typically trigger different consumer responses, and this needed to be accounted for in the energy demand modelling and economic evaluation.

The universal nature of the domestic energy affordability schemes (with almost all UK households being eligible) had implications for the evaluation approach adopted, since it was not possible to empirically define the no intervention scenario nor was it feasible to artificially construct a control group from statistical comparators. Instead, indicative evidence of a no intervention scenario has been derived from (a) modelling the price elasticities of demand for energy and non-energy goods and services, (b) an analysis of trends immediately prior to the introduction of the schemes, and/or (c) the statements of consumers, experts, advocacy organisations and key stakeholders about what they believe would have happened based on lived experiences and expertise. This evaluation also summarises the costs and benefits of the schemes, expressing them in a monetary value where possible, or using qualitative assessments where it is not.

1.2 Structure of this report

This report is structured as follows:

- Section 2. Overview of Energy Affordability Support Schemes
- Section 3. Evaluation approach and methodology
- Section 4. Impact evaluation findings
- Section 5. Economic evaluation

In addition, details of the methodologies used can be found in Annexes A and B.

2. Overview of Energy Affordability Support Schemes

2.1 Rationale for the domestic energy affordability support schemes

In 2022, households faced an unprecedented increase in prices across energy and non-energy expenditure, which placed increasing pressure on household budgets. The Government anticipated that the increase in prices could lead to households significantly reducing their heating and energy usage and result in an increase in household energy disconnections and energy debt. This could have had severe adverse effects on consumers health and wellbeing, increase the risk of supplier insolvency and have wider effects on the economy. The UK Government therefore launched the energy affordability support schemes to mitigate a source of pressure on household finances, to limit the subsequent consumption impacts on energy and non-energy, and the wider effects on the energy market and economy.

Wholesale energy markets experienced several significant shocks between 2021 to 2023. This included increases in demand following the economic recovery from the COVID-19 pandemic (including changes to working patterns and remote working), as well as rising geo-political tensions and supply-side shocks stemming from the Russian invasion of Ukraine. These factors meant that wholesale gas prices increased significantly in February 2022, nearly quadrupling from early 2021 to January 2022. Due to the way that energy is sourced and priced in Great Britain, the surge in gas prices contributed to a significant rise in the price of electricity.[9] Forecasts around the time that the schemes launched suggested the October 2022 default tariff cap was expected to be £200 higher than its previous forecasts and the January 2023 Default Tariff Cap was expected to be more than £650 higher.[10] These forecasts in combination with observed price volatility were important factors in the design of the EPG to insulate domestic consumers from these erratic price movements. The price of heating oil also increased rapidly between mid-September 2021 and mid-June 2022 by around 140%. Heating oil prices then fell, before increasing again in August and September 2023. The price of coal also increased between January 2022 and November 2023, though to a lesser extent than for mains gas and electricity. Prices of Liquefied Petroleum Gas (LPG) and wood pellets also increased between June 2021 and June 2024 by 58% and 40% respectively. As prices for alternative fuels are not regulated in the same way as mains gas and electricity prices, there was some variation in pricing day-to-day and between different local areas over the

[9] In 2021 / 2022 gas was the energy source for around a third of electricity generation and has a leading role in setting the price of energy. More information: Energy prices and their effect on households

[10] Price cap forecasts for January rise to over £4,200 as wholesale prices surge again and Ofgem revises cap methodology - Cornwall Insight

intervention period.[11] In Northern Ireland, the price of home heating oil was high through all of 2022, whilst gas peaked in Autumn 2022.[12]

Given this, households felt the effects of price changes differently depending upon the type of fuel they used for heating. They might also have felt the effects differently depending upon how they paid for their energy (i.e., whether by direct debit or cash/cheque; in response to actual or estimated bills; and/or through advanced purchase, or through the settling of a credit account for energy consumed).

> Census data from 2021 indicates regional differences within the UK in how households heat their homes.[13] Most households (74%) in England and Wales said mains gas was their only central heating source; 9% reported using two or more types of heating not including renewables; 9% used electric central heating; 3% used oil central heating and 1% said they had no central heating. Less than 1% reported other forms of central heating. Heat networks were used for central heating in 0.2 million households, accounting for 0.9% of households, predominantly located in London boroughs. By contrast, in Northern Ireland, use of mains gas is much less common.[14] around half (49.5%) of households said oil was their only central heating. This was followed by 31.6% using mains gas, 15.0% using two or more types of central heating, then 1.6% using electric only. Less than 1% reported other forms of central heating.[15]

GB and NI had different levels of baseline risk in relation to vulnerability to fuel poverty. For example, NI households already spent more on energy costs than other parts of the UK, both in absolute terms and as a proportion of household income.[16] Research conducted by the University of York estimated that over seven-in-ten (71.7%) of NI households (prior to any energy affordability support) would be spending over 10% of net income on fuel over 2022/2023 winter – the highest rate of any UK region.[17]

Several support measures were already available to vulnerable consumers, including the Warm Home Discount, Winter Fuel Payments, and Cold Weather Payments. These means-tested initiatives were, however, considered insufficient to counter the 2022 rise in costs, as they were narrowly targeted to specific household groups. Furthermore, these existing

[11] House of Commons Library (2024). CBP 9838 Research Briefing Households off the gas-grid and prices for alternative fuels.
[12] Home Energy Index | Consumer Council
[13] Guidance on this question on the census form was to say that "Central heating is a central system that generates heat for multiple rooms" and give examples of types of central heating within certain categories: • Electric (including storage heaters) • Wood (for example, logs, water wood or pellets) • Solid fuel (for example coal) • Renewable energy (for example, solar thermal or heat pumps).
[14] In Northern Ireland, the gas network is concentrated in Belfast and the surrounding 'ten towns' area, which includes Antrim, Armagh, Ballymena, Ballymoney, Banbridge, Coleraine, Craigavon (including Lurgan and Portadown), Limavady, Derry/Londonderry, Newry and more than 25 other towns and villages in the surrounding areas.
[15] A House Condition Survey which was last conducted in Northern Ireland in 2016 estimated a higher proportion of oil users. It estimated that 68% of households (with heating) used oil central heating, 24% use gas, and 8% use other forms of heating including solid fuel, electric, dual fuel or heat pumps.
[16] Expenditure - Office for National Statistics
[17] Bradshaw, J. R., & Keung, A. (2022). Fuel poverty: updated estimates for the UK. CPAG

schemes were not linked to energy prices, so did not automatically provide extra support to eligible customers as a result of substantial increases in price rises. Moreover, the size of the anticipated price rise also meant that a larger number of households at risk of experiencing energy burden would not have been eligible to access existing means-tested schemes.

2.2 Energy affordability schemes in detail

In response to the rising cost of energy in 2022, the UK Government introduced a cost-of-living assistance package to support domestic consumers with rising energy bills, referred to as energy affordability schemes collectively in this document. During autumn and winter 2022/23, a range of energy affordability schemes were introduced in Great Britain (GB) and, in the absence of a sitting Northern Ireland (NI) Executive and Assembly at the time of scheme design, in consultation with NI Ministers, it was confirmed in summer 2022 that the UK government would also deliver energy affordability schemes in NI to provide a comparable level of energy support to all households across the UK. The NI schemes were designed with adaptations to reflect the different functioning of the energy markets (more below). Overall, across the package of schemes, financial support was provided to nearly all households in the UK (cashable vouchers or cash into bank account). This support package was extremely high value, costing the taxpayer approximately £36.3 billion. Understanding the extent of their impact and value for money (VfM) is a priority for the Department, as well as of considerable interest to wider government, ministers, and senior officials.

The package of domestic schemes aimed to collectively meet the following primary objectives, although there were differences between individual schemes:

- Provide financial support to consumers (all schemes);
- Avoid increases in fuel poverty and reduce consumer self-disconnection/ under-consumption (all schemes);
- Reduce inflationary pressure (EPG only);
- Support economic growth (EBSS only);
- Support supplier market stability by limiting increases in consumer non-payment and debt (EPG only).

Tables 2.1 and 2.2 below provide a summary of the details of all the different schemes introduced in Great Britain and Northern Ireland.

Table 2.1 Descriptions of Energy Affordability Schemes in Great Britain

Scheme	Description (Summary)
Energy Bills Support Scheme (EBSS GB)	The first energy affordability scheme to be announced. It provided a £400 grant to GB households, distributed through their electricity supplier through six monthly payments of £66 or £67 from October 2022 to March 2023. The scheme officially ended on 1st July 2023 when the final prepayment meter (PPM) vouchers expired (more below). EBSS GB payments were accessible only to households with a domestic electricity meter point which held a household-specific account with the supplier. Landlords on domestic contracts had a responsibility to ensure that the discount was passed down to tenants,[18] who would have the right to legal redress. For consumers on traditional (non-smart) pre-payment meters, the support was provided via six vouchers, which then had to be credited to consumer accounts at the Post Office or PayPoint.
Energy Price Guarantee (EPG GB)	Established a maximum unit price – distinct from the existing Energy Price Cap – on the unit price of electricity and gas for all households with a domestic gas and/or electricity contract. This brought a typical household energy bill for dual fuel mains gas and electricity down to around £2,500 per year in Great Britain, from October 2022 until June 2023 and to around £3,000 per year from July 2023 to March 2024. The scheme (introduced in October 2022) was concluded in March 2024, however from July 2023 onwards the Ofgem price cap fell below the EPG meaning it was no longer active. The Government compensated suppliers for the difference between the Energy Price Cap and the EPG. In practice, energy suppliers applied the discounts to the households' bills before receiving the weekly payments from the scheme administrators (Elexon and Xoserve). The scheme administrators calculated the ongoing payment reconciliation amounts based on improving estimates of the number of eligible domestic customers and the energy they consumed for each supplier. DESNZ later made a final correction and approved all payments made to energy suppliers, based on the number of eligible domestic customers they supplied and the energy those customers had consumed during the scheme. This was reconciled 14 months after the consumption took place, according to the mains gas and electricity settlement system. The implication for suppliers is that the initial payments were based on estimates, and the final, corrected payments were made later, after the actual consumption data was available.

[18] This was required in instances where the landlord was responsible for payment of the energy bills.

Scheme	Description (Summary)
Energy Bills Support Scheme Alternative Funding (EBSS AF)	Designed to ensure that households without a direct relationship with an energy supplier, and hence unable to receive the EBSS GB funding, could access equivalent support. It involved a one-time payment of £400 and targeted an estimated population of 900,000 eligible households, which included some care home residents, park homes, houseboats, off grid households and other non-standard energy consumers. The scheme was introduced in February 2023 and concluded in May 2023. The scheme was application-based, with household applications processed through local authorities. DESNZ also appointed Arvato to operate a contact centre for applicants that required more support.
EBSS AF for Continuous Cruisers (EBSS AF CC)	Following delivery of the EBSS AF scheme, a further small scheme, was launched in September 2023 and concluded in December 2023. The scheme was targeted at the 7,600 people who live on the waterways that are managed by the Canal & Rivers Trust (CRT) and hold a 'continuous cruisers' licence, as they were not able to apply in practice to EBSS AF funding due to not having a permanent address. The scheme did not require an application and was provided automatically to anyone that held a continuous cruisers' licence during the EBSS AF intervention period. This was delivered by DESNZ as a one-off £600 voucher (this was £600 rather than £400 because it included a £200 alternative fuel payment, as typically boat dwellers use alternative fuels), redeemable via online bank transfer, or by visiting a local store that had a PayPoint terminal.
Alternative Fuel Payment (AFP)	This scheme was made available for the approximately 2 million off-gas grid households in Great Britain who rely on alternative fuels such as heating oil or liquid petroleum gas for their heating needs. This was to account for the rise in the price of alternative fuels that occurred during the energy crisis.[19] This scheme ran between February 2023 and May 2023 (in some cases households received vouchers, which expired at the end of June 2023). Eligible households under the AFP received a one-time payment via their electricity supplier of £200 during the winter season, for the increasing expenses associated with alternative fuel sources. This was in addition to the £400 EBSS GB grant.
Alternative Fuel Payment	Provided the same support (a one-off £200 payment) for households that did not automatically receive the AFP payment. These households typically included alternative fuel users without their own electricity supply, or those

[19] Monthly and annual prices of road fuels and petroleum products - GOV.UK

Scheme	Description (Summary)
Alternative Funding (AFP AF)	without a direct relationship with the electricity supplier, such as those living in caravans, houseboats (with a fixed mooring) or park homes. The scheme was introduced in March 2023 and closed in July 2023, with final payments made through local authorities in September 2023. The design of the AFP AF scheme largely followed the EBSS AF, with the scheme being application-based and delivered through local authorities, with an additional contact centre available.

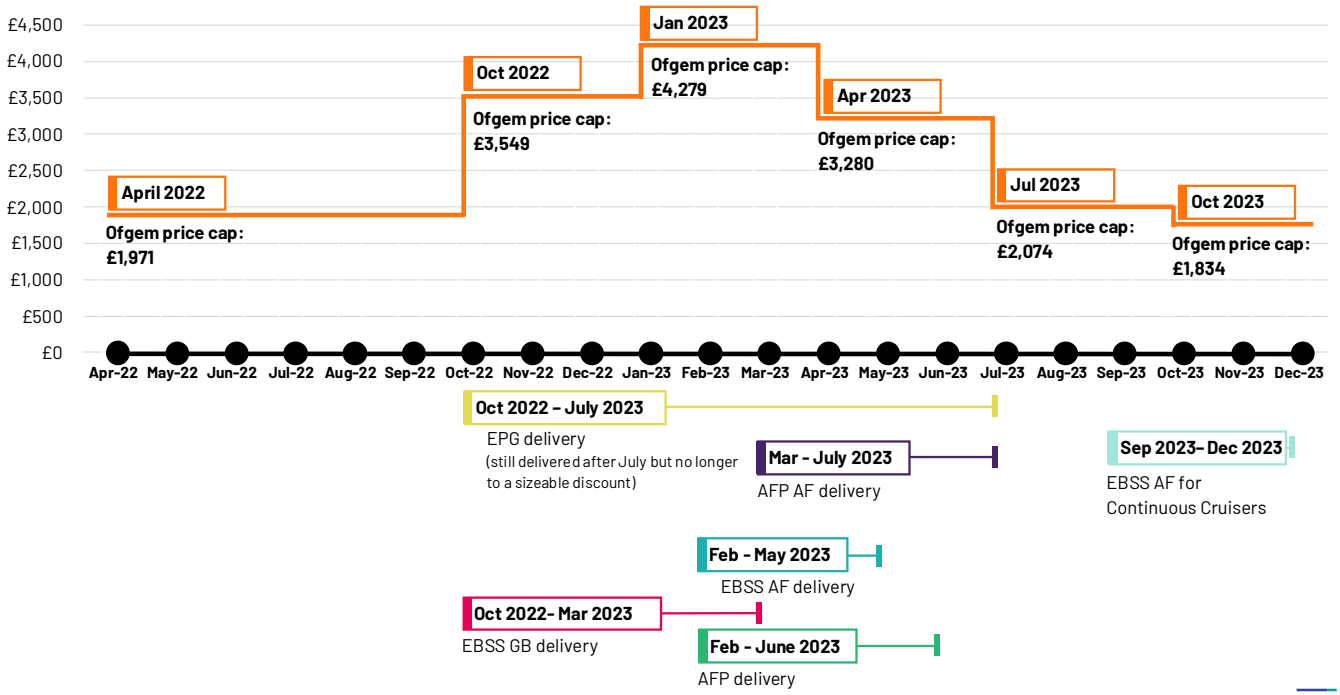
Table 2.2 Descriptions of Energy Affordability Schemes in Northern Ireland

Scheme	Description (Summary)
Energy Bills Support Scheme (EBSS NI) and Alternative Fuel Payment (AFP NI)	Unlike in GB, the EBSS and the AFP were administered together in NI. The first provided a one-off £400 to every household with an electricity meter from January 2023. In addition, every household was also entitled to receive a £200 Alternative Fuel Payment. In NI, this lump sum payment of £600 was paid to all households regardless of their home heating system because most households in NI use oil to heat their homes and the data required to exclude households with mains gas or electric heating from receiving the AFP were not readily available. For households which paid their energy bill by direct debit, the payment was deposited automatically between 16 January and 28 February 2023 into the bank account which held the direct debit. For households with a direct relationship with their energy supplier which did not pay their energy supplier via direct debit,[20] the payment was paid to households through a voucher delivered between 16 January and 28 February 2023 which could be redeemed at the Post Office for £600. Credit customers, who pay for energy in arrears following billing, and customers with PPMs were sent vouchers that could be redeemed at the Post Office, until 30 June 2023.
The Energy Bills Support Scheme Alternative Funding (EBSS AF NI)	This scheme was addressed to households who were ineligible for EBSS AFP because they did not have a direct relationship with a domestic electricity supplier (i.e., residents of park homes, care homes, caravans, houseboats, and other households off the electricity grid). The support intervention involved a one-time payment of £600, which they had to apply for between 27 February and 31 May 2023.
Energy Price Guarantee (EPG NI)	The Energy Price Guarantee (EPG) scheme was introduced in NI in November 2022. The scheme applied a discount to the unit rate of electricity and gas tariffs, which means energy bills would be lower than they otherwise would have been. The scheme set a maximum unit price for consumers on metered electricity and gas supply. The scheme concluded in March 2024, but from July 2023 onwards the cost of electricity and gas in NI fell below the EPG meaning it was no longer applied. Northern Ireland Energy Networks (NIEN) supplied metering data for NI electricity suppliers, and NI gas supplies provided their own metering data to DESNZ for the administration of the EPG, and DESNZ paid suppliers directly for the difference between what they charged and what the unit cost would have been.

[20] If, for example, households paid for electricity through a top up card, app or pre-payment meter (PPM) or pay by cash or cheque on receipt of energy bill.

Figure 2.1 below, illustrates the timeline for the introduction of all energy affordability schemes deployed in GB.

Figure 2.1 Timeline of the introduction of Energy Affordability schemes in Great Britain



Note that NI timelines differed:

- EPG first delivered payments in November 2022 and core delivery ran until the end of March 2023.
- EBBS AFP first delivered payments in January 2023 and core delivery ran until the end of March 2023[21].
- The EBSS AF scheme opened for applications in February 2023 and concluded in June 2023.[22]

Total expenditure across the portfolio was approximately £36.3 billion, as of August 2025.

Table 2.3 below provides details of each scheme's delivery, according to monitoring data and additional secondary sources. This includes the amounts disbursed under the schemes.

[21] Vouchers could still be redeemed until 30th June 2023.
[22] EPG did not 'end' until 31 March 2024. However, wholesale energy prices fell so the discount was no longer applied.

Table 2.3 Support delivered through domestic energy affordability schemes in GB and NI

Scheme	Expenditure (£ million)[23]	Number of households reached or payments made	Scheme start date	Scheme end date
GB				
EPG	23,646	~29,300,000[24]	1 October 2022	31 March 2024[25]
EBSS GB	11,364	28,804,096	1 October 2022	31 March 2023
EBSS AF	58	145,190	27 February 2023	31 May 2023
AFP	369	1,860,830	January 2023	30 June 2023
AFP AF	18	89,750	6 March 2023	31 July 2023[26]
EBSS AF CC	4	6,408	1 September 2023	31 December 2023
NI				
EPG	301	~802,200[27]	1 November 2022	31 March 2024[25]
EBSS AFP	492	819,470	16 January 2023	30 June 2023
EBSS AF	3	5,340	27 February 2023	31 May 2023
Total	36,255	-	-	-

[23] This is based on DESNZ final publication of reconciliation of the payments under the EPG schemes in August 2025 and for other schemes as at August 2024. Source: Domestic energy affordability grant schemes: statistics
[24] This is based on the number of domestic electricity meters in Great Britain. See Smart Meter Statistics in Great Britain: Quarterly Report to end December 2022 GOV.UK
[25] On 1st July 2023 the Energy Price Cap fell below the EPG meaning the EPG support no longer applied although the scheme continued until 31 March 2024.
[26] Closed to new applications 31st May 2023.
[27] This is based on the number of domestic electricity meters in NI in 2022. This will be an overstatement of the number of households given that it includes vacant properties and dwellings can include multiple meters. See Sub-national electricity consumption statistics in Northern Ireland - GOV.UK.

3. Evaluation approach and methodology

This chapter sets out an overview of the evaluation aims and the methodology used to address these. It additionally sets out how this evaluation links with the previous interim evaluations. A more detailed explanation of the methodology can be found in Annexes A and B.

3.1. Overview of the methodology used

This evaluation combined theory-based and modelling approaches to assess the impacts of the energy affordability schemes. It draws on evidence from the surveys and analysis in the published interim evaluations.

This impact and economic evaluation also includes new analysis to understand the impacts and value for money of the schemes. The research and analysis carried out for this impact and economic evaluation comprised:

- Estimation of how the energy affordability schemes affected energy and non-energy consumption during the intervention period using econometric demand models;
- Estimation of the impact and benefits of the schemes on health and wellbeing outcomes using HIDEEM;
- Development of the theory of change (ToC) for the package of schemes at the UK-level (building on the ToCs in the interim evaluations);
- Further application of contribution analysis to assess the evidence on the impacts of the schemes and the assessment of the strength of evidence against a framework of evidence;
- A value for money assessment which used a 4Es framework alongside a social cost and benefit analysis (SCBA);
- A literature review on the health and wellbeing impacts from household underheating, which supported the quantification of health benefits;
- Additional qualitative interviews with energy suppliers and other stakeholders involved in developing and delivering the energy affordability schemes. This aimed to collect evidence on the effectiveness of delivery (in addition to that collected in the interim evaluations) as well as an assessment of the costs to suppliers for delivering relevant schemes. Further detail on this research strand is included in Annex A4.

3.2. Evaluation aims

The aims of the impact evaluation were to:

- Apply and build upon the theory-based approaches used in the interim evaluations to understand the schemes' contributions to outcomes related to energy and household energy behaviours, fuel poverty, health and wellbeing, household spending, energy debt and the wider economy, and to energy supplier solvency, as well as to understand how (i.e., through what causal pathways) the schemes may or may not have contributed to observed results.
- Develop quantitative assessments of the schemes' impacts and determine whether and to what extent impact differs for different population groups where feasible, while also summarising findings at the level of the individual schemes where possible.

The aims of the economic evaluation were to:

- Analyse the relevant costs and benefits of the schemes (including the social and Exchequer costs and benefits of the schemes), compared to a 'no intervention' counterfactual scenario.
- Provide an assessment of the extent to which the individual schemes have delivered value for money.

Annex A1 sets out the evaluation questions addressed through this project.

3.3. Impact and economic evaluation methods

3.3.1. Application of Contribution Analysis

The impact evaluation synthesises the findings from several analytical strands including household expenditure and energy consumption modelling, the University College London (UCL) Health Impact of Domestic Energy Efficiency Model (HIDEEM) health model, and the published findings from the interim evaluations. The synthesis of these different sources has enabled the impact evaluation to draw rich and robust conclusions on the outcomes and impacts of the schemes.

Following review of the existing theory, largely drawn from the findings and evidence presented in the GB and NI interim evaluations, for each contribution claim, the impact evaluation synthesis involved:

1. **A definition of the contribution claim being tested**, where relevant refined based upon the conclusions and findings of the interim evaluations.[28]
2. **A definition and description of the change observed** in the outcome covered within the contribution claim (e.g., heating to safe/comfortable levels, energy debt levels, supplier solvency). Evidence of this change came from a synthesis of the findings from all relevant analysis strands and data sources.

[28] Domestic energy affordability support schemes in Great Britain: interim evaluation

3. **Analysis of the schemes' contribution to the observed change**. This evidence comprised: (1) evidence from modelling demonstrating relationships between household behaviours and schemes' support as 'inputs'; (2) trend data to evidence where the timing of the schemes aligned with changes in the outcome; (3) evidence from household surveys and qualitative depth interviews conducted and analysed for the published interim reports; and (4) evidence from these same sources which indicated that the scheme support catalysed certain behaviours likely to contribute to the outcome (assessment of mechanisms, or causality).

4. **Assessment of the scale and nature of the contribution**, i.e. whether the evidence of contribution differed for different groups of people – i.e., whether it worked better for some people than others and what other factors might have also contributed to the observed outcome. This information is used to draw conclusions on the sufficiency and necessity of the schemes across different groups.

5. **Appraisal of the strength / robustness of the evidence base and associated conclusions:** Analysis and conclusions assessed through a series of tests of the plausibility and probability of contribution, given the evidence base.

6. **Definition of the resultant contribution story:** In this evaluation, the resultant contribution story for each claim provides information on: the extent to which the intended change occurred, whether the intervention contributed to this change, through what mechanisms the intervention likely contributed, whether the scale of outcome and/or contribution was different for different groups, and the strength of evidence supporting the contribution. For each contribution claim this is included in the summary and conclusions at the end of each section in Chapter 4.

Section 3.3 summarises the development of the theory of change which sat behind the Contribution Analysis. Annex A2 describes the framework for the impact evaluation in further detail.

3.3.2. Modelling of Energy Consumption

To assess the impacts of the schemes, economic models were used to estimate how the energy affordability schemes affected energy and non-energy consumption during the intervention period, to produce a counterfactual analysis of outcomes if the schemes had not been in place. This was achieved by estimating price and income elasticities of demand using econometric demand models[29]. Elasticity is the percentage change in quantity given a percentage change in price or income.

Two types of demand system models were used, namely, the linear expenditure system (LES) and QUAIDS (Quadratic Almost Ideal Demand System). These models estimated how households change consumption behaviour given changes in other economic variables, such as energy prices, income, and whether this was related to household demographic

[29] Eales, James S., and Unnevehr, Laurian J. (1994) "The inverse almost ideal demand system." European Economic Review 38.1: 101-115.

characteristics, or house-unit characteristics, such as size or energy efficiency rating (EPC). The models were estimated using two main datasets:

- **Combined Audit and NEED**: a large administrative dataset of meter-level energy consumption readings, collected during the audit of EPG and combined with data from the National Energy Efficiency Data-Framework (NEED)[30] on demographic and house-unit characteristics (for mains gas and electricity-heating homes in GB) and
- **ONS LCFS microdata** from the Living Costs and Food Survey, which filled the gap for oil-heating households in the UK, and provided assurance that the GB results for gas and electricity were representative of the UK.

The energy demand modelling was used to estimate the difference between what household energy consumption and spend would have been in the absence of the energy affordability schemes. This enabled a comparison of the actual (with the energy affordability schemes) consumption levels versus the counterfactual 'no intervention' scenarios (without the energy affordability schemes) to estimate the scheme impacts.

Key to the modelling was the conceptual categorisation of the two largest schemes into either being received as a price effect or as an income effect. In the modelling, EBSS GB was treated as an income effect, representing households being £400 better off over six months. In contrast, the EPG was modelled as a price effect, reflecting a reduction in the per-unit cost of energy. EBSS was modelled as an income effect, based on the principle that income is fungible: regardless of the payment mechanism, households effectively had £400 more to spend over the six months in winter 2022/23, which could be allocated to energy or other goods and services. See Annex B7 for a discussion of the theory behind this decision.

The counterfactual scenarios applied throughout the impact and economic evaluation, representing what would have happened if the schemes had not been implemented. In this counterfactual, energy prices would have risen at market rates, and households would have received no price or income support to help them respond to high energy prices. Without the support, more households would have faced fuel poverty, reduced consumption to a greater extent, and been at greater risk of financial distress or unsafe heating behaviours.

For a full discussion of all modelling methods see Annex B.

3.3.3. Analysis of non-energy expenditure, borrowing and debt

For non-energy expenditure, microdata from the LCFS was used to observe actual spend at the UK-level by gas, electricity, and oil-heating households, and this was compared to the counterfactual model, based on the calculated income and price elasticities. Descriptive analysis of household debt and borrowing was undertaken on the Financial Lives Survey and ONS Family Resources Survey. See Annexes B2 and B5 for further details.

[30] DESNZ National Energy Efficiency Data-Framework (NEED).

3.3.4. Modelling of health outcomes

The evaluation used the University College London (UCL) Health Impact of Domestic Energy Efficiency Model (HIDEEM) to measure the health outcomes from the schemes. This model estimates changes in indoor conditions due to energy efficiency or expenditure changes and translates these into health impacts based on the probability of death for each age and modelled changes in disease prevalence and mortality using Quality Adjusted Life Years (QALYs).[31] A QALY is a measure of the value of a year of life, adjusted for quality of life; one QALY is equal to one year of life in perfect health.

The calculations of outcomes through the HIDEEM model also enabled the separate estimation of savings to the NHS associated with the changes in physical and mental health outcomes. These are discussed in Chapter 5 on value for money.

Further detail on the health modelling is included in Annex B4.

3.3.5. Evidence from the interim evaluations

The interim evaluations for GB and NI included surveys and qualitative evidence on which this evaluation has drawn. Both evaluations included two waves of nationally representative surveys, with over 9,000 respondents in the GB and NI wave 1 surveys. In the GB evaluation, questions were included on two waves of Ipsos' KnowledgePanel survey, a nationally representative, random probability online panel survey. Both evaluations also included additional alternative schemes surveys, with over 10,500 respondents in the GB and NI wave 1 surveys**.** These additional surveys were needed to boost responses due the lower incidence of the AFP, and AFP AF populations in the GB general population and for EBSS AF in the UK population. In GB a separate non-representative survey was conducted among successful applicants to EBSS AF and AFP AF, and those eligible for AFP (based on their postcode). For the evaluation of schemes in NI, the survey designs were similar to those in GB, with two waves of a push-to-web survey of the general population and of a supplementary survey of EBSS AF households.

Additionally, the interim evaluations included qualitative research with households and stakeholders, referred to within this evaluation.

3.3.6. Economic Evaluation methodology

The economic evaluation included a Social Cost Benefit Analysis (SCBA) conducted alongside a wider value for money assessment using the 4Es framework (economy, efficiency, effectiveness and equity).

[31] Hamilton, Ian, et al. (2015). Health effects of home energy efficiency interventions in England: a modelling study. BMJ open 5.4: e007298.

A CBA assigns monetary values to both the costs and benefits of an intervention, allowing for the evaluation of the net benefit of the intervention in monetary terms, relative to a counterfactual, in this case the counterfactual discussed in Section 3.2.2.

To provide a comprehensive assessment of the value for money of the schemes**,** two distinct approaches to the CBA were applied:

- **The social value approach:** This method considers the schemes' value to society; hence it accounts for the programme's overall effect of public welfare.
- **The Exchequer value approach**: This approach reflects only the direct effects of the schemes on public finances.

This value for money assessment also uses the dimensions from the 4Es framework,[32] as a lens through which to explore the wider aspects of the schemes' performance. Evidence from the process and impact evaluations are considered across four key dimensions:

- **Economy**: Explores whether scheme objectives were achieved at minimum cost, considering delivery models, deadweight, and alternative support scenarios.
- **Efficiency**: Concerns how well inputs (e.g. funding, resources) were converted into outputs, including delivery timelines, cost control, and ease of access for households.
- **Effectiveness**: Considers whether the schemes met their intended goals, using outcome and impact evaluations to assess behavioural changes and overall success.
- **Equity**: Examines how different social groups were affected, using geo-demographic and income data to understand distributional impacts and assess disparities.

This combined approach enables a more nuanced understanding of scheme performance and supports future improvements in cost-effectiveness.

3.3.7. Additional secondary analysis and data collection

This evaluation has also included secondary analysis of the following datasets beyond those used for the modelling mentioned above of energy or non-energy consumption and health outcomes.

Impact and Economic Evaluation Primary Data collection

A small series of qualitative interviews were conducted to gather data on costs associated with administering the schemes. These interviews were with:

- Energy UK (2)
- UK energy Suppliers (4).

Secondary Data analysis sources

[32] King, Julian and OPM VfM Working Group (2018) OPM's approach to assessing Value for Money. Oxford Policy Management.

In addition, the impact evaluation drew on analysis of a range of national data sources from ONS, Bank of England, the Financial Conduct Authority and Ofgem.

3.4. Theory of Change

3.4.1. Theory of Change development

This section summarises the development of the overarching theory related to the key outcomes covered in this impact and economic evaluation. For the GB and NI interim evaluations of the domestic energy affordability schemes, separate scheme-level theories of change (ToCs) were developed. For this UK-level impact evaluation, the GB and NI ToC diagrams have been merged into an overarching programme-level diagram. This diagram is presented in this section and an accompanying narrative is presented in Annex A2.

For this impact evaluation, the ToCs for NI and GB interim evaluations have been reviewed and simplified to focus on the six main causal pathways (contribution claims) within scope of this evaluation. The six contribution claims are shown in Table 3.1.

Whilst the overarching energy affordability schemes were intended to be universal in their application – i.e., to ensure that all households received the same or similar levels of support; it was anticipated in this evaluation that different demographic groups (by income level, age, housing type) might experience a lesser or greater benefit from the schemes. The evaluation has therefore investigated the differentiated effects of the schemes on different demographic groups. Such analysis follows on from the GB and NI interim evaluations.[33]

The overarching Theory of Change (ToC) for NI and GB is illustrated in Annex A2 Figure 2.2 in and the key components of the overarching ToC for GB and NI are illustrated in Figure 3.1, below.

Table 3.1 Contribution claims assessed within this evaluation

Theme	Contribution claim
Consumption	The schemes contribute to the ability of households to maintain energy consumption at a safe and comfortable level (compared to a no intervention scenario), while limiting the use of other harmful mitigation strategies
Fuel Poverty	The schemes contribute towards limiting the increase in the proportion of households experiencing fuel poverty (compared to a no intervention scenario).

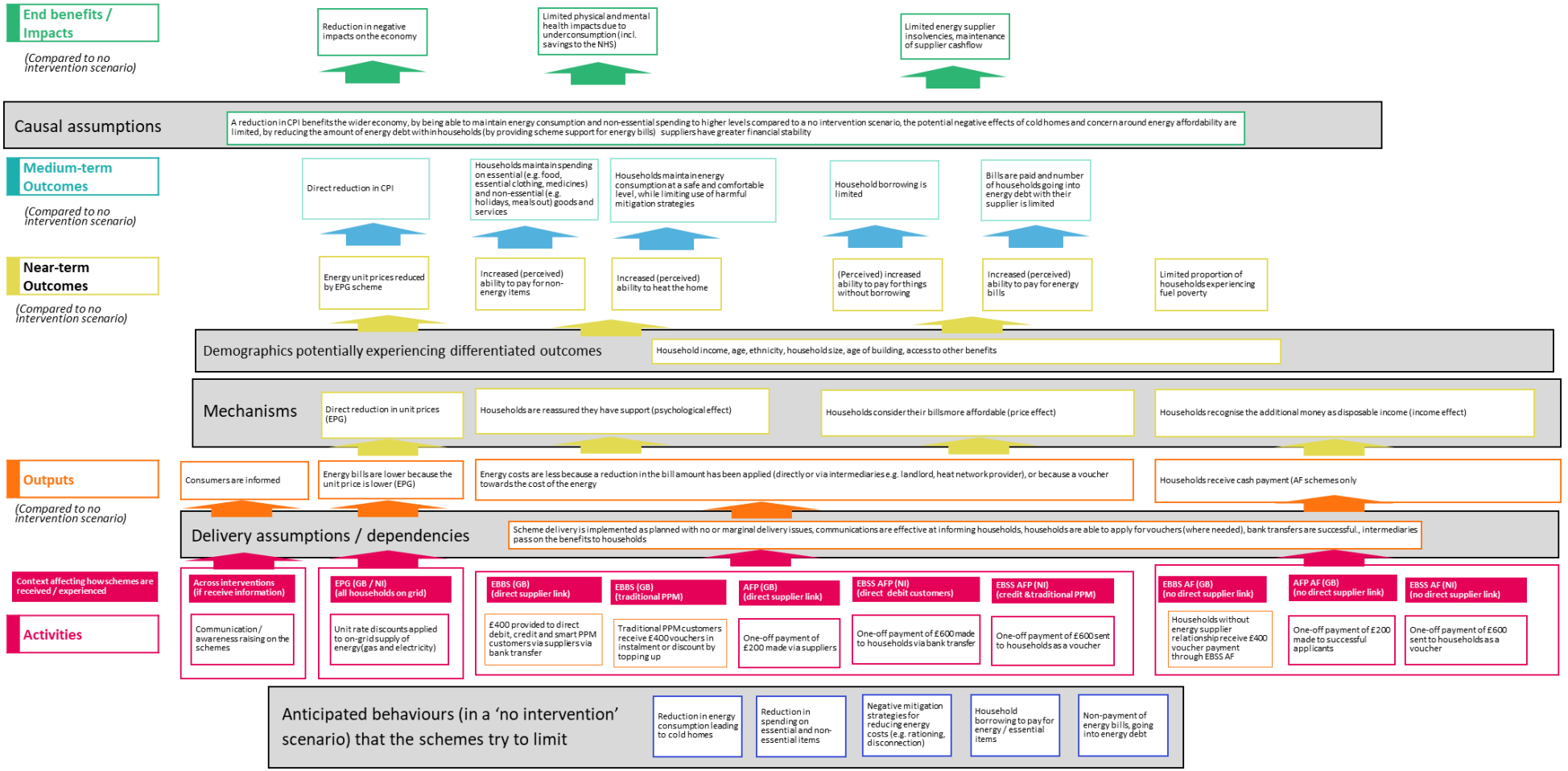
[33] The published GB and NI interim evaluation reports include discussion of how the schemes were experienced by and benefitted different demographic groups.

Household finance and economy	The schemes limit increases in household borrowing, cuts in essential spending (e.g. food, essential clothing, medicines), and cuts in non-essential spending (e.g., holidays or meals out) and savings. Related to this contribution claim is a secondary claim on the macroeconomic impacts of the schemes: The contribution of the schemes to reducing energy prices and providing financial support to households leads to macroeconomic impacts, both on inflation and on GDP growth.
Health	The schemes limit negative mental and physical health impacts arising from increases in energy bill costs (including limiting instances of cold-related illnesses that can arise from under-heating).
Energy debt	The schemes contribute to limiting the number of households that would not be able to pay their energy bills and who go into energy debt with their supplier
Supplier impacts	The schemes help limit the risk of energy supplier insolvency and maintain the financial health of suppliers over the intervention period primarily by limiting energy debt and improving cashflow.

3.4.2. Overarching Theory of Change

The theory of change developed for the impact evaluation is set out in Figure 3.1 below. This reflects the causal hypotheses (contribution claims) that have been assessed through the contribution analysis. The ToC also explicitly sets out the anticipated ‘no intervention scenario’ and the behaviours which the schemes aimed to limit.

Figure 3.1 Overarching Theory of Change for the schemes



3.5. Methodological limitations

3.5.1. Overall Approach

The universal nature of the domestic energy affordability schemes (with all UK households being eligible) meant that it was not possible to empirically define or construct a control group from statistical comparators. Instead, a counterfactual for a 'no intervention' scenario was derived from (a) modelling the price elasticities of demand for energy and non-energy goods and services, (b) an analysis of trends immediately prior to the introduction of the schemes, and/or (c) the statements of consumers, experts and key stakeholders about what they believe would have happened based on lived experiences and expertise. This evidence was combined using a Theory Based Evaluation method known as Contribution Analysis.

3.5.2. Price and Income Elasticity Modelling limitations

The following are limitations of the elasticity modelling:

- **Elasticity estimates reflect marginal changes**: Price elasticity of demand captures sensitivity to small price changes, and may not reliably predict responses to large price shifts, such as those experienced in the energy price crisis.
- **Non-linear demand behaviour**: The modelling uses log-log functional forms to account for curvature in the price–quantity relationship, but this may still overestimate consumption changes at high price levels.

In order to mitigate these limitations sensitivity analysis was conducted. This is described in more detail in the modelling Annex B.

3.5.3. Data Limitations

The primary data used for the modelling was the Combined Audit and NEED dataset as described in Section 3.3. The EPG Audit data within this has several key gaps: it does not include NI households or households that heat with alternative fuels (i.e. fuels other than mains gas or electricity), including oil.[34]

The gaps in the Audit data are partly filled through the Living Costs and Food Survey (LCFS). However, this too had limitations: LCFS only tells us how much households spent on energy (rather than how much they consumed) and some sample sizes were low for a small subset of the population. This includes:

[34] Audit data was available for the majority of UK energy suppliers, with the exception of one of the largest suppliers and some smaller suppliers. See Section 1.2 in Annex B for a full discussion of sample representativeness.

- Households using alternative fuels other than oil as their main heating source. Therefore, results are extrapolated from the oil analysis, which may lead to inaccuracies and potentially overestimates of benefits to these households.
- Sample sizes of NI households in the LCFS dataset are too low for electricity and oil-heated households to explore differences in spending on energy and non-energy goods and services.

3.5.4. Contribution analysis limitations

Underheating behaviour cannot be directly inferred from energy consumption data, and this evaluation did not have access to household indoor temperature records, since that requires physical surveys of temperature levels within buildings. As a result, it is not possible to determine with certainty whether households would have underheated more or less in the absence of the schemes. This creates a gap in the causal chain between the evidence that households would have consumed less energy without the schemes, and the conclusion that the schemes successfully avoided underheating relative to the counterfactual. Nonetheless, it is reasonable to assume a strong conceptual link between the consumption of a household's primary heating fuel and the likelihood of avoided underheating.

The absence of indoor temperature data also makes it challenging to interpret energy consumption behaviour across income levels and **challenging to make conclusions about policy deadweight**. Deadweight can arise when a policy disproportionately benefits groups that would have achieved the intended outcomes without intervention. In this case, higher income households may have maintained comfortable heating levels regardless of support, suggesting that the schemes may have subsidised consumption that would have occurred anyway. However, without indoor temperature data, it is not possible to confirm whether these households were heating beyond what was strictly necessary, or simply maintaining adequate comfort. This limits the ability to assess whether the support may have constituted deadweight or was justified in ensuring equitable outcomes. Further consideration of policy deadweight must be discussed in light of other value for money dimensions like equity and efficiency of delivery, which are discussed in more detail in Section 5.4.

3.5.5. Limitations to the Impact and Economic Analysis

Potential double counting between impacts. There may be some double counting between the consumer surplus from energy price and income support and the health impacts. However, the consumer surplus around energy prices only captures part of the wider health and wellbeing effects of the energy affordability schemes. Therefore, although some double counting may exist between the consumer surplus of energy support and the health and wellbeing impacts of avoided underconsumption and fuel poverty, it is not possible to quantify the degree of this double counting, and it is assumed that the health and wellbeing impacts are in excess of the consumer surplus from more affordable energy.

Potential double counting between the domestic and non-domestic schemes. The assessment of double counting risk between the domestic and non-domestic schemes is

considered to be low. Firstly, the two evaluations cover different types of benefits. Secondly, the modelling in this evaluation mainly uses energy meters, for which the vast majority are in different locations to organisations. Thirdly, the non-domestic evaluation mainly assesses benefits using input-output modelling, which measured impacts at a whole economy level.

Potential over-estimation of impacts and economic benefits for some alternative fuel households. The impacts and economic benefits estimated in this evaluation may over-estimate the total effects of the schemes. They are based on predictive models, which are most reliable when predicting consumption for households who receive their energy via mains gas and electricity. To account for the effect of schemes on households that use alternative fuels, the modelling was cross-validated using ONS data from the LCFS. This covered oil-heated homes in GB and NI. Separate models of other alternative fuels were checked but could not be included in the analysis due to small sample sizes. The consumption levels and impact for homes that use fuels other than oil are extrapolated from the oil analysis. For aggregation, results for oil are aggregated to the total number of oil households in the UK based on national census data, and the oil results are used for other forms of heating, which is also captured in the national census data. This ensures that the aggregated results gross up the overall impact estimates and include the very small numbers who heat with an alternative fuel other than oil. Nonetheless such estimation may lead to inaccuracies and potentially overestimates the benefits to these households.

Limited assessment of the macroeconomic impacts of the schemes. This evaluation was not able to conduct a quantitative analysis of inflation or growth effects from the schemes. This would have required the development of a fully detailed macroeconomic model which was not possible within scope or timescales of this project. It was also agreed with DESNZ at the scoping stage that quantification of growth effects would be subject to significant levels of uncertainty at the macro level, leading to likely spurious results. Therefore, a more limited qualitative contextual analysis was included for the contribution claim in Section 4.3 and this was nested within the broader contribution claim on non-energy spending.

Lack of supplier administrative cost data. The evaluations intended to obtain data on the costs incurred by energy suppliers to administer the schemes. However, this evaluation was not able to obtain sufficiently detailed estimates of these administrative costs from enough suppliers to include in the CBA. During interviews and collection of cost data, low response rates and incomplete returns from suppliers affected the quality of the data received. However, from the limited evidence obtained, supplier administrative costs are expected to be insignificant compared to the overall CBA. See discussion of limitations in Annex A1 and further information on the evidence gained from suppliers in Annex A4.

4. Impact evaluation findings

This section presents the findings of the impact evaluation. It assesses the schemes' influence on intended outcomes. It presents the evidence on six main hypotheses ('contribution claims') about how the schemes contribute to key outcomes. These hypotheses were derived from the ToCs and refined based upon the conclusions and findings of the interim evaluations. Each section ends with a summary of the conclusions on these contribution claims, including the resultant contribution story and the overarching assessment of the strength of evidence. Further detail on the appraisal of these contribution claims is provided in Annex A2.

As set out in the Chapter 3, the evidence presented here was produced by the evaluation team based on a range of evidence sources. The evaluation team synthesised the evidence from the GB and NI interim evaluation reports and conducted econometric modelling of energy consumption using administrative data provided by DESNZ; analysis of energy and non-energy expenditure using the data from the Living Cost and Food Survey; modelling of the health outcomes of the schemes; and secondary analysis of other datasets including on household borrowing and debt, and energy suppliers' financial health.

4.1. Household energy consumption

4.1.1. The contribution claim being tested

This section presents evidence associated with the following contribution claim:

The schemes contribute to the ability of households to maintain energy consumption at a safe and comfortable level (compared to a no intervention scenario), while limiting the use of other harmful mitigation strategies.

4.1.2. Household energy consumption and home-heating over the intervention period

Over the intervention period (winter 2022/23), domestic electricity and gas consumption decreased compared to the previous winter. Winter 2022 saw the lowest Q4 electricity consumption point on record and mains gas showed similarly dramatic declines (see Annex B Figure 1.9).[35] This decrease was likely, at least in part, a response to energy price rises. [36]

The change in households energy use is supported by survey evidence from the interim evaluations[37]: of respondents to the nationally representative surveys, around two-thirds in GB (64%) and NI (65%) reported that they 'reduced the amount of energy used at home'. in

[35] DESNZ, 2023. Energy Trends March 2023
[36] Energy consumption trends in the UK, as reported by DESNZ in Energy Trends September 2025, are influenced by a combination of factors including energy efficiency improvements, weather patterns, economic activity, and energy prices.
[37] For questionnaire wording, see GB Sample research materials for GB and NI Questionnaires for NI.

response to the increases in energy bills. Households also reported that they adopted coping mechanisms such as wearing extra clothes (65% in GB, 68% in NI), and in some cases potentially harmful strategies such as using their heating less (65% in GB, 71% in NI), or turning the temperature on their heating down (60% in GB, 52% in NI).[38]

Survey data also indicates that many households limited their heating due to affordability concerns during winter 2022/2023. Specifically, 29% of households in GB (and 34% in NI)[39] reported that they avoided heating most of the time because of affordability, and two per cent (one per cent in NI) reported that they could not afford to heat their homes at all. A further 40% (42% in NI) reported that they avoided heating some of the time. Only 26% (20% in NI) reported in the surveys that they had been able to heat their home to a comfortable temperature all of the time or whenever it was cold. Without comparable survey data from before the energy crisis, it is not possible to determine whether these figures represent a change in behaviour or a continuation of existing patterns of underheating for individual households.

Modelling conducted for this impact evaluation, used price and income elasticities (the percentage change in consumption given a percentage change in price or income) to estimate how much energy households would have consumed if the schemes had not been implemented (see Annex B1 for full details of the method). This analysis suggests that in a no intervention, counterfactual scenario, there would have been an even greater reduction in energy consumption and in the level of home-heating, which would have carried a greater likelihood of households heating their homes to potentially unsafe or uncomfortable levels**.** This is discussed further in Section 4.1.3 below.

4.1.3. Evidence of the contribution of the schemes to maintaining energy consumption

While the evidence described above suggests that concern around energy prices may have resulted in reduced household energy consumption and corresponding reductions in home heating during the intervention period, it is likely that these impacts would have been more severe without the support provided by energy affordability schemes—particularly for lower-income households. Supporting evidence from price and income elasticity modelling, as well as interim survey data, is presented below.

Analysis was conducted on price-to-consumption and income-to-consumption elasticities[40] to model what weekly energy consumption would have been in the absence of the schemes (no intervention scenario). This modelling provides an estimate of the contribution of the schemes to actual energy consumption. For gas and electricity, the energy consumption data used for this

[38] Similar trends were observed across households which were eligible for the alternative schemes in GB (EBSS AF, AFP AF, and AFP) see the interim evaluation data tables.
[39] For questionnaire wording, see GB Sample research materials for GB and NI Questionnaires for NI.
[40] Detailed analysis of administrative data provides predicted changes in the elasticity of energy use in response to different prices and income levels are provided in Annex B1. This analysis finds that a 1% increase in price is associated with a 0.46% reduction in gas consumption. A 1% increase in income is associated with a 0.07% increase in gas consumptions. A 1% increase in the price of electricity results in a 0.2% decrease in the consumption of electricity. In addition, a 1% increase in income leads to a 0.1% increase in the consumption electricity.

analysis was collected as part of the EPG scheme audit process and matched with NEED data to provide household characteristics.[41] The results suggest that, in the absence of the energy affordability schemes, mains gas and electricity households would have reduced their energy consumption by up to a quarter (25% for gas-heated homes and 17% for electricity-heated homes) compared to actual energy consumption with the government support over winter 2022/23. For oil-heated households, equivalent modelling was conducted using LCFS data, which showed the estimated reduction in consumption of heating oil was more modest, at around 1%. See Table 4.1 below.[42]

Heating Behaviour

Heating behaviour was not directly observed for this evaluation, as it was not feasible to measure indoor temperatures during the intervention period. Consequently, although the modelling results can suggest that consumption would have been lower, it is not possible to say with certainty that this means households would have underheated more in the absence of the energy affordability schemes. However, it is reasonable to infer that where the modelling estimates show a difference between actual household energy consumption of their primary heating fuel with the support, and estimated consumption without the support, that there would be corresponding differences in level of heating**.**

The interim evaluations of the domestic energy affordability schemes (in GB and NI) presented evidence indicating that the schemes (particularly EPG and EBSS, (the major schemes in terms of number of households reached) supported the maintenance of energy use to a safe and comfortable level amongst at least some households (compared to a no intervention scenario).

[41] The audit data was collected by energy suppliers and collated by independent auditors on behalf of DESNZ during the audit of the EPG scheme. (For further details see Annex B1).
[42] Ofgem price cap analysis shows that the average medium sized gas-heating home uses 11,500 kWh per year, which equates to roughly 221 kWh per week (although this is likely to be higher in winter), which compares realistically to the 257.55 kWh/week for gas in the administrative data (Table 4.1). Under the no intervention scenario, energy consumption is modelled at 193.33 kWh/week, which is lower than the annual average consumption figure given by Ofgem, and considerably lower than the actual consumption observed in the administrative data.

Table 4.1 Actual energy consumption (with the schemes) and predicted energy consumption under the counterfactual (without the schemes) scenarios for mains gas and electricity-heating households in GB, and oil-heating homes in UK

	Gas-heated homes			Electricity-heating homes			Oil-heating homes		
	Actual Intervention	Counterfactual No Intervention	Difference (actual minus counterfactual)	Actual Intervention	Counterfactual No intervention	Difference (actual minus counterfactual)	Actual Intervention	Counterfactual No intervention	Difference (actual minus counterfactual)
Predicted consumption kwh per week: Total effect of schemes	257.55	193.33	-24.90%	99.07	82.68	16.55%	40.69	40.15	-1.33%
Predicted consumption kwh per week: Income effect of £400 EBSS (£600 in case of oil users)	257.55	257.14	-0.20%	102.48	102.22	0.25%	40.69	40.15	-1.33%
Predicted consumption kwh per week: Price effect of EPG only	257.55	193.64	-24.80%	102.48	86.81	15.29%	NA	NA	NA

Note: Electricity and gas consumption based on actual meter data from random sample taken from the Combined audit and NEED dataset for GB from Q4 2022 to Q1 2023. Combined audit and NEED data is not available for Northern Ireland. Random sample of gas meters = 158,143, model sample = 70,351. Random sample of electricity meters = 236,500, model sample = 19,544. Oil consumption is based on LCFS dataset at UK level (LCFS Q4 2022-Q1 2023). For oil-heating households, LCFS only provides data on how much households spent on energy, which was translated into a quantity index by using ONS national statistics on energy prices in the period. See Annex B for model specification.

Evidence presented in the interim evaluations also indicates that the schemes contributed to mitigating underheating in at least some homes**:**

- In qualitative interviews, some households indicated that they associated receiving the scheme support with being better able to afford to heat their home.
- For the 26% of GB (20% of NI) households who reported that they had been able to heat their home all of the time or whenever it was cold in winter 2022/23, 28% (36%) stated they would not have been able to heat their home to a comfortable level all of the time without the government's support. [43]

Differential effects by household group

The impacts of the schemes varied by income, scheme, fuel type and age. The evidence for this is discussed below.

Lower income groups: Energy demand modelling (Table 4.2) indicates that those in lower income deciles (deciles 1-4) would have reduced their energy consumption by 25-26% amongst mains gas-heated households, and 11-14% amongst electricity-heating households without the schemes. Although the scale of avoided reductions in energy consumption for lower income deciles compared to the counterfactual is not as pronounced as in higher income deciles for electricity-heating households, this still suggests a significant impact attributable to the energy affordability schemes for lower income groups. This could suggest that the energy affordability schemes helped lower income households to avoid the harmful effects of energy underconsumption, which was one of the stated aims of the schemes. This impact is especially notable given that lower income households are more likely to be above the energy burden threshold[44]. This is explored in more detail in analysis of energy burden in Section 4.2.

Recipients of schemes which were rolled out later: Additionally, the schemes did not roll out simultaneously. In GB, the EPG and EBSS schemes were rolled out in October but AFP and AFP AF and EBSS AF for continuous cruisers all started in 2023 (February, March and September respectively). In NI, EPG started in November, with EBSS AFP (the scheme that had the largest reach in NI) and EBSS AF rolling out in NI in January and February respectively. This means that the schemes which reached the greatest number of UK households and which together accounted for over 97% of the total support delivered (EPG, in both GB and NI, and EBSS GB) were in place before the end of 2022. However, the smaller schemes which tended to be for relatively small recipient populations were rolled out in early 2023 and this might have limited the extent to which these funds could have contributed towards heating behaviours for recipients of these schemes. Whilst they may still have contributed directly to the paying of bills and energy affordability, some of the schemes may

[43] This is calculated in terms of all responding in the survey that without scheme support they would have heated their homes during winter 2022/23 either ‘most’, ‘some’ or ‘none’ of the time as a proportion of all those indicating how they heated their homes during 2022/23 (all of those providing a response other than ‘don’t know’ or ‘prefer not to say’ in data table G1 of the GB and NI published tables. See question G3 in the data tables for the GB and NI interim evaluations

[44] Energy Burden threshold is defined as over 10% of income after housing costs spent on energy as a proxy for fuel poverty.

not have arrived in time to affect energy heating behaviours in winter 2022/23, and only partially in time for others, unless an awareness of forthcoming support affected behaviour.

Higher income groups: Table 4.2 splits energy consumption by income decile using meter-level administrative data. It shows that gas usage increases linearly with income levels. In other words, households with higher income levels consume more energy on average. However, the modelling evidence indicates that for gas-heated households, there is little difference in the proportional impacts by income level. For electricity-heated households, the indication is the proportional impact increased with income. This may be due to their higher observed consumption, which provided more scope to reduce/change usage in the event of higher prices (i.e. without the support) or due to differences in heating types and tariff types that are associated with different income levels. Discussed further below.

Under the modelled counterfactual scenario (see Annex B1), gas-heated households across all income levels are predicted to have consumed around 25% less energy than they did with the schemes in place. For electricity-heated households, the lowest income groups are predicted to have reduced their energy consumption by 11–14%, while the highest income groups would have reduced theirs by up to 24%.

This difference between higher and lower income households using electricity for heating may reflect the existence of a theoretical ‘floor’ to energy consumption—below which may be an uncomfortable or unsafe level of heating. Lower income households may have already been closer to this minimum threshold, meaning that in the absence of the schemes, they would have had to heat their homes to that floor or even below it—potentially to uncomfortable or unsafe levels.

However, as noted above, indoor temperatures were not directly observed, so it is not possible to confirm whether or how heating levels changed. It is also unclear why this effect was observed only among electricity-heated households. One possible explanation is the different technologies used for electric heating. Lower income households are more likely to live in homes with lower EPC ratings and may be more likely to rely on electric storage heaters which are designed to fully heat up at night and release their energy during the day. This makes it more difficult to adjust heating patterns or reduce energy use without compromising comfort. In contrast, higher-income households may be more likely to use heat pumps, which offer greater flexibility in controlling heating—such as lowering the flow temperature or adjusting usage patterns—allowing them to reduce energy consumption more easily without significantly affecting comfort.

Table 4.2 Predicted energy consumption under actual and counterfactual scenarios by household income deciles for mains gas and electricity-heating households in GB

	Gas-heated homes			Electricity-heating homes		
Income Decile	Actual (Intervention) kWh per week	Counterfactual (No Intervention) kWh per week	Difference (actual minus counterfactual)	Actual (Intervention) kWh per week	Counterfactual (No Intervention) kWh per week	Difference (actual minus counterfactual)
1	162.77	120.48	26.00%	79.41	69.14	12.90%
2	197.64	147.56	25.30%	97.96	87.02	11.20%
3	220.88	164.58	25.50%	106.61	93.60	12.20%
4	224.30	167.62	25.30%	103.50	89.31	13.70%
5	246.62	184.53	25.20%	103.32	90.70	12.20%
6	251.77	189.99	24.50%	96.37	78.51	18.50%
7	265.84	200.93	24.40%	102.40	82.48	19.50%
8	281.46	212.76	24.40%	100.52	82.90	17.50%
9	310.62	234.17	24.60%	93.07	71.08	23.60%
10	406.68	305.22	24.90%	108.39	82.83	23.60%

Source: Combined Audit and NEED dataset: Note Electricity and gas consumption based on actual meter data provided from random sample from the Combined Audit and NEED dataset for GB from Q4 2022 to Q1 2023. Random sample of Gas meters = 158,143, model sample = 70,351. Random sample of Electricity meters = 236,500, model sample = 19,544. The counterfactual scenario models no intervention, i.e. without the energy affordability schemes. See Annex B1 for model specification.

The relationship between energy price support and household income among electricity-heated households suggests that some higher-income recipients may have received more assistance than was necessary to maintain comfortable heating levels (noting that it is not possible to define 'comfortable levels' of heating in the analysis). As reported above, modelling predicts that, in the absence of support, higher-income electricity-heated households would have reduced their energy consumption by a greater proportion than lower-income households, because they have a greater distance to travel from their observed consumption levels. Given that higher-income households typically spend a smaller share of their income on energy (see Section 4.2), they are therefore more financially resilient to changes in energy prices. This financial flexibility may suggest that they would have been able to respond to changes in price more easily than lower income households —by reducing consumption without compromising comfort—or maintaining higher heating levels even without support.

Similarly, the modelling predicts that gas-heated households across all income levels would have reduced their energy consumption by a similar proportion to lower-income households in the absence of support. This may also indicate that higher-income households received more support than was needed to avoid underheating, though the effect appears less pronounced than for electricity-heated households.

Survey evidence from the interim evaluation supports this interpretation: higher-income respondents in both GB and NI were more likely to report being able to afford adequate heating both in general and without scheme support; 31% and 43% of GB households earning £52,000 - £99,999, and £100,000 and above, respectively) reported being able to afford heating their house at all times. The results were slightly higher for NI: 35% and 65% in NI of households earning £50,000 - £74,999, and £75,000 and above, respectively Further 77% of GB households earning £52,000 - £99,999 and 82% earning £100,000 and above reported they would have been able to heat their house at all times even in the absence of the support. Similar trends were observed in NI: 62% and 95% of NI households earning £50,000 - £74,999, and £75,000 and above, respectively. Taken together, these findings suggest the presence of some deadweight in the support schemes—particularly for higher-income, electricity-heated households—although the extent of this cannot be quantified with the available evidence.

Those not using mains gas and electricity: The modelling presented in Table 4.1 shows that whereas mains gas and electricity-heated homes would have reduced their energy consumption by up to a quarter, the average oil-heated household would have reduced their energy consumption by around 1%, which is considerably less of an impact on oil-heated homes than the modelled reduction in energy consumption without the energy affordability schemes gas and electricity. The surveys conducted for the interim evaluations indicated similar findings. This is partly due to the fact that the overall income effect relative to the EPG effect is small, but also may be due to the fact that oil is purchased in bulk ahead of time, which reduces the link between energy price and energy demand over short periods.[45] Those

[45] Note that oil data for the UK was only available through the LCFS.

using alternative fuels in the GB Nationally Representative survey were also more likely to state that they found it very easy or fairly easy to pay for their energy bills in winter 2022/23.

Older age groups: The results of the interim evaluations' nationally representative surveys in GB found that older respondents were more likely than others to report being able to heat their home to a comfortable temperature all of the time or whenever it was cold: 26% of all respondents said this compared to 35% of those aged 65-74 and 42% of those aged 75 or older. Similarly, in NI 20% of all respondents said this compared to 31% of those aged 75 or older. In addition, households in receipt of winter fuel payment, which is an age-related benefit, were more likely than others to state that they were able to afford to heat their home a comfortable temperature all of the time or whenever it was cold.[46]

Impacts of individual Schemes (EBSS and EPG)

The analysis in Table 4.1 separates the effects of the Energy Price Guarantee (EPG) and the Energy Bills Support Scheme (EBSS) into price and income components, respectively. In practice, households with mains gas and electricity received both interventions concurrently. For these households—who benefited from both the maximum unit cost discount under EPG and EBSS payments totalling £400 over winter 2022/23 — the majority of the impact on energy consumption is attributed to the EPG price discount, with only around 1% of the total effect attributed to EBSS. This is because the modelling treats EBSS as an income effect (see discussion and sensitivity analyses in Annex B7) and because the price elasticities for gas are approximately seven times the elasticities for income this means that the effect of EBSS in the modelling in this case is diminished[47].

The sensitivity analysis conducted indicated that if EBSS was measured as a price effect, predicted consumption would have fallen more than when EBSS was measured as an income effect. Consequently, categorising EBSS as a price effect was less conservative, and therefore there was a higher risk of overestimating of the impacts of the energy affordability schemes. The decision to cast EBSS as an income effect has comparators in the literature. The Warm Home Discount (WHD) Scheme evaluation adopted energy demand modelling which predicted that the increase in income of £140/annum (£2.70 per week), would increase spending on fuel by approximately £0.05 per week or £2.60 per year, which is an increase in energy consumption of only 1.9%. This report concluded that households in receipt of the WHD rebate spent it according to their needs (which would have included heating) and typically treated the payment as an increase in income[48].

It is important to note that this tells only part of the story of the impact of EBSS. Without EBSS (in addition to EPG) households might not have changed their consumption patterns but would

[46] An average of 26% of households responding to the GB Nationally Representative survey stated this compared to 36% of those on winter fuel payment and 30% of those on other energy / fuel benefits.
[47] Sensitivity analysis is reported in Annex B7, under a counterfactual where EBSS is treated as a price effect in the modelling, which shows that the proportional effect of EBSS would be higher if treated as a price rather than an income effect (Annex B Table 7.5). Note, this should be interpreted cautiously, since there is no conceptual backing in the literature to adopt that approach, even accounting for the fact that most people got it paid into their energy accounts.
[48] BEIS (2018). Evaluation of the Warm Home Discount Scheme. Synthesis Evaluation Report.

have had to pay more for the energy they did consume (or had less income to spend on it). Furthermore, while EBSS only accounted for 1% of the effect of the energy affordability schemes on avoiding reductions in energy consumption (as one specific policy outcome), it contributed to the overall welfare effect of the schemes. The effect of EBSS is also more apparent in the findings on fuel poverty in Section 4.2.

Additionally, avoided reductions in energy consumption can be translated into direct benefits of the schemes on wellbeing, by calculating the 'consumer surplus' benefits in monetary terms.[49] This takes into account the combined effect of EPG and EBSS on the overarching 'welfare' of individuals. Therefore, while EBSS only accounted for around 1% of the total effect of the energy affordability schemes on avoiding reductions in energy consumption (as one specific policy outcome), it contributed to the overall welfare effect of the schemes. This is discussed in Chapter 5 under economic benefits and more detail on the methodology is provided in Annex B1.

4.1.4. Conclusions on the contribution claim on energy consumption

The modelling indicates that the greatest effect on energy consumption came from price-based support, with the key mechanism being price effect mitigation—i.e., preventing energy prices from reaching levels that would trigger unsafe consumption behaviours. This mechanism may be passive, i.e. it does not rely on households being aware of the support but for some households, it may also be active, e.g. where households regularly monitor their bills.

The ToC for the domestic energy affordability schemes, however, considered that the schemes might also influence energy consumption and heating behaviours by the following mechanisms:

- **A reassurance mechanism** where awareness of the schemes provides reassurance about energy affordability, leading to safer heating behaviours.
- **A price effect mechanism** whereby households consider their bills to be more affordable, leading to maintaining safe heating levels.
- **An income effect mechanism** whereby safer heating behaviours are due to households being able to spend the support given as income (as opposed to a price reduction) on heating costs.

Evidence for these mechanisms

The process evaluations of the schemes - as described in the published interim reports[50] - found that there were high levels of awareness of the EBSS support and, to a lesser extent, of the other schemes. They also found that the majority of survey respondents were satisfied with

[49] Consumer surplus is the monetary benefit consumers receive when they purchase a good or service for a price that is less than the maximum they would be willing to pay, which occurs when the price is lower than the welfare benefits they receive from the good or service. This surplus represents the additional satisfaction or utility a consumer gains from the transaction.
[50] DESNZ, 2025: Interim Evaluation of Domestic Energy Affordability Support Schemes in Great Britain; Domestic energy affordability support schemes in Northern Ireland: interim evaluation

the support. However, there was insufficient evidence to determine whether this awareness influenced energy consumption or heating behaviours.

As discussed above in section 4.1.3 on the relative effects of EBSS and EPG on energy consumption indicate that EBSS (as an income effect) did have some effect on energy consumption (albeit substantially less than EPG). The evidence is unclear regarding whether the monetary support provided through the EBSS AF in NI and GB and AFP AF in GB[51] acted as a mechanism to prevent underheating. Findings from the interim evaluation surveys of the alternative funding schemes indicate that households used the money towards their energy costs: In NI, 75% of respondents (national survey) and 74% (supplementary survey) reported using the payment for energy bills; in GB, the majority of EBSS AF and AFP AF recipients (74% and 77%, respectively) reported that they spent the payment on energy bills[52]. Note that income elasticity modelling of energy consumption for these groups could not be conducted due to data limitations. Over the intervention period of the energy affordability support schemes, around one quarter of GB households and one fifth of NI households were heating their homes to safe / comfortable levels whenever needed (i.e., they did not adjust their heating behaviours due to energy price rises). A further 40% (42% in NI) heated their home to a safe / comfortable temperature most of the time (i.e., not all of the time). Around one third (29% of GB and 34% of NI households) reported that they heated their home to a comfortable temperature some of the time even when it was cold. For the 26% of GB (20% of NI) households who reported that they had been able to heat their home all of the time or whenever it was cold in winter 2022/23, 28% (36%) stated they would not have been able to heat their home to a comfortable level all of the time without the government's support.

Modelling indicates that in the absence of the schemes (i.e. a no intervention scenario), households using gas or electricity to heat their homes would have reduced their energy consumption by up to a quarter, whilst those using oil would have reduced it by around 1%. Where the modelling provides estimates of differences between actual household energy consumption for their primary heating fuel with the support and estimated consumption without the support, it is reasonable to infer that there would be corresponding differences in level of heating**.**

The modelling evidence strongly indicates that it was the price support provided through EPG that had the greater effect on energy consumption than the income support provided through EBSS. This is in spite of households having greater levels of awareness of EBSS. The other strands of evidence do not provide contradictory evidence of this being the primary causal mechanism. There is some, albeit weaker and less direct, evidence that the income effects of EBSS and the alternative schemes may still have contributed to energy consumption because there is evidence of households using the support on energy bill payments.

Overall, the evidence available indicates that it was **probable** that the schemes contributed to maintaining heating behaviours (compared to a no intervention scenario) particularly in lower

[51] These schemes required eligible households to apply for the subsidy which they would then receive as a transfer to their bank account – i.e., as a monetary value which they could spend however they so wished.
[52] A similar question was not included in the GB nationally representative household survey.

income households. The evidence for the contribution of the schemes towards energy consumption is stronger – it is **highly probable** given the results of the modelling.

4.2. Fuel poverty

4.2.1. The contribution claim being tested

This section presents evidence that assesses and draws conclusions on the validity of the following contribution claim:

The schemes contribute towards limiting the increase in the proportion of households experiencing fuel poverty (compared to a no intervention scenario).

4.2.2. Fuel poverty over the intervention period

There are differing definitions and measures of fuel poverty in use across the UK.[53] This section starts by setting out the available national data on fuel poverty over the intervention period and then sets out the proxy indicator of energy burden used in this evaluation to be able to assess fuel poverty across the UK.

DESNZ measures fuel poverty in England using the Low Income Low Energy Efficiency (LILEE) indicator. Under this measure a household is considered to be in fuel poverty if the household is living in a property with an energy efficiency rating of band D, E, F or G as determined by the most up-to-date Fuel Poverty Energy Efficiency Rating, and the household's disposable income (income after housing and energy costs) would be below the official poverty line. It therefore considers that changes in income, housing expenses, household energy requirements and fuel prices can move people into or out of fuel poverty. In 2022, there were an estimated 13.4 per cent of households (3.26 million) in fuel poverty in England under the Low Income Low Energy Efficiency (LILEE) metric, up from 13.1 per cent in 2021 (3.16 million). [54] In addition, DESNZ published an affordability measure of the number of households in England who are required to spend more than 10 per cent of their income (after housing costs - AHC) on domestic energy. Note this metric differs from the one calculated for this evaluation. This AHC metric showed that in 2023, 36% of households (8.7 million) in England spent more than 10% of their income (after housing costs) on domestic energy compared to 27% (6.7 million) in 2022 and 21% in 2021 (4.9 million)[54,55].

In Scotland, fuel poverty is defined as being more than 10% of the household's adjusted net income after housing costs. [56] The latest Scottish Household Condition Survey showed that

[53] The definitions and measurement of Fuel Poverty vary across countries, including within the United Kingdom. For more information on the differences in Fuel Poverty definitions across the UK, refer to the House of Commons Library briefing paper.
[54] Annual Fuel Poverty Statistics in England, 2023
[55] Annual fuel poverty statistics report: 2024
[56] In Scotland, a household is in fuel poverty if, in order to maintain a satisfactory heating regime, total fuel costs necessary for the home are more than 10% of the household's adjusted net income after housing costs, and if

fuel poverty rose from 24.6% of all Scottish households in 2019 to 31% in 2022 and 34% in 2023.[57]. Comparable trend data is not available for either Wales[58] or Northern Ireland [59].

The energy burden metric used for this evaluation

Due to limitations in the data available, and the differing definitions and measures of fuel poverty used across England, Scotland, Wales, and Northern Ireland, the interim evaluations used a proxy indicator known as 'energy burden'. This metric estimates the proportion of household income (after rent and mortgage expenses) spent on energy.[60] The measure of energy burden differs from most measures of fuel poverty in that it is a simple measure of the affordability of a household's current energy consumption, but does not account for the energy efficiency of the property, or the level of consumption that would be required to heat the home adequately. A binary classification was used to categorise households into two main groups: those spending under 10% of their income (after housing costs) on energy and those spending more than 10%, the latter group being considered to have a high energy burden. This metric was applied in the analysis of the interim evaluation surveys as well as in the interim energy demand modelling and is also used in this report.

4.2.3. Evidence of the contribution of the schemes to mitigating fuel poverty

Evidence from the interim evaluations: Fuel Poverty and Self Disconnection

The GB and NI interim evaluations concluded that the schemes likely contributed to reducing fuel poverty. Respondents to the survey were asked to provide their income after housing costs and their typical energy bill, allowing energy burden, as defined above, to be calculated. Of the respondents who were classified as being under energy burden, 51% of GB and 34% of NI (36% GB and 43% NI alternative schemes) reported that they probably or definitely would not have been able to afford their energy bills without the energy affordability support. Households under energy burden were also significantly more likely to report that they would have reduced spending on necessities in the absence of the support.

Self-disconnection (where households do not top up their pre-payment meter resulting in a loss of energy supply) can be an extreme measure taken due to fuel poverty and high energy prices[61]. Evidence from the interim evaluations showed that the energy affordability schemes

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

[57] 3 Fuel Poverty - Scottish House Condition Survey: 2023 Key Findings - gov.scot

[58] In Wales, fuel poverty is measured as any household that would have to spend more than 10% of their income on maintaining a 'satisfactory heating regime'. Recent changes in methodology mean that the most recent published estimates for October 2024 cannot be compared to previous years, for which 2021 was the previous estimate.

[59] 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. See: NIHE, BRE (2024) Impact of 2022 fuel prices on fuel poverty in Northern Ireland.

[60] This approach is similar to the one taken in Nock, D et al (2024). Reducing energy burden in the power sector: Metrics for assessing energy poverty. Both approaches calculate energy burden as the proportion of household income spent on energy. Our method further refines this by accounting for income after rent and mortgage expenses to provide a more accurate measure of disposable income.

[61] Committee on Fuel Poverty (2023) Understanding the challenges faced by fuel poor households GOV.UK

helped limit PPM customer self-disconnections, supporting many households to afford their energy usage during winter 2022/23. 57% of GB PPM (smart or traditional) households (53% in NI) reported they would probably or definitely not have been able to afford their energy bills in the absence of the schemes in winter 2022/23. In addition, both energy suppliers and regulators in the NI evaluation said that disconnections would have been significantly higher without these interventions.

Evidence from energy demand modelling

To assess the impact of the energy affordability schemes on fuel poverty, it is necessary to consider the effects of energy price, income and housing costs on energy burden.

Modelling of LCFS household expenditure data that compared energy burden during winter 2022–23 (Q4 2022 and Q1 2023) with a counterfactual scenario without scheme support (see Annex B3, Table 3.19) suggests that the schemes helped prevent approximately 3.8 million households—around 14% of the UK population—from falling into energy burden.

Support was provided across all fuel types, however the scale of the estimated impact varied, and was greater for gas and electricity heated homes than for oil heated homes as shown below:

- 17% of gas-heated households: equivalent to 3.4 million households
- 13% of electricity-heating households: 307,172 households
- 4% of oil-heating households: 73,623 households.

Data limitations mean that it was not possible to produce this analysis for other fuel types. Note also that the analysis was not additive, so the number of households does not sum to the 3.8 million figure from the overall modelling above.

This is likely due to the relative income versus price effect on energy spending and the mechanism by which the support was provided. Typically, when households are given more income to spend on energy (as was the case with oil-heated households who received EBSS payments) energy expenditure increases. In contrast price-based interventions such as EPG reduce energy costs which leads to lower spending and potentially higher consumption.

The LCFS data is based on a large nationally representative survey and therefore is a strong source of evidence for estimating energy burden. It includes households using gas, electricity, and oil as primary heating fuels. It does not include analysis of households using alternative fuels for heating, except for oil, due to low sample sizes. As a result, around 1% of households—those without gas, electricity, or oil-heating—are not represented in the analysis.

Contribution of the individual main schemes (EPG and EBSS)

The modelling above estimates the combined effect of EPG unit discounts and EBSS payments on energy burden compared to the counterfactual, since most households would have received both. In order to examine the effect of individual schemes, the modelling also

explored EPG and EBSS payments separately. Separating out the effects of the EPG price support and the EBSS payments in the modelling suggests that EPG had a greater impact on reducing energy burden, with an estimated 3.2 million fewer households classified as experiencing energy burden under the EPG price effect, compared to the counterfactual without EPG. By comparison, EBSS is estimated to have resulted in around 875,000 fewer households being defined as in energy burden compared to the counterfactual (see Table 3.20 in Annex B3[62]). This difference in effect size between EPG and EBSS is driven by 1) the relative size of the support in monetary terms (EPG accounted for 66% of the overall cost of the schemes), and 2) the different effects of the modelling treating EPG as a price support and EBSS as an income support, as discussed in Section 4.1. By treating EBSS as an income effect and because the price elasticities for energy are approximately seven times the elasticities for income this means that the effect of EPG is further magnified.

Differential Impacts on Demographic Groups

Energy burden is generally more pronounced among lower-income households, because income is one of its key determinants. Lower income households demonstrated a higher prevalence of energy burden in the observed data i.e. with the support (79% for the lowest decile compared to only 8% for the highest for gas heating households, 80.6% for the lowest decile and 8.3% for the highest for electricity heating households). Under the counterfactual scenario, without the energy affordability schemes, the energy burden rate is higher across the whole sample, for every income decile. However, the differential is highest for low- and middle-income households (see Table 4.3).

- **For gas-heated homes, the modelling suggests that nearly all lower income households (98% of the lowest income decile and 97% of the second lowest income decile) would have experienced energy burden without the energy affordability schemes**. The impact of the energy affordability schemes was to reduce this rate of energy burden to 80% and 75% among the lowest and second lowest income decile households respectively. Middle income groups also benefitted, with the proportion of households predicted to have been above the energy burden threshold being between 15-24 percentage points higher without the schemes than they are estimated to be with the schemes.
- **For electricity-heated homes, lower and middle income households (deciles 1 to 7) appeared to benefit the most from the support received by the affordability schemes**, with differences ranging from 14-19 percentage points compared with 4-8 percentage points for higher deciles. See Table 4.3.

[62] Note that the number of households protected from energy burden by the schemes individually does not sum to the total number of households protected. These figures are for each scheme in isolation but in practice most households received both schemes and benefitted from the combined effects rather than one scheme or the other.

Table 4.3 Percentage of households experiencing energy burden (spending more than 10% of household income on energy after housing costs): estimated differential rates of energy burden between actual and counterfactual by Income Decile: Mains gas and electricity heated homes.

	Gas-heated homes			Electricity-heated homes		
Income Deciles	**Actual**	**Counterfactual**	**Differential**	**Actual**	**Counterfactual**	**Differential**
Lowest	79.6%	97.8%	-18.2%	80.6%	95.7%	-15.1%
2	75.3%	96.8%	-21.5%	71.9%	90.6%	-18.7%
3	68.0%	87.6%	-19.6%	65.7%	80.7%	-15.0%
4	52.6%	76.6%	-24.0%	49.5%	67.5%	-18.0%
5	50.3%	71.1%	-20.8%	46.5%	61.0%	-14.5%
6	40.5%	61.3%	-20.8%	37.1%	55.4%	-18.3%
7	41.7%	58.3%	-16.6%	33.8%	47.6%	-13.8%
8	19.1%	33.7%	-14.6%	18.3%	25.8%	-7.5%
9	19.7%	28.1%	-8.4%	17.4%	24.9%	-7.5%
Highest	8.9%	14.2%	-5.3%	8.3%	12.2%	-3.9%
Total	43.8%	60.4%	-16.6%	41.2%	54.2%	-13.0%

Source: LCFS, based on Linear Expenditure System (LES) model. Sample size for gas = 5,203 HH; Electricity = 409. Model based on households which heat predominantly through, each energy type. For ease, predicted energy consumption is combined in one table for reporting. See Annex B3 for further specification.

As presented in Table 4.4, households using oil for heating in the second- and third-income quartiles are estimated to have experienced lower rates of energy burden under the support schemes compared to the counterfactual scenario without intervention. Specifically, the proportion of households above the energy burden threshold is estimated at 88% for the second quartile and 50% for the third quartile, compared to 95% and 56% respectively in the counterfactual. These represent estimated differences of 6.9 and 6.5 percentage points. The modelling suggests that the support schemes did not make any difference to the proportion of households in the lowest and highest income quartiles in energy burden, with 100% of the lowest quartile estimated to be in energy burden with or without the support. However, the support may have reduced the extent of the energy burden experienced by those households. Due to sample size limitations, oil-heated households were analysed by income quartile rather than decile.

Table 4.4 Percentage of households experiencing energy burden: estimated differential rates of energy burden between actual and counterfactual by Income Quartile: Oil-heated homes

Income quartiles	Oil-heated Homes		
	Actual	**Counterfactual**	**Differential (percentage points)**
1 (lowest)	100.0%	100.0%	0.0p.p.
2	88.4%	95.3%	-6.9p.p.
3	50.0%	56.5%	-6.5p.p.
4	17.6%	17.6%	0.0p.p.
Total	55.7%	59.5%	-3.8p.p.

Source: LCFS, based on LES model. Oil=1,179. The counterfactual scenario models no intervention, i.e. without the energy affordability schemes.

Differential analysis comparing actual outcomes to the predicted counterfactual (without support) suggests that households in social housing and those owning with a mortgage or rental purchase saw the largest reductions in energy burden due to the support; for social housing this would have been an 18 percentage point (pp) reduction for gas and 16 pp for electricity, and for those who owned their home with a mortgage or rental purchase, it would have been 18 and 14 pp, respectively, This indicates that these groups benefited the most from the energy affordability schemes in terms of reduction in energy burden. By comparison, the reductions were smaller for privately rented households (16 and 13 pp) and those who owned their home outright (15 and 11 pp), for gas and electricity, respectively (See Annex B Tables 3.6 and 3.13). The social housing result is expected, given that these occupants often have lower incomes and limited access to the labour market[63]. The higher impact for those paying a mortgage/rental purchase could reflect that mortgage repayments had increased for

[63] Bank Rate history and data | Bank of England Database

many homeowners during this period due to increases in bank base rates[64,65]. Since the energy burden threshold is calculated as the proportion of income spent on energy after housing costs, higher mortgage payments could have increased the likelihood of falling into energy burden without additional support. For more detailed analysis of the impact of the support on energy burden broken down by demographic factors (income, region, EPC band and tenure type) see Annex B3.

Further insights into the differential impacts of the energy affordability schemes on energy burden are provided in the nationally representative household surveys (and surveys of households in receipt of alternative funding schemes). Of the GB and NI households that provided the necessary information to calculate the average monthly proportion of income (after rent/mortgage) on energy bills, 19% of GB and 34% of NI respondent households were spending over 10% of their remaining income on energy bills compared to 26% of GB and 58% of NI alternative scheme survey respondent households.[66] This suggests that the prevalence of energy burden was slightly higher amongst those on alternative schemes.

In both GB and NI, respondents from an ethnic minority background and lower-income households were more likely to report paying over 10% of their income (after housing costs) on energy bills. In GB, 24% of respondents from and ethnic minority and 37% of lower income households reported this compared to 19% of households in the general population, and in NI, 45% and 54% respectively reported this compared to 34% of households in the general population.

4.2.4. Conclusions on the contribution claim on fuel poverty

Established definitions of fuel poverty across the United Kingdom consistently identify three primary drivers: household income, energy prices, and the energy efficiency of the home. As per the scheme ToC, the schemes were expected to limit increases in fuel poverty because the EPG was expected to reduce the cost of energy (the ‘energy price’ driver of fuel poverty) and the other schemes were expected to increase income.

In line with this, the evaluation has therefore assessed the causal impact of the energy affordability schemes on fuel poverty by examining whether the schemes improved the household income and/or reduced energy prices sufficiently to mitigate the risk of energy burden compared to a no intervention scenario. The modelling indicates that both price and income support reduced the number of households in energy burden, and that the price support had the greater impact. This is likely to be because price support reduces the amount spent on energy (reducing its burden as a proportion of household income), whereas while giving money to households increases disposable income, energy prices are higher, which

[64] Bank Rate history and data | Bank of England Database
[65] Monthly mortgage repayments up 61% for average semi-detached home in the UK - Office for National Statistics
[66] These differ from the proportions indicated by the modelling, this may be explained by the methodological differences.

increases overall energy expenditure (even while still reducing its burden as a proportion of their now slightly higher household income).

The two energy affordability schemes which reached the largest populations in GB and NI (EPG and EBSS) contributed to limiting an increase in the proportion of households experiencing fuel poverty (compared to a no intervention scenario). This is because the schemes made changes to energy prices (through EPG) and to household income (through the other schemes) thus directly influencing two of the three key factors influencing the proxy indicator, energy burden. Overall, the evidence indicates that this contribution is **highly probable**.

4.3. Non-energy household expenditure, borrowing and savings, and the wider economy

4.3.1. The contribution claim being tested

This section presents evidence that assesses and draws conclusions on the validity of the following contribution claim:

The schemes limit increases in household borrowing, cuts in essential spending (e.g. food, essential clothing, medicines), and cuts in non-essential spending (e.g. holidays or meals out) and savings.

This section also contains a related contribution claim on the macroeconomic impacts of the schemes. If it can be shown that it was probable that the energy affordability schemes contributed to households maintaining their non-energy spending then UK households would have been able to spend more on all categories of household consumption, compared to the counterfactual. The schemes could have impacted the wider economy in multiple ways. First, the EPG scheme might have directly reduced inflation, through the mechanism of discounting energy unit costs. Second, providing financial support for households (e.g. through the EBSS schemes) could have created a stimulus to the economy and this could have had growth effects but could have also been inflationary. Inflation and growth are considered qualitatively in relation to this secondary contribution claim.

Secondary contribution claim: **The contribution of the schemes to reducing energy prices and providing financial support to households leads to macroeconomic impacts, both on inflation and on GDP growth.**

4.3.2. Household non-energy expenditure, borrowing and saving over the intervention period

The UK's consumer spending landscape from Financial Year (FY)[67] 2018/19 to FY 2022/23 was characterised by significant fluctuations, influenced by events such as the COVID-19

[67] Financial Year period covers April to March.

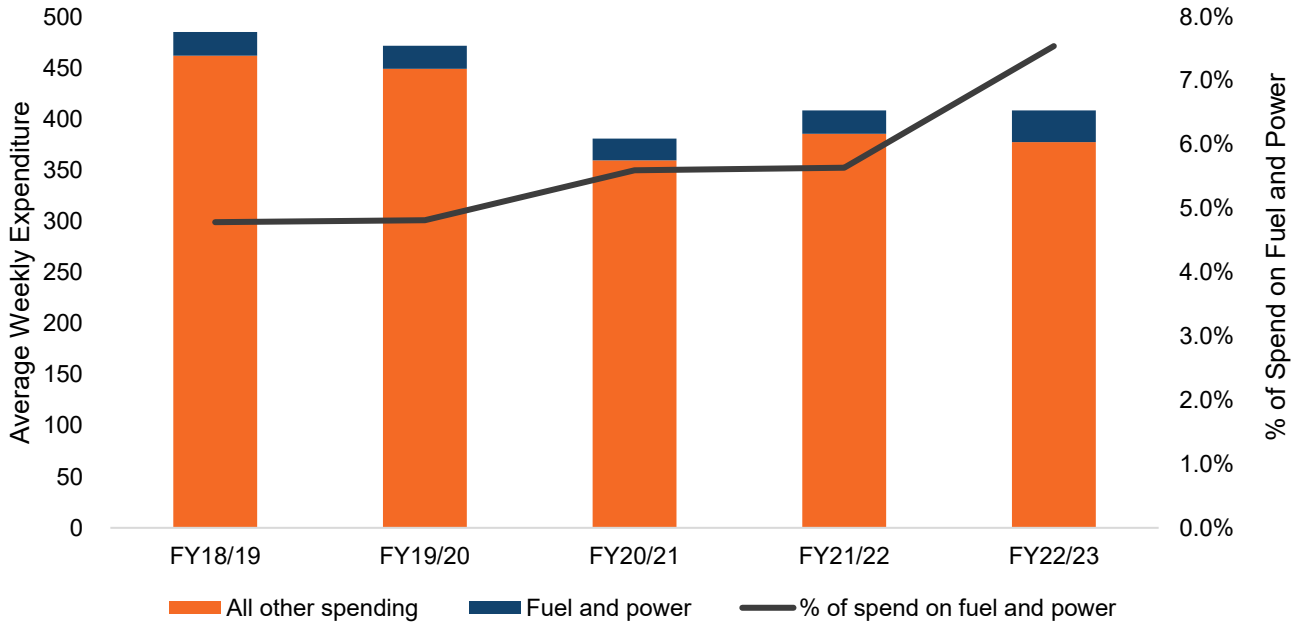
pandemic and the subsequent energy crisis. This period provides a complex backdrop against which to evaluate the impact of energy affordability schemes.

Overall expenditure and the impact of energy expenditure

Analysis of the LCFS showed that average weekly household expenditure in nominal terms has varied considerably over the five-year period, ranging from £415 to £514 (£381 to £485 when adjusted for inflation[68]). When adjusted for inflation (see Figure 4.1.), total weekly expenditure, including on fuel and power,[69] experienced a clear dip in FY 2020/21, primarily attributed to the COVID-19 pandemic's effects. This was followed by a recovery in FY 2021/22 and FY 2022/23, with spending levels in these two years remaining relatively stable.

Between FY 2021/22 and FY 2022/23 (i.e. the last two bars in Figure 4.1), overall spending was largely stable but the share of spending on fuel and power rose from 5.6% to 7.5% on average across all households. This shows the growing burden of energy costs on household budgets during this period.

Figure 4.1 Average weekly expenditure (£) on fuel and power consumption versus all other spending (based on COICOP classification) in real prices (CPI adjusted, 2015=100)



Source: Figures showing average weekly expenditure on goods and services for UK households, compiled from the Living Costs and Food Survey. Financial year (FY) covers the period April to March.

Between FY2021/22 and FY2022/23 all income deciles on average saw an increase in the proportion of their overall spend allocated to energy bills (fuel and power). Over the same period, households with average or below average incomes, (deciles 1 through 5), saw a steeper rise in energy expenditure as a proportion of overall costs than their higher-earning

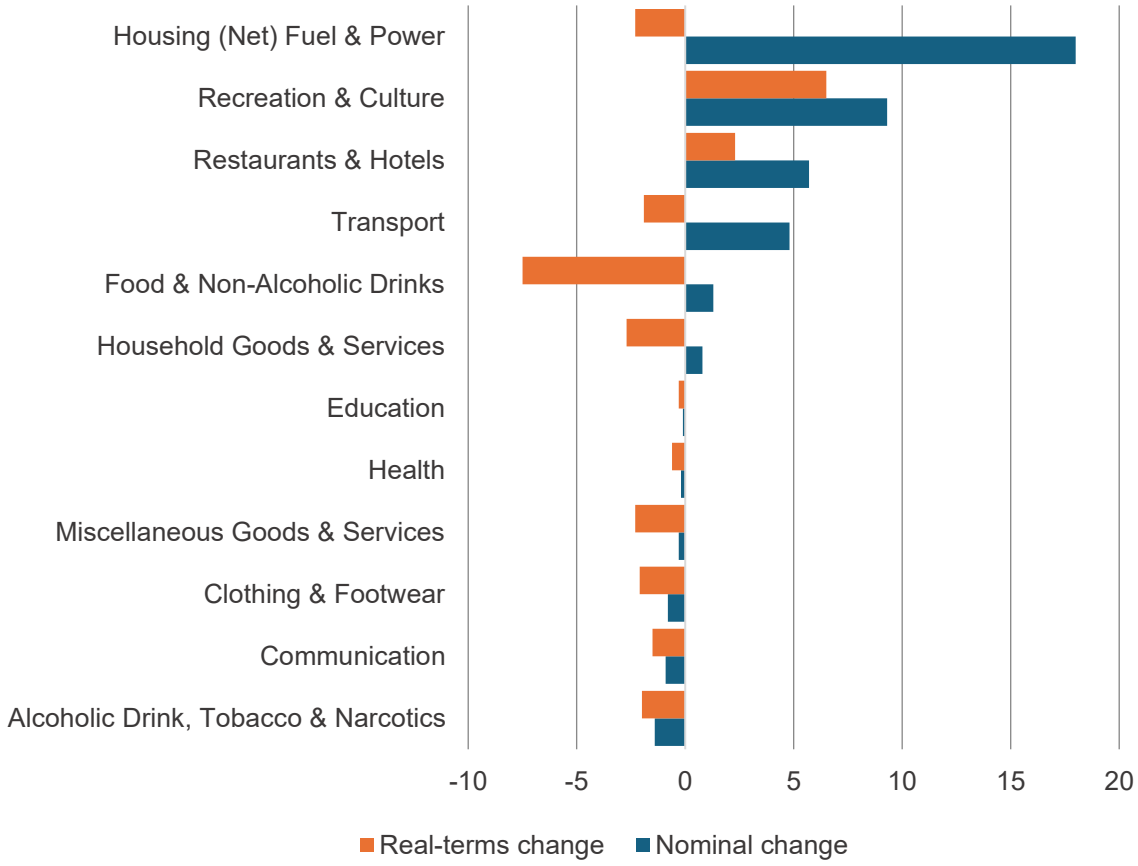
[68] Base year for inflation adjustment: 2015. Figures adjusted for inflation using CPI as an overall measure figures are not adjusted for specific COICOP categories.
[69] Includes spending on electricity, gas and other fuels (coal and coke, oil for central heating, and paraffin, wood, peat and hot water.

counterparts (deciles 6 to 10). In FY2022/23, households in the lowest income decile on average spent 11% of their total expenditure on energy, while those in the highest income decile spent 5% on energy.[70] This shows the disproportionately negative impact that energy price increases have on lower-income households compared to higher-income households and highlights the vulnerability of lower-income households to economic shocks.

Real and nominal changes in expenditure based on COICOP categories

Figure 4.2 presents data from the ONS Family Spending Bulletin, showing changes in both real and nominal expenditure across COICOP categories[71]. The figure highlights significant increases in nominal expenditure in several categories, notably housing, fuel, and power which increased by 18 percentage points. Within this, the subcategory 'Electricity, gas and other fuels' saw an 11 percentage point rise, accounting for a substantial portion of the overall increase[72]. Conversely, nominal expenditure declined slightly in a few categories, including 'Alcoholic drinks, tobacco and narcotics', communication, and 'clothing and footwear'.

Figure 4.2 Change in average weekly household expenditure in the UK in FY2022/23, by COICOP categories, in nominal and real-terms



Source: Family spending in the UK, April 2022 to March 2023.

[70] Family spending workbook 1: detailed expenditure and trends - Office for National Statistics

[71] Office for National Statistics (ONS), released 23 August 2024, ONS website, statistical bulletin, Family spending in the UK: April 2022 to March 2023. Spending is categorised using classification of individual consumption by purpose (COICOP) categories. Real-terms expenditure figures are adjusted for inflation using the Consumer Price Inflation Index (CPI) specific to the COICOP category. Values are deflated to FYE 2023 prices. For clarity, not all family spending categories are presented.

[72] Real terms data was not available for the subcategory 'Electricity, gas and other fuels' separate from housing.

In real terms consumption fell for most areas of expenditure with only real terms increases for the categories ‘recreation and culture’ and ‘restaurants and hotels’. This suggests that rising prices led to reduced consumption in most areas.

Changes in household non-energy debt (including borrowing) over the intervention period

It is also necessary to consider the possibility that higher energy prices may have led to households taking on greater levels of debt to continue to heat their homes, while keeping consumption on other non-energy goods and services at a constant level. Evidence from the Opinions and Lifestyles Survey, the Financial Lives Survey (FLS) and the Family Resources Survey (FRS) on non-energy debt and borrowing is discussed below.

The evaluation team conducted analysis of published tables from the Financial Lives Survey[73] on adults’ credit and store card account balances not paid in full in the last month (which was used as a proxy for overall debt). The levels of unpaid balances remained generally unchanged between 2022-2024 with no significant differences in any of the categories of levels of unpaid balance (Annex B Figure 5.1).[74]. FLS data also demonstrates that personal loan values remained broadly stable over the same period (Annex B Figure 5.2). The only statistically significant differences in the proportion of people reporting personal loan amounts between the May 2022 survey and the May 2024 survey were observed in two categories: those reporting loans between £100 and £249 decreased by 1 percentage point (from 3% to 2%), and those reporting loans between £5,000 and £9,999 which decreased by 2 percentage points (from 19% to 16%). From this analysis, there appears to be little evidence that non-energy debt grew substantially between 2022 and 2024.

In the ONS Opinions and Lifestyles Survey for winter 22/23 (21 December 2022 – 8 January 2023),[75] 22% of GB respondents reported that they had borrowed more money than usual in the last month compared to the previous year to cope with the cost of living increases. For reference, 15% of respondents reported this during an equivalent period in the winter before (15 December 2021 to 3 January 2022). This suggests there were potentially some heightened financial pressures on individuals in winter 2022/23.

Further evidence also demonstrates how rising cost pressures affected households during this period. The Financial Lives Survey findings suggest that the financial circumstances of adults around the UK worsened in the 6 months to January 2023 including 77% of UK adults reporting that they felt that the burden of keeping up with their domestic bills and credit

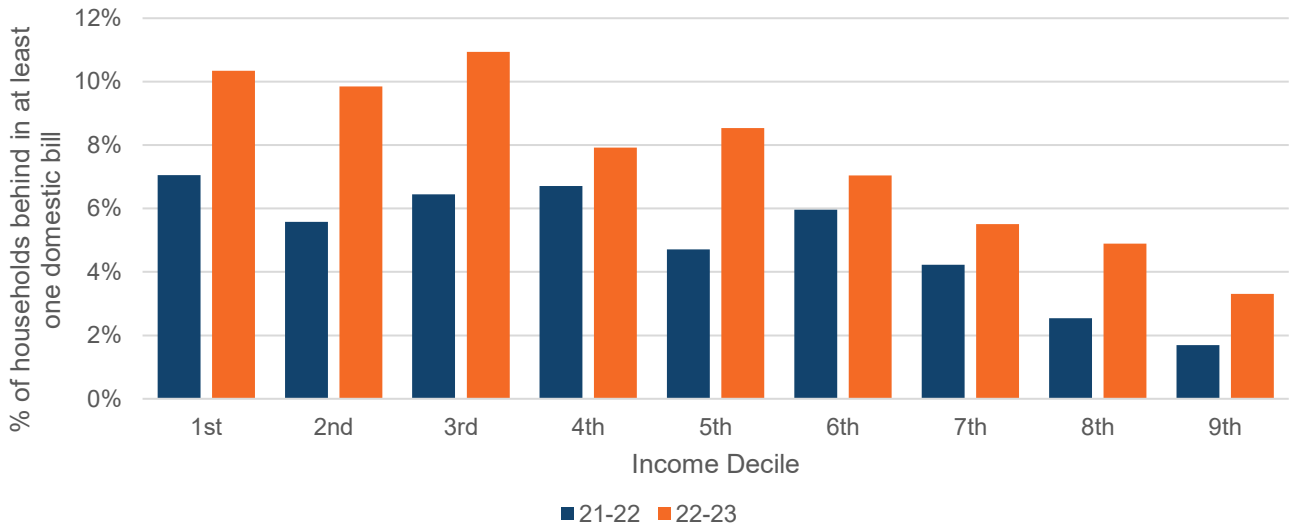
[73] The Financial Lives survey provides information about consumers' attitudes towards managing their money, the financial products they have and their experiences.
[74] Based on the question ’Thinking about your credit/ store card(s) (where you are the main cardholder), approximately how much of the statement balance(s) was not repaid in full last month? If you have more than one card, give a total figure for all your cards’ which was asked of ‘revolvers’ i.e. people who do not pay off their credit card in full each month.
[75] Public opinions and social trends, Great Britain: household finances - Office for National Statistics

commitments had increased and 70% had seen their financial situation worsen.[76] Additional analysis of the Family Resources Survey (FRS) was undertaken to understand domestic bill arrears. The failure to meet essential payment obligations is a strong indicator of financial distress. The analysis for this evaluation found that the proportion of households that reported that they were behind on at least one domestic bill[77] increased from 3.8% to 5.5% between FYs 2021-22 and 2022-23.

Further analysis of the FRS showed that all income deciles (1 to 9) were more likely to say in FY 2022-23 they had fallen behind in at least one bill compared with the previous FY. However, as shown in Figure 4.3, the change in the proportions reporting this between the two financial years was more pronounced for lower-income households (i.e. 1st to 3rd deciles) than those on higher incomes (i.e. 7th to 9th deciles)[78].

There was a greater proportional increase for those who rented compared to homeowners. The largest increase was for those renting from the council, with a 7pp rise in those behind on at least one bill (from 15.4 to 22.4%). In contrast, there were only 0.5 (from 0.6 to 1.1%) and 0.9 percentage point (from 1.4 to 2.3%) increases, respectively, for those who owned outright or those who owned with a mortgage.

Figure 4.3 Percentage of households reporting that they were behind with at least one domestic bill in FY 2021/22 and FY2022/23, by Income Decile



Source: Ipsos analysis of Family Resources Survey data FY21-22 N=13,742. FY22-23 N=19,943.

[76] FCA, 2023. Financial Lives 2022 survey - Key findings from the May 2022 survey
[77] Household bills included electricity, gas, council tax, insurance policies, telephone bill, television/video rental or hire purchase, other hire purchase payments and water.
[78] Lower-income households saw an increase in the proportion of people falling behind with at least one domestic bill of between 1.2 and 4.5 percentage points, while higher-income households, reported a more limited increase, of between 1.1 and 2.3 percentage points.

4.3.3. Evidence of the contribution of the schemes on household non-energy spending

Evidence from modelling: Non-energy household expenditure analysis of the Living Costs and Food Survey

The price elasticity modelling using the LCFS investigated whether the schemes helped to limit reductions in household spending on other goods and services, by reducing energy costs. This provides more evidence of the change in the share of expenditure across different goods and services with and without the schemes. The non-energy expenditure models used for the analysis of this contribution claim were run for oil, gas, and electricity-heated households separately, with strong statistical confidence in model performance.[79]

Regardless of fuel type, the modelling estimated that UK households would have reduced their spending further, across most categories of household consumption, during Q4 2022 and Q1 2023 in the absence of the energy affordability schemes, compared to their spending with the schemes in place (Table 4.5). For gas and electricity-heated households, this avoided reduction in non-energy spending coincided with lower energy expenditure relative to the counterfactual, suggesting that reduced energy costs helped ease pressure on other areas of household consumption.

In oil-heated households, a similar avoidance of reduced non-energy spending was observed, driven by increased household income due to the scheme support, which the modelling suggests raised both energy and non-energy spending compared to the no-support scenario.

- For gas, the energy affordability schemes contributed to a reduction in energy spend of £7.50 per week, or £195 over two quarters on gas expenditure per household over the intervention period (Q4 2022 and Q1 2023) compared to the counterfactual. [80]
- For electricity, the energy affordability schemes resulted in a reduction in energy spend of £5.10 per week, or £133 over two quarters on electricity expenditure per household over the intervention period, compared to the counterfactual.
- For oil, although energy expenditure was estimated to have increased slightly, the modelling still suggests a 1.2 percentage point lower share of income being spent on oil than in a scenario without the energy affordability schemes.

Note also that not all of the EPG and EBSS support translates into household spend on energy. As discussed in Section 4.1.4, the predicted changes in energy spend are based on the price and income elasticities which predict that for each £ of price or income support, a percentage will be spent on energy consumption, while the remainder will be spent on non-energy goods, or saved. Table 4.5 shows that the schemes were associated with higher levels of spend on food, recreation, and communications compared to the counterfactual.

[79] See Annex B Table 2.3.
[80] Note that these are average differences in energy spend (compared to the counterfactual) and not welfare weighted.

Table 4.5 Percentage change in weekly expenditure: actual and counterfactual - ONS spending categories, UK

Spending category	Actual	Counterfactual	Difference (Actual minus Counterfactual)	Difference in Share of expenditure (Actual share minus Counterfactual share)
Gas-heated homes				
Food, water, and health	£81.20	£78.50	£2.70	-0.10%
Recreation	£160.20	£151.50	£8.70	+1.40%
Communication, transport, and education	£161.00	£152.50	£8.50	+1.40%
Rent and housing without energy	£67.00	£64.10	£2.90	+0.20%
Gas	£36.50	£44.00	-£7.50	-2.80%
Electricity-heated homes				
Food, water, and health	£73.50	£71.60	£1.86	-0.40%
Recreation	£129.60	£123.50	£6.12	+0.80%
Communication, transport, and education	£138.20	£131.80	£6.40	+0.80%
Rent and housing without energy	£128.10	£122.00	£6.11	+0.80%
Electricity	£35.70	£40.80	-£5.10	-2.10%
Oil-heated homes				
Food, water, and health	£87.60	£84.90	£2.70	-0.8%
Recreation	£152.30	£143.70	£8.60	+1.3%
Communication, transport, and education	£173.00	£163.70	£9.30	+1.2%
Rent and housing without energy	£52.20	£50.20	£2.00	-0.3%
Oil	£40.00	£39.50	£0.50	-1.2%

Source: LCFS, based on LES model. Sample size for gas = 5,203 HH; Electricity = 409; Oil=1,179. Sample sizes of NI households in the LCFS dataset are too low for electricity and oil-heated households to explore differences in spending on energy and non-energy goods and services. The counterfactual scenario models no intervention, i.e. without the energy affordability schemes. Recreation is defined in LCFS as Alcohol, narcotics, and recreation.

Evidence from the interim evaluations: Surveys of GB and NI households

According to the nationally representative household surveys, 22% of GB and 32% of NI households reported reducing spending on necessities (such as food, essential clothing, medicines) in winter 2022/23 due to higher energy bills. Furthermore, 40% of GB and 44% of NI households stated that without the support they would have had to reduce spending on other necessities and 50% of GB and NI households would have stopped putting money into savings or reduced the amount saved. For all forms of debt, 11% of GB and 19% of NI households said they would have had to borrow or take on new or additional household debt (e.g. taking out loans, borrowing more, using more credit) without the schemes. Tenants, households on benefits, younger households, and those spending over 10% of their income (after housing costs) on energy were more likely to report they would have needed to borrow without government support.

Further subgroup analysis of the nationally representative household surveys (in GB and Ni) shows that ethnic minorities, tenants (private and social housing), low-income households, households on PPMs, larger households and households with a member that has a long-standing illness or disability were all more likely to report having to reduce their spending on necessities over winter 2022/23. Among households eligible for alternative schemes, similar subgroups were more likely to report this. In GB this included those living in flats, maisonettes, houseboats or alternative housing were also more likely to be affected. In NI, for recipients of EBSS AF, larger households, low-income households, and households with a member that had a long-standing illness or disability were more likely to report reduced spending on necessities.

4.3.4. Macroeconomic impacts

This section discusses the macroeconomic contribution of the schemes.

Contribution claim: **The contribution of the schemes to reducing energy prices and providing financial support to households leads to macroeconomic impacts, both on inflation and on GDP growth**

Growth impacts

Following HMT Green Book guidance, quantifying growth impacts is out of scope for evaluation.[81] The HMT Green Book guidance states that “it is not generally possible to estimate objectively-based, credible and statistically significant differences in macroeconomic variables arising from alternative options within a business case” and this applies equally to an economic evaluation.[82] Assessing these effects would require a holistic macroeconomic

[81] Given that for an economy at full employment, any stimulus to demand will lead to a corresponding increase in prices. HMT Green Book (2022) 6.6.
[82] Based on HMT Green Book Guidance, Input-Output modelling or estimation of Gross Value Added to the economy is not appropriate to this evaluation since this is a universal transfer of income from government to consumers.

analysis, of the type undertaken by the Office for Budget Responsibility, which is beyond the scope of this programme evaluation.

As shown in chapter 4, it is highly probable that the domestic energy affordability schemes led to increased consumption of non-energy goods and services against the counterfactual, and therefore we could expect a positive macroeconomic impact on growth. Some of the macroeconomic effects of the domestic interventions are likely to have been captured by the non-domestic energy affordability schemes evaluation.[83] The non-domestic evaluation conducted input-output modelling, which measured impacts at a whole-economy level. Therefore, it is possible that the non-domestic CBA captured benefits which could be attributed to the domestic schemes and in not capturing those benefits here we are possibly underestimating the impact of the domestic schemes.

Inflation impacts

The ONS estimated that the EPG reduced the October 2022 headline rate of CPIH by 2.2 percentage points, and CPI inflation by 2.8 percentage points. In other words, without the EPG, CPI inflation would have been 13.8% in October 2022 instead of the observed 11.1%.[84] [85] Therefore, the EPG scheme had the direct effect of reducing energy costs and this will have reduced inflationary effects compared to the counterfactual. However, the EPG may have also had an indirect impact on inflation by raising disposable incomes. For the other schemes, in particular EBSS GB and NI, the presumed expectation of household income support schemes is that they would provide a stimulus within the economy. Households having more income available to spend on non-energy goods (as observed in the LCFS analysis in Table 4.5) would be expected to increase inflation, especially during winter 22/23 when inflation was already high, and the economy was near an inflation spiral.[86] There are no quantitative estimates for EBSS' impact on inflation, though it is likely to be much smaller than the EPG's due to its lower average value to households and indirect impact on headline inflation. To account for the net effect of the different schemes on inflation, it would be necessary to consider the sum of direct price effects of EPG (lower inflation) with the indirect income effects of EBSS/income supports (higher inflation).

On balance, it is therefore challenging within the scope of this evaluation to estimate the net effects of the schemes on inflation compared to the counterfactual, since it is not possible to disentangle the different ways in which households responded to the support schemes, and quantify the impact these would have had on inflation.

4.3.5. Conclusions on the contribution claims on household non-energy spending and the wider economy

The schemes were intended to limit households cutting essential spending on items other than energy. As with the contribution claims in Sections 4.1 and 4.2, the schemes were expected to

[83] Non-domestic energy affordability support schemes: evaluation.
[84] Consumer price inflation, UK - Office for National Statistics
[85] The introduction of the EPG meant that the effective level of the Ofgem energy price cap was limited to an annual cost of energy for a typical dual fuel household of £2,500 in GB, preventing a rise to £3,549 in 2022 Q4. Energy prices still increased from the previous month by 24%, but were significantly lower than the rise of 75% that would have happened in the absence of the EPG.
[86] House of Commons Library (2024). Research Briefing CBP 9428 Rising cost of living in the UK.

do this by: (1) reducing the cost of energy bills and therefore reducing expenditure for households on energy, thus freeing up income for other goods and services (2) providing financial support (cashable vouchers or cash into bank accounts) that could be used on energy, but also – possibly – on other household spending. Where used for energy, this would also free up disposable income for other goods and services.

A key causal pathway in the energy affordability schemes ToC was that reduced annual energy bills would increase households' disposable income, compared to a no intervention scenario, which could also then support households to maintain their non-energy related spending. For flat-payment schemes such as EBSS, the contribution claim anticipated that the schemes would have the greatest relative impact on lower income households as the support typically represents a greater proportion of their energy bills and household costs. For volumetric schemes, such as the EPG, it is anticipated the nominal benefits of the schemes would be greatest among households with highest energy demand. The evaluation has also explored whether households maintained both energy and non-energy spend by increasing their household debt or reducing their savings.

The modelling evidence shows that, compared to the counterfactual, households spent less on energy (in the case of gas and electricity) and more on other goods and services. This supports the hypothesis that, as a consequence of the energy affordability schemes, households were able to allocate a smaller proportion of their budgets to energy bills, enabling them to maintain spending on other categories of expenditure. This suggests that this hypothesised mechanism was valid, i.e. by lowering the proportion of household budgets spent on energy - relative to a counterfactual scenario - the schemes avoided reductions in expenditure on other goods and services.

While trend data shows that household debt remained broadly consistent before, during and after the energy affordability schemes, which could suggest that the schemes helped to mitigate increases in debt due to increased energy costs, it remains difficult to make a clear causal link between household debt and energy costs during this period. Analysis of the Family Resources Survey reveals an increase in the proportion of households falling behind on one or more domestic bills, especially those on average or below average incomes. However, this analysis is only descriptive and does not provide a counterfactual for assessing the contribution of the schemes to mitigating the economic pressures experienced by some households.

Overall, the evidence indicates that it is **probable** that the schemes contributed to households' ability to maintain spending on essential goods and services, compared to a no intervention scenario. There is divergent evidence that while household borrowing and debt did not increase over the intervention period, there was an increase in indicators of household financial distress over this period, especially among those on average or below average incomes. However, it is not possible to ascertain the exact contribution of whether the energy affordability schemes may have mitigated this and there is no counterfactual to test against in this strand of the analysis.

In terms of the contribution of the schemes to macroeconomic impacts, both on inflation and on GDP growth, it was challenging to estimate the effects of the schemes within the scope of this evaluation. The evaluation could not disentangle the macro effects between the domestic and non-domestic schemes. It was also not possible to estimate the net effects of the schemes on inflation compared to the counterfactual, since it is not possible to disentangle the different ways in which households responded to EPG compared with the EBSS income support.

4.4. Health and Wellbeing

4.4.1. The contribution claim being tested

This section presents evidence that assesses and draws conclusions on the validity of the following contribution claim:

The schemes limit negative mental and physical health impacts arising from increases in energy bill costs (including limiting instances of cold-related illnesses that can arise from under-heating).

A potentially harmful impact of rising energy costs, identified when the energy affordability schemes were developed, was underheating and the subsequent adverse impacts this may have on health and wellbeing. It was anticipated that the energy affordability schemes would lower energy bills, making energy more affordable for households (or reassuring households that heating is affordable). This, in turn, would limit the extent to which households reduce the use of their heating, leading to a decrease in cold-related illnesses and ultimately improving overall health outcomes. There are also potential secondary effects from limiting households' accumulation of debt or energy debt which has been shown to be linked to mental health.[87] However, these secondary effects have not been directly estimated within the evaluation.

4.4.2. Evidence of the contribution of the schemes to health and wellbeing

The evaluation collected some qualitative evidence that households directly attributed any changes in their health or wellbeing to the schemes. For example, in a household interview, an interviewee reported:

> *"I don't think I would have managed without that payment. It would have been very difficult. I would have been in debt considerably and I really do thank the government. It would have been detrimental to my health, my mental health and my physical health as well." Participant 93, wave 1 interview (GB)*

Overall, this evidence was quite limited. This is because, whilst self-reported accounts of the effects of the scheme support on wellbeing and mental health are credible as evidence of a direct contribution (as individuals are often able to identify the things that cause them anxiety

[87] Fitch, C., Hamilton, S., Bassett, P. and Davey, R. (2011), "The relationship between personal debt and mental health: a systematic review", Mental Health Review Journal, Vol. 16 No. 4, pp. 153-166.

or reassurance), self-reporting is methodologically limited as a way of assessing the impact of the schemes on physical health. This is because multiple factors determine prevalence of mould and cold-related illnesses, including general individual wellbeing and baseline health, housing quality, ventilation practices, and regional climate variations. The following discussion draws on evidence from the literature and the interim evaluations of the link between the potential effects of rising energy prices on physical and mental health.

Evidence from the literature

The body of literature investigating the relationship between household indoor temperature and human health is extensive, and consistently suggests that living in a cold home may contribute to a range of negative health outcomes, including respiratory illnesses, cardiovascular diseases, poor sleep, and lower general health and wellbeing.[88] A number of studies have also investigated the negative association between indoor temperature and human health, by exploring the relationship between fuel poverty and underheating on a range of physical health and wellbeing outcomes.[89] A review of the literature is summarised in Annex B4.

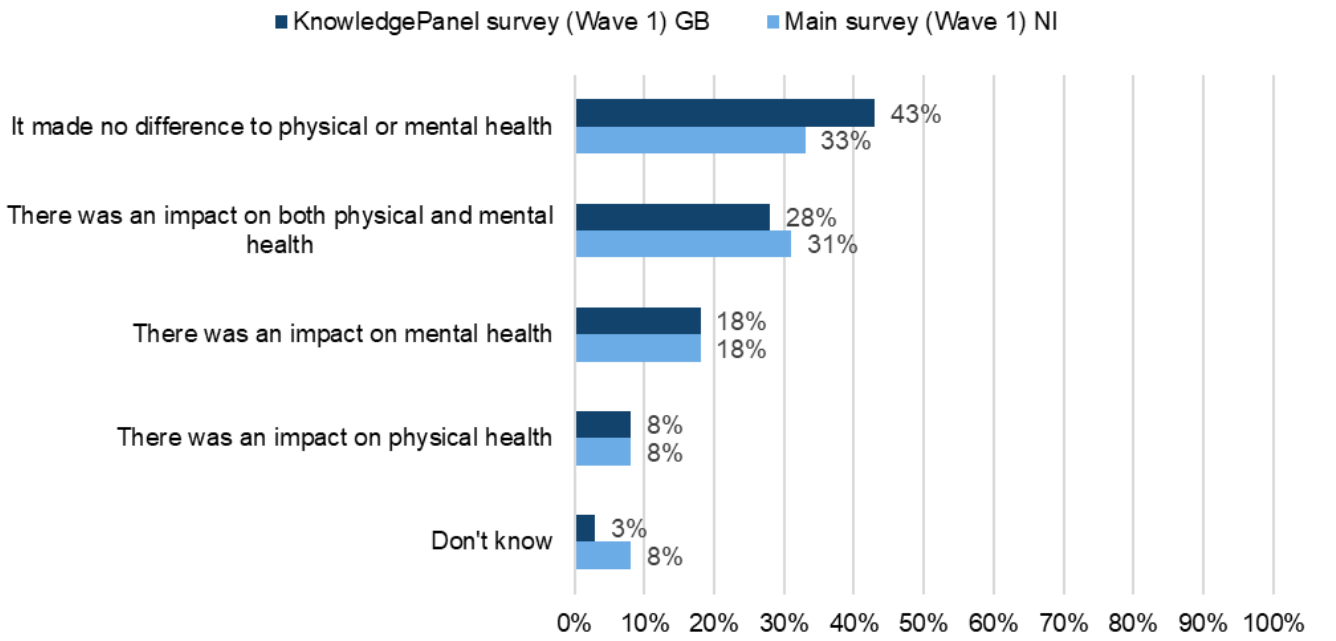
The literature review also showed the previous applications of the University College London (UCL) Health Impact of Domestic Energy Efficiency Model (HIDEEM) to estimate the impacts of policies on health. HIDEEM quantifies the health impacts of cold homes by estimating changes in indoor conditions due to energy efficiency or expenditure changes and translates these into health impacts based on the age-specific mortality probabilities and changes in disease prevalence, expressed in Quality Adjusted Life Years (QALYs). A QALY is a measure of the value of a year of life, adjusted for quality of life; one QALY is equal to one year of life in perfect health. [90] The HIDEEM model has been applied to national evaluations into the health and wellbeing impacts of policies which aimed to reduce underheating in households. For instance, the Warm Home Discount Evaluation,[91] used the HIDEEM approach to estimate the effect of providing the Warm Home Discount to households, in terms of the average increase of indoor temperature and the consequent overall change in physical and mental health. This model was adopted for this evaluation. More details on HIDEEM can be found in Annex B4, and Hamilton et al. (2015).[90]

Evidence from the interim evaluations: Surveys of GB and NI households

According to the nationally representative surveys, of the 71% of households in GB (77% in NI) who reported underheating their homes during the intervention period, 54% (56% in NI) - reported that this had impacted either their physical or mental health or both (Figure 4.4). Similar levels were reported among households who reported underheating their home in the alternative schemes survey, with 49% of GB (54% in NI) households stating that underheating their home impacted either their mental or physical health or both.

[88] Marmot Review Team (2011) 'The health impacts of cold homes and fuel poverty'.
[89] For example, Middlemiss, L. et al. (2023). How do interventions for energy poverty and health work? Energy Policy, 180, 113684.
[90] Hamilton, Ian, et al. (2015). Health effects of home energy efficiency interventions in England: a modelling study. BMJ open 5.4: e007298.
[91] BEIS (2018). Evaluation of the Warm Home Discount Scheme. Synthesis Evaluation Report.

Figure 4.4 Impacts of underheating on households' physical and mental health among households who reported underheating in winter 2022/23 (GB and NI surveys)



Source: Ipsos KnowledgePanel survey (GB) and NI nationally representative survey: G2. Which of the following is closest to your view about the impact of this on you and other people in your household? Base: All who underheated (GB, N = 5,516; NI, N=1,082)

Similar levels were reported among households who reported underheating their home in the alternative schemes survey, with 49% of GB (54% in NI) households stating that underheating their home impacted either their mental or physical health or both.

The nationally representative surveys also found that, amongst those who underheated in winter 2022/23, 28% of households in GB and 31% in NI also reported issues related to household illnesses (such as respiratory infections and colds) and 25% of households in GB and 26% in NI also reported issues related to mould, damp or rot. The interim evaluation evaluations showed that the proportions of those reporting these issues increased in winter 2023/24; this trend was also present for alternative schemes.

In January 2023, the ONS Winter Survey conducted with adults in Great Britain showed 34% of respondents agreed or strongly agreed that 'In the past two weeks, the increased cost of living has negatively affected my mental health'. The survey also asked about the most common issues that had negatively affected respondents' mental or physical health in the past month. The most cited were connected to energy use, with 27% of respondents reporting that 'not being able to afford to heat my home or having to cut back on energy use' had impacted their mental health and 20% that it impacted their physical health.[92] Similarly, in 2023, a Consumer Council for NI (CCNI) study[93] found that from research conducted in February/March 2023 just over half (51%) of those surveyed in NI said that they were not coping well with energy bills (at the time of the research), while nearly all (94%) of the

[92] Office for National Statistics (2023). Tracking the impact of winter pressures in Great Britain.
[93] CCNI (2023) The impact of the energy crisis on affordability and the impact of energy transition on consumers.

respondents in this survey reported being concerned to some extent about the current cost of energy.

Certain household demographics were more likely to report negative health impacts from underheating. The nationally representative survey in both GB and NI found that among those who underheated, households on universal credit, tax credits and personal independence payments, those renting (private or council), those spending over 10% of their income after rent/mortgage on energy, and households on PPM meters were more likely to report negative mental and physical health impacts. In GB specifically, those using electric storage as their main energy source were also more likely to report experiencing mental and physical health impacts. These negative impacts included illness in their household, such as respiratory infections, colds; stress or anxiety about paying energy bills; mould, damp or rot in their home; difficulty sleeping due to the cold; and anxiety about the health of household members.

The supplementary surveys showed that in GB, EBSS AF (57%) recipients were more likely to report an impact on physical health, mental health, or both in winter 2022/23, compared to AFP AF applicants (47%) and AFP eligible households (44%) who underheated their home in winter 2022/23.

4.4.3. Modelling the health and wellbeing impacts of the schemes

As discussed in Section 4.1, modelling conducted for this evaluation indicates that the energy affordability schemes were associated with a higher energy consumption compared to the counterfactual. The evaluation also finds that this may have led to better-heated homes compared to the counterfactual (although it was not feasible to collect data on indoor temperatures to prove a causal link between energy consumption and heating behaviour).

Through the HIDEEM model, the health and wellbeing impacts of the energy affordability schemes are measured in terms of Standardised Indoor Temperature (SIT) change,[94] mould severity, and mortality and morbidity impacts, as well as savings to the health service (presented in Section 5.2). The HIDEEM model predicts average effects for the total population, including both those who are at higher risk (i.e., those with pre-existing health conditions or older populations) as well as those at lower risk (younger populations and those without pre-existing health conditions). The model predicts health impacts based on age-specific mortality probabilities and changes in disease prevalence, expressed in Quality Adjusted Life Years (QALYs).[95] A QALY is a measure of the value of a year of life, adjusted for quality of life; one QALY is equal to one year of life in perfect health. Note that the HIDEEM model was designed specifically for England, Therefore, the findings from the model for England have been extrapolated to the whole of the UK by calculating per person values for England for morbidity, mortality and resource cost savings and aggregating this up to an

[94] The standardised internal temperature (SIT) measure in the HIDEEM model is a measure of the thermal condition of the dwelling ranked against all other dwellings, and is a function of the dwelling's energy and ventilation performance. This is based on models which estimate daytime living room and nighttime bedroom temperatures under standardized conditions (an outdoor temperature of 5°C).
[95] Hamilton, Ian, et al. (2015). Health effects of home energy efficiency interventions in England: a modelling study. BMJ open 5.4: e007298.

estimated total population figure for the UK. However this means that regional differences may reduce the accuracy of these estimates.[96]

- The HIDEEM model predicts that the energy affordability schemes contributed to an increase in the average household heating their home of at least 0.4 °C more (measured as Standardised Indoor Temperature (SIT) range) when compared to the counterfactual. The predicted effect of the energy affordability schemes on electricity and gas-heated households was greater, allowing these households to heat their homes by 0.6 °C more on average compared to the counterfactual.
- The HIDEEM model predicts that the energy affordability schemes reduced the percentage of homes with a mould severity index >1 range (which indicates favourable conditions for mould to grow, and can be a sign of indirect or hidden growth withing building cavities or other concealed spaces), equivalent to a decrease of -0.2% across all the energy affordability schemes compared to the counterfactual.[97]
- It suggests that in the absence of the energy affordability schemes, the UK population would have lost the equivalent of 140 QALYS over a year period (2022/23) in terms of mortality effects from temperature and humidity (damp) related deaths. This is equivalent to a contribution of £9.8 million in avoided mortality QALYs under the energy affordability schemes, compared to the counterfactual without the schemes.
- It also indicates that in the absence of the energy affordability schemes, the UK population would have lost the equivalent of 18,666 QALYS over a year period (2022/23) in terms of morbidity effects from temperature and humidity related disease. This is equivalent to a contribution of £1.3 billion in avoided morbidity QALYs under the energy affordability schemes, compared to the counterfactual without the schemes.

The HIDEEM model also predicts the savings to the NHS associated with these changes in physical and mental health outcomes. Savings to the health service are estimated to be £325 million.

It is not possible to split HIDEEM modelling results by scheme, because the effect of the input amount (the total level of financial support provided by the schemes) is not linearly associated with the outputs of the model. In other words, if the energy affordability schemes had been half the value that they were, the resultant health and wellbeing impacts would have been less than half the amounts estimated from the full scheme. Any attempt to separate out health and wellbeing impacts by scheme would therefore lead to a significant under-estimate of the overall impact of the schemes, and is not attempted here. However, for the CBA assessment of the

[96] For average effects (such as temperature and mould severity), this is less problematic. For total country effects, such as QALYs and cost savings, it is necessary to scale them to per-person effects, and then aggregate to the UK as a whole for the relevant fuel type. i.e., oil-heated

[97] The HIDEEM model quantifies the health impacts of this improvement in indoor temperature and mould severity due to the energy support schemes, through two dimensions: morbidity (cold and mould related disease) and mortality (cold and mould related deaths). Morbidity and mortality are both measured using the NHS standard QALY measure over a year period, which is the lowest period of time for which the HIDEEM model can estimate health impacts. See Cost utility analysis: health economic studies.

different schemes, discussed in Section 5.4.2 and Annex A3, the health benefits were apportioned based on the value of the transfers.

4.4.4. Conclusions on the contribution claim on health and wellbeing

The hypotheses underpinning this contribution claim were: that the schemes would lower energy bills, making energy more affordable for households (or reassuring households that heating is affordable), which would limit harmful underheating, leading to a decrease in cold-related illnesses and ultimately improving overall health outcomes.

There is clear evidence that the schemes lowered energy bills and good evidence that this affected energy expenditure and energy consumption. The evidence of the link between the schemes and heating behaviours is less strong. This means it is not possible to state with certainty that the schemes limited cold-related illnesses (see discussion below on the strength of the contribution claim). This evaluation has not independently assessed the causal link (the causal mechanism) between home heating and mental and physical health. However, there is evidence in the literature supporting the existence of this link and evidence collected through the interim evaluations of a perception amongst households of this association.

Over the intervention period, evidence from different sources, including primary data collected for this evaluation and secondary datasets, indicates that households underheated their homes. As the evaluation has also concluded that it was probable that the schemes contributed to limiting the underheating of homes, and since there is authoritative evidence of the link between home heating and health and wellbeing, this indicates a probable contribution of the schemes to health and wellbeing outcomes. The modelling conducted on health and wellbeing impacts presented in this section does not identify variation between subgroups; however, as presented in Sections 4.1 and 4.4.2, some groups were more likely to report in the interim evaluation surveys that they had underheated more than other households. Other groups (e.g., older people, those with underlying health conditions) might be more vulnerable to the effects of underheating and therefore potentially more likely to benefit from scheme support or, conversely, find that scheme support is not sufficient to address their needs.

4.5. Household energy debt

4.5.1. The contribution claim being tested

This section tests the following contribution claim:

The schemes contribute to limiting the number of households that would not be able to pay their energy bills and who go into energy debt with their supplier.

4.5.2. Energy debt and arrears over the intervention period

This section describes the evidence from the interim evaluation surveys and trends in energy debt and arrears for GB based on Ofgem data. It highlights where the trends might indicate a contribution of the schemes given the timing of the changes in trends.

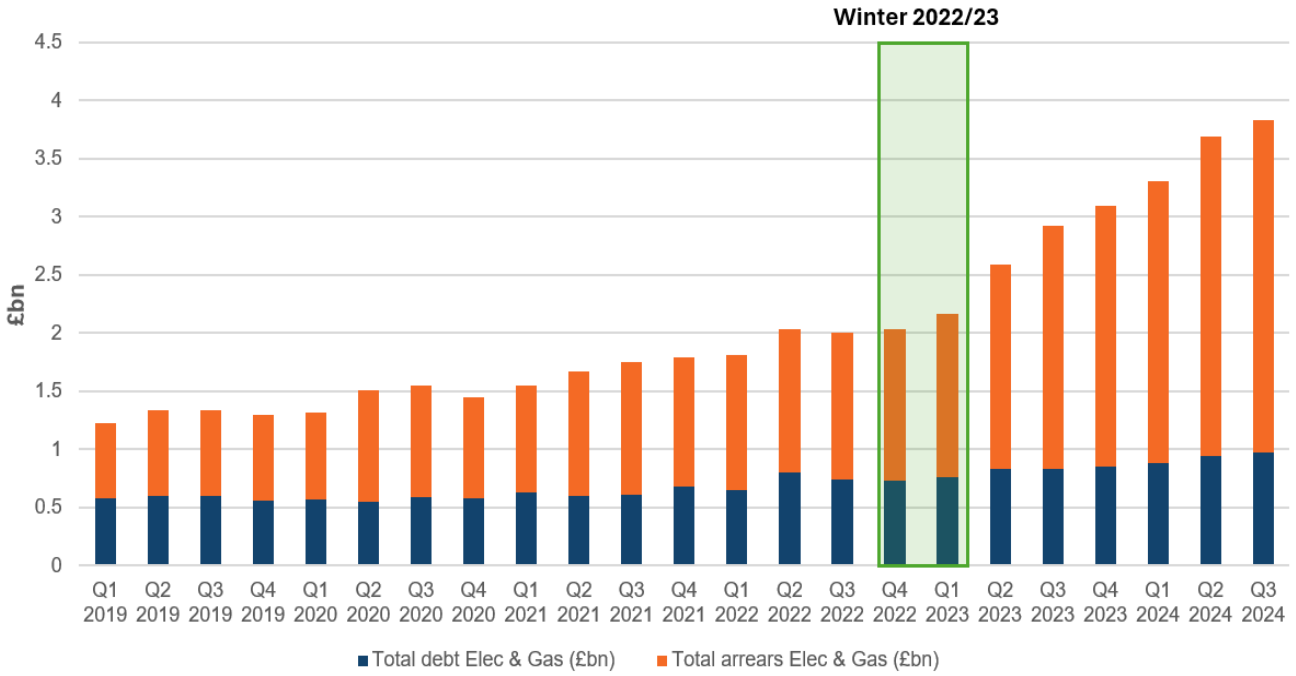
The interim evaluation of the energy affordability schemes in GB found that the number of customers in debt reduced for both electricity and gas during the intervention period while fewer households were in energy debt during the intervention period compared to prior periods.[98] The interim evaluation of the energy affordability schemes in NI concluded that there were relatively low levels of energy debt prevalent over the intervention period.

Figure 4.5 presents Ofgem data on the total financial value of debt and arrears for GB consumers before, during, and after the energy affordability schemes.[99] From the fourth quarter of 2020, there had been a consistent increase in the total value of both energy debt (where repayment plans are in place) and arrears (where customers do not have repayment plans in place). Initially, this trend may have been partly attributable to the economic impacts of the COVID-19 pandemic on household finances[100].

In the quarter leading up to the introduction of the energy affordability schemes (Q2 2022), there was a 12% quarter-on-quarter increase in the total value of energy debt and arrears. The implementation of the energy affordability schemes appears to have coincided with a relative stabilisation of energy debt and arrears. During the intervention period (winter 2022/23), the value of combined energy debt and arrears together showed only modest increases, with a two per cent quarter-on-quarter rise in Q4 2022 and six per cent in Q1 2023. This was driven mainly by the value of energy arrears. After Q1 2023, there was a sharp increase in the total value of debt and arrears owed by customers to suppliers. This pattern over the intervention period may suggest that the schemes contributed towards some temporary financial relief to households struggling with energy costs over winter 2022/23. This is further supported by evidence on the number of accounts in debt or arrears.

[98] See Page 112 of Interim Evaluation of Domestic Energy Affordability Schemes in Great Britain.
[99] Ofgem (2025) Debt and Arrears Indicators
[100] House of Commons Library (2021). Coronavirus: impact on household debt and savings

Figure 4.5 Total financial value of domestic debt and arrears for electricity and gas (£bn), in Great Britain



Source: Ofgem Debt and Arrears indicators

Examination of the number of accounts in electricity debt shows that these fell from a high in Q2 2022 of over a million accounts and (apart from a brief uptick in Q2 2023) continued to fall during 2023, including during winter 2022/23. The number of gas accounts in debt also followed this pattern, falling from a high of over 895,000 accounts in debt in Q2 2022 to just over 606,000 in Q1 2024.

Meanwhile, the number of gas or electricity accounts in arrears (i.e. where customers owe a debt to their supplier, but do not yet have a debt repayment arrangement in place) fell from Q2 2022 until Q1 2023 (i.e. including the period of the schemes) and then rose until Q3 2023 before falling back slightly until Q1 2024.

The overall upward trend in the total value of debt and arrears since Q4 2020 point to persistent challenges in energy affordability. While the intervention period coincided with some slowing in the rate of increase, the long-term trend suggests that broader economic factors, possibly including the impacts of COVID-19, continue to affect households' ability to manage energy costs and that energy prices remain high compared to pre-energy price shock levels[101]. However, the trends in the number of energy accounts in arrears or debt give more of an indication of the positive role played by the schemes in lessening the breadth of effect of increased energy prices on consumers.

[101] Gas and electricity prices during the 'energy crisis' and beyond - House of Commons Library

4.5.3. Evidence of a contribution of the schemes to limiting household energy debt

As set out above, analysis of Ofgem data on energy debt and arrears allows for before and after comparison of the energy affordability schemes for GB. The implementation of the energy affordability schemes appears to have coincided with a lessening of the value of energy debt and arrears and a continuation of the downward trend in the number of accounts from Q2 2022. This is set against the backdrop of generally consistent overall debt taken from the Financial Lives Survey, and an increase in those reporting being behind in at least one household bill from the Family Resources Survey (as set out in Section 4.3).

Evidence from the interim evaluations: Surveys and Interviews of GB and NI households and stakeholders

As reported in the interim evaluations, responses to the nationally representative (alternative scheme) surveys indicate a causal relationship, albeit self-reported, between the scheme support and perceived ability to pay for energy bills / avoid energy debt:

- 28% of households in GB and 34% of households in NI (21% and 31% in GB and NI supplementary surveys, respectively)[102] of households reported that without the government energy bill support, they would have (probably or definitely) been unable to afford to pay their energy bills in winter 2022/23.
- Similarly, 26% of households in GB and 17% in NI (11% and 24%)[103] of all households reported in the surveys that they would have been very or fairly likely to have gone into debt with their energy supplier without government support for energy bills during winter 2022/23. That only 11% of those on alternative schemes in GB said this suggests that this group might have been less in need of the support or reflect the fact that alternative fuel households and other groups more often pay upfront for their energy and could therefore have been at less at risk of going into energy debt.
- Furthermore, 11% in GB and 19% in NI (15% in GB and 16% in NI)[104] of households reported they would have needed to take on debt (or do so to a 'considerably greater extent' if they already had debt) without the energy affordability schemes in place in winter 2022/23.

Findings from the GB qualitative interviews with advocacy organisations gave the view that there had been a positive impact of energy affordability schemes on households' ability to afford their energy bills, particularly in the case of lower-income households. Similarly, in the

[102] Affordability of household energy bills in winter 2022/23 without financial support. Question QF2. Base: All (Nationally Representative: GB: N = 7850, NI: N = 961, GB Alternative Schemes: N = 8040, NI EBSS AF: N = 480).
[103] Likelihood of energy debt during winter 2022/23 without financial support for energy bills. Question QF6. Base: All who did not experience energy debt (Nationally Representative : GB: N = 5951, NI: N= 570 Alternative Schemes: N = 4350, NI EBSS AF: N = 298).
[104] Impact of winter 2022/23 on household energy bills without financial support (counterfactual scenario). Question QE2. Base: All (Nationally Representative: GB: N = 7850, NI: N = 1396, GB Alternative Schemes: N = 8040, not experience energy debt (Nationally Representative : GB: N = 5951, NI: N= 570 Alternative Schemes: N = 4350, NI EBSS AF: N =455).

household interviews, some GB and NI households directly attributed their ability to avoid debt to the schemes, and others reported that the schemes were very useful in helping them afford their energy bills without going into debt.

In wave 2 of the nationally representative surveys, many GB households reported continued difficulties in paying their bills, with some still struggling with debt from the previous winter, suggesting there may have been a carryover of financial strain into winter 2023/2024. The second wave of surveys found that 50% of GB households and 57% of NI households that were in debt to their supplier winter 2022/23, were also in debt during winter 2023/24.

On the other hand, having experienced the challenges of winter 2022/2023, some GB and NI households in wave 2 qualitative interviews reported adopting measures to better manage their energy bills. For instance, some GB alternative fuel households emphasised working on their budgeting and bulk-ordering of heating oil and/or wood and/or setting up automatic refills with fuel suppliers to avoid running out during the winter.

Pressures on borrowing are expected to be greater for lower income groups, who typically have lower savings to absorb the expense. Although many households were able to accumulate savings during the COVID-19 pandemic, this was concentrated amongst higher-income households. Energy bills form a larger share of lower-income households' spending, so their ability to use savings to support their consumption would have been limited. Lower-income households generally have less savings because a larger proportion of their income is dedicated to essential expenses, leaving little to save. Additionally, due to their limited disposable income, they are more likely to rely on these minimal savings to cope with any unexpected financial pressures, such as spikes in energy costs. This dual challenge means they have less flexibility to manage increased expenses without depleting their financial reserves.

When looking at responses from the nationally representative surveys across GB and NI on ability to afford energy bills in the absence of government financial support in winter 2022/23, for households who stated they were able to afford their energy bills, tenants, households on benefits, households on PPMs, and those spending over 10% of their income (after housing costs) on energy were less likely to report being able to afford their energy bills without government support. This indicates that these groups benefited more from the government schemes, as they relied on financial support to afford to pay their bills**.** Similarly, households who receive benefits, those who are of an ethnic minority background, and those who spend more than 10% of their income on bills, were more likely to respond that they would have gone into debt in the absence of the schemes.

Interviews with NI energy suppliers and regulators also highlighted the view that the schemes helped to limit energy debt. Interviewees said that self-disconnection would have been much higher in the absence of the schemes, and one supplier considered that EPG was a crucial intervention that avoided major financial hardship for customers, although they also suggested that this would be very difficult to prove.

4.5.4. Conclusions on the contribution claims on household energy debt

As per the ToC in Section 3.3, the schemes were expected to contribute to limiting the number of households that would not be able to pay their energy bills and who would go into energy debt with their supplier. It was anticipated that the schemes would do this by: (1) reducing the cost of energy bills (EPG), (2) providing a discount on bills (EBSS, for direct debit customers), (3) providing a voucher that could go towards the cost of energy credit for PPMs (EBSS, for PPM customers), and (43) providing financial support (cashable vouchers or cash into bank account) to pay for energy bills (for those paying for bills with cash, cheque or on credit).

The relationship between energy prices and energy debt is complex and multifaceted, with several economic theories explaining potential mechanisms of interaction. These theories consider what happens when energy prices increase, households face higher costs for their daily energy consumption, which effectively reduces their disposable income. These theories suggest that there is no simple theoretical evidence for a link between the schemes and the approach households took to their energy debt.

The evaluation has presented evidence that demonstrates that households did consider themselves more able to pay for their energy at least in part due to the schemes. The schemes were distributed in time for it to be possible for them to have caused the effects described in the contribution claim. In addition, although the evidence of trends in debt levels is based on descriptive statistics, with no comparison group or counterfactual (and therefore low levels of causality), the timing of the intervention coincides with slowing in the rate of increase in the value of energy debt. Over the intervention period the number of accounts in energy debt or arrears also continued to fall suggesting the schemes may have helped mitigate the impact that increased energy prices could have had over winter 2022/2023.

Overall, the evidence available indicates that it was **highly probable** that the schemes contributed to reducing energy debt compared to a no intervention scenario.

4.6. Energy supplier solvency

4.6.1. The contribution claim being tested

This section tests the following contribution claim:

The schemes help limit the risk of energy supplier insolvency and maintain the financial health of suppliers over the intervention period primarily by limiting energy debt and improving cashflow.

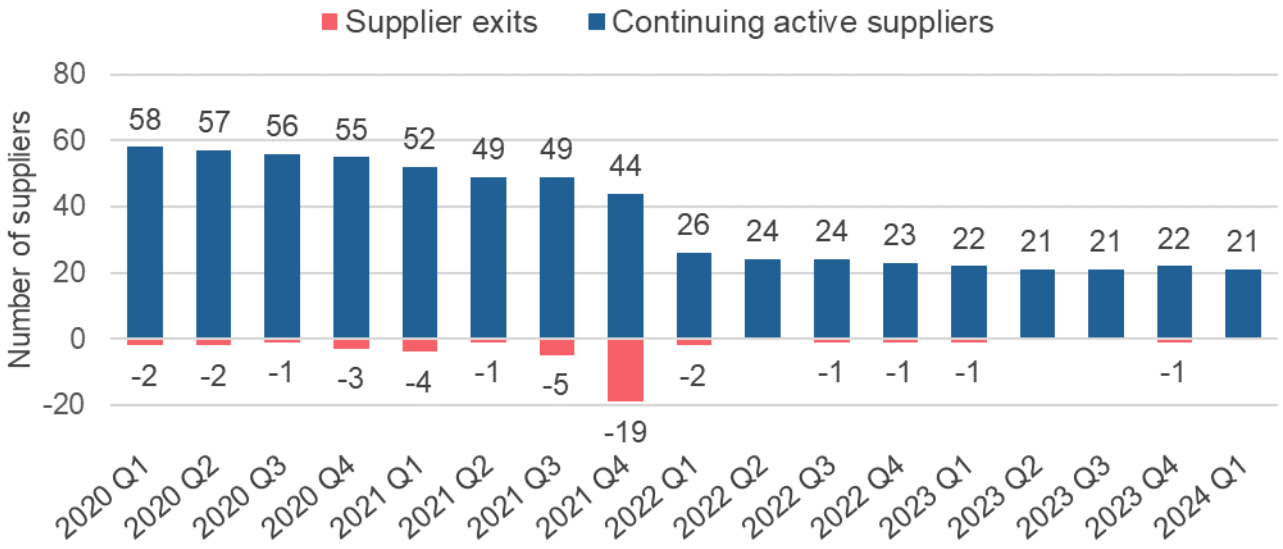
4.6.2. Energy supplier solvency over the intervention period

In the period immediately preceding the introduction of the energy affordability schemes, there was considerable instability among energy suppliers in the GB market. Data from Ofgem shows that in 2021, as energy prices started rising rapidly, there was a significant reduction in

the number of domestic energy suppliers in GB; with three domestic energy suppliers entering and 29 exiting[105] the GB market (19 of which were in the final quarter)[106]. Overall, this represented a considerable increase in the number of suppliers exiting the market relative to previous years, see Figure 4.6, below). In 2022, the year the energy affordability schemes were first introduced, the market observed a period of relative stability in the number of suppliers entering and exiting the market. No suppliers entered and four exited the market in 2022. This relative stability among the composition of energy suppliers in the GB market continued through winter 2023/24.

A report published by the National Audit Office[107] found that many suppliers who were allowed to operate in the market as result of relaxed regulation lacked financial resilience. The business models they adopted, for instance being more reliant on customer credit and operating with lower liquidity levels, exposed them to volatility in the energy market.

Figure 4.6 Number of continuing and exiting GB domestic suppliers



Source: Ofgem data portal. Note new entrants to the market are not shown in this chart.

As discussed in the NI interim evaluation report, the different energy context for Northern Ireland meant that there was much less risk of energy suppliers in NI becoming insolvent as a result of increased energy bills compared with those in GB.[108] One supplier exited the NI market in early 2022.[109] As part of the NI interim evaluation, a review was conducted of the audited accounts for the financial years 2021/22, 2022/23 and 2023/24 for each of the six electricity and gas suppliers in NI, to assess turnover and profitability as indicators of solvency

[105] Supplier exits are licensed suppliers that have stopped actively supplying customers in the GB domestic gas and electricity market.
[106] Ofgem Retail market indicators
107 National Audit Office (2022) The energy supplier market.
[108] See discussion in NI interim evaluation report Sections 2.1 and 6.4.
[109] Utility Regulator (2022). Further information regarding Bright's exit from the Northern Ireland electricity supply market.

over the relevant time period. Turnover decreased between 2021/22 and 2022/23 for three of the six organisations but increased in the others. The trend for operating profit before tax was also mixed with three showing decreasing profit from 2021/22 to 2022/23 which then increased in 2023/24, one showed a steady decrease in profits across the three financial years and two showed a steady increase.

4.6.3. Evidence of a contribution of the schemes to supplier solvency

Evidence from Ofgem's stress test results for GB suppliers

As part of their role in assuring the financial resilience of licensed GB energy supplier companies, Ofgem carry out regular stress tests of the main retail suppliers serving domestic consumers. In August 2022, Ofgem received the results of stress tests using data produced by suppliers which included a two-year forecast of profit and loss, balance sheet and cashflow. These tests set out the forecast position of companies against four different price shock scenarios: 1) central price (most likely outcome), 2) low price, 3) high price and 4) very high price. The results of the stress tests reported in this section are based on the analysis of the central price scenario and comprise a forecast of the energy suppliers' financial position at the beginning of winter 2022/23 and at the end of it. [110]

The key findings from the Ofgem stress tests were that: a majority of suppliers were forecasting an operating loss for financial year 2022 - 2023. Around half also had a net liability position from October 2022 - March 2023. Around one quarter were in more significant financial stress in October 2022. At the end of winter (March 2023), 50% were forecast to have negative cash, without support from group financing.

This meant that six suppliers were at risk of financial difficulties before the schemes[111]. When taking into account the effects of EBSS and EPG, Ofgem assessed that there was a decrease in the number of suppliers at risk. Taking into account the effect of just EBSS, two of the suppliers that were rated at risk of negative cash flow, then became able to manage.[112] When adding in the additional effect of EPG to this position, the Ofgem assessment then found that for two of the remaining four suppliers forecast as at risk, EPG was essential for the continued solvency of at least two.

This suggests that at least two retail suppliers in the GB domestic market may have been protected from insolvency by EPG, based on the forecasts received in August 2022. A further two may have been protected by the introduction of EBSS GB alone. While there is some contextual evidence presented above that highlights the number and composition of GB energy suppliers stabilised in the period following the intervention being introduced (see Figure 4.6), there are several alternative factors that may explain this outcome. For example, Ofgem's data shows that 49 suppliers exited the market between 2019 and 2021, effectively removing some of the 'financially weaker' suppliers from the market. As a result of this survivorship bias,

[110] Note that this data was not made available in time for the GB interim evaluation.
[111] This excludes one supplier that was already under a special administration regime.
[112] The impact on liquidity was dependent on the timing and quantity of the payments, which were spread evenly over the 6-month winter period irrespective of when they may have been needed.

the suppliers remaining by the start of winter 2022/23 would have been skewed towards a more resilient group of suppliers that also faced fewer competitors compared to previous years.

This is supported by the fact that, in Q3 2022, of the 24 suppliers operating in the market, nine were considered in financial stress, and only two of these were forecast to become insolvent without the affordability schemes. The results of Ofgem's stress tests, suggest that the schemes were helpful for some domestic energy suppliers, but operated in a market that was structurally already quite resilient. As such, the schemes have been a factor in the financial health for only a small number of suppliers.

Context for the Northern Ireland supplier market

As the NI energy market is characterised by a small number of suppliers that have been in place for some time, there was no evidence of financial difficulties in the period prior to the interventions. This, together with the existence of an Energy Charter to support vulnerable customers and minimise energy debt [113], means the situation during the energy crisis was considerably less volatile than in GB. However, half of energy suppliers reported reduced profits before tax in 2022/23 compared to the preceding and following years, and in interviews, suppliers and the regulator UREGNI highlighted that the schemes protected customers and helped to limit energy debt and disconnection meaning cashflow could have been tighter and profits could have been reduced further had the schemes not been in place.

Evidence from the interim evaluations

Interviews with suppliers in both GB and NI conducted for the interim evaluations indicated that the schemes helped reduce supplier insolvency risk by decreasing the number of customers reducing their energy consumption, disconnecting from the energy supplier, or not paying their energy bills. Bespoke survey evidence from the GB and NI interim evaluations indicates that a large majority of households were not in energy debt over the intervention period (as set out in Section 4.5) and for a proportion of these lower energy debt was reported to be due to government support. Of the 76% of GB (89% in NI) households in the interim evaluations' nationally representative surveys that reported they did not go into debt with an energy supplier in winter 2022/23, 20% of GB (14% in NI) households reported it was "fairly likely" and 6% of GB (3% in NI) "very likely" that they would have gone into debt with their energy supplier without government's financial support.

Evidence from interviews with GB energy suppliers supported the proposition that the schemes had contributed to reducing market risks. One energy supplier felt that due to the schemes their profitability was 'probably' more assured as they could plan for consumption levels and profit margins more effectively with the EPG. However, since initial payments were based on

[113] In November 2022, NI energy suppliers together with UREGNI, the Consumer Council and the NI government departments for Communities and the Economy, signed up to an Energy Charter which committed them to a series of measures to provide practical support to vulnerable consumers, who were the most at risk of energy debt and disconnections. UREGNI energy charter.

estimates, and the final, corrected payments were only made after the actual consumption data was available, the EPG did not provide full clarity and certainty with which suppliers could plan.

Another energy supplier reported that the schemes reduced their exposure to debt risk and bad debts, and highlighted that meant that they were at lower risk of insolvency compared to other companies in the sector.

> *"Due to the makeup of our customers, [our company] is not as exposed to insolvency. Schemes reduced our bad debt expense and exposure to debt risk. [Our company] would not have been as at risk as other suppliers." – Energy supplier 2, wave 1 interview (GB)*

Concerns were expressed during interviews with various GB energy suppliers about the cashflow implications of increased customer debt and non-payment. Energy suppliers that were of relatively small size and market share highlighted their particular exposure to this issue. This was because of the difficulties for small suppliers to build up capital reserves in the face of decreased revenue. The extent to which individual energy suppliers were exposed to customer debt and insolvency risks following the energy price increases – and therefore the extent to which the interventions helped to limit this risk to suppliers – was partially dependent on the make-up of the supplier's customer base. Energy suppliers with a higher percentage of low-income households or PPM customers were more exposed to insolvency risk due to customer non-repayment or disconnection.

In GB, two energy suppliers also reported that the schemes mitigated the risk of customer non-payment.

> *"The supplier side was supportive as it mitigated risk of customer non-payment. We don't have any data on disconnections, but the debt picture has got worse over that winter... We were seeing a steady increase in non-payment or part payment through that summer and into the winter and the EPG scheme softened that blow." – Energy supplier 3, wave 1 interview (GB)*

> *"Building up capital reserves is very difficult, for a small supplier to be able to provide the support to customers is risky… and the schemes allowed to be more supportive to customers. Part of payment from the customer is guaranteed from the government and it probably supported suppliers through a 30-year energy cost high." – Energy supplier 4, wave 1 interview (GB)*

However, they reported that there were no material changes to insolvency risk, but it helped to further extend support to customers.

In NI, none of the energy suppliers directly reported that the energy affordability schemes impacted their risk of insolvency. Some suppliers acknowledged that factors impacting financial health (e.g., customers' energy debt and disconnections), did not get worse during the

intervention period. The Strategic Report supporting the 2022/23[114] audited accounts for one supplier in NI stated that the "the support measures…have been positive for the Company's residential and business customers". Overall, there was a much lower risk of energy suppliers becoming insolvent in NI compared with those in GB; due to their size, stability and relatively low competition in the NI market. However, it is likely that the energy affordability schemes limited increases in energy debt and disconnection which could have impacted their profits.

Triangulation with findings on other contribution claims

Section 4.1 concluded that the schemes – specifically EPG – contributed to households continuing to consume energy, and Section 4.5 (on energy debt) concluded that the schemes contributed to limiting the amount of energy debt households would experience in the absence of the schemes. Therefore, it is highly plausible that the schemes (by mitigating underconsumption and energy debt) would also contribute to limiting energy supplier insolvency.

4.6.4. Conclusions on the contribution claim on energy supplier stability

The evidence discussed above from both the interim evaluations, the Ofgem stress tests, and data on GB supplier solvency between 2019 to 2023 paints a picture of causality. It suggests that the schemes supported financial stability for suppliers in GB through two mechanisms: (1) providing a buffer against household energy debt by ensuring an additional flow of finance; and (2) limiting increases in the number of consumers self-rationing and self-disconnecting and limiting increases in household energy debt. However, the data also suggests that a key driver of supplier resilience in GB, were market factors (external to the scheme support) which led to 'financially weaker' suppliers exiting the market prior to and in the early stages of the energy price rises, leaving those suppliers able to remain in operation[115]. In NI, the interim evaluation concluded that the energy affordability schemes limited increases in energy debt and self-disconnection which could have negatively impacted supplier profits, but the risk of supplier insolvency was much lower, so the schemes were not as necessary as an intervention for mitigating supplier insolvency risk.

In the period immediately preceding the introduction of the energy affordability schemes, there was considerable instability among energy suppliers in the UK market (with 19 suppliers exiting the market in the final quarter of 2021 alone). At least two retail suppliers in the GB domestic market may have been protected from insolvency by EPG, based on the forecasts, received in August 2022. A further four may have averted financial difficulties caused by liquidity issues without the additional support provided by the affordability schemes. There was some variation in impacts reported dependent on the type of supplier and their customer base, with those

[114] This document was reviewed during the NI Domestic Energy Affordability Schemes interim evaluation.
[115] Note that Ofgem also increased the price cap during the energy support schemes in two ways: First they calculated some of the margins based on the actual wholesale cost (based on the cost stack, including high wholesale prices) rather than the cost following the EPG reduction; and second Ofgem added an allowance to compensate for underestimates of costs in previous price cap periods.

serving more low-income households or prepayment meter customers being more vulnerable to insolvency risks.

Evidence from interviews with GB energy suppliers bolstered the view that the schemes reduced market risks, for example allowing for more predictable profit margins, and reduced exposure to high levels of household energy debt by supporting households to pay their bills. The results of Ofgem's stress tests, suggest that the schemes were helpful for a number of domestic energy suppliers, but operated in a market that was structurally already quite resilient. As such, these have been determinant only for a small number of suppliers. Forty-nine suppliers exited the market between 2019 and 2021, effectively removing some of the 'financially weaker' suppliers from the market.

In NI, while no suppliers explicitly connected the schemes to reduced insolvency risk, they did acknowledge improvements in financial health indicators. There are only six electricity and gas suppliers. In contrast to GB, it has larger, more established companies and less competition. These companies experienced mixed turnover and profitability over the intervention period indicating no discernible effect of the schemes. However, by supporting households to pay energy bills, this the schemes contributed to a more stable market.

Given the Ofgem evidence, it is **highly probable** that the schemes contributed to mitigating against supplier insolvency in GB (where the risk was higher). The assessment of the strength of evidence tests are included in Annex A2.

5. Value for Money Assessment

5.1. The value for money (VfM) approach

This section sets out the value for money assessment of the energy affordability schemes, which included a Cost Benefit Analysis (CBA) conducted alongside a broader exploration of VfM using the 4Es framework (economy, efficiency, effectiveness and equity).

A CBA assigns monetary values to both the costs and benefits of an intervention, allowing for the evaluation of the net benefit of the intervention in monetary terms, relative to a counterfactual. For this CBA, the counterfactual is the scenario in which the schemes were not implemented and there was no equivalent intervention in energy prices and energy support in response to the energy crisis.[116] In this counterfactual, energy prices would have risen at market rates, and households would have received no price or income support to help them respond to high energy prices. Without the support, more households would have faced fuel poverty, reduced consumption to a greater extent, and been at greater risk of financial distress and unsafe heating behaviours.

To provide a comprehensive assessment of the value for money of the schemes**,** two distinct approaches to the CBA were applied:

- **The social value approach:** This method considers the schemes' value to society; therefore it accounts for the programme's overall effect on public welfare. While social benefits can include a wide range of impacts, this evaluation focuses on the additionality of the schemes in terms of welfare impacts and health benefits. Social costs in this analysis include: the increase in national debt, administrative costs of the schemes for suppliers, environmental costs, and fraud and error costs.
- **The Exchequer value approach**: This approach focuses solely on the direct effects of the schemes on public finances. Exchequer costs consider the total costs to government, including the value of the grants and administrative costs. Exchequer benefits include financial benefits directly to government, such as increased tax payments or savings from reduced government resource (e.g. NHS savings related to health benefits).

In this evaluation, a key distinction between these approaches is how the costs of the grants are handled. In this context, grants pass purchasing power between central government and households and do not involve the consumption of resources, as such they are considered transfer payments.[117] In line with Green Book guidance, transfer payments should not be included in overall estimates of Net Present Social Value, and so are not included in the social CBA, but are included in the Exchequer CBA. It is important to note this difference as the

[116] See Annex B1 for specification of counterfactual in relation to "do nothing" scenario.
[117] HM Treasury (2022) The Green Book - Section 6.3 Economic transfers

majority of the costs associated with the schemes are the discounts and payments disbursed. Consequently, the social BCR produced by this analysis is likely to appear high, but reflects the methodology set out by HMT. The social value CBA excludes the Exchequer costs of the schemes but also excludes the benefits which constitute a transfer from Exchequer to consumer. However, HMT Green Book guidance includes the following, "*Where transfers may have a distributional impact it may be appropriate to quantify and show these effects... This could involve showing the transfer of equivalent costs or benefits from one group in society to another, particularly when relevant to distributional objectives."*[118] Therefore, in the VfM analysis, the benefits include only the difference between the welfare weighted and unweighted consumer surplus benefits, representing the distributional impact of the schemes.

This value for money assessment also uses the dimensions from the 4Es framework,[119] as a lens through which to explore the wider aspects of the schemes' performance. Evidence from the process and impact evaluations are considered across four key dimensions:

- **Economy**: Explores whether scheme objectives were achieved at minimum cost, considering delivery models, deadweight, and alternative support scenarios.
- **Efficiency**: Concerns how well inputs (e.g. funding, resources) were converted into outputs, including delivery timelines, cost control, and ease of access for households.
- **Effectiveness**: Considers whether the schemes met their intended goals, using outcome and impact evaluations to assess behavioural changes and overall success.
- **Equity**: Examines how different social groups were affected, using geo-demographic and income data to understand distributional impacts and assess disparities.

This combined approach enables a more nuanced understanding of scheme performance and supports future improvements in cost-effectiveness.

Sections 5.2 and 5.3 set out the costs and benefits included in the CBA calculations, noting the differences between the social and exchequer value approaches. Section 5.4 sets out the CBA findings across and between schemes. Section 5.5 sets out the VfM within the structure of the 4Es framework. Sensitivity analyses of alternative approaches to the CBA and further details about this methodology are provided in Annex A3.

5.2. Costs

This section presents an estimate of the total costs of the schemes. Both the social and Exchequer costs incurred through the implementation and operation of the schemes are presented in Table 5.1. The total social cost is approximately £1.3bn and the total exchequer cost is £36.3bn.

[118] HM Treasury (2022) The Green Book - Section 6.3 Economic transfers
[119] King, Julian and OPM VfM Working Group (2018) OPM's approach to assessing Value for Money. Oxford Policy Management.

Table 5.1 Costs of the Energy Affordability Schemes 22/23 (£million)

Type	Social Costs	Exchequer Costs
Cost of Exchequer Finance		-£36,255
Cost of scheme delivery (government & agencies)	-£66	-£66
Time costs to public	-£1	
Environmental costs: Carbon emissions	-£978	
Fraud and error	-£254	
Total Costs	-£1,299	-£36,321

Table notes: All costs monetised over the 6 months of the interventions, i.e. Q4 2022 and Q1 2023. Figures may not sum exactly due to rounding. For sources, see Annex A3.

5.2.1. Social Costs

Social costs represent the total cost to society resulting from a policy, including both direct financial costs and indirect impacts, excluding transfer payments. The social costs of the energy affordability schemes are listed below. For further information on how these costs have been calculated, see Annex A3:

- **Environmental costs:** One of the key negative externalities of the energy affordability schemes is the additional carbon emissions generated due to energy consumption not falling as much as it would have in the absence of the schemes. Although household energy use during winter 2022/23 was lower than pre-crisis levels, modelling of administrative data indicates it remained higher than in a counterfactual scenario where energy prices rose without government intervention.[120] Furthermore, given the evidence of some policy deadweight in the schemes (which may have incentivised higher income groups to consume energy at a higher rate than they would have in the counterfactual, see Table 4.2), there is an argument that the schemes could have disincentivised higher income households from adopting more energy efficient behaviours. This can be seen in the higher levels of energy consumption and the resulting higher carbon costs, relative to the counterfactual. It is possible that these emissions could have been avoided through means testing, to ensure that those who could still heat their homes comfortably at lower consumption levels were incentivised by the market to reduce usage. However, means testing would have introduced additional administrative costs and delayed payments reaching households. These consequences of the schemes will have an associated greenhouse gas emissions and air quality impact. The social value CBA incorporates carbon costs to capture the indirect impact of the schemes, since energy consumption was higher than the counterfactual (although lower than pre-crisis levels). The combined carbon cost across fuel types is £977.5m. The sensitivity analysis in Annex A3.4 includes a scenario where carbon costs are not modelled, reflecting that energy consumption under the schemes was lower than would be expected if energy prices had remained around their 2021 levels.

[120] DESNZ's review of the average annual domestic gas and electricity consumption levels shows falls year on year, including 22-23.

- **Time costs to public:** These are the costs the public incurred based on the time they spent applying for application-based energy affordability schemes (namely EBSS AF and AFP AF) and showing they met the eligibility criteria. The estimated total cost is £1.1m.
- **Cost of scheme delivery:** These refer to the costs incurred to the public purse due to delivering the schemes. These costs include cost of the policy set up such as software development, delivery costs including financial processes, compliance, reporting and scheme closure costs. These costs are estimated to be £66.4m.
- **Fraud and error:** This component focusses on the likelihood that the affordability schemes were affected by fraud and error in their implementation and delivery. Fraudulent or erroneous payments may not have provided the same social benefits as payments that were made as intended, and therefore are included as social costs. Levels of fraud and error are based on estimates included in the 2024 report on the NAO review of the schemes,[121] as set out in Table 3.3 in Annex A. The report concluded that the rates of fraud and error associated with the schemes were low (<1%), particularly compared to the rates associated with general government spending (0.5 – 5%) and COVID-19 support (up to 11%). The report noted that the use of fraud experts in the design of the schemes may have mitigated rates of fraud and error in the final delivery. Fraud and error costs are estimated to be £253.8million[122].

5.2.2. Exchequer Costs

Exchequer costs reflect the direct cost of a policy or programme to the public sector, such as government spending and delivery costs. The exchequer costs of the energy affordability schemes are as follows:

- **Exchequer Finance:** The Exchequer Costs include the full costs of payments made as part of all schemes, including the transfer payments excluded from the Social costs. These costs are £36.3 billion.
- **Cost of scheme delivery:** The costs incurred in the process of delivering the schemes are also included as Exchequer costs. These costs are the same as in the social value approach, estimated at £66.4m.

5.2.3. Costs not modelled in CBA

Some recognised costs of the schemes are not directly modelled as part of the CBA, either to avoid double counting or because they are beyond the scope of the evaluation:

- **Deadweight:** the proportion of spend allocated to households that would not have changed their behaviour in the absence of the schemes (i.e., they would have kept heating comfortably and would have maintained spending on other goods) can be considered deadweight. Although there is some evidence of policy deadweight of the schemes (i.e., that

[121] National Audit Office (2024) Energy Bills Support: an update
[122] Note that this figure is higher than the estimated £233.4m in fraud and error for the domestic schemes estimated in the DESNZ annual report and accounts 2023 to 2024, page 43.

the schemes incentivised higher income groups to consume energy at a higher rate than they would have in the counterfactual, see Table 4.2). For the purposes of the CBA this is not monetised as a cost. This is because the support represents a universal transfer to all households, and only the additional value of this transfer is captured on the benefits side of the equation as consumer surplus is welfare weighted to account for the differential benefits to lower and higher income groups. By taking only the welfare weighted uplift (i.e., the difference between the total value of the scheme and the welfare weighted value of the scheme), policy deadweight benefits should be excluded from the CBA.

- **Long-term costs:** While there may be longer-term costs to future generations from the impact of the costs of the energy affordability schemes contributing to national debt**,** these interest costs are outside of the scope of the CBA.
- **Supplier administrative costs**: These relate to the costs incurred by energy suppliers to administer the schemes and examples could include communication, software/system development, customer service and complaints, financial processes, compliance and reporting. However, this evaluation was not able to obtain sufficiently detailed estimates of administrative costs from enough suppliers to include in the CBA. However, from the limited qualitative evidence obtained, supplier costs are expected to be insignificant compared to the overall CBA. See discussion of limitations and further information on the evidence gained from suppliers in Annex A.

Annex A discusses the approaches employed to estimate the main energy affordability costs, alternative approaches considered, and the sensitivity analyses conducted.

5.3. Benefits

This section presents an estimate of the total benefits of the schemes. Both the social and Exchequer benefits are presented in Table 5.2. The total social benefits are approximately £5.5bn and the Exchequer benefits are £2.4bn.

Table 5.2 Benefits of the Energy Affordability Schemes 22/23

Type	Social value (£million)	Exchequer value (£million)
Welfare weighted uplift: Consumer Surplus from increased income and reductions in electricity, gas and oil prices	£4,187	
Tax from Consumer Surplus (non-welfare weighted)		£2,119
Health benefits due to avoided underheating: Total QALY value (mortality & morbidity) per year	£1,316	
Total health savings (avoided resource cost) benefits		£325
Total benefits	**£5,504**	**£2,445**

Table notes: All benefits monetised over 6-12 months, depending on granularity of input data. Figures may not sum exactly due to rounding. For sources, see Annex A3.

5.3.1. Social Benefits

Social benefits are the positive impacts of a policy or programme on society, including improvements welfare, environment, and other non-market effects, expressed in monetary terms. The social benefits of the energy affordability schemes are as follows:

- **Consumer Surplus and Welfare Impacts:** Consumer surplus is the extra monetary benefit a consumer receives when they pay less for a good or service, than the maximum amount they were willing to pay. It reflects the additional satisfaction or value gained from the transaction, because the price is lower than the perceived benefit of the product or service.
    - **Dealing with Transfers:** Following the analysis in Chapter 4, compared to the counterfactual without support, a consumer surplus is generated due to households not needing to spend as much to heat their homes to a comfortable temperature. This is estimated using the Equivalent Variation (EV) calculation which gives the increased consumer surplus from paying lower prices for energy and receiving income support to spend on energy and non-energy goods and services (through demand modelling in the LCFS). This captures the full consumer surplus benefits of the schemes' transfer. Some of this consumer surplus benefit is a simple transfer of public funds into reduced energy bills and/or income support. Given that the transfer costs of the scheme are excluded from the social value CBA, so too should the transfer benefits be excluded, which would net off in the CBA.
    - **Distributional considerations:** However, the social value CBA is able to account for the distributional benefits of the scheme, in terms of the additional value to lower income groups of the energy price and income support, which is greater when welfare weighting is applied. Welfare weighting accounts for the fact that a universal transfer is more valuable to those with more constrained budgets, compared to those with higher incomes.[123] This added value is captured in the welfare weighted uplift, which is the difference between the total consumer surplus value of the scheme and the welfare weighted consumer surplus value of the scheme. Welfare weighting is an estimate of the social welfare benefits of the schemes and is not included in the Exchequer value approach.
- **Monetised health benefits**: Further benefits relate to the value of health impacts associated with the scheme. Without support, households at all income levels would have reduced their energy consumption to a greater degree than was observed in the actual data over winter 22/23, and consequently households may have adopted unsafe heating behaviours that could have led to illness or death. The HIDEEM modelling predicts that the energy affordability schemes contributed to the ability of the average household to heat their home at least 0.4 °C (measured as Standardised Indoor Temperature (SIT) range)

compared to the counterfactual. The model predicts health impacts based on the age-specific mortality probabilities and changes in disease prevalence, expressed in Quality Adjusted Life Years (QALYs).[124] A QALY is a measure of the value of a year of life, adjusted for quality of life; one QALY is equal to one year of life in perfect health. In the absence of the energy affordability schemes, the UK population would have lost the equivalent of 140 QALYS in terms of mortality effects from temperature and humidity related deaths over the intervention period, and 18,666 QALYS in terms of morbidity effects from temperature and humidity related disease over the intervention period. This is equivalent to a contribution of £9.8 million in avoided mortality and £1.3 billion in avoided morbidity under the energy affordability schemes, compared to the counterfactual without the scheme (see Annex B4 for further detail of the HIDEEM modelling and Annex A3 for monetisation for the CBA).

- **Externalities and other wider effects:** The monetised social value benefits relate to Consumer Surplus and Health Benefits. Consumer energy subsidies produce externalities, such as those to health and the environment. Note that there may be some double-counting between the consumer surplus from energy price and income support (which households can use to heat their home to a more comfortable level, or for other non-energy welfare maximising spend) and the health impacts, which households will have to some extent already internalised in their energy consumption behaviour. However, only the distributional welfare weighted uplift from the consumer surplus is included in the CBA, and it is assumed that consumer surplus value around energy prices only captures part of the wider health and wellbeing effects of the energy affordability schemes. Therefore, although some double counting may exist between the consumer surplus of energy support and the health and wellbeing impacts of avoided underconsumption and fuel poverty, it is not possible to quantify the degree of this double counting, and it is assumed that the health and wellbeing impacts are additional to the consumer surplus from more affordable energy.

5.3.2. Exchequer Benefits

The exchequer benefits of the energy affordability schemes are as follows:

- **Exchequer value from increased VAT receipts due to higher non-energy spending:** The schemes provided households with financial support that not only helped maintain energy consumption but also preserved disposable income for other essential and non-essential expenditures, represented by the total consumer surplus of the scheme (before welfare weighting). Analysis of household spending patterns using LCFS data indicates that, in the absence of these schemes, households would have significantly reduced their non-energy consumption. By increasing disposable income for households, the schemes indirectly supported consumption, which in turn enhanced broader economic activity and resulted in higher VAT receipts for the Exchequer. The estimated £2.1 billion in additional VAT revenue reflects the fiscal benefit of stabilised household demand across a range of goods and services (applying UK tax rates of 20% on food, water, health, recreation, communication, transport, and education; 5% on energy spend) during the intervention

[124] Hamilton, Ian, et al. (2015). Health effects of home energy efficiency interventions in England: a modelling study. BMJ open 5.4: e007298.

period. This figure captures the direct tax revenue uplift attributable to the schemes' income effect on consumer behaviour.

- **NHS savings from avoided morbidity due to underheating:** As discussed in Section 4.4, the health benefits were captured in the social value approach, reflecting that the schemes helped prevent health conditions by maintaining safer indoor temperatures. For the Exchequer benefits, only the cost savings to the NHS are considered, rather than the social benefit of improved health. The avoidance of these health impacts resulted in an estimated £325 million in savings to the NHS, primarily through reduced demand for treatment and hospital admissions related to cold-related illnesses. These savings represent a tangible Exchequer benefit, reflecting the avoided resource costs within the healthcare system.

More detail on how these benefits were calculated can be found in Annex A3.

5.3.3. Benefits not modelled in CBA

Some benefits of the schemes are not directly modelled as part of the CBA, either to avoid double counting or because they are beyond the scope of the evaluation. These benefits relate to the social value approach and include:

- **Energy demand support:** The EBSS payments and EPG maximum unit price subsidy were aimed at limiting energy underconsumption, by lowering the cost of mains gas and electricity and allowing households to maintain their demand despite the rise in energy prices (i.e., it is considered the affordability schemes had both a price and an income effect on consumers' demand). The energy modelling showed that in the absence of the energy affordability schemes, households in the UK would have reduced their energy consumption by as much as a quarter over winter 2022/23 (25% in the case of gas-heated homes, 17% in the case of electricity-heating homes and around 1% in the case of oil). The welfare benefits of supported energy demand are included via the resultant health benefits, and so these are not included separately.
- **Multiplier effects**: on the benefits side of the equation, the evaluation includes the consumer surplus benefits of the EBSS and EPG transfer, but does not factor in the potential positive macroeconomic benefits of the transfer, in terms of multiplier effects through the economy associated with the additional expenditure on energy and non-energy goods, as these are considered outside of the scope of SCBA. For the same reason, the costs do not account for the potential negative indirect macroeconomic effects on inflation from the schemes (see discussion of macro-economic impacts in Section 4.3 and discussion of double counting in Annex A1).[125]

[125] As set out in Section 4.3, on balance, the two effects are assumed to be both minimal (given the actual size of the transfer per household) and to operate in the opposite direction, to some extent cancelling each other out in terms of effects on inflation, and making the net effect smaller. Furthermore, any Input-Output modelling would enable demand side expenditure flows to be assessed but exclude consideration of associated consequential effects of, and on, prices in other product and factor markets, as well as substitution effects, macro policy adaptations, etc. Therefore, these impacts are considered too uncertain and unmeasurable to be included in this evaluation.

Additional information about the methods employed to estimate the benefits associated with the energy affordability schemes is included in Annex A3.

5.4. Results of the Cost Benefit Analysis

5.4.1. Overall Cost Benefit Analysis for the Energy Affordability Schemes

The results of the CBA for all of the energy affordability schemes using the social value approach and Exchequer approach for the overall are discussed below and shown in Table 5.3.

Social Value

The total social benefits of the energy affordability schemes amount to £5.5bn, composed of the consumer surplus of lower energy prices and additional income to cover these higher prices, and the health and wellbeing benefits associated with the avoided mortality and morbidity effects of underheating, measured in terms of Quality Adjusted Life Years (QALYs). The social costs of the energy affordability schemes total £1.3bn.

The Net Present Social Value of the energy affordability schemes over winter 2022/23 is calculated as **£4.2bn. This equates to a social value Benefit Cost Ratio (BCR) of £4.24 for every pound spent.** For a full picture of the value for money of the schemes, the social and exchequer values should be considered together.

Exchequer Value

The Exchequer benefits amount to £2.4bn in additional net VAT from the increased non-energy spend (£2.1bn) and NHS savings from the health benefits associated with reductions in underheating (£325m). Exchequer costs are £36.3bn, which includes the total transfer cost of the schemes (£36.3bn) in addition to the administrative costs of scheme delivery to government and agencies (£66.4m).

The Net Present Exchequer Value of the energy affordability schemes is negative, at **-£33.9bn,** and this provides a **BCR below 1, a £0.07 return to the Exchequer for every £1 spent.**

Table 5.3 Quantified VfM assessment for the Energy Affordability Support Schemes Winter 2022/23

	Social value	Exchequer value
Total benefits (£million)	£5,504	£2,445
Total Costs (£million)	-£1,299	-£36,321
NPV (£million)	£4,205	-£33,877
BCR	4.24	0.07

Table notes: All benefits and costs monetised over 6-12 months, depending on granularity of input data. Figures may not sum exactly due to rounding.

5.4.2. Cost Benefit Analysis of different schemes

This section presents the results of the CBA for different schemes. This analysis compares the costs and benefits for the EPG scheme to all of the other schemes combined (i.e. all EBSS or alternative fuel (AFP) schemes). This approach was taken because the EPG scheme made up the majority of the transfer cost of the schemes (66%) and was the most novel of the schemes, given that it was a direct discount on the unit cost of energy bills. Annex A3 includes further information on how benefits and costs were apportioned between EPG and the other schemes.

In terms of the social value CBA:

- Net Present Value of the schemes is higher for the EBSS and AFP schemes (£2.7bn), compared to the EPG schemes (£1.6bn).
- The BCR was more positive for the EBSS and AFP schemes at 21.56 compared to 2.48 for the EPG scheme.

The difference in the NPV of different schemes is driven by differences in social costs between the two sets of schemes. Whilst the EPG scheme has social benefits of a similar scale to the EBSS and AFP schemes combined (£2.7bn and £2.8bn respectively), the social cost of the EPG scheme (£1.1bn) is roughly nine times higher than the EBSS and AFP schemes combined (£130m).

In terms of Exchequer value CBA:

- Both sets of schemes have BCR lower than 1, but the Exchequer BCR is slightly higher for the EBSS and AFP schemes (0.18:1) compared to the EPG scheme (0.07:1).
- The Net Present Value of the EPG scheme is -£22.4 billion, compared to the EBSS and AFP schemes at -£10.1 billion.

In sum, although EPG was shown to be more effective at influencing energy consumption behaviour (recall Section 4.1, and the higher effectiveness of EPG as an energy price control on energy consumption compared to income effects of EBSS), when the CBA is run on the two sets of schemes, EPG is found to be less cost-effective. This is because the consumer surplus benefits of any of the schemes are felt regardless of whether households spend the support on energy consumption or other non-energy consumption but the EPG scheme had higher costs. This demonstrates the difficulty of economic evaluation on a scheme with a considerable transfer component. In pure income terms, households gain as much consumer surplus from receiving direct income support as they do from energy price controls, but with lower costs of delivery. This highlights the challenge of evaluating a significant transfer of public funds using HMT Green Book methods, which are traditionally used for evaluating the net benefits of the outcomes generated from government investment, rather than measuring the consumer surplus of government investments in transfers of income from the Exchequer to households.

Table 5.4 Quantified VfM assessment for the EPG scheme compared to EBSS and AFP portfolio of schemes, winter 2022/23

	EBSS and AFP portfolio of schemes		EPG Scheme	
Type	Social value	Exchequer value	Social value	Exchequer value
Total Benefits (£million)	£2,802	£2,230	£2,718	£1,615
Total Costs (£million)	-£130	-£12,323	-£1,094	-£23,998
NPV (£million)	£2,672	-£10,094	£1,624	-£22,383
BCR	21.56	0.18	2.48	0.07

Table notes: All benefits and costs are monetised over 6-12 months, depending on granularity of input data. Some of the costs for administering the AFP schemes are included under the EPG scheme because there were shared staffing and other costs between the two schemes. However, the inclusion of these costs under EPG has a minimal effect on the VfM assessments given the different scale of these two schemes.

5.5. The 4Es Value for Money Assessment

This section sets out the value for money of the schemes by each dimension of the 4Es – Effectiveness, Economy, Efficiency and Equity. Findings from the price elasticity modelling and impact findings are integrated with process findings from the earlier interim evaluations for GB and NI. The synthesis of varied data sources, using the lens of the 4Es, allows the evaluation to give a more complete picture of value for money.

Each section below presents further detail and interpretation of the findings for each dimension. Although the dimensions are presented separately here, they are closely interrelated. For example, the effectiveness of the schemes in reaching households and maintaining energy consumption was shaped by the efficiency of delivery mechanisms and the economy of design choices, Similarly, equity considerations, such as the disproportionate benefit to higher-income households, have implications for both the economic cost of deadweight and the effectiveness of targeting support. These overlaps highlight the importance of interpreting the 4Es not in isolation, but as a connected framework which reflects the trade-offs and interactions inherent in policy delivery.

5.5.1. Effectiveness

'Effectiveness' explores whether the programmes achieved their objectives and whether the outputs produced by the intervention produced their intended outcomes. In particular, it considers whether the energy affordability schemes were successful in preventing impacts compared to a non-intervention scenario (i.e. where the energy affordability schemes had not been implemented). This dimension considers the following key questions of whether the schemes:

- Maintained household energy consumption compared to a no intervention scenario?

- Limited increases in the proportion of households experiencing fuel poverty compared to a no intervention scenario?
- Limited cuts in other essential household spending (e.g., food, essential clothing, medicines) and savings?
- Limited negative health impacts compared to a 'no intervention' counterfactual?
- Limited additional energy debt and household borrowing compared to a 'no intervention' counterfactual?

Maintaining energy consumption
The econometric modelling suggests that in the absence of the energy affordability schemes, mains gas and electricity households would have reduced their energy consumption by as much as a quarter over winter 2022/23 (25% in the case of gas-heated homes, 17% in the case of electricity-heating homes, and around 1% in the case of oil-heating homes).

The total social benefits of the energy affordability schemes amount to £5.5bn. This includes the welfare-weighted distributional impacts of lower energy prices and additional income, capturing the social value of consumer surplus to lower-income households, as well as the health and wellbeing benefits from avoided mortality and morbidity due to underheating, measured in QALYs**.**

Limiting increases in fuel poverty
While fuel poverty could not be measured directly for this evaluation, the findings from the modelling provide strong evidence that without the domestic energy affordability schemes, across all gas, electricity and oil-heating households, 3.8 million more households would have been classed as being in energy burden (spending more than 10% of their income after housing on energy costs). This represents around an additional 14% of the UK population who would have been classed as under energy burden in absence of the energy affordability schemes. These findings suggest that the schemes contributed to the affordability of energy for many households and likely reduced their risk of fuel poverty.

Limiting non-energy underconsumption
The modelling found that, across all three fuel types, UK households would have been able to spend more on all categories of household consumption during Q4 2022 and Q1 2023 under the energy affordability schemes, compared to the counterfactual with no intervention.

Limiting negative health impacts
The HIDEEM modelling suggests that in the absence of the energy affordability schemes, the UK population would have lost the equivalent of 140 QALYS in terms of mortality effects and 18,666 QALYS in terms of morbidity effects from temperature and humidity-related deaths. This is equivalent to a contribution of £9.8 million in avoided mortality and £1.3 billion in avoided morbidity under the energy affordability schemes, compared to the counterfactual without the scheme.

Limiting additional household borrowing and debt

In Q2 2022, just before the introduction of the energy affordability schemes, energy debt and arrears saw a significant 12% quarter-on-quarter increase. The implementation of the schemes coincided with a stabilisation of energy debt and arrears, suggesting these measures may have provided some relief to households struggling with energy costs. During the intervention period, combined energy debt and arrears showed only modest increases (2% quarter-on-quarter in Q4 2022 and 6% in Q1 2023). However, in Q2 2023, immediately after the schemes ended, there was a substantial increase in accounts in arrears (27% for electricity and 22% for gas). This suggests that many households may have been unable to afford their energy consumption without the support and struggled to adjust when they ended.

Looking at household energy debt, of all households who reported in the nationally representative surveys that they had not gone into debt during the interventions, 26% in GB and 17% in NI considered that they would have likely gone into debt with their energy supplier in the absence of the schemes. In the alternative schemes surveys the equivalent percentages were 11% in GB (of EBSS AF, AFP and AFP AF recipients) and 24% in NI of EBSS AF applicants.

5.5.2. Economy

'Economy' explores the extent to which the policy was designed to reach objectives at the lowest viable cost. This dimension considers the following key questions:

- Were the schemes correctly targeted to avoid deadweight?
- Was the support provided proportionate to the impacts?

Targeting of the schemes

The energy affordability schemes were designed as universal interventions, providing support to all households regardless of income or need. This approach was chosen to enable rapid rollout during a period of acute energy price volatility, avoiding the administrative complexity and delay associated with means-testing. This approach, however, results in trade-offs in the economy of the schemes.

The econometric modelling indicates that, without the energy affordability schemes, mains gas-heated households across all income levels would have consumed approximately 25% less energy over winter 2022/23. However, amongst electricity-heated households, the behavioural response varied by income. Lower-income households were estimated to reduce consumption by 11–13% without the schemes, while higher-income households would have reduced consumption by up to 24%. This disparity suggests that higher-income electricity-heated households had a greater capacity to maintain energy use in response to rising prices. As discussed in Section 4.1.3, this difference for higher-income electricity-heated homes may be due to their higher baseline consumption, which provided more scope to reduce/change usage in the event of higher prices (i.e. without the support) or due to differences in heating types and tariff types that are associated with different income levels. The implications for the economy of the schemes is that the universal design of the schemes resulted in support being provided to electricity-heated households that may not have required it to sustain consumption. This

introduces a degree of deadweight loss, where public funds subsidised energy use that would likely have occurred without intervention. However, the exact degree of this deadweight cannot be quantified by the evaluation, partly because heating behaviours could not be observed (see Section 3.4.3). Given that energy consumption is just one of the impacts of the schemes, it is challenging to estimate a single figure for deadweight loss.

Proportionality of support
The design of the schemes meant households received the same level of support regardless of their income level. Consequently, some households received support that was not proportionate to their need. Higher-income households had more financial resilience and so were at less risk of underheating, meaning they likely received support which exceeded what was necessary to prevent underconsumption.

While the schemes' designs avoided the administrative burden and delay associated with means-testing, it also may have meant that the schemes subsidised energy use beyond what was economically justified, contributing to inefficiencies in public spending. The proportionality of support is therefore a key consideration in evaluating whether the schemes delivered value for money, particularly given the significant fiscal cost involved.

Cost of the schemes
As shown in the CBA, the schemes had a large exchequer cost (-£36.3bn) reflecting the scale of the total transfer cost of the schemes. The cost of implementing and administering the schemes was £66.4m, which represents 0.2% of the total amount of the disbursement cost of the schemes.

5.5.3. Efficiency

'Efficiency' explores how efficiently inputs were turned into outputs. In particular, it considers how well the schemes were implemented, including reach, timeliness and operational effectiveness. This assessment considers the following key questions:

- Were households able to access the support for which they were eligible?
- Were schemes delivered on time and within budget?
- How well was fraud and error managed?

Reach and awareness of the schemes
Some form of support reached the vast majority of households in the UK: EPG was delivered automatically via energy suppliers, EBSS GB made 99% and EBSS AFP in NI made 98% of expected payments to households. However, although affecting a small proportion of the overall UK population, take up was lower than originally expected for the application-based schemes. The EBSS AF and AFP AF schemes were both application-based due to a lack of administrative data needed to identify eligible populations. Given this, the effectiveness of the schemes in delivering payments to eligible households was dependent on both awareness of the interventions and the extent to which eligible households were able to complete the relevant applications.

The GB and NI interim evaluations showed there was limited awareness of the schemes within the eligible populations. In addition, in GB, awareness of the application-based schemes was lower among vulnerable populations including those with lower digital literacy or access (such as those in care homes and people with a disability affecting their digital access or literacy) and those in hard-to-reach groups (such as those in temporary accommodation or those in remote locations). In NI, interviews with scheme delivery partners and representatives of advocacy organisations indicated a lack of awareness about the EBSS AF scheme and eligibility for it, particularly for older people, and those living in caravans, park homes or care homes.

Scheme delivery to qualifying households

Overall, the survey data from the GB and NI interim evaluations showed that the majority of households across schemes were satisfied with how the payments were delivered i.e., with how the support was paid to households, the amount they received, and the timelines of receiving the discount. However, experiences varied across different sub-groups of the bill-payer population. For example, 86% of respondents reported no issues with EBSS GB payments; this was 88% for white respondents, compared to 72% of ethnic minority respondents. Owner-occupiers were also more likely to report no issues with the payment than private or council tenants.

The interviews with Local Authorities (LAs) and representatives of advocacy organisations in the GB evaluation indicated that vulnerable households (which included individuals living in assisted living or temporary accommodation, or those with a disability) were more likely to face issues in the application process for EBSS AF or AFP AF, or in redeeming their EBSS GB or AFP vouchers (PPM households), and subsequently, in receiving their payment. This was largely attributed to communication issues with vulnerable groups and between households and energy suppliers, as well as low awareness and understanding of the role of intermediaries in passing on the EBSS GB discount. Similarly in NI, EBSS AF stakeholders noted that older people and farmers were reliant on the contact centre for applications and queries and also that there were challenges in providing proof of eligibility for some farmers or for those without a direct relationship with an energy supplier.

Monitoring and management of delivery risks

The overarching HMG/DESNZ monitoring arrangements were largely effective at administering and managing the schemes. DESNZ documentation indicates that project management tools (such as the EBSS GB delivery dashboard) were effective for tracking and monitoring scheme progress. However, stakeholder interviews and internal documentation highlighted challenges due to the rapid pace of delivery, evolving changes and lessons learnt as the schemes progressed.

For the GB schemes, the collaboration across delivery teams within DESNZ could have been improved to encourage greater synergies in delivery. This included knowledge sharing between delivery teams and increased dissemination of lessons learned. DESNZ scheme documentation indicated that improved internal communications across the portfolio of interventions was a key learning for delivery of the schemes. In addition, EBSS GB monitoring indicated resourcing challenges, such as a lack of analytical resources and sectoral expertise, stemming from the speed of scheme setup.

Fraud and error

From the inception of the programme, the Department aimed to minimise rates of fraud and error involved in the schemes, involving the Public Sector Fraud Authority during design stages and learning lessons from financial support provided during the COVID-19 pandemic. A review of fraud and error rates conducted by the National Audit Office (NAO) concluded that fraud and error rates across domestic and non-domestic schemes were estimated to be 0.7% of the value of scheme payments. Further discussions with the DESNZ team responsible for providing evidence to the NAO noted that the majority of these erroneous payments were error-related, rather than fraudulent. A breakdown by scheme is shown in Annex A Table 3.3. In sum, fraud and error rates were low, at under 1%, indicating that waste from fraud and error was minimal.

Delivery of energy affordability schemes to timelines

EPG, in both GB and NI, and EBSS GB (which together accounted for over 97% of the total support delivered) were in place before the end of 2022, ensuring support to the majority of UK households for winter. Schemes which were more complex to establish were delivered later: EBSS AFP in NI from January and the 'alternative' schemes (EBSS AF and AFP AF in GB and EBSS AF in NI) from February and March 2023.

Suppliers and LAs found it challenging to deliver the schemes within agreed timelines. EBSS GB placed a heavier burden on suppliers than EPG and AFP, due to its novel delivery structure which differed from their usual operations. LAs also experienced some difficulties due to the rapid implementation of the EBSS AF and AFP AF schemes in GB, especially those LAs involved in the pilot programs, who reported challenges refining guidance and systems within a tight timeframe. In NI, energy suppliers also reported increased burdens, stating that while EPG aligned with business-as-usual activities, EBSS AFP required new systems and processes, demanding extra time and resources.

5.5.4. Equity

'Equity' explores how the impact of a policy is distributed across a population and whether impacts differed between groups. This dimension considers the following key questions of whether the schemes:

- Reached those in need of support?
- Delivered equitable outcomes across population groups?

While the schemes were universally applied, their benefits were not evenly felt. Higher-income households received more in consumer surplus, meaning that, although the schemes were broadly distributed, they were less equitable in terms of outcomes.

Some household groups faced more barriers to accessing support. Interviews with local authorities and advocacy organisations during the interim evaluation indicated that some vulnerable households (including those in assisted living or temporary accommodation or those with a disability) were more likely to face issues in the application process for EBSS AF or AFP AF, or in redeeming their EBSS GB or AFP vouchers (PPM households).

Although overall reach was high for EBSS GB at 98.7%, one in eight (12.5%) of the vouchers issued to those with traditional pre-payment meters were not redeemed. Ethnic minorities, renters, and digitally excluded individuals were also more likely to say they experienced issues with the payment delivery of EBSS GB.

Interviews with local authorities and advocacy organisations highlighted the need for improved communication and support mechanisms for these groups. Despite these disparities, the interim evaluations showed broad satisfaction with scheme delivery across key sub-groups, with some exceptions noted for EBSS GB.

5.6. Summary of the Value for Money Assessment

The social CBA calculates a high NPV of £4.2billion and a BCR of 4.24, driven primarily by distributionally weighted consumer surplus and (unweighted) health benefits. These findings suggest that the schemes delivered substantial welfare gains, particularly in mitigating underheating and preserving household consumption during a period of economic stress.

In contrast, the Exchequer CBA has a negative NPV of £33.9 billion and a BCR of 0.07. This reflects the considerable fiscal outlay required to implement the schemes, including the full cost of transfer payments and administrative costs.

The 4Es framework further supplements this analysis. The schemes were broadly effective, helping households avoid up to a 25% reduction in energy consumption, preventing around 3.8 million households from falling into energy burden (a proxy for fuel poverty), supporting broader household spending and helping stabilise energy debt. In terms of the economy of the schemes, they delivered good value for money from a social perspective which came at a significant fiscal outlay. However, the universal design, while necessary for rapid delivery, likely reduced overall cost effectiveness of the support. With respect to efficiency, the schemes achieved near-universal coverage and low rates of fraud and error, but operational complexity and significant resource demands impacted cost-efficiency, and application-based schemes faced lower uptake due to limited awareness and barriers to access, particularly among vulnerable groups. Finally, concerning equity, benefits were not evenly distributed: higher-income households received more in consumer surplus, and some vulnerable groups faced barriers to accessing support.

Overall, the VfM assessment illustrates that while the schemes were successful in delivering immediate social benefits, they incurred substantial fiscal costs and exhibited mixed performance across the 4Es dimensions.

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