Department for Business, Energy & Industrial Strategy

# WARM HOME DISCOUNT SCHEME 2018/19

## Final Stage Impact Assessment

June 2018

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|---|---|
| **Title:** Warm Home Discount Extension to 2018/19<br><br>**IA No:** BEIS022(F)-18-HLE<br>**RPC Reference No:** N/A<br><br>**Lead department or agency:** Department for Business, Energy and Industrial Strategy<br>**Other departments or agencies:** None | **Impact Assessment (IA)**<br>**Date:** June 2018<br>**Stage:** Final<br>**Source of intervention:** Domestic<br>**Type of measure:** Secondary legislation<br>**Contact for enquiries:**<br>warmhomediscount@beis.gov.uk |

## Summary: Intervention and Options

**RPC Opinion: N/A**

| Cost of Preferred (or more likely) Option | | | | |
|---|---|---|---|---|
| **Total Net Present Value** | **Business Net Present Value** | **Net cost to business per year** (EANDCB in 2014 prices) | **In Scope of One-In, Three-Out?** | **Business Impact Target Status** Measure qualifies as |
| £168m | N/A | N/A | No | Non-Qualifying Provision |

What is the problem under consideration? Why is government intervention necessary?

Fuel Poverty is an affordability problem for households on low incomes that face high energy costs.

Improving the energy efficiency of the housing stock is typically the best way of supporting the fuel poor, but this is a gradual process. Direct support on energy bills can help bring costs down in the meantime, while also helping offset the distributional impacts of rises in energy prices, energy costs, and climate change policies funded through energy bills. The effect of rising energy bills is important, given that energy used to heat the home is a necessity, and consequently rising energy prices can have a regressive impact on low income households.

The Warm Home Discount (WHD) scheme began in April 2011 and provides assistance to more than 2 million low income and vulnerable households in Great Britain annually. In the 2015 Spending Review/Autumn Statement, the Government committed to the extension of the scheme until 2020/21. This impact assessment covers the extension of the scheme to 2018/19. Later this year, the Government intends to consult on potential reforms to make delivery more efficient and improve the targeting of WHD support for future years. An updated impact assessment will be published alongside that consultation.

**What are the policy objectives and the intended effects?**

The objective is to extend the current scheme for an additional year, with slight modifications to the spending caps within it, ahead of a potential future reform of the scheme. This will ensure continued support to qualifying households and have the following intended effects:

1) Reduce the depth of fuel poverty for a significant number of households by providing direct support on energy bills, while minimising the impact on competition within the energy markets, and ensuring households retain the incentive to actively engage in the energy market; and

2) Alleviate some of the distributional impacts of higher energy bills on low income and vulnerable households.

In the longer term, the Government intends to improve competition in the energy supply market and improve the distributional outcomes of the policy.

**What policy options have been considered, including any alternatives to regulation? Please justify preferred option (further details in Evidence Base)**

Do Nothing – the current scheme regulations that provide support to more than 2m households would cease after 2017/18, and it is not anticipated that participating energy companies would take action without government intervention.

Policy Option 1 (preferred option) – extend the Warm Home Discount to 2018/19, following largely the same obligation requirements as in 2017/18, supporting more than 2.2m households, including rebates for more than 1.1m lower income pensioners in the Core Group, and roughly 1.1m low income families in the Broader Group, while increasing industry initiatives from £30m to £40m and reducing the debt write-off cap from £12m to £10m.

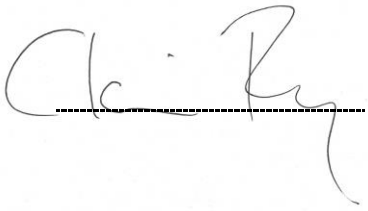
Policy option 1 is preferred as it ensures the Warm Home Discount continues to offer support to low income and vulnerable households. Extending the existing policy without modification has not been presented, as the Government intends to extend the funding to industry initiatives to encourage a diverse range of activities and foster innovation. Analysis suggests the NPV of an unmodified scheme would be very similar to the option presented in this IA.

The supplier obligation will be maintained at its current level for 2018/19, however it will be reduced to 200,000 for 2019/20 and to 150,000 for 2020/21. This is intended to improve accessibility of the rebate for vulnerable households, foster competition, and improve distributional outcomes of the policy.

**Will the policy be reviewed?** It will be reviewed. **If applicable, set review date:** 2019/20

| | | | | |
|---|---|---|---|---|
| Does implementation go beyond minimum EU requirements? | | N/A | | |
| Are any of these organisations in scope? | **Micro** No | **Small** No | **Medium** Yes | **Large** Yes |
| What is the $CO_2$ equivalent change in greenhouse gas emissions? (Million tonnes $CO_2$ equivalent) | | **Traded:** +0.12 | **Non-traded:** +0.25 | |

***I have read the Impact Assessment and I am satisfied that, given the available evidence, it represents a reasonable view of the likely costs, benefits and impact of the leading options.***

Signed by the responsible Minister:  Date: 14/06/2018

Summary: Analysis & Evidence Policy Option 1

Description: Extend the Warm Home Discount scheme until 2018/19 as per current terms of the scheme.

FULL ECONOMIC ASSESSMENT

| **Price Base Year** 2018 | **PV Base Year** 2018 | **Time Period Years 1** | **Net Benefit (Present Value (PV)) (£m)** | | |
|---|---|---|---|---|---|
| | | | **Low: £95m** | **High: £232m** | **Best Estimate: £168m** |

| **COSTS (£m)** | **Total Transition** (Constant Price) | Years | **Average Annual** (excl. Transition) (Constant Price) | **Total Cost** (Present Value) |
|---|---|---|---|---|
| **Low** | Optional | | Optional | **£534m** |
| **High** | Optional | | Optional | **£671m** |
| **Best Estimate** | | | | **£598m** |

**Description and scale of key monetised costs by 'main affected groups'**[1]

- Suppliers recoup the total value of their obligation, plus any administrative costs they incur, through raising prices. This is estimated to lead to equity-weighted costs to consumers of PV£510m – £515m. This includes supplier administrative costs of PV £5m – £9m;
- Increased income for rebate recipients is expected to lead to a net increase in energy consumption, which leads to additional resource costs of PV £11m – £102m;
- Those who do not receive the rebate experience a reduction of income, which leads to reduced energy consumption. Reduced energy consumption leads to reduced utility of PV £3m – £6m;
- The net increase in fuel consumption leads to GHG emissions costs of PV £3m – £39m;
- The net increase in fuel consumption leads to air quality costs of PV £1 – £8m;
- Administrative costs to Government: PV £1m – £2m.

**Other key non-monetised costs by 'main affected groups'**

None identified

| **BENEFITS (£m)** | **Total Transition** (Constant Price) | Years | **Average Annual** (excl. Transition) (Constant Price) | **Total Benefit** (Present Value) |
|---|---|---|---|---|
| **Low** | Optional | | Optional | **£766m** |
| **High** | Optional | | Optional | **£766m** |
| **Best Estimate** | | | | **£766m**[2] |

**Description and scale of key monetised benefits by 'main affected groups'**

- The benefits of rebates and debt write-off delivered to eligible households are split between increases in income and comfort;
- The portion of the rebate spent on fuel consumption leads to an increase in comfort, which is equity weighted to reflect the greater value of an increase in temperature in colder homes: PV £64m – £493m;
- The portion of the rebate not spent on fuel consumption is also equity weighted to reflect the greater value of a unit of income for poorer households. The value of this increase is PV £254m – £683m;
- The value of Industry Initiatives not spent on debt write-off or channelled towards additional rebates for the Broader Group is PV £19m.

[1] Figures may not sum due to rounding.

[2] Although the possible ranges for increased comfort and bill savings are large, the value of each in any given scenario has no impact on the total value of benefits. This is because the total value of rebates is the same in every case. High and low scenarios determine only the proportion of the rebate spent on increased comfort, which is treated as bill savings. Both these expenditures are equity weighted, therefore the total value of benefits is the same in each case.

**Other key non-monetised benefits by 'main affected groups'**

- An estimated net decrease of 110,000 households in fuel poverty and a £44m reduction in the aggregate fuel poverty gap, in 2015 prices[3].
- Improvements in physical and mental health of recipient households as a result of the reduction in bills and increased thermal comfort.

| **Key assumptions/sensitivities/risks** | **Discount rate (%)** | 3.5 |
|---|---|---|

**Discount rate (%)**

- Recipients of energy bill rebates increase their demand for heating fuels, whereas those who pay for the rebate but do not receive it reduce their energy demand for heating fuels;
- The responsiveness of household energy demand to changes in energy bills is based on evidence from published non-Government sources – Beatty et al (2011), Jamasb and Meier (2010);
- The income distribution of recipients is based on data from the 2017 Fuel Poverty dataset.

**BUSINESS ASSESSMENT (Final Policy Position)**

| **Direct impact on business (Equivalent Annual) £m:** | | | **Score for Business Impact Target (qualifying provisions only) £m:** |
|---|---|---|---|
| **Costs:** | **Benefits:** | **Net:** | |
| N/A | N/A | N/A | N/A |

[3] This modelling was based on the 2017 Fuel Poverty dataset which is based on EHS 2015 data, and reports in 2015 prices. We have not addressed the discrepancy for two reasons. Firstly, the fuel poverty impacts are not monetised and therefore this has no effect on the cost benefit analysis, and it allows comparison with the latest Fuel Poverty Statistics, which are also based in 2015 prices.

# Contents

# 1. Introduction

## 1.1 The Warm Home Discount Scheme

1. The Warm Home Discount scheme (hereafter WHD) was introduced in April 2011 and covers Great Britain. It succeeds a previous Voluntary Agreement between Government and the largest energy suppliers to provide household level support to reduce energy costs.
2. The total spending envelope was set during the 2015 Spending Review at £320m per year, in 2015 pounds, rising with inflation. For the period considered in this impact assessment, 2018/19, the total spend is set at £340m. This, alongside suppliers' costs of administering the policy, will be funded through increased energy bills for customers of obligated suppliers.
3. WHD provides direct energy bill support for many fuel poor households, but also reduces the bills of a large number of low income and vulnerable households[4]. This means that the policy both contributes to the Government's fuel poverty objectives, and also helps to address broader distributional concerns across low income households as a consequence of energy price rises and the impact of energy and climate change policies funded through bills.
4. The scheme currently provides help to more than 2.2m low income and vulnerable households annually in Great Britain. This comprises rebates of £140 paid to around 1.3m lower income pensioners and around 900k low income and vulnerable customers, and a range of other support to vulnerable households[5]. This is expected to increase to 2.3m during 2018/19, reflecting (nominal) increases in the WHD budget.
5. Currently, the WHD scheme has an overall expenditure target for each financial year, which is divided into 3 main subgroups. The majority of annual spending is on automatic discounts to the electricity bills of low income pensioners who are in receipt of a subset of Pension Credit, known as the '**Core Group'**.
6. The level of annual Core Group expenditure is determined by the number of qualifying households each year. In 2018/19 we expect that more than 1.1m households will receive Core Group rebates. The remainder is referred to as 'Non-Core' expenditure. Each year the Secretary of State for the Department for Business, Energy and Industrial Strategy sets a minimum level of expenditure that participating suppliers are required to undertake on Non-Core activities in that scheme year. The 'Non-Core' activities are broadly divided into two elements:

    - The '**Broader Group**' – participating suppliers provide energy bill discounts to a variety of low income and vulnerable households, including those of working age, who are deemed to be in or at risk of fuel poverty and are not part of the Core Group. The number of rebates delivered to the Broader Group depends on individual suppliers' behaviour, however we estimate that the Broader Group will receive roughly 1.1m rebates in 2018/19.

      In scheme year 5 (2015/16), the Government introduced a set of standard criteria that all participating energy suppliers had to adopt for their Broader Group schemes. Alongside this, energy suppliers were permitted to have additional criteria, subject to approval by Ofgem. The standard criteria were based on a variation of the Cold Weather Payments (CWP), and low income working families in receipt of in work benefits and with a child under 5 or disabled child.

    - '**Industry Initiatives**' – Until the end of scheme year 7 (2017/18), participating suppliers were permitted to spend up to a collective total of £30m per year on actions to support households in fuel poverty or at risk of fuel poverty. These include such activities as providing debt write-off, installing energy efficiency measures and offering energy saving advice or providing rebates to certain households.

      For the extension period (2018/19), the Government is proposing to raise the collective maximum Industry Initiatives to £40m, and reducing maximum spend on debt write-off from

[4] For example, in England many of these homes fall into the 'Low Income, Low Costs' category of households. For more information see DECC (2013) https://www.gov.uk/government/consultations/fuel-poverty-changing-the-framework-for-measurement

[5] See Ofgem Warm Home Discount Annual Report, Available at: https://www.ofgem.gov.uk/system/files/docs/2018/01/whd_annual_report_sy6_final.pdf

£12m to £10m. The latter is intended to reduce the high levels of spending on debt-write off, encourage other Industry Initiative activities, and ensure suppliers are not credited via a Government scheme for something which is commercially attractive and part of their responsibilities under their licence conditions.

7. The legislation covering the current scheme comes to an end in March 2018. New Regulations are required for the WHD scheme to continue. In addition to the above changes, the Government proposes to make minor amendments to the standard definition of Broader Group eligibility, while keeping Core Group eligibility unchanged. Lower income pensioners would continue to receive the rebate automatically. Low income households will still be able to apply to their suppliers for the Broader Group rebate, and if successful, the rebate will be awarded on a first come first served basis. A more detailed overview of the Broader Group eligibility criteria can be found in Annex 6.

8. In the longer term, the Government proposes to make more significant changes to the scheme to streamline delivery, and to ensure that support is better targeted at fuel poor households in greatest need. These improvements could be underpinned by new data sharing arrangements, which would enable us to provide working-age customers with Core Group-style automatic rebates for the first time. We are also seeking to bring new datasets to bear, including Government-held energy efficiency data, which would pave the way for rebates to be prioritised for those in the coldest homes. This is consistent with the commitments in the Fuel Poverty Strategy for England to target support at Low Income High Costs households and to do so through better use of data.

### 1.2 Fuel Poverty Indicators and Targets

9. Fuel Poverty is a devolved matter, with separate indicators, targets and strategies adopted by each nation of the UK.

10. In England, a household is considered to be in fuel poverty if the home has higher than typical energy costs and, were they to spend that amount on energy, they would be left with a residual income below the official poverty line. Households who meet both conditions are referred to as either Low Income High Costs (LIHC) or fuel poor. There are currently around 2.5m households living in fuel poverty in England. The Government has a statutory target to raise as many English fuel poor homes as is reasonably practicable to EPC band C by 2030, with milestones of band E (2020) and band D (2025).

11. Scotland and Wales use variations of the '10%' indicator, whereby a household is considered fuel poor if they need to spend more than 10% of their net income on energy; the Scottish Government has, however, recently published a consultation on changing their fuel poverty definition[6].

12. The analysis contained within this IA is based on the indicator of fuel poverty used in England, reflecting the greater evidence base in England; with the exception of fuel poverty impacts (due to differences in the indicators used in each nation), this has then been scaled up to represent impacts of the WHD across GB.

## 2. Rationale for Intervention

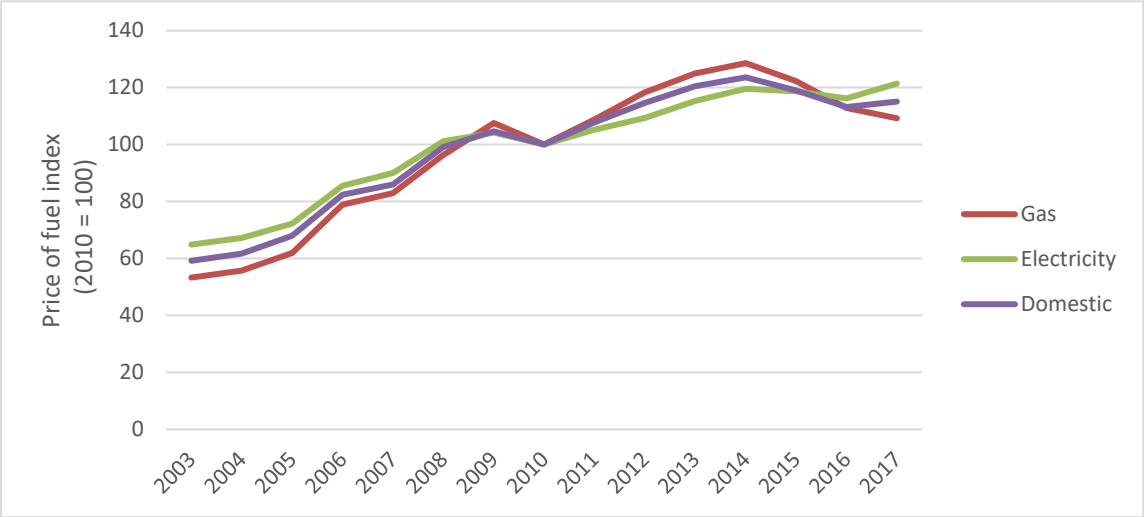
13. Helping to improve the thermal comfort and efficiency of fuel poor households through the installation of heating and energy efficiency measures is usually the most cost-effective way of reducing the cost of maintaining an adequate level of warmth and tackling fuel poverty. By the end of March 2018[7], approximately 809,000 measures were delivered to low income households through the ECO Affordable Warmth target.

6 Source: http://www.gov.scot/Resource/0052/00527441.pdf

[7] Household Energy Efficiency National Statistics (BEIS, 2018): https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/700717/Headline_HEE_tables_19_Apr_2018_FINAL.xlsx

14. However, upgrading the thermal efficiency of the housing stock is a gradual process and the Hills Fuel Poverty Review (2012) recognised the role of direct bill discounts in providing at scale immediate support in the short term as part of tackling the longer-term challenge around fuel poverty[8].

*Figure 2.1: Annual change in fuel prices, adjusted for inflation[9]*




15. The last 10 years show a generally upward trend in fuel prices, with the cost of gas and electricity having risen significantly. These costs fall disproportionately on the fuel poor, who have greater than average energy needs, and those with low income, who spend a greater portion of their income on meeting those needs. The extension of the WHD would ensure support to vulnerable households, through providing supplementary income to meet their demand for energy and other necessary goods.

16. The rationale for providing support to vulnerable households via energy bills is founded in equity considerations and supported by the role that direct bill discounts can have as part of a cost-effective mix of interventions to tackle fuel poverty[10]. The equity rationale has two main components:

- Fuel Poverty: Direct bill support can reduce the depth of fuel poverty (as 'measured by the fuel poverty gap'), remove households from fuel poverty altogether, improve the thermal comfort and health of assisted households, and help make progress towards the Government's statutory fuel poverty objectives; and;
- Distributional Equity: Rises in energy prices disproportionately affect low income households because heating is a necessity good, therefore spending on heat, on average, makes up a larger proportion of low income households' expenditure than higher income households. Thus, support for low income households to tackle rising energy prices is expected to have significant and positive distributional benefits.

# 3. Policy Options

## 3.1 Options Considered

17. Two policy options have been considered:
    - **Do Nothing**: under the current scheme regulations, support to low income and vulnerable households would stop at the end of the 2017/18 scheme year when the current scheme regulations expire. This represents the counterfactual against which the policy option is assessed.

[8] Hills (2012). Getting the measure of Fuel Poverty, Final Report of the Fuel Poverty Review, LSE, CASE report 72, Chapter 7, 144-173

[9] Quarterly Energy Prices (BEIS, 2017). Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/695128/QEP_Q417.pdf

[10] For more detail see DECC (2015). Cutting the cost of keeping warm - A fuel poverty Strategy for England https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/408644/cutting_the_cost_of_keeping_warm.pdf

- **Policy Option 1**: extend the WHD in its current form to 2018/19 with some changes to the Industry Initiatives. These changes entail increasing the maximum collective spend on Industry Initiatives to £40m, reducing the collective cap on the amount suppliers are able to spend on debt write-off from £12m to £10m, and allowing obligated suppliers to provide financial support to households that are in, or at risk of, fuel poverty, and not otherwise eligible for the rebate. The collective cap for financial support would be £5m, and £140 per recipient[11]. The extension of the scheme would enable many low income and vulnerable households to receive support, while allowing time to design and consult on long term changes to streamline delivery and better target the fuel poor.

18. The Government recognises the option to extend the WHD with no changes. However, modelling the extension with the current design – an Industry Initiative cap of £30m and debt write-off cap of £12m - resulted in a small change in Net Present Value compared to Policy Option 1 (the preferred option). Given the small magnitude of the difference, and the Government's aim to diversify the range of activities undertaken through Industry Initiatives and limit debt write-off, we have not presented this option in this Impact Assessment.

19. The Government proposes to reduce the supplier obligation threshold from 2019/20 onwards. This change will not affect the impact of the policy for the extension period, therefore its effects are not assessed in the body of this IA. However, an assessment of its impacts is provided in Annex 7.

20. Later this year, the Government intends to consult on future measures to make delivery more efficient and improve the targeting of support towards fuel poor households in the greatest need. This will consider the potential role for new data matching powers under Part 5 of the Digital Economy Act, which is expected to come into force before summer recess. An updated impact assessment will be published alongside this.

# 4. Improvements to the evidence base

21. Since the publication of the last WHD Impact Assessment in 2016 (which assessed the impact of the scheme during 2016/17 and 2017/18), BEIS has made improvements and updates to its evidence base. The main updates are discussed below.

## 4.1 Administrative Costs

22. Towards the end of 2017, BEIS surveyed suppliers that offered the WHD in order to improve its understanding of the administrative costs they expect to incur in meeting their obligation.

23. Two sets of data were obtained: the reported administrative costs for the scheme during 2016/17, and the estimated administrative costs during 2018/19. The evidence presented in this IA is based on the estimated administrative costs during 2018/19. Following this update, we have reduced assumed supplier administrative costs from £11m to £7m. To date, supplier responses have provided information accounting for 85% of the market. This data has been extrapolated to provide a robust estimate for total supplier administrative costs.

24. Updated administrative costs to the Government were also obtained, and underpin the analysis presented in this IA. As a result, the administrative costs to the Government remain roughly unchanged, at around £1.7m. See Annex 3 for more information on the administrative costs.

## 4.2 Supplier Spend on Debt Write-off

25. In previous impact assessments, it was assumed that all suppliers maximise their debt write-off cap. However, BEIS has revised this assumption based on scheme year 6 (2016/17) data which details individual supplier spending on Industry Initiatives and debt write-off. This evidence suggests that only a proportion of suppliers have offered debt write-off up to their cap. BEIS has therefore assumed

[11] The increase in the Industry Initiatives cap and capping the total spend on financial support at £5m are in line with the Government's objective to foster innovation and to incentivise a wider range of innovative activities through Industry Initiatives.

that only those that have historically delivered relief up to the cap will continue to do so, while others are assumed to deliver below their cap (at historical levels).

26. The overall debt write-off cap of £10m will be apportioned to suppliers based on their share of the WHD. This is applied to the assumed level of spend for each supplier to provide the expected £6m spend on debt write-off during 2018/19 (i.e. below the cap of £10m overall).

### 4.3 English Housing Survey and Fuel Poverty Dataset

27. The modelling underpinning this IA has been updated to the latest wave of the English Housing Survey (2014/15) and fuel poverty dataset (2017). The variables underpinning the analysis remain, however, consistent with those used in the Impact Assessments for previous iterations of the policy[12].

### 4.4 Core Group Coverage

28. The modelling for the consultation stage IA assumed the Core Group caseload was equal to the Department for Work and Pensions' (DWP) estimated Pension Credit Guarantee Credit (PCGC) caseload (after adjusting for certain ineligible recipients, such as those living in care homes). However, we have determined that this overestimated the number of rebates delivered to Core Group households. Recent analysis of Ofgem and DWP data suggests that the number of rebates delivered to the Core Group is lower, as many PCGC recipients are not named on their energy bill, or not covered by obligated suppliers. We have also updated the PCGC caseload based on DWP's most recent estimates. As such, the assumed Core Group caseload is roughly 1.3m, of which more than 1.1m are expected to receive the rebate.

### 4.5 Warm Home Discount Evaluation

29. The Government published an evaluation of the WHD from 2010 to 2015 alongside the consultation stage impact assessment and accompanying consultation document. This evaluation provided useful coverage of the labelling effect (explained below), health impacts, and the policy's impact on switching behaviour, the main findings of which are discussed below.

*Labelling Effect*

30. Previous WHD Impact Assessments assumed that 41% of the total Warm Home Discount rebate is spent on improving the thermal comfort of the recipients' homes. This is based on research for the Winter Fuel Payment which showed that labelled transfers (e.g. the label "Winter Fuel Payment") led to a higher proportion of the transfer being spent on fuel use than would typically be expected for a non-labelled transfer[13]. As the WHD rebate is delivered directly on the energy bill and is labelled as "Warm Home Discount", we expect the rebate encourages consumers to recycle the rebate back into energy consumption. We assume this response to be uniform for all recipients. This so-called 'labelling effect' was tested as part of the evaluation.

31. The WHD evaluation's findings regarding the labelling effect are mixed. Findings are inconsistent between different model specifications. Overall the results suggest the existence of a labelling effect is likely[14]. Given the lack of conclusive evidence against the existence or size of the labelling effect, and the evidence supporting its existence for the Winter Fuel Payment, we have maintained the 41% assumption but will keep it under review. Sensitivity analysis has been carried out on the size of the labelling effect, including the range of values proposed by the evaluation; see Section 6 for details.

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12 Note that the impact assessments for the future of the Energy Company Obligation is expected to be based on the 2013 English Housing Survey. The modelling, however, is updated to reflect delivery since 2013.
13 Beatty, Blow, Crossley& O'Dea (2011). Cash by any other name? Evidence on Labelling from the UK Winter Fuel Payment, IFS Working Paper 11/10, available at: http://www.ifs.org.uk/wps/wp1110.pdf
14 See Analytical Report 2, p. 37.

*Health Impacts*

32. The WHD evaluation found a small increase in the temperature of properties in receipt of the rebate and concluded it is likely to have led to health improvements amongst WHD recipients. BEIS is currently reviewing the health impacts of the WHD, however they have not been monetised in this impact assessment. Since these health benefits are not monetised, while all the costs are, the net present value of the policy is likely to be higher in reality than those presented in this IA.

*Supplier Switching*

33. Previous IAs have assumed that the WHD does not have a detrimental impact on consumers' switching behaviour. There has been some research into this, the results of which are discussed below.

34. The WHD evaluation suggests that intentions to switch energy suppliers are generally low among rebate recipients. The evaluation entailed qualitative interviews with both Core and Broader Group households, with the majority of Core Group recipients stating they had never and do not intend on switching suppliers, despite many of them believing that all energy suppliers offered the rebate. Given that many smaller suppliers offer significantly cheaper tariffs, this suggests that the policy does not have an adverse impact on switching for Core Group eligible households.

35. The evaluation suggests that Broader Group recipients were more open to switching suppliers, and more had done so in the past. The most significant reasons for switching were price and customer service. However, several Broader Group households stated that they would not consider switching to a supplier that did not offer the rebate. Therefore, the current threshold may limit the pool of potential energy suppliers for many Broader Group households.

36. On balance, the evaluation suggests that the policy in its current form has some adverse impact on some households' switching behaviour, especially for Broader Group eligible households. See Annex 1 for a more detailed discussion of the impact of WHD on competition and small businesses over the 2018/19 scheme year, and Annex 7 for a discussion of the impacts from 2019/20 onwards, resulting from the proposed change in supplier thresholds.

# 5. Cost-benefit analysis

## 5.1 Methodology

37. This section assesses the costs and benefits of Policy Option 1 using the 'Do Nothing' option as the counterfactual. A summary of the costs and benefits considered, both in monetary and non-monetary terms, is set out in Tables 5.1 and 5.3. The methodology for each is discussed below.

38. This impact assessment applies different weights to different elements of the policy. The redistributive elements of the policy – the costs to bill payers, and the value of the rebate received by recipients – have been equity weighted to reflect the greater value placed on additional income by relatively poorer households. The other costs and benefits of the scheme – environmental costs, costs to Government, and the benefits of Industry Initiatives – have not been equity weighted. The environmental costs are evenly distributed and are therefore treated as such, and there is insufficient evidence to apply weights to Industry Initiative spending, due to the wide range of potential activities.

*Table 5.1: Summary of costs and* benefits

| | Benefits | Costs |
|---|---|---|
| **Monetised** | - Equity weighted value of reduced bills, achieved through:<br>*Change in bills*<br>*Change in comfort*<br>- Non-equity weighted Industry Initiative spending, not including debt write-off | - Equity weighted value of increased bills (including administrative costs)<br>- Non-equity weighted impact of changes in energy consumption, greenhouse gas emissions and air quality |
| **Non-monetised** | - Fuel Poverty Impacts<br>- Health Impacts<br>- Industry Initiative Impacts | - Nil |

*Changes to the Modelling*

39. The Net Present Value produced by the modelling has changed somewhat since the Consultation Stage IA. This is due to several notable changes to the modelling, as we have updated the evidence base and inputs (in line with recent updates to appraisal guidance).

*Table 5.2: Changes to the modelling*

| Change | Explanation |
|---|---|
| Equity weights | The equity weights applied to the income transfer to each decile have been updated in line with the recent update to the Green Book[15] (appraisal guidance). The new guidance suggests that relatively poorer households place greater value on additional income than had previously been assumed. This leads to higher weights being applied to the lowest deciles, and lower weights applied to the highest deciles[16]. This has had a net positive impact of £81m on the NPV. |
| Debt write-off | The costs and benefits accruing to debt write-offs have been excluded from the analysis. We have determined that suppliers may write off many of these debts in the absence of this policy. Therefore, this behaviour is not treated as additional to the "Do Nothing" policy option. This has had a net negative impact of roughly £11m on the NPV. |

[15] The Green Book: appraisal and evaluation in central government. HM Treasury. https://www.gov.uk/government/publications/the-green-book-appraisal-and-evaluation-in-central-governent

[16] See annex 2.2 for details on equity weights

| | |
|---|---|
| Core Group coverage | Previous impact assessments assumed that obligated suppliers covered all Pension Credit Guarantee Credit recipients. However, recent analysis suggests that only 85% of PCGC recipients receive the rebate automatically and through the sweep-up process[17]. The PCGC caseload has also been downwardly revised based on the most recent DWP estimates, reducing the Core Group's share of rebates. Therefore, the modelling now assumes roughly 100k fewer PCGC recipients receive the rebate, resulting in 100k additional rebates being delivered to the Broader Group.<br><br>Broader Group rebates receive a greater equity weighting than Core Group rebates, on average, because Broader Group households tend to have lower incomes. Therefore, the increased Broader Group share of total rebates leads to a positive impact of £14m on the NPV and the fuel poverty impacts modelling. |
| Bill payer coverage | Previous impact assessments assumed that the costs of the policy were split between all households in Great Britain. Recent analysis shows that the market share of obligated suppliers has declined, hence the modelling has been updated to reflect this. This raised the cost per household of the policy by roughly £0.5, to roughly £14 per household, but had no impact on the NPV, as aggregate costs remain the same. |
| Sweep-up rate | Previous impact assessments assumed that 25% of unmatched Core Group customers were later matched through the sweep-up process. However, recent analysis of historical data suggests a success rate of roughly 23%. This reduces the number of Core Group rebates delivered by roughly 2k.<br><br>Similar to the above, rebates delivered to the Core Group have a lower equity weight, on average, than those delivered to the Broader Group, as Core Group households tend to have greater incomes. Therefore, the decreased Core Group share of total rebates raises the NPV slightly. |

[17] This is the process by which Core Group eligible households that did not automatically receive the rebate via data-matching are contacted by post, with the aim to confirm details and deliver the rebate.

### 5.1.1 Impact on Households

40. The policy will be delivered by energy suppliers in proportion to their share of the market held by suppliers with more than 250,000 domestic customer accounts, as of 31st of December of the preceding year. Consequently, we expect that the cost of the policy will be passed onto obligated suppliers' customers. This will have an impact on household disposable income and, in turn, will influence household demand for energy from which numerous societal costs and benefits will stem.

41. For the purposes of the analysis, we distinguish between two sets of households, *bill payers*, who incur the costs of the policy but do not receive the rebate, and *rebate recipients*, who benefit from the policy. We discuss the impact on each household type in turn.

*Table 5.3 Net Present Values (NPV) of the Central Scenario*

| | | Policy Option 1 |
|---|---|---|
| **Benefits** | Equity weighted value of rebate (including the impact of the £21m from Industry Initiatives spent on rebates) | 441 |
| | Increase in equity weighted comfort (including the impact of the £21m from Industry Initiatives spent on rebates) | 306 |
| | Remaining £19m of Industry Initiatives (not equity weighted) | 19 |
| | ***Total Benefit*** | **766** |
| **Costs** | Equity weighted value of bill increase | 513 |
| | *Administrative costs to Industry*[18] | [7] |
| | Reduction in utility from lower energy consumption (bill-payers) | 4 |
| | Resource Costs | 57 |
| | Carbon Costs | 17 |
| | Air Quality | 5 |
| | Administrative Costs – Government | 2 |
| | ***Total Cost*** | **598** |
| | **NPV** | **168** |

*Rebate Recipients*

42. Rebate recipients are those households that meet Core or Broader Group eligibility criteria or receive support under Industry Initiatives. However, the number of households that benefit in each group is based on a number of assumptions:

- Core Group: The size of the Core Group is determined using the latest DWP Pension Credit forecasts for the year 2018/19 and the latest historical data on the success rate[19] of data matching between suppliers' and DWP's records. Households that meet the Core Group criteria automatically receive the rebate, which in turn determines the size of non-core spending. For 2018/19, we have estimated Core Group expenditure of approximately £159m to support more than 1.1m households. Following equity weighting, this achieves a benefit of £285m, split between increased comfort and increased income.

[18] We assume industry administrative costs are paid for through bill increases so this cost is a subset of the value of bill increases.

[19] The success rate of the data matching process refers to a technical match rate and a sweep up rate. The technical match rate refers to the automatic data match as a proportion of all Core Group eligible households (assumed to be roughly 81%); the sweep up rate (assumed to be roughly 23%) refers to the number of successful matches after responses received to DWP letters.

- Broader Group: Households eligible under the Broader Group do not receive the rebate automatically and suppliers are required to seek out these households in order to provide them with assistance through a rebate. With expenditure on Industry Initiatives assumed to be at roughly 50% of the maximum (not including debt write-off), we estimate Broader Group expenditure of approximately £155m to support roughly 1.1m households. Following equity weighting, this achieves a benefit of £460m, split between increased comfort and increased income.

  As households eligible under the Broader Group are part of the non-core obligation, we assume that the rebate is provided to them on a first come, first served basis. Suppliers must adopt the standard criteria, which the consultation proposes to amend to include Universal Credit (UC) recipients in work with monthly earnings not exceeding £1,349, and to reflect changes made by the DWP to the work-related activity element of Employment Support Allowance and Universal Credit. However, they may supplement this with their own additional criteria. Annex 3 provides more information on the Broader Group eligibility criteria.

- Industry Initiatives: Currently, participating suppliers are permitted to count up to a collective maximum of £30m of expenditure per year on actions to support households in fuel poverty or at risk of fuel poverty. These include a varied set of activities such as providing debt write-off (currently limited to £12m of the total), installing energy efficiency measures, and offering energy saving advice or providing rebates to certain households. We propose to allow obligated suppliers to provide financial assistance up to £140 per customer to households that are not in receipt of the rebate, but are in, or at risk of, fuel poverty. This activity would be subject to a collective cap of £5m. The remaining portion of the Industry Initiatives cap is channelled into additional rebates for the Broader Group.

  Industry Initiative spending rose 26% from 2015/16 to 2016/17, while debt write-off rose by 5%. It is possible that suppliers continue to increase their spending on these activities. Although recent historical data suggests an upward trend in Industry Initiative spending, there is insufficient evidence to assume this will continue. If this trend were to continue, the Net Present Value would fall. This is because other benefits of the policy are equity weighted, to reflect their positive distributional impacts, whereas Industry Initiatives are given a conservative benefit to cost ratio of one.

  The Government aims to incentivise a greater amount and a more varied range of activities under Industry Initiatives, and to prevent excessive spending on debt write-offs. Therefore, the Government proposes raising this collective maximum to £40m and limiting debt write-off spending to £10m. We also propose extending financial support to vulnerable groups that would otherwise be ineligible for the rebate, up to £140 per recipient and a collective total of £5m.

  In this IA, we assume that £19m out of the maximum £40m would be spent on industry initiatives (excluding debt write-off). This is based on suppliers' historical industry initiative spending, which is used to calculate the proportion of each supplier's spend against their individual cap, and then weighted by market share and inflated by 33% to reflect the increase in the spending cap. The assumed £19m is therefore a weighted average of all suppliers' Industry Initiative spending, adjusted to reflect changes to the scheme.

  Of the remaining £21m, we expect £6m to go on debt write-off, with the remaining £15m being delivered to the Broader Group in additional rebates. These figures have been calculated by applying the proportion of each supplier's Industry Initiative and debt write-off spend to their new caps. This is expected to achieve a further 30% increase in Industry Initiatives and a 35% reduction in debt write-offs, compared to 2016/17.

  In the Consultation Stage IA, we assumed debt write-offs would have a similar effect to Broader Group rebates and treated them as such. However, we believe that some of this activity may occur in absence of the policy, so it should not be treated as an additional impact. Therefore, debt write-offs have not been included in the calculation of costs or benefits of the policy[20].

[20] However, the Government plans to gradually reduce the permitted spend on debt write-offs, rather than immediately removing them from the policy. This is due to several consultation responses, which highlighted that: many customers may receive support to which they would otherwise not be eligible; and to disallow debt write-offs at such short notice may put undue pressure on obligated suppliers and risk non-compliance.

We believe that the additional £5m financial support to vulnerable households would likely have a similar effect to rebates and debt write-off. However, we have included this spend within the non-weighted £19m industry initiative spend, as we have insufficient evidence to assume any given level of delivery. Therefore, all industry initiative spending is given a conservative weighting of one.

*Energy Demand*

43. How households alter their behaviour in relation to energy use as a result of receiving a rebate or debt write-off or funding the WHD scheme (bill-payers) will determine energy demand responses.

44. We have assumed that rebate recipients will spend 41% of their rebate on increased energy use to drive a higher level of thermal comfort in the home (see 'Improvements to the evidence base', above for more information). This equates to an increase in energy consumption of roughly 4.5%, or 762 kWh per recipient.

*Increase in Income*

45. The rebate can be seen as increasing recipients' income; however, we assume that at least part of the rebate will be used towards energy consumption (discussed above). Therefore, only a portion of the rebate (about 59%) is counted as additional income. This monetary transfer (from bill payers to recipients) is equity weighted to reflect that households in different income decile groups place a different value on this additional income gained. This adjustment is called 'equity weighting' and is in line with Green Book methodology for policy appraisal[21]. The equity weighted value of additional income for rebate recipients is £441m.

46. As support through energy bills is generally targeted at a subset of lower income households, the transfers would have a positive net equity value to society, because lower income households place a greater value on an extra £1 of income compared to better-off households (i.e. they have a greater marginal utility of income). Further information on the theory and method of using equity weights can be found in Annex 2.

*Comfort*

47. Low incomes are shown to be correlated with lower temperatures within the home[22]. Support is targeted at a subset of low income and vulnerable households with the aim that those receiving assistance are able to increase the level of thermal comfort within the home. As stated above, we expect recipients will spend roughly 41% of the rebate on increased energy consumption. The energy demand of other bill payers is expected to be significantly less sensitive to changes in income arising from the costs of the policy, therefore we expect a large net increase in fuel expenditure of roughly £127m.

48. The change in energy consumption for all households is valued using the retail price for the relevant fuel consumed – as this measures their willingness to pay for the additional comfort, in line with HMT Green Book appraisal guidance[23]. Further detail is provided in Annex 5.

49. In line with the Green Book methodology, the increase in comfort is also equity weighted to capture the different value (improvement in social welfare) that comes from lower income households being able to spend on additional energy consumption to generate higher levels of comfort. Following equity weighting, the value of the net increase in energy expenditure rises to £306m.

*Switching*

50. In scheme year 5, the Government introduced standardised eligibility criteria for the Broader Group (which applied to all participant suppliers), while allowing participating suppliers to add their own criteria (subject to approval by Ofgem). The Government proposes to keep this eligibility structure for 2018/19 and to include Universal Credit recipients with monthly earnings not exceeding £1,349

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[21] HM Treasury (2003). *The Green Book*. Available at: https://www.gov.uk/government/publications/the-green-book-appraisal-and-evaluation-in-central-governent

[22] Hills (2011). Fuel Poverty: The problem and its measurement, CASE Report 69, Section 2.5, available at: http://eprints.lse.ac.uk/39270/1/CASEreport69%28lsero%29.pdf

[23] Green Book supplementary guidance: Valuation of energy use and greenhouse gas emissions for appraisal: https://www.gov.uk/government/publications/valuation-of-energy-use-and-greenhouse-gas-emissions-for-appraisal

and reflect changes made by the DWP to Employment Support Allowance and Universal Credit. Allowing suppliers to add their own criteria allows suppliers to differentiate themselves in the market and provides suppliers with flexibility to base their criteria on the size of their obligation and customer base. However, this may impact on the switching behaviour of consumers. While we are unable to monetise the impact of Broader Group Criteria on switching, we provide a qualitative assessment in Annex 1 of how we believe this may have impacted our results.

*Bill Payers*

51. All gas and electricity bill payers[24] covered by obligated suppliers are expected to bear the cost of the policy, including any administrative cost faced by energy suppliers in delivering the policy including those receiving the rebate. This assumption is based on the change in the Big Six's profit margins over time, the state of competition in the market for energy supply, and obligated suppliers' stated intentions.

52. Large suppliers are able to pass on obligation costs to their customers, at least in part, due to imperfect competition in the energy supply market. Although the energy supply market has become more competitive in recent years, the CMA defines it as saturated[25]. Furthermore, Ofgem reconciliation data states that as of December 2017, obligated suppliers still held roughly 94% of the dual fuel market, despite these suppliers typically offering more expensive tariffs. This implies that customers of obligated suppliers tend to be relatively insensitive to price, and that larger energy suppliers are price-setters and are able to offload costs of delivering rebates to their customers.

53. Suppliers have previously informed the Government that they intend to pass costs on to consumers. This is supported by the largest suppliers' average profit margins since the introduction of the scheme. The average profit margin of the Big Six energy suppliers has remained roughly stable at around 4.5%, despite the introduction of the WHD[26]. This offers some evidence that these suppliers may have, on average, passed the costs of the policy onto their consumers in the form of higher prices.

54. Therefore, in the absence of any evidence against cost pass-through, we assume that suppliers pass 100% of their costs on to their customers. These account holders are impacted through changes in their energy bills, which in turn affects their energy demand. These costs have an equity weighted value of roughly £517m, which is split between reduction in bill payers' incomes and comfort.

*Change in Bills*

55. We assume the policy will lead to an increase in energy bills for bill payers. The extent to which this increase materialises will be affected by changes in their energy consumption. For that reason, we only value the change in bills (cost of the policy) after adjusting for changes in household energy demand. The equity weighted value of reduction in bill payers' incomes is valued at roughly £513m.

56. We expect the magnitude of these changes (increases) in energy bills to be felt differently by households depending on where they are in terms of the income distribution. By applying equity weights to the overall change in bills, we are able to capture the impact on households across income decile groups[27]. Further information on income distribution of rebate recipients, and equity weights used can be found in Annex 2.

*Energy Demand*

57. We assume bill payers will make a small change in their energy consumption due to the increase in their energy bills (roughly £14 per household), as a result of the policy. In total, we model bill payers

[24] It is worth noting that as result of the policy design, rebate recipients are also by default bill payers and therefore the costs of the policy also apply to them.

[25] Competition & Markets Authority, Energy Market Investigation, 2016. Available at: https://assets.publishing.service.gov.uk/media/5773de34e5274a0da3000113/final-report-energy-market-investigation.pdf

[26] Source: Ofgem Consolidated Segmental Statement

[27] The Government does not hold data on the income distribution of the customers of obligated suppliers; therefore, the income distribution of the whole population is used as a proxy.

reduced their energy consumption by 0.007%, or roughly 1 kWh per household. Therefore, bill payers experience relatively small reduction in fuel expenditure (roughly £2m)[28].

58. The change in non-recipients' consumption is determined through each household's income elasticity of energy demand, rather than their price elasticity of demand[29]. As costs to households are not expected to vary with energy use, they are expected to affect bill payers' in a similar way to a reduction in income, rather than an increase in the unit price of energy.

59. The income elasticities assumed for those not receiving the rebate are informed by Jamasb and Meier (2010), who carried out a study into the determinants of energy expenditure in Great Britain[30]. The study provides income elasticity estimates for different income groups, which allows us to assign different elasticities to households in each income decile group considered in this impact assessment. Despite this variation across income deciles, energy demand for those not receiving the rebate is assumed to be relatively income inelastic. This is likely to reflect the fact that relatively better off households are more likely to be consuming closer to their desired level of heat, and an increase in their bill will result in a relatively small decrease in energy consumption. Further, the increase in household energy bills is expected to be small relative to the size of their overall energy bill.

*Reduction in Utility from Lower Energy Consumption*

60. We also derive a social value from the reduced energy demand and comfort of bill payers, using the retail price for the relevant fuel consumed, and equity weights. This social cost reflects the change in utility of bill payers as a result of the policy and is valued at roughly £4m.

### 5.1.2 Impact on resource costs, greenhouse gas emissions and air quality

61. Any increase in the net energy consumption from the WHD scheme has three associated costs: the energy resource cost[31], the costs associated with additional greenhouse gas emissions and the impact on air quality (roughly £57m, £17m, and £5m, respectively). The methodology for estimating the environmental costs of additional energy consumption is presented in Annex 5.

### 5.1.2 Administration Costs

62. The delivery of support would result in some administrative costs for both Government and Energy Suppliers - there would be an administrative cost associated with identifying eligible households, administering the payment of rebates, monitoring and enforcement. As outlined above, BEIS has updated its administrative cost assumptions. Costs to industry and government are expected to be roughly £7m and £2m, respectively. Tables A3.1 and A3.2 in Annex 3 provide more detailed estimates of the industrial and governmental administrative costs of the scheme.

## 5.2 Costs and Benefits of the Policy

63. The results in Table 5.3 are driven by a number of different factors that impact the benefits and costs, which we explore, as follows:

### 5.2.1 Benefits

*Equity Weighted Value of Rebates*

64. The support provided by the WHD rebate should lead to a reduction in energy bills for those receiving it. The reduction in energy bills is lower than the value of the rebate as we assume that, as set out in

[28] The net impact on aggregate energy consumption is therefore expected to be +1691 mWh.
[29] This is because we assume the policy costs are added to the fixed element of their bills, as we expect suppliers to recoup policy costs as they incur them – proportionally to the number of customers they have, rather than the amount of energy customers use.
[30] Jamasb & Meier (2010), Household Energy Expenditure and Income Groups: Evidence from Great Britain, Cambridge Working Paper in Economics 1011. Available at: http://www.eprg.group.cam.ac.uk/wp-content/uploads/2014/01/JamasbMeierCombined-EPRG10031.pdf
[31] The Energy Resource cost can be interpreted as the opportunity cost of the energy consumption valued using the long run variable cost of fuel. See Annex A3.2.2 for more details.

paragraph 32, 41% of the rebate is spent on energy (that is, £83 out of the £140 goes to a reduction in energy bills whilst £57 is spent on energy). When equity weighted, the value of the reduction in energy bills rises from £186m to £441m because the rebate transfers income from all bill payers to households on a lower income.

*Equity Weighted Value of Comfort*

65. As mentioned above, we assume that 41% of the rebate is spent on energy (increase in comfort). The social value of increased comfort experienced by rebate recipients (£306m) is significantly greater than the non-equity weighted change in value of fuel consumption (£129m). This is the result of two effects. The first is due to the relatively more elastic response of rebate recipients than bill payers (as discussed in section 5.1.1) due to the labelling effect. The second is due to the policy targeting low income households, who value the change in comfort at a higher magnitude than high income households.

*Remaining Share of Industry Initiatives Not Spent on Debt Write-off or Rebates*

66. Industry Initiatives are the third element of the WHD scheme. The expected spend on this element of the scheme is estimated to be around £19m, excluding spending on debt write-off. There are a number of activities (such as providing debt write-offs[32], installing energy efficiency measures, offering energy saving advice or providing rebates to certain households) that participating suppliers can undertake to comply with their share of Industry Initiatives. We assume that this share of Industry Initiatives would bring about a £19m benefit in the implementation year, implying a benefit to cost ratio of one for this spending. The reason for this assumption is that, although we know (based on this and previous analyses) that the share of those £19m spent on the installation of energy efficiency measures would bring about a net benefit, we do not have good evidence on the benefit to cost ratio of the other activities. Therefore, we take a conservative approach in assuming a benefit to cost ratio (non-equity weighted) of one (on average) for all these activities.

### 5.2.2 Costs

*Equity Weighted Value of Bill Increases*

67. Households paying for the rebate and not benefitting from it experience an increase in their energy bills. The rise in energy bills is smaller than the cost of the rebate and the administrative costs associated to it per household (roughly £14) because households react to an increase in energy bills by reducing to some extent their energy consumption. The equity weighted value of the increase in energy bills is £513m. The increase in energy bills for those paying for the rebate is larger than the reduction in bills for those receiving the rebate due to the different demand responses for each group (as set out in section 5.1.1).

*Reduction in Utility from Lower Energy Consumption*

68. The social value of the reduction in the utility of bill payers is valued at roughly £4m. This is due to the reduction in their energy consumption as a result of bearing the costs of the policy. The fall in energy consumption for those paying for the rebate is smaller than the increase for those receiving it, again due to differences in the energy demand response and income distributions between those who pay for and those who receive the rebate.

*Resource Cost, GHG emissions and Air Quality*

69. The net increase in energy demand leads to an increase in resource costs and GHG emissions and a small deterioration in air quality, the value of which sums to roughly £79m. The sensitivity of these results to administrative costs, energy demand, elasticity, and price assumptions can be found in

[32] However, debt write-offs are not included in the evaluation of costs and benefits, as we believe this may occur in absence of the policy. Because of this deadweight, the Government plans to continue to reduce the debt write-off cap and encourage more productive activities.

Section 6, and information on the methodology used for estimating the impacts can be found in Annex 5.

## 5.3 Non-Monetised Benefits

*Distributional and Fuel Poverty Impacts*

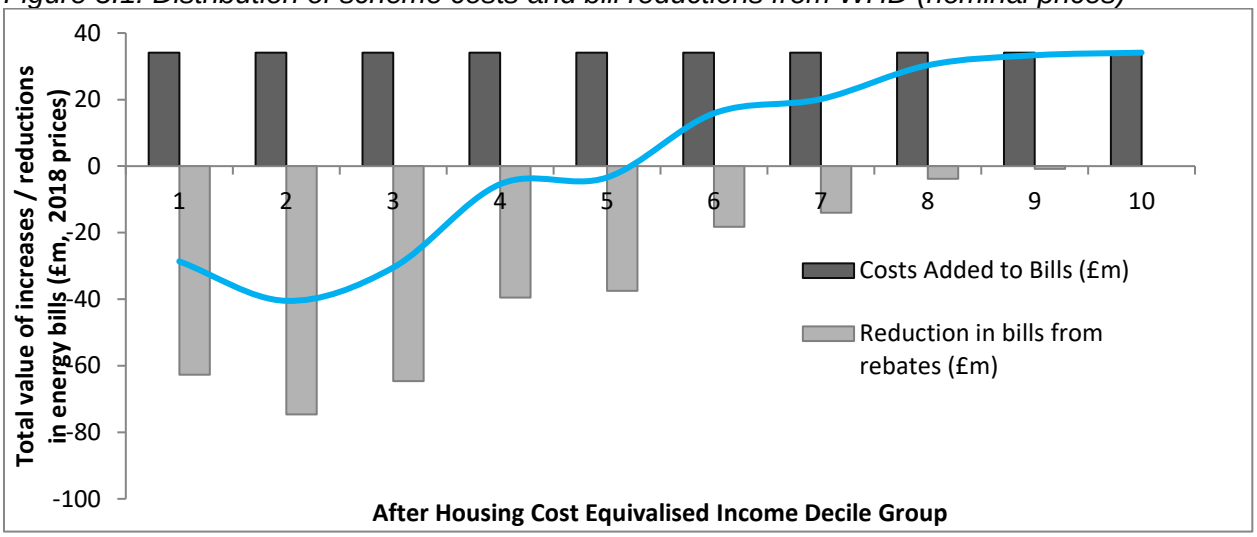
70. The two key aims of the WHD scheme are to alleviate fuel poverty and help offset the distributional impact of energy costs on lower income households. The distributional benefits of WHD are quantified and monetised as part of the cost benefit analysis using equity-weighting. However, for clarity we also present a graphical illustration of the distribution of costs and bill reductions across income decile groups in this section. The fuel poverty impacts can be quantified but are non-monetised and discussed in this section.

*Distributional Impact of WHD as a Proportion of Expenditure*

71. WHD targets support for low income households, meaning that the policy drives positive distributional outcomes in terms of helping to offset general price increases as well as the contribution of energy and climate change policies to energy bills. The positive distributional impact of WHD is already captured in the NPV calculations shown in Table 5.3 through the use of equity-weighting. However, this effect can also be demonstrated visually. The positive distributional effect of the Policy is shown in Figure 5.1, whereby costs are spread across all bill-payers, and the distribution of bill reductions (through WHD rebates) is heavily concentrated among lower income groups.

72. Figure 5.1 also shows that some rebates are delivered to households in the higher income deciles. In absence of income data for every household in Great Britain, we use a set of means-tested benefits as a proxy to determine which households are likely to be low income and vulnerable to fuel poverty. However, some households with relatively high incomes receive some of these benefits, thereby making them eligible for the rebate. However, the large majority of rebate recipients have below median incomes. See Annex 2 for a more detailed discussion of rebate distribution, by income and other characteristics, and Annex 6 for a more detailed discussion of Broader Group eligibility.

*Figure 5.1: Distribution of scheme costs and bill reductions from WHD (nominal prices)*




*Fuel Poverty Impacts*

73. As well as driving positive distributional incomes, the targeting of WHD at low income households is likely to also affect the prevalence and/or depth of fuel poverty for those low-income households who also face high energy costs. Fuel poverty is a devolved matter, and each GB constituent country has its own definition of fuel poverty, meaning it is not possible to conduct an overall assessment of the impact of WHD at the GB level.

74. We estimate that in England the WHD in 2018/19 will reduce the number of households in fuel poverty by around 110,000 households while also driving a reduction in the aggregate fuel poverty

gap for recipient households of around £44m (in 2015 prices[33]), compared to the Do Nothing counterfactual scenario.

75. Details on the methodology to model the impacts on fuel poverty can be found in Annex 4. While not directly applicable for Scotland and Wales, we would expect to see a similar impact in terms of direction (i.e. a net reduction in fuel poverty outcomes), although the magnitude is uncertain.

*Health Impacts*

76. The Interim Report of the Hills Fuel Poverty Review (2011) summaries the evidence base on the impacts on health as a result of living in lower temperatures[34]. As set out in Section 4.1.1, it is expected that a proportion of the rebates paid to eligible households will be used towards increasing the internal temperatures of homes. Although the WHD evaluation suggests the portion of the rebate spent on fuel could be smaller than assumed in previous IAs, it finds that the rebate has had a positive impact on dwelling temperature and self-reported physical and mental health, where the rebate was spent on fuel. This suggests the WHD leads to some positive health outcomes, although its size depends on the magnitude of the labelling effect.

77. Despite evidence for their presence, the anticipated health benefits of support through energy bills are not monetised in this Impact Assessment as at present there is no robust methodology with which to quantify the health impacts of direct energy bill support.

*Switching*

78. As stated in Section 4.5, evidence presented in the WHD evaluation suggests that the scheme may have some impact on consumer switching. See Annex 1 for a more detailed discussion of the effect on switching and small businesses in the policy's current form, and Annex 7 for its impacts from 2019/20 onwards.

# 6. Risks and Sensitivities

79. The costs and benefits of support through energy bills have been estimated using assumptions around the structure of the scheme, the success of identifying eligible households and external factors. In practice, a number of risks around these assumptions could result in variation in these costs and benefits.

## 6.1 Sensitivities of Key Assumptions

80. Given the uncertainty around the key assumptions, the following sensitivity analysis has been undertaken:

- Administration Costs
- Energy Demand Response
- Energy Prices and Emissions Costs
- Combination of all scenarios

81. Where possible, the sensitivity analysis is based on scenarios provided alongside the central assumptions. For instance, the authors of the energy price and emissions costs data, and the labelling effect data, provide high and low boundaries for their estimates, which are used in this analysis. However, assumed industry administration costs are based on participating suppliers' estimates, for which high and low boundaries were not provided. These figures are expected to be accurate as

[33] The 2017 Fuel Poverty estimates are based on the 2015 EHS and use 2015 energy prices, whilst monetised costs and benefits in this impact assessment are in 2018 prices. We have not addressed this discrepancy for two reasons: firstly, the impact of the WHD scheme on fuel poverty is not included in the monetised estimates in this impact assessment and, secondly, it allows comparability with the latest fuel poverty statistics which are in 2015 prices.

[34] Hills (2011). Fuel Poverty: The problem and its measurement, CASE Report 69, Section 3, available at: http://eprints.lse.ac.uk/39270/1/CASEreport69%28lsero%29.pdf

many suppliers have experience of delivering the scheme in previous years. However, a limited amount of variation in administration costs is likely. In the absence of high and low boundaries provided by suppliers, a discretionary high/low margin of 25% is applied.

82. Figure 6.1 and Table 5.3 show the results of changing the above assumptions on the NPV. As shown, the central scenario provides a NPV of £168m. The combined high scenarios lead to a 43% reduction in NPV, largely due to greater, more costly emissions. The combined low scenarios lead to a 35% increase in the NPV.

83. In order to measure the NPV's sensitivity to variation in the individual assumptions, all other aspects of the policy have been kept constant so that it is possible to isolate the impact of a change in each assumption on the NPV.

*Figure 6.1: Percentage change in NPV from changing assumptions in the analysis*

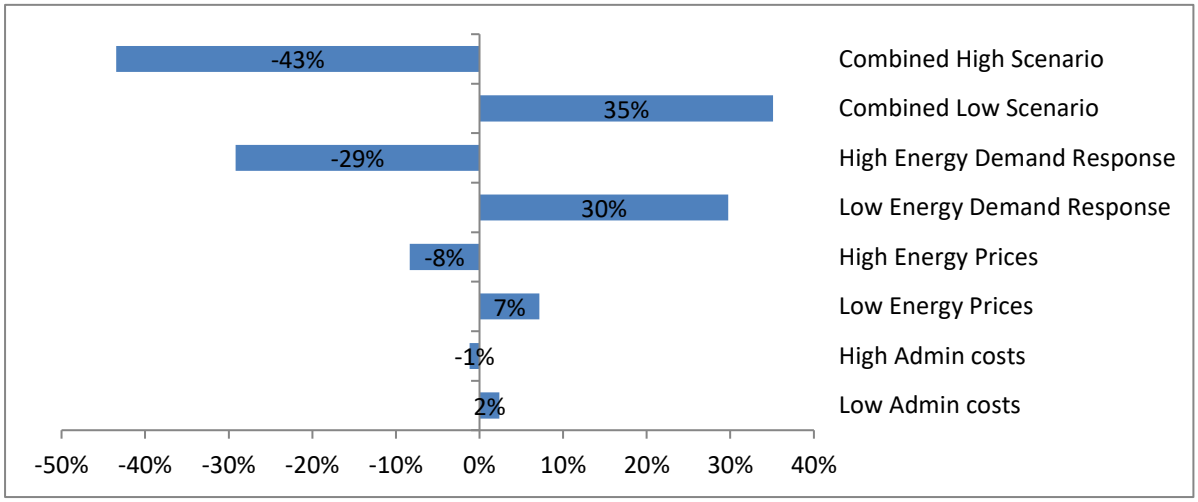



*Table 6.1: Sensitivity of NPV to variation of assumptions*

| Assumptions | Scenario | Description of change | NPV under modified assumption[35] | Change in NPV (% change) |
|---|---|---|---|---|
| **Demand Response** | *High* | *61% increase* | £119m | -£49m (-29%) |
| | *Low* | *63% decrease* | £218m | +£50m (+30%) |
| | *Very Low* | *78% decrease* | £232m | +£64m (+38%) |
| **Admin Costs** | *High* | *25% increase* | £166m | -£2m (-1%) |
| | *Low* | *25% decrease* | £172m | +£4m (+2%) |
| **Energy Prices** | *High* | *IAG high energy price projection* | £154m | -£14m (-8%) |
| | *Low* | *IAG low energy price projection* | £180m | +£12m (+7%) |
| **Combined Scenarios** | *High* | *Combined above changes* | £95m | -£73m (-43%) |
| | *Low* | *Combined above changes* | £227m | +£59m (+35%) |

84. Table 6.1 and Figure 6.1 show that the NPV is most sensitive to assumptions around the demand response – as a change of -63% and +61% in the Labelling Effect assumption[36], and a +/- 25% change to the income elasticity of fuel consumption for non-recipients leads to a change in the NPV

[35] Figures may not sum due to rounding.
[36] This is based on high and low estimates provided in the Winter Fuel Payment evaluation: Beatty *et al.* (2011). Available at: http://www.ifs.org.uk/wps/wp1110.pdf

of +30% and -29%, respectively. A sensitivity check was also done using the mid-point of the labelling effect range provided in the WHD evaluation, which led to an increase of 38% on the central NPV, reaching £232m. In this case the central income elasticity of demand for non-recipients was used.

85. Although the evaluation's findings were inconclusive as to the size of the labelling effect, it provided some evidence that the labelling effect may be smaller than assumed in this IA. Therefore, the low demand response scenario may be more likely than the high scenario. This suggests the NPV may be likely to be greater than presented in the central scenario.

86. However, the sensitivity of the NPV with respect to energy demand is likely over-stated. This is in part because the main costs associated with it are monetised (i.e. the change in energy demand and related impacts on greenhouse gas emissions and air quality), but there is insufficient evidence to accurately monetise all the benefits, in particular the impact on health. If the impact on health were monetised the NPV would be less sensitive to the demand response assumption.

87. Price scenarios affect the NPV in three ways. First, retail prices are used to calculate the value of the change in comfort of rebate recipients and the fall in utility of all domestic bill payers, (see Annex 3.2 for more information). Second, long run variable prices are used to calculate the resource cost. Third, emissions costs are used to calculate charges imposed on energy companies for emitting CO2. Values for fuel retail prices, variable prices, and emissions costs are based on the IAG guidance for valuing energy and carbon impacts[37].

88. The administrative costs are expected to be added on to the energy bills of all customers of participating suppliers, which impacts their energy demand response and subsequently has an impact on air quality and carbon emissions. The change in administrative costs from high to low, as specified above, has a smaller impact on the NPV, given the total administration costs make up a small proportion of the overall costs.

89. It is worth noting that the NPV is positive in all cases, and significantly less sensitive to high and low scenarios than it has been in the final Impact Assessment for the previous iteration of the policy. This is due to a larger central NPV, which is a result of several updated assumptions to the modelling (as shown in Table 5.2), the two most influential of which being the income distribution of Broader Group recipients, which is now more skewed towards the lowest income deciles, and updated equity weights (in line with the updated Green Book). These changes result in greater equity weighted benefits and a greater NPV, against which changes from different scenarios are relatively smaller.

90. Wider impacts of the WHD are presented in Annex 1.

[37] https://www.gov.uk/government/publications/valuation-of-energy-use-and-greenhouse-gas-emissions-for-appraisal

# Annex 1. Wider Impacts

## A1.1 Impact on Competition

91. This section considers the competition impact of the WHD scheme. The general assessment is made against two key criteria:

    a. Does the policy directly or indirectly limit the number or range of suppliers in the market; and,
    b. Does the proposal limit the ability of suppliers to compete?

*Does the Policy Limit the Number or Range of Suppliers?*

92. The powers in the Energy Act 2010 allow the Secretary of State to require energy suppliers to make support available to assist some of their vulnerable customers. This requirement creates no direct restriction on the number of firms that can compete in the market.

93. As detailed above, a requirement to provide support results in some costs to energy suppliers, both in terms of the benefits provided to eligible customers (the rebate) and administrative costs of participation in the scheme. It is likely that suppliers recoup these costs through higher energy prices.

94. It is possible that the costs of participating companies may be disproportionately high for smaller suppliers. For example, where some of the costs of participation are fixed, this will disadvantage suppliers that have a smaller customer base over which to recoup costs. A requirement to participate in a support scheme could therefore act as a barrier to entry for new firms. For this reason, a *de minimis* threshold (250,000 customer accounts) has been in place since the outset of the scheme, below which an energy supplier is not required to participate in the scheme.

*Does the Proposed Policy Limit the Ability of Suppliers to Compete?*

95. A requirement to provide support through bills could impact on competition through one or both of the following:

    - impacting on the incentives for customers to engage in switching behaviour; and
    - making it more difficult for energy suppliers to compete on an even footing

96. A more detailed discussion of the policy's impact on competition and switching is provided below.

## A1.2 Impact on Small Businesses

97. Some of the costs of participating in the WHD scheme are unlikely to scale with the size of the obligation on the supplier (for example, the technical cost of applying benefits to household energy accounts, which is likely to require some up-front changes to billing systems that may not scale with the number of benefits that a particular supplier has to apply). Hence, smaller suppliers could be disadvantaged by having to participate in the scheme, as they may incur disproportionately large set-up and ongoing administrative burdens.

98. Further, the imposition of these larger administrative costs may present a greater challenge for smaller energy suppliers relative to their larger competitors as:

    - they are likely to have more limited tariff variability and a smaller customer base over which to recover the costs;
    - for some smaller suppliers who attract consumers through price competition, the customer base over which they could spread the costs is likely to be more price sensitive; and,
    - smaller suppliers have smaller cash flows, placing these businesses at greater risk of cash flow problems over the period (e.g. they may face cash-flow difficulties from having to make a large number of payments, even when those payments are later reconciled).

### A1.2.1 Supplier Obligation Thresholds

99. In previous years, the scheme has had a *de minimis* threshold, specified in terms customer accounts, below which an energy supplier will not be required to participate in the scheme. This ensured that support through energy bills would not represent a barrier to entry to the energy supply market.

100. While a *de minimis* threshold reduced the barriers to entry for new firms, it created some other impacts on competition:

- It could make it difficult for small suppliers to attract the types of customers that would be eligible for the rebate with a participating supplier. For instance, a household currently purchasing energy from a non-obligated supplier that is eligible for a benefit through the scheme may decide to switch to a participating supplier in order to claim a benefit.

  The WHD scheme has made provisions for smaller suppliers to be able to voluntarily opt-in to offering benefits to the Core Group[38], which allowed smaller suppliers to compete against obligated companies for Core Group members. However, the WHD evaluation suggests that Broader Group members were more likely than Core Group members to base a decision to switch suppliers on whether they would be eligible for the rebate with their chosen supplier. These households would not be eligible for the rebate if they were covered by a voluntarily participating supplier. On the other hand, it also suggests that Broader Group members are more likely to make switching decisions based on price, therefore non-participating suppliers may have an advantage in attracting these customers. The impact on the ability of smaller suppliers to compete against obligated suppliers is therefore unclear.

- It could create a barrier to smaller suppliers to grow their customer base above the *de minimis* level: When suppliers that were previously excluded from the obligation gain enough customers to pass over the threshold, at this point the supplier will face the full administrative costs of participating in the scheme. This would be compounded by the costs of having to participate with other policies which carry a similar threshold.

  While the *de minimis* threshold may have an impact on the ability of small suppliers to compete, it is necessary to balance this against the potential impact of a policy that requires all suppliers to participate in the full scheme. In this case we would be exposing all suppliers, irrespective of size, to the policy and administrative costs of the scheme.

101. The impact of excluding smaller suppliers from the obligation using a *de minimis* threshold is determined by how many households in the Core Group smaller suppliers hold. We estimate that Core Group eligible households are less likely to hold accounts with non-obligated suppliers, although their coverage of Broader Group eligible households is less clear. Therefore, on balance we expect that non-obligated suppliers will hold a slightly smaller proportion of rebate eligible customers.

102. On the whole, non-obligated energy suppliers hold only a small proportion of the total energy supply market[39], therefore excluding these suppliers from the scheme is likely to have only a small impact on the ability of the scheme to provide a benefit to the defined eligible group.

103. However, market coverage by obligated suppliers has fallen significantly since the beginning of the policy, which suggests that an increasingly large number of eligible households may be excluded from the scheme. Due to these changes in the market, the Government proposes to reduce the threshold in future years. See Annex 7 for a more detailed discussion of the Government's proposal and expected impacts.

104. In the meantime, allowing smaller energy suppliers to voluntarily participate in the Core Group helps overcome any potential negative impact on smaller businesses of being included in the scheme, whilst maintaining the potential for all eligible households to receive support.

105. The Government proposes to reform the supplier obligation threshold from 2019/20. See Annex 7 for details of the proposal, and a discussion of its impacts on competition, switching, and distributional outcomes of the policy.

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[38] The administrative burden of complying voluntarily with the Core Group is smaller than complying with other parts of the scheme or with the scheme as a whole due to the data-matching exercise. This mitigates the need for small suppliers to identify eligible households. If smaller suppliers voluntarily opt-in to offering benefits to the Core Group, they also participate in the reconciliation mechanism.

[39] State of the Market Assessment (Ofgem): https://www.ofgem.gov.uk/publications-and-updates/state-market-assessment

### A1.3 Rural Proofing

106. Although more fuel poor households live in urban areas, a greater proportion of rural households are fuel poor than those living in urban areas. In 2015, around 14% of households residing in village, hamlet and isolated dwellings were fuel poor with an average fuel poverty gap of £726 compared to 11% of households living in urban areas, which had an average fuel poverty gap of £303[40].

107. Households in rural areas are more likely to be fuel poor, in part, as a consequence of the type of houses in which they live. Rural houses tend to have lower levels of thermal efficiency and are often larger than houses in urban areas. They are also on average less likely to be connected to the gas grid, and therefore tend to rely on relatively more expensive fuel types to heat the dwelling. As a consequence, rural households often have larger costs of achieving an adequate standard of thermal comfort in the home.

108. Houses in rural areas tend also to be harder to treat and require larger levels of investment to improve the efficiency of the household. This is in part because rural houses are more likely to not be connected to the gas grid, and in part because rural houses are more likely to have other high costs features, such as solid walls.

109. The higher propensity of fuel poverty among rural households means that it is important to ensure that rural households are not precluded from accessing assistance provided through energy bills. To ensure that access is provided to potentially eligible households residing in rural areas the energy bill reduction is applied to the household electricity account so that households which are not connected to the gas grid are also able to receive support.

## Annex 2 - Valuing the Distributional Impact of the Warm Home Discount

110. In order to estimate the distributional impact of WHD it is necessary to understand and estimate where the relevant costs and benefits fall across households and the wider income distribution. In relation to funding the scheme, it is expected that energy suppliers will pass on the costs of the obligation to their customer base. There are many ways in which they could potentially spread these costs across both their domestic and industrial consumers. For the purposes of this Impact Assessment, and in line with the approach taken in previous Impact Assessments[41], we assume suppliers will distribute costs equally between their customers as a fixed cost, rather than through a variable charge. This is because this reflects the way in which each supplier's obligation is distributed – relative to their share of the market. This in turn means that a supplier's marginal cost of participating in the scheme is determined by the number of customers they have, and they therefore incur costs on a 'per customer' basis.

111. The funds raised from all energy consumers are then assumed to be transferred to eligible households in the form of rebates. It is possible to estimate how the rebates and associated benefits fall across the income distribution using national survey data to assess the income levels of households in receipt of the benefits that make them eligible for either the Core or Broader Groups. More detail is provided in Section A2.1 below.

112. While the value of these transfers in cash terms sums to zero, the welfare impact of these transfers to society will depend on the types of households that are receiving WHD-qualifying benefits. Poorer households place a greater value on an additional unit of income as income is assumed to have a diminishing marginal utility. Hence as household income increases, the marginal utility of an additional unit of income decreases.

### A2.1 Equity Weighting

113. The WHD is a redistributive policy, which transfers income from all bill payers covered by participating suppliers to customers that are likely to be in or at risk of fuel poverty. Relatively poorer households tend to put a greater value on additional income than more wealthy households. The

[40] https://www.gov.uk/government/statistics/fuel-poverty-detailed-tables-2017

[41] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/531163/Warm_Home_Discount_2016-18_extension_Final_IA_23_06_2016.pdf

methodology and final equity weights, as published in the Green Book, reflect this and are set out below:

$$Marginal\ Utility\ (MU)\ of\ Income\ (per\ decile) = \frac{1}{Median\ income\ (per\ decile)}$$

$$Equity\ weight\ (per\ decile) = \left(\frac{MU\ of\ income\ (per\ decile)}{MU\ of\ income\ (grand\ total)}\right)^{1.3}$$

The ratio of MU of income per decile to MU of income for the whole population is raised to the power of 1.3 in accordance with the updated guidance on equity weighting published by HMT, which reflects international evidence on the elasticity of marginal utility of income. The resulting equity weights, used in this IA, are therefore more sensitive to income than those in the previous IA, as shown in Table A2.2.

*Table A2.2: equity weights used in consultation and final stage impact assessments*

| Decile | Median AHC eq Income | Equity Weight [Consultation] | Equity Weight [Final] |
|---|---|---|---|
| 1 | £5,876 | 3.6 | 5.3 |
| 2 | £10,805 | 2.0 | 2.4 |
| 3 | £13,869 | 1.5 | 1.7 |
| 4 | £16,895 | 1.3 | 1.4 |
| 5 | £19,789 | 1.1 | 1.1 |
| 6 | £22,934 | 0.9 | 0.9 |
| 7 | £27,069 | 0.8 | 0.7 |
| 8 | £32,436 | 0.7 | 0.6 |
| 9 | £39,913 | 0.5 | 0.4 |
| 10 | £58,162 | 0.4 | 0.3 |

## A2.2 Equity Analysis

### A2.2.1 Income Distribution of Eligible and Non-Eligible Households

114. The WHD is a redistributive policy, and therefore equity analysis should also evaluate rebates' distribution by income bracket. Using the 2015 Fuel Poverty Analytical Dataset, we are able to understand the distribution of the eligible population across different income decile groups. For the Core Group, where eligibility is tightly defined, we are able to estimate where households in receipt of Pension Credit are in the income distribution with a relatively high level of confidence. For the Broader Group, we do not have perfect information because:

- Suppliers are able to select their own eligibility criteria (subject to approval by Ofgem); and,
- As non-Core spending is capped, not everyone who is eligible will necessarily be in receipt of a rebate, generating uncertainty around where the actual recipients are in the income distribution;

115. For this reason, to estimate where Broader Group households sit in the income distribution we assume that the eligibility criteria used by suppliers are consistent with the standard eligibility criteria for the extension period as set out in Table A6.1.

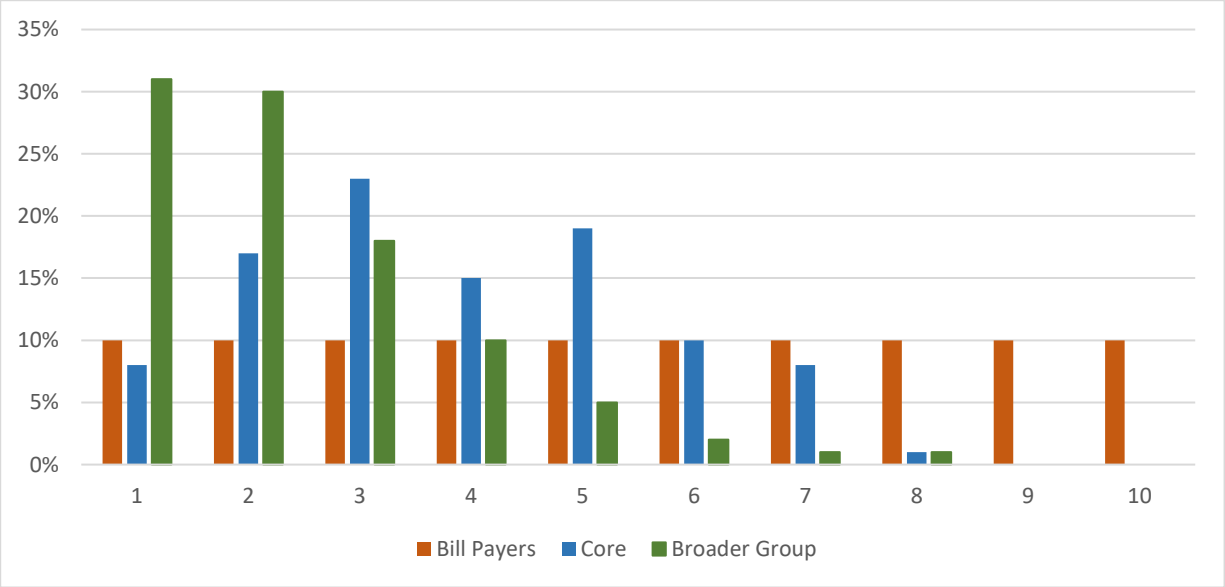
116. Table A2.1 provides a breakdown of the proportion of households distributed across the different income decile groups according to the eligibility group they fall into. We use these proportions as probabilities of the number of households in each After Housing Costs equivalised income decile group.

*Table A2.1: Distribution of rebates by income decile, Core and Broader groups*

| Decile | Core | Broader Group | Average |
|---|---|---|---|
| 1 | 8% | 31% | 20% |
| 2 | 17% | 30% | 24% |
| 3 | 23% | 18% | 20% |
| 4 | 15% | 10% | 13% |
| 5 | 19% | 5% | 12% |
| 6 | 10% | 2% | 6% |
| 7 | 8% | 1% | 4% |
| 8 | 1% | 1% | 1% |
| 9 | 0% | 0% | 0% |
| 10 | 0% | 0% | 0% |

117. Figure A2.1 illustrates the proportion of the total number of rebates allocated to each income decile, for the Core and Broader groups. The large majority of Broader Group recipients reside within the lowest income deciles, particularly in the 1st and 2nd decile. Although Core Group recipients tend to be less clustered around the lowest deciles[42], 81% have incomes below the median. On average, 88% of rebate recipients are below median income, suggesting that the policy is largely effective in achieving positive distributional outcomes.

*Figure A2.1: Distribution of WHD recipients by income decile*




## A2.2.2 Analysis of Rebate Distribution in Accordance with the Equality Duty

118. This section provides an analysis of how different groups of people will be affected by the policy, in line with The Government's guidance on the Equality Duty. This guidance suggests the distributional impact of policies should be evaluated with regards to their impact on social groups with certain characteristics, namely:

- Age
- Disability
- Gender reassignment
- Pregnancy and maternity
- Race – including ethnic or national origins

[42] Several PCGC recipients have above median incomes. This is due to several benefits, and other household members' incomes, not being included in the calculation of whether households have sufficiently low incomes to be eligible for PCGC.

- Religion or belief
- Sexual orientation

119. Equity analysis of rebate distribution by protected characteristic is limited to those characteristics captured by the Fuel Poverty Analytical Dataset 2015. The characteristics captured are: the gender of the household representative; whether the household representative is a member of an ethnic minority group; and whether a member of the household is registered disabled. It is noteworthy that, due to limitations in the survey, all three of these variables may under-represent the true proportion of each group in the total population and in rebate-receiving groups.

*Table A2.3: Distribution of rebate eligibility by social group*

| | HRP Female | HRP minority | Household member registered disabled |
|---|---|---|---|
| Core Group recipients | 63% | 9% | 23% |
| National average (65+) | 64% | 10% | 23% |
| Broader Group recipients | 60% | 19% | 22% |
| Average for below median income | 64% | 17% | 24% |
| All recipients | 61% | 16% | 23% |
| National average | 41% | 11% | 10% |

120. The table above shows the distribution of WHD rebates by Core Group and Broader Group. The figures are compared against the national average, the average for the population above 65 years, and the average for households below median income. This is intended to illustrate how well the distribution of rebates, overall and by group, matches the demographics of groups with similar features to the eligible groups, and the general population. The figures are based on characteristics of the eligible pools, rather than actual recipients, as we assume Broader Group rebates are allocated on a first-come-first-served basis. Therefore, the distribution of the rebate in any given year may, by chance, be unevenly distributed among eligible groups. In this case, presenting the actual distribution of rebates may misrepresent the distributional equity of the rebate.

121. The table shows that the demographics of eligible households differ somewhat from the national average; the household representative of eligible households are roughly 50% more likely to be female and of an ethnic minority, and the likelihood that eligible households contains a disabled member is more than twice that of ineligible households. However, comparing the characteristics of Core Group eligible households against the average for households where the oldest member is older than 65, the figures are broadly the same. Similarly, comparing the Broader Group's characteristics to those of households whose income is below the median, there is very little difference. This group has been used for comparison as 96% of Broader Group eligible households have below-median income. Therefore, the evidence suggests that rebates are equitably distributed within the targeted groups, and those with protected characteristics are not under-represented.

# Annex 3 – Estimating the Administrative Burden

122. Energy suppliers will face on-going administration costs in order to deliver the policy. These costs will continue to be a part of the policy's cost and therefore be recouped through energy bills.

123. The Government will also bear some of the costs of delivering the rebate, especially with respect to data matching activities for Core Group rebates.

## A3.1 Costs to Government

124. The costs to Government are based on actual costs from previous years, which have been adjusted to reflect changes in the scheme's administration. Key costs include:

- Ofgem's role in administering the WHD scheme and monitoring suppliers' compliance with their WHD obligations;

- DWP's role in providing data matching assistance for households in the Core Group, informing matched and un-matched households through letters regarding their eligibility to receive the rebate and call centre costs for enquires around the policy; and,
- Ofgem's role in providing a reconciliation mechanism for Core Group rebates. This rebalances the costs of the Core Group so that they are in proportion to each supplier's market share, while still enabling each supplier to pay all their eligible Core Group customers a rebate.

*Table A3.1: Costs to Government*[43]

| Area of Spend | Estimated SY8 (£m, 2018 prices) |
|---|---|
| Mailing[44] | 0.3 |
| Printing and production | 0.1 |
| Serco[45] | 0.5 |
| Data-matching | 0.4 |
| Ofgem[46] | 0.5 |
| Total | 1.7 |

### A3.2 Costs to Industry

125. We base our estimate of the aggregate administration costs from the scheme on the information provided to us by obligated suppliers, which is summarised in Table A3.2. Participating suppliers' responses account for more than 85% of the market covered by participating suppliers; the administrative costs for the remaining 15% is estimated based on those of similarly sized suppliers.

126. The costs, weighted by market share, sum to £6.7m. A small proportion of these costs can be attributed to fixed costs, which may not roll over for future years of the scheme, however we have taken the conservative assumption that they all would continue. Moreover, there is no evidence to suggest that the changes to the scheme for 2018/19 would alter any of these on-going administration costs. We welcome further evidence to support these estimates.

*Table A3.2: Costs to industry*[47]

| Area of Spend | Estimated costs (£m, SY8) |
|---|---|
| Set-up and fixed costs | 0.6 |
| Core Group costs | 0.7 |
| Broader Group costs | 4.8 |
| Industry Initiatives | 0.3 |
| Other - staffing costs etc. | 0.6 |
| Total costs weighted by market share | 6.7 |

# Annex 4 – Approach to Estimating Fuel Poverty Impacts

127. The WHD affects bills in two ways. Rebate recipients experience a £140 reduction in their electricity bills, to which we assume they will react in part by increasing their energy consumption, and in part by consuming more of other goods. Those that bear the costs of the policy experience an increase in their energy bills of roughly £14. As the costs are borne by all customers of obligated suppliers, and not all fuel poor households receive the rebate, some fuel poor and vulnerable households, the scheme has both positive and negative impacts on the state of fuel poverty.

[43] Figures may not sum due to rounding
[44] Distribution of letters to unmatched Core Group eligible households
[45] Serco are contracted by DWP to provide helpline services to eligible households
[46] Costs for reconciliation and monitoring compliance
[47] Figures may not sum due to rounding

Therefore, our approach to estimating the fuel poverty impacts of the policy captures both the benefits to recipients and the costs to all bill payers, as shown in figures A4.1 and A4.2.

*Table A4.1: Rebate impact on fuel poverty*[48]

| | Number in FP (m) | Average FP gap (2015 £) | Aggregate FP gap (2015 £m) |
|---|---|---|---|
| Without WHD | 2.61 | 356 | 931 |
| With WHD | 2.51 | 354 | 886 |
| Net effect of rebate | -0.11[49] | -3 | -44 |
| % effect of rebate | -4.1% | 0.8% | -4.8% |

128. We model the impacts of the rebate using the English Housing Survey 2014/15 dataset, which provides data on housing and energy costs, energy costs, and rebate eligibility. From this we ascertain which households are fuel poor, and calculate the fuel poverty rate, average fuel poverty gap (the average additional household income necessary to move fuel poor households above the poverty line), and aggregate fuel poverty gap (the sum of all fuel poor households' fuel poverty gap). Then, we ascertain the net impact of the policy by removing the costs to bill payers and rebates from recipients, then recalculate which households have moved in and out of fuel poverty. These results are shown in Table A4.1.

*Figure A4.1: WHD recipients' energy bill (with and without the rebate)*

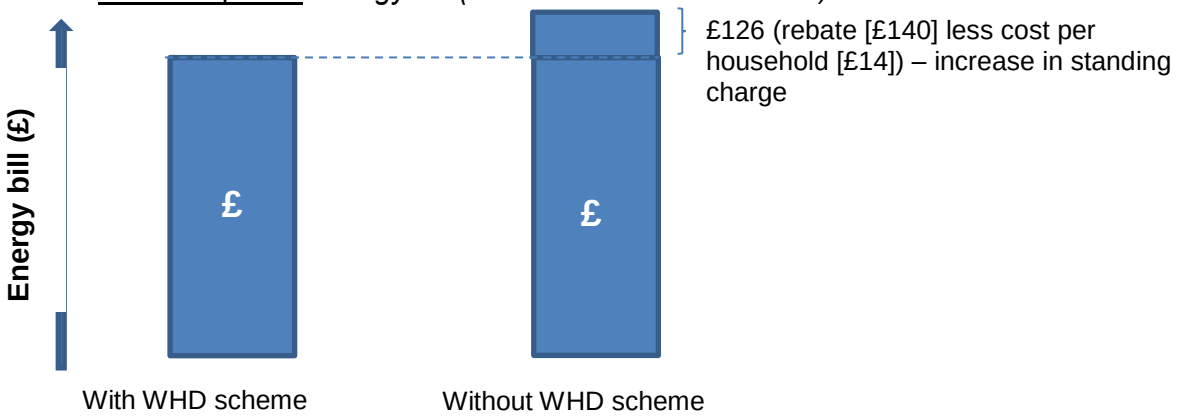
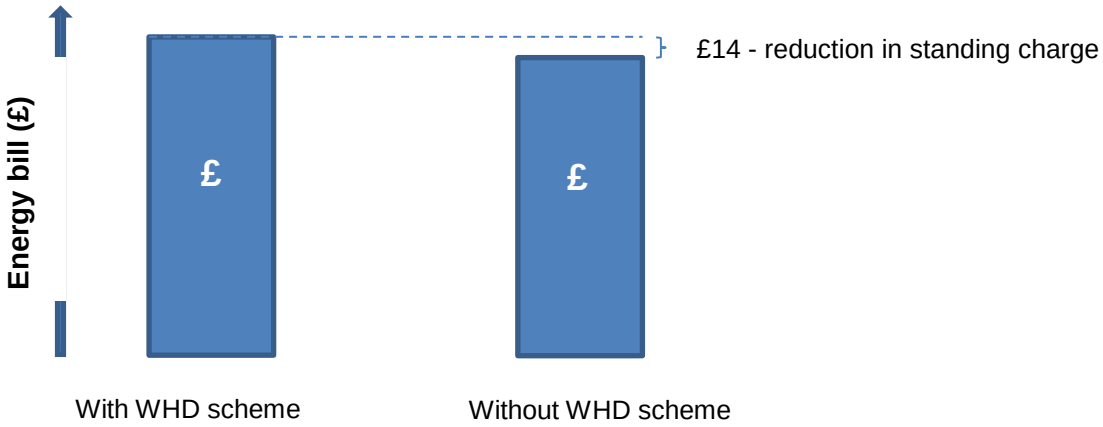



*Figure A4.2: Non-WHD recipients' energy bill (with and without the rebate)*




129. Table A4.1 shows the policy's impact on the number of people in fuel poverty, the average fuel poverty gap, and the aggregate fuel poverty gap. It shows that the rebate has a similar impact on the aggregate fuel poverty gap and the fuel poverty rate (-4.8% and -4.1%, respectively), but a

[48] Figures may not sum due to rounding.

[49] This figure has changed since the consultation impact assessment, largely due to improvements to the evidence base described in Table 5.2.

marginal impact on the average fuel poverty gap (0.8%). This is because the reduction in fuel poverty prevalence almost offsets the reduction in the aggregate fuel poverty gap[50]. Therefore, the impact of the rebate on the average fuel poverty gap is obscured by the near proportional reduction in the fuel poverty rate and aggregate gap.

# Annex 5 – Impact of Energy Demand

## A5.1 Policy Impact on Energy Demand

130. The WHD alters the energy bills of all households covered by obligated suppliers. These households experience a change in their disposable income, which we expect to have an observable effect on their demand for energy. The net effect of the policy on fuel consumption and costs depends on household characteristics and the way in which costs and benefits are distributed.

131. WHD rebates will be delivered through reductions in electricity bills. This is effectively an increase in household disposable income for rebate recipients and a decrease in household disposable income for bill payers who bear the cost of funding the rebates. As a result, we would expect households to respond through observable changes in the amount of energy they consume.

132. The responsiveness of energy demand to a change in energy costs or income depends on household characteristics and the way in which costs fall on households.

*Rebate Recipients*

133. Rebate recipients tend to have lower household incomes. We assume that many of these households may underheat their homes below the ideal level, in the absence of the rebate. Therefore, we expect rebate recipients' energy demand to increase greater than proportionally to the increase in their incomes. In particular, we assume that 41% of the rebate will be spent on additional fuel consumption. This is known as the labelling effect, which was identified by the evaluation of a similar policy, the Winter Fuel Payment[51]. Therefore, the modelling assumes that 41% of the rebate is spent on increased fuel consumption.

*Bill Payers*

134. The costs of the rebate (total spend plus suppliers' administrative costs) are borne by the customers of obligated suppliers. These costs amount to roughly £14. However, evidence suggests that the energy demand response to changes in income is far less for those who do not receive the rebate[52], which is likely due to the absence of a labelling effect on the increased costs. Therefore, we expect the reduction in income for non-recipients to lead to a much smaller reduction in energy demand. Therefore, we expect the WHD will lead to an overall increase in energy demand.

135. For the purposes of this impact assessment, we model the responsiveness of households' energy demand using income elasticities of expenditure for different fuel types for different income brackets from Jamasb and Meier (2010)[53], mapped onto income decile groups. The values are shown in Table A5.1 and can be interpreted as the change in expenditure on gas, electricity, and all energy, in relation to a 1 per cent change in the income of the household. For example, a 1 per cent reduction in income would on average lead to a 0.033 per cent reduction in gas expenditure for the lowest income decile.

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[50] If the percentage change in the fuel poverty rate and aggregate fuel poverty gap were exactly the same, there would be no change in the average fuel poverty gap. This is because the reduction in the aggregate fuel poverty gap would be offset by a proportional reduction in fuel poverty prevalence, leading to the same average fuel poverty gap, for fewer households.

[51] Beatty, T., Blow, L., Crossley, T. & O'Dea, C. (2011). Cash by any other name? Evidence on labelling from the UK Winter Fuel Payment. Available at: http://www.ifs.org.uk/publications/5603

[52] Source: Jamasb & Meier (2010)

[53] Source: Jamasb & Meier (2010)

*Table A5.1 - Income Elasticities - Jamasb & Meier*

| Income Decile Group | Electricity | Gas | All Energy |
|---|---|---|---|
| 1 - Poorest | 0.046 | 0.033 | 0.053 |
| 2 | 0.050 | 0.051 | 0.050 |
| 3 | 0.050 | 0.051 | 0.050 |
| 4 | 0.050 | 0.051 | 0.050 |
| 5 | 0.050 | 0.051 | 0.050 |
| 6 | 0.076 | 0.096 | 0.061 |
| 7 | 0.076 | 0.096 | 0.061 |
| 8 | 0.152 | 0.168 | 0.142 |
| 9 | 0.152 | 0.168 | 0.142 |
| 10 - Richest | 0.098 | 0.087 | 0.080 |

136. We expect this change in demand for energy from both rebate recipients and bill payers to lead to social costs and benefits in terms of "comfort taking", change in additional GHG emissions and resulting impact on air quality, which are described in the following section.

## A5.2 Costs and Benefits of Changes in Energy Demand

137. We estimate the net increase in greenhouse gas emissions arising from increased fuel consumption to be broadly equivalent to those in the 2016 WHD Impact Assessment. This amounts to 0.12 MtCO2 in the traded sector and 0.25 MtCO2 in the non-domestic sector from 1st April 2018 to 31st March 2019.

*Table A5.2: Estimated increase in emissions of CO2 (Mt)*

| Sector | Policy Option 1 |
|---|---|
| Traded | 0.12 |
| Non-traded | 0.25 |

### A5.2.1 Comfort Taking

138. Comfort taking is the utility of changes in comfort arising from changes in fuel consumption. Rebate recipients experience an increase in comfort as they heat their homes to a more comfortable temperature, while those that bear the costs of the policy experience a slight reduction in comfort. As discussed above, rebate recipients are expected to receive a much greater increase in comfort due to the labelling effect.

139. To capture the social value of comfort taking, we derive the retail value of the change in energy consumption, as this represents consumers' willingness to pay for the change in comfort. This is derived as set out in the Green Book:

$$Social\ Value = \Delta change\ in\ fuel\ consumption_f * retail\ price_f$$

*Where f = fuel type (gas, oil, coal, electricity)*

140. Changes in comfort are equity weighted to reflect the fact that relatively poorer households place a greater value on additional comfort, as their homes are expected to be initially less well-heated. As rebate recipients tend to be less wealthy than those that bear the costs of the policy, on average, equity weighting amplifies the net positive value of comfort taking.

A5.2.2 Costs of Increased Energy Consumption

141. Changes in fuel consumption lead to changes in numerous energy and environmental costs. These are detailed below.

*Resource Costs*

142. Changes in demand for energy also impact society through the costs of supplying energy. In the case that energy demand rises, more resources are devoted to meeting demand and securing supply, which could otherwise have been devoted to other activities.

143. The cost of meeting increased demand for a fuel is calculate based on the domestic variable price of that fuel in 2018, as published in the BEIS guidance for the valuation of energy use and greenhouse gas emissions.

$$Resource\ Cost = \Delta change\ in\ fuel\ consumption_f * Long\ Run\ Variable\ Cost_f$$

*Where f = fuel type (gas, oil, coal, electricity)*

*Air Quality Costs and Greenhouse Gas Emission Costs*

144. We expect there to be a net increase in fuel consumption as a result of the rebate, as the increase in fuel consumption by rebate recipients outweighs the reduction in demand by those who bear the costs of the policy.

145. Therefore, we also expect a net increase in emissions. This increase in emissions has a negative impact on society which is valued through two elements: the detriment to air quality and the cost of Greenhouse Gas emissions (traded and non-traded).

# Annex 6 – Broader Group Eligibility

146. The Broader Group element of the policy allows other low-income households who are vulnerable to fuel poverty to apply for the same value rebate, if their energy provider is obligated. Unlike the Core Group, Broader Group eligible households do not currently automatically receive the rebate.

147. The Government has introduced standardised criteria for the Broader Group, which is broadly aligned with the eligibility criteria for the Cold Weather Payment, set out in the table below.

*Table A6.1: The amended standard eligibility criteria for the Broader Group for scheme year 2018/19*

| **Means-tested benefits (must receive one or more of the following)** |
|---|
| • Income Support or Income-based Jobseeker's Allowance, with any of following:<br>o a disability premium, a severe or enhanced disability premium<br>o a pensioner premium, higher pensioner premium or enhanced pensioner premium<br>o a disabled child premium<br>o Child Tax Credit that includes a disability or severe disability element<br>o parental responsibility for a child under 5 years living with them.<br>• Income-related Employment and Support Allowance (ESA), which includes a support, work-related component, or claimants in the Work-Related Activity Group, with any of the following:<br>o a disability premium, a severe or enhanced disability premium<br>o a pensioner premium, higher pensioner premium or enhanced pensioner premium<br>o a disabled child premium<br>o Child Tax Credit that includes a disability or severe disability element<br>o parental responsibility for a child under 5 years living with them<br>• Universal Credit not in work, in work, or self-employed with monthly net earnings not exceeding £1,349, with any of the following qualifying criteria:<br>o In the limited capability for work group or limited capability for work and work-related activity group, with or without a work-related activity element;<br>o the disabled child element;<br>o parental responsibility for a child under 5 years living with them. |

- In receipt of Child Tax Credits based on a total household annual income of no more than £16,190 and with either:
    - parental responsibility for a child aged under 5 years living with them
    - a disabled child premium or Child Tax Credit that includes a disability or severe disability element.

148. In addition to the criteria set out above, suppliers are able to add eligibility criteria, subject to Ofgem approval. Several suppliers have opted to include Pension Credit Guarantee Credit to the list of eligible benefits, in part to prevent unmatched Core Group eligible households from missing out on the rebate. Therefore, in the modelling we include PCGC as an eligible benefit for the Broader Group (on the condition that the household did not receive the rebate through the Core Group).

# Annex 7 – Lowering the Supplier Obligation Threshold

## A7.1 Introduction

### A7.1.1 Rationale for Lowering the Threshold

149. Currently, only suppliers with over 250,000 customer accounts are required to deliver the scheme. The threshold was set to encourage competition in the domestic supply market. Given there are now over 70 domestic energy suppliers, and obligated suppliers' combined market share has fallen from 99%[54] in 2013 to 94% in 2018[55], the Warm Home Discount Consultation asked consultees as to whether the threshold should be lowered.

150. A majority of consultation responses supported the reduction on the minimum customer threshold from its current level of 250,000. In response, the Government intends to incrementally reduce the threshold for providing rebates delivered through data-matching in the scheme years 2019/20 and 2020/21. While most respondents did not specify the level of reduction, most of those who did wanted the threshold to be lowered further (to 50,000 customer accounts), this would have brought many small and micro businesses into scope (see section A7.1.2), who, due to their size, may face disproportionate costs of complying with the regulations[56]. Phasing in the threshold reduction is intended to allow sufficient time for newly obligated suppliers to prepare and give a clear signal to the market.

151. The current threshold determines whether suppliers are obligated to provide rebates to both Core and Broader groups. Later this year, the Government intends to consult on future measures to make delivery more efficient and improve the targeting of support towards fuel poor households in greatest need. It will consider the potential role for new data matching powers under Part 5 of the Digital Economy Act, expected to come into force before summer recess, which would enable us to expand the provision of automatic rebates, through data matching, to working-age households[57]. However, as this has not yet been decided, the following discussion relates to the threshold for the provision of rebates to the Core Group as it currently is, unless stated otherwise.

### A7.1.2 Policy Scope

152. The Government has analysed the impact of reducing the threshold on small and micro businesses[58] and has concluded that none are expected to be brought into scope. Of the suppliers expected to become obligated by 2020/21, 75% (6 suppliers) have already passed the 50-employee

[54] Competition & Markets Authority, Energy Market Investigation, 2016. Available at: https://assets.publishing.service.gov.uk/media/5773de34e5274a0da3000113/final-report-energy-market-investigation.pdf

[55] This figure is based on Ofgem data.

[56] The exemption of small and micro businesses from the WHD is in line with the Government's regulatory guidance that small and micro businesses should be exempt from new regulations. https://www.gov.uk/government/publications/better-regulation-framework

[57] It currently automates the delivery of rebates to the Core Group only.

[58] Small businesses are defined as those with less than 50 employees and micro those less than 10 employees. https://www.gov.uk/government/groups/better-regulation-executive

threshold. The remaining 2 suppliers qualified as small and micro businesses as of December 2016[59] - i.e. they had less than 50 employees, when one held 70,000 and other 140,000 customer accounts. However, they have since grown by 170,000 and 90,000 customer accounts, and both now hold more than 230,000 customer accounts[60]. On average, energy suppliers with 200,000 – 250,000 customer accounts in December 2017 employed more than 200 employees each in March 2017. In these cases, it is expected that they will have each passed the 50-employee threshold before they become obligated in the policy year 2019/20.

153. Furthermore, the average headcount (in March 2017) for suppliers with 150,000 – 200,000 customer accounts (in December 2017) for which we have data is roughly 120. This suggests that it is unlikely that any additional suppliers that become obligated in 2020/21 will qualify as small or micro businesses[61].

## A7.2 Impacts of Reducing the Threshold

### A7.2.1 Market Coverage Impacts

154. Currently, obligated suppliers hold roughly 94% of the market for domestic energy supply[62]. Based on the current market shares, lowering the obligation threshold to 150,000 is expected to bring 8 more suppliers into scope, and lead to greater coverage of Pension Credit Guarantee Credit recipients, thereby increasing the size of the Core Group.

*Table A7.2: Effect of threshold changes on total market and PCGC coverage[63]*

| | Obligated (250k) | Obligated (200k) | Obligated (150k) |
|---|---|---|---|
| Market coverage of obligated suppliers | 94.0% | 95.9% | 97.3% |
| Percentage point (pp) change market coverage from current threshold | - | +1.9pp | +3.3pp |
| Warm Home Discount (Core Group) market coverage | 84.6% | 85.8% | 86.7% |
| Percentage point (pp) change Core Group coverage | - | +1.2pp | +2.1pp |

155. The above table shows that the total market coverage by currently obligated suppliers exceeds their coverage of the Core Group market. This may suggest that reducing the threshold would lead to greater than proportional increases in Core Group coverage.

156. However, analysis of Ofgem data suggests that the increase in Core Group coverage is likely to be less than the increase in total market coverage, as Core Group eligible households are less likely to be with smaller suppliers. On average, BEIS estimates that, based on Ofgem data, the Big Six had 22% more Core Group customers than might be expected based on their market share, while other obligated suppliers have 37% less. Should this lower Core Group coverage rate of the non-Big Six obligated suppliers be representative of suppliers that would become obligated when the thresholds

[59] Cornwall Insight, Domestic Supplier Insight Service. Available at: https://www.cornwall-insight.com/market-research/supply-markets/domestic-supplier-insight-service-quarterly-/q217-domestic-supplier-insight-service
[60] Based on Ofgem data for December 2017
[61] It is possible that the group of suppliers that will become newly obligated in 2019/20 and 2020/21 comprise different suppliers to those that we currently expect to become obligated as a result of the threshold change. However, we expect that their profiles will be broadly similar to those of suppliers that currently would be brought into scope. Therefore, we do not expect that any additional suppliers with 150,000 – 249,999 customer accounts would qualify as SMEs.
[62] Source: Ofgem.
[63] Figures may not sum due to rounding

are lowered, then a 1 percentage point increase in market coverage of obligated suppliers would achieve a 0.63 percentage point increase in Core Group coverage.

157. The impact of this on the WHD coverage rate is shown in the table above. The diminishing nature of returns to increased market coverage would suggest that even if all energy suppliers were obligated, and therefore the market coverage of obligated suppliers were 100%, only roughly 88% of Core Group eligible households would receive the rebate. We expect the remaining 12% of the Core Group market do not receive the rebate as they are not named on their household's energy bills.

158. However, there is some uncertainty around this estimate. The WHD evaluation states that many Core Group recipients have never switched and do not intend to do so[64]. The large majority of smaller suppliers are relatively new entrants. Therefore, it is likely that the proportion of PCGC recipients covered by suppliers with 150,000 – 249,999 customer accounts is smaller than the proportion covered by the smaller obligated suppliers, and therefore the increase in coverage may be smaller, in reality, than shown above.

### A7.2.2 Distributional Impacts

159. Reducing the supplier obligation threshold will reduce the costs of the policy to each individual household. For households who bear the costs of the policy, having more obligated suppliers will raise the number of bill payers that fund the scheme. As the total spend is fixed, and policy costs are redistributed to suppliers based on their market share, through the reconciliation process, this would lead to a reduction in the average cost per household. Although this would have no impact on the aggregate costs of the policy, by spreading the costs over a wider customer base, it would slightly reduce the bill impacts of the scheme for all households with currently obligated suppliers, including low income and vulnerable households who are not in receipt of the rebate.

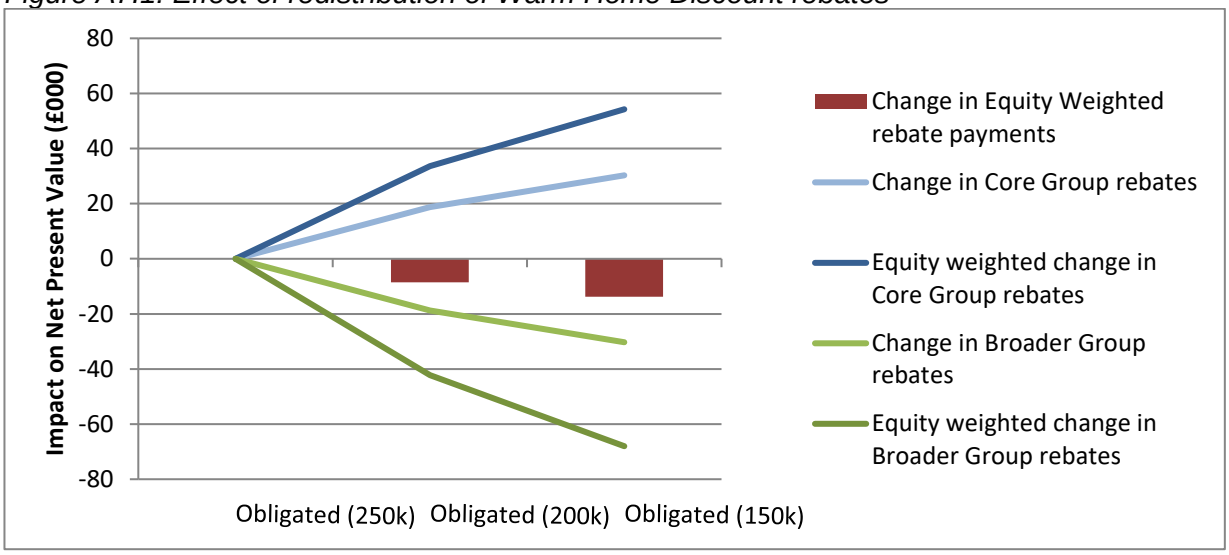
160. Reducing the threshold would increase the Core Group's share of the total number of rebates delivered, as the spending envelope is fixed and provided to all Core Group recipients before being allocated to Broader Group eligible households on a first-come-first-served basis. Therefore, increasing Core Group rebates leads to an identical reduction in Broader Group rebates[65]. In the absence of any equity-weighting, the two would cancel each other out, and have no impact on overall monetised benefits of the policy.

161. However, the WHD is a redistributive policy and therefore this IA equity weights the value of the rebate. Core Group recipients tend to have greater incomes than Broader Group recipients, so Broader Group rebates receive a greater equity-weighting. This means that lowering the threshold has a negative impact on the total benefits of the policy when equity weighted (as shown in Figure A7.1 below). The previous section above, however, outlined that the additional number of Core Group recipients may be smaller in reality than assumed in this IA. In this case, the negative distributional impact of increased Core Group coverage would be reduced.

[64] Warm Home Discount Evaluation 2010 to 2015, Available at: https://www.gov.uk/government/publications/warm-home-discount-evaluation-2010-to-2015

[65] The increase in rebates delivered to the Core Group is estimated by taking the ratio of PCGC recipients to the total customer base of smaller suppliers which is then applied to the customer numbers for suppliers within the 150,000 – 249,999 account range. It is therefore assumed that the customer bases of smaller obligated suppliers and those that are expected to become obligated are roughly the same.

*Figure A7.1: Effect of redistribution of Warm Home Discount rebates*




### A7.2.3 Competition and Switching Behaviour

162. The WHD imposes costs on obligated suppliers. Lowering the threshold for the data matching part of the scheme is estimated to lead to administrative costs of around £4,000[66] per supplier per year, on average. These costs, and the costs of the rebates themselves, may be passed onto customers' bills, a cost pass-through of roughly £14 per dual fuel customer. These additional costs come at a time when consumers appear increasingly likely to switch: 17% of households switched energy supplier in 2017, with 91% of switchers doing so primarily to save on their energy bills[67]. These increased costs could therefore provide customers of newly obligated suppliers with an incentive to switch to suppliers with less than 150,000 customer accounts, who would remain non-obligated, thus reducing newly obligated suppliers' ability to compete on price.

163. That said, the costs of participating in the Warm Home Discount (roughly £14 per customer) are small relative to the £300 per year Ofgem estimates the average household on a standard variable tariff could save from switching to the cheapest tariff on the market[68]. In addition, there is increasing competition on other features, such as customer service and product differentiation, which may also be responsible for some of the reduction in incumbent suppliers' market share[69]. The presence of more suppliers in the market that are offering the WHD may also give customers that are eligible for the rebate, and with a currently obligated supplier, a greater incentive to switch. Indeed, as discussed in Section 4, the WHD evaluation suggests that the policy in its current form may have some adverse impact on some households' switching behaviour, so reducing the threshold may have a positive impact on switching behaviour.

164. The administrative costs to newly obligated suppliers will be mitigated by reducing the obligation threshold only for suppliers to participate in providing rebates to data-matched households[70]. As shown in Table A3.2, delivering Broader Group rebates account for more than 70% of total administrative costs. Therefore, limiting smaller suppliers' obligations to only providing rebates to data-matched households is expected to significantly limit the delivery costs for newly obligated suppliers which could otherwise have disproportionate impacts. As stated above, due to this limitation the administrative costs per newly obligated supplier are expected to be roughly £4,000 per year,

[66] This is calculated by taking the average cost of delivering Core Group rebates (including fixed costs), reported by currently obligated suppliers, and weighting it by the expected size of newly obligated suppliers Core Group obligations.
[67] Ofgem State of the Market Report 2017. Available at: https://www.ofgem.gov.uk/publications-and-updates/state-energy-market-2017
[68] Source Ofgem https://www.ofgem.gov.uk/publications-and-updates/state-energy-market-2017
[69] Ofgem State of the Market Report 2017. Available at: https://www.ofgem.gov.uk/publications-and-updates/state-energy-market-2017
[70] This may be limited to the Core Group as is currently defined, or include all eligible households, if data-matching is extended

which is not expected to be prohibitive for energy suppliers with 150,000 – 249,999 customer accounts.

### Conclusion

165. On balance, the Government proposes to reduce the threshold, as the potential benefits to the coverage of eligible households and reduced policy costs per household outweigh the increased costs of participation for newly obligated suppliers. The impact on competition is unclear, but the reduction will be gradual, allowing smaller suppliers more time to prepare and giving markets a clear signal about the future. For the extension year (2018/19) the obligation threshold will be maintained at 250,000 customer accounts, before reducing the threshold for 2019/20 to 200,000 accounts, and to 150,000 customer accounts for 2020/21.