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BRIEFING PAPER MAY 2025

THE WARM HOMES PLAN WILL BOOST UK FINANCES

ANNEX: ASSUMPTIONS AND METHODOLOGY

E3G assessed the potential energy savings and economic benefits deriving from home upgrades under three different levels of investment, delivered this parliament between 2025 and 2030.¹ This Annex identifies what assumptions were used and explains our methodology for estimating the benefits of retrofit. The Annex also includes an outline for how the government could distribute the investment in the Warm Homes Plan.

Cost benefit analysis assumptions and methodology

The analysis is underpinned by Committee on Climate Change (CCC) data on the potential for energy efficiency improvements within UK households, and the relationship between technologies deployed and energy and carbon savings. This was supported by additional sources to assess wider social, economic and system benefits, e.g., the quality adjusted life years associated with insulation measures.

To evaluate the energy savings and other benefits which follow from different levels of investment in home upgrades, E3G used three investment scenarios. Each scenario follows the same underlying assumptions, although where investment is concentrated differs between each scenario.

The results were inputted to the HMT Green Book valuation methodology for greenhouse gas emissions to estimate the net economic benefits of investing in home upgrades.²

¹ E3G, May 2025, **The Warm Homes Plan will boost UK finances**

² UK government, 30 November 2023, **Green Book supplementary guidance**



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Measure deployment according to the CCC's Sixth Carbon budget

The number of measures deployed, broken down categories within fabric, heating and appliances are the basis of our analysis. The number of measures deployed are scaled down for the scenarios "low ambition" and "manifesto" scenarios, while the CCC-aligned scenario is unchanged.

In the Carbon Budget, the CCC estimates how many homes need to be improved to keep the UK on track to meet emissions reduction targets. The Seventh Carbon Budget was released in February 2025. The previous Sixth Carbon Budget was used for this analysis because the Seventh Budget did not release the numbers of measures deployed. Furthermore, the CCC's underlying approach is consistent between budgets, particularly for the immediate period between 2025 to 2030 which this analysis focuses on. Therefore, this analysis must use Carbon Budget 6 figures for measure deployment, and the results remain consistent with the CCC's latest advice.

The energy and emissions factors for individual measures, deployment across housing tenure (social rent, private rent and owner occupier and deployment between fuel poor and non-fuel poor households are also carried across from CCC's Sixth Carbon Budget to our analysis.

Measure costs have increased significantly since the Sixth Carbon Budget. Therefore, measure costs taken from the CCC's Sixth Carbon Budget were uprated in line with inflation. To ensure increasing in line with inflation accurately reflected increased costs, individual measure costs were compared against average measure costs achieved across the government schemes in publicly available data on Social Housing, Local Government, and Energy Company Obligation schemes.

Assumptions used to estimate wider economic benefits

Table 1 outlines the assumptions used to estimate the wider economic benefits associated with home upgrades. The main factors which E3G assessed were:

- > Macroeconomic benefits of investing in home upgrades.
- > Health benefits from making homes more affordable to heat.
- > Impacts on the UK's wider energy and electricity system.
- > Jobs created by making investment available to upgrade homes.



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Investment scenarios

The CCC's recommended investment in home upgrades is estimated to require around £26bn of additional investment. E3G scaled this investment down, to the level pledged in Labour's manifesto, and in line with the level the government is on track to meet. To scale investment down, the number of measures deployed were reduced.

To scale investment down from the CCC's

- > **Limited ambition £6bn investment**, which current policy is geared to. The focus is on meeting the fuel poverty target, meaning substantially less funding for heat decarbonisation compared to the other scenarios.
- > **The £13.2bn manifesto pledge**, which current policy is on track to miss. The fuel poverty target is the priority, although there is consistent investment in heat decarbonisation.
- > **Committee on Climate Change (CCC)-aligned £26.4bn**, which current policy is on track to miss. There is enough investment to help all fuel poor households, and substantial additional support to keep the UK's carbon budget for home heating on track.

Input to HMT Green Book greenhouse valuation tool

The outputs of the E3G analysis (change in energy use and other benefits), were input to the HMT Green Book Greenhouse Valuation Tool to estimate the Net Present Value of the three investment scenarios.

E3G's analysis estimates the energy saved by investing in home upgrades delivered under the three investment scenarios. Change in energy domestic energy use under the three scenarios are split out across fuel types; electricity, gas, coal, oil, and biomass. "Other Benefits", primarily measured in the quality adjusted life years increased by energy efficiency measures, were also estimated in E3G's analysis. These outputs were copied into the inputs tab of the government's methodology. The discounted results of the government model were used in the Briefing.



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Figure 1. Data sources and assumptions used in the cost benefit analysis

Name		Use
Retrofit measures	6 th Carbon Budget ³	> The number of measures (including; building fabric improvements, heating system changes, energy efficiency improvements from white goods or appliances) installed per year, per measure
		> The energy saving of each measure, by unit of energy and fuel
		> The average cost and lifetime of each measure
		> Assumption on which tenure type (owner occupier, social or private rent, and fuel poor or not fuel poor) receives the measures.
		> Energy savings from consumer behaviour change.
Economic factors	ONS: EGSS estimates ⁴	> Ratio of gross value added to turnover for both fabric and insulation measures
	Bank of England inflation ⁵	> Inflate CCC 2021 retrofit and heating measure costs to current prices
	UK Energy Research Centre ⁶	> GDP multiplier
Health benefits	HMT Green Book 2022 ⁷	> Value of a Quality-Adjusted Life Gross value added
	Fuel poverty: A framework for future action ⁸	> Benefit of an insulation measure in Quality-Adjusted Life Year for CWI, SWI, replacement boiler and first time central heating. Estimate for floor insulation derived.
	DECC ECO Help to Heat IA ⁹	> Quality-Adjusted Life Year for loft insulation

³ Committee on Climate Change, 9 December 2020, **The Sixth Carbon Budget**

⁴ Office for National Statistics, 5 June 2024, **Environmental goods and services sector (EGSS) estimates**

⁵ Bank of England, 2025, **Inflation calculator**

⁶ UK Energy Research Centre, 2017, **So which households can benefit from energy efficiency?**

⁷ UK government, 16 May 2024, **The Green Book**

⁸ UK government, 9 July 2013, **Fuel Poverty: a framework for future action**

⁹ UK government, 27 June 2016, **ECO: Help to Heat Consultation Stage Impact Assessment**



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Energy	Ofgem price cap ¹⁰	>	The current price of domestic energy
	Nottingham Energy ¹¹	>	Solid fuel, oil and bioenergy prices
	Recognising the Full Value of Energy Efficiency ¹²	>	<ul style="list-style-type: none"> Avoided line losses (p/kWh saved electricity) Avoided generation capacity costs (p/kWh saved electricity) Avoided transmission capacity costs (p/kWh saved electricity) Avoided distribution capacity costs (p/kWh saved electricity) Minimising reserve requirements (p/kWh saved electricity)
Jobs	Green job creation, quality and skills ¹³	>	Annual FTEs per £m home energy upgrades
	UK Energy Research Centre ¹⁴	>	Induced jobs multiplier

¹⁰ Ofgem, 2025, **Energy price cap**

¹¹ Nottingham Energy Partnership, 2025, **Energy cost comparison**

¹² Regulatory Assistance Project, 9 September 2013, **Recognizing the Full Value of Energy Efficiency**

¹³ UKERC, 2022, **Green job creation, quality and skills: A review of the evidence on low carbon energy**

¹⁴ UK Energy Research Centre, 2017, **So which households can benefit from energy efficiency?**



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How government could effectively spend the £13.2bn

E3G has also suggested how the government should distribute spending for the Warm Homes Plan based on the performance of existing retrofit schemes to date and gaps in the schemes which are available today. E3G evaluated the performance of difference schemes, and areas which need the most investment based on government priorities. Table 1 below breaks down how the budget should be allocated at the June Spending Review.

Table 1. Funding to deliver the Warm Homes Plan (£, MILLIONS)

Scheme	2025 June SR	Two-year allocation 2028-30	Full allocation 2025 to 2030
SOCIAL HOUSING DECARBONISATION	2,000	2,200	4,200
BOILER UPGRADE SCHEME	1,500	1,000	2,500
PUBLIC SECTOR DECARBONISATION ¹⁵	1,000	800	1,800
HOME UPGRADE LOANS SUBSIDY		1,505 ¹⁶	
WARM HOMES: LOCAL GRANT	600	600	1,200
INSULATION GRANT	500	400	1,000
HEAT NETWORKS	530	360	890
LOCAL HEAT AND ENERGY PLANNING	12	8	20
CAPITAL SPENDING SUM	6,142	7,073	13,215
SUM, plus ECO & GBIS	3,600	2,000	19,335

¹⁵ £1bn was allocated in the Autumn Budget

¹⁶ Estimated cost to government of subsidising the interest on loans issued this parliament until they are all paid in full (max 10 years). See appendix for full calculations and assumptions.



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LEVY REBALANCING			
GREEN HOME TRAINING GRANT	100	100	200
PRS STANDARDS ENFORCEMENT ¹⁷		700	

Continued and expanded support for the major grant schemes

The grant schemes, delivered by partners in social housing, local government and national government, are the spine of the government's retrofit policy. They should be continued, expanded, and DESNZ should be supported to improve the performance of the schemes where possible.

Targeted local retrofit

Local retrofit schemes implemented in the 2020/24 parliament have shown positive outcomes, including street-by-street approaches which deliver multiple benefits for residents. Retrofit is one of the principal ways the government can directly improve quality of life.

Investment in the Social Housing Decarbonisation Fund (SHDF) should be increased to £2bn between 2025-2028. In the final two years of parliament, this could be increased to £2.2bn respectively, supported by further funding for building safety and maintenance. Investment in the local programme could be increased slightly to £0.6bn for the first three years of parliament, with a further £0.6bn invested in the final two years of parliament.

The design of retrofit schemes has been a consistent blocker to effective use of government funds. DESNZ has made some recent improvements to scheme design which will help to remove blockers to delivery. The Treasury should continue supporting with scheme redesign, with a focus on reducing the burden of Publicly Available Stand 2035, and to clarify which measures are VAT exempt.

Clean heat and energy efficiency grants for owner occupiers

Subsidy for clean heating and energy efficiency improvements are crucial to lower bills, keep homes warm and demonstrate the positive role of government in ensuring the energy transition will benefit ordinary people.

¹⁷ Paid for by a levy on landlords when they register properties on the national landlords register



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The Boiler Upgrade Scheme should be expanded in line with the increase set out by the previous government to average £0.5bn a year over three years, continued at the same rate over the final two years of parliament, amounting to £2.5bn over 5 years. This is necessary to deliver the rapid upward trajectory in heat pump installations to meet carbon budgets. To ensure the attractiveness of heat pumps, the government must implement measures to reduce electricity running costs, further complemented by the proposed loan scheme.

A universally available energy efficiency grant, valued at £0.4bn from 2025 to 2028 was planned by the previous government.¹⁸ Government should carry this forward, but increased to £0.5 bn to help consumers to undertake works needed to enable installation of low carbon heat; a recent study estimates 69% of UK homes will require adjustment before a heat pump can be installed.¹⁹ This grant should focus on low cost measures which enable the installation of a heat pump, such as, loft insulation, cavity wall, double glazing, a hot water tank, changes to piping and solar panels. To reduce hassle, the efficiency and heat grant could be accessible to consumers through one application. In the final two years of parliament, the grant should be continued, spending £0.6bn over two years.

Continuing support for public sector decarbonisation

The Public Sector Decarbonisation Scheme (PSDS) has delivered savings across the central and local public sector estate. It has represented good value for money and always spent its full allocation. PSDS investments should be *additional* to the funding committed for domestic retrofits, as an effective avenue to reduce public sector bills and emissions. E3G suggests that PSDS investment remains in line with the previous government's intention to spend around £1bn from 2025 to 2028, and increase the annual allocation for the last two years of the parliament.

Complementary policies

The home upgrade investment should be supported with complementary policies which support effective deployment of the funding:

- > 10 year investment plan for targeted home retrofit policies
- > Electricity policy costs and an intermediary clean heat discount
- > Resource local government to enforce higher standards in the rented sector

¹⁸ UK Government, December 2023, **Families, business and industry to get energy efficiency support**

¹⁹ Childs, L., et al, 2 January 2025, **Predicting the heat pump readiness of existing heating systems in the UK using diagnostic boiler data**



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- > Fund trusted consumer advice and a green loan
 - > Local area energy planning and local heat and energy efficiency strategies

10 year investment plan for targeted home retrofit policies

The Treasury should support DESNZ by increasing investment in existing schemes, fund new schemes which support consumer demand, and provide revenue funding for a set of high impact, low-cost policies which enable electrification and higher housing standards. To rebuild confidence and trust in home retrofit supply chains, the Treasury should underpin policies with a 10-year commitment to home retrofit and allocate funding to a non-departmental public body with cross-departmental oversight to improve the nation's worst homes.

1. Low cost enabling actions; a low interest loan and trusted consumer advice, enforcement capacity to deliver higher standards in the rented sector, and a targeted discount on electricity prices for efficient electric heating.
2. Direct delivery through capital grants; targeted local retrofit, grants for green technology, and modernise the public sector estate with efficient heating.

Electricity policy costs and an intermediary clean heat discount

The cost of electricity is uniquely high in the UK, the highest in of all International Energy Agency (IEA) member countries. But the UK's economic strength lies in clean technology powered by electricity, not gas – which is already a declining energy source. Tipping the balance of electric heating just 15% in favour of heat pumps will unlock more private finance and investment

To capitalise on the UK's strength and ensure it remains competitive, a long-term policy to help electrify the economy is needed, including for legacy policy costs to be moved into income tax. In the meantime, a discount on the cost of clean, efficient, modern electric heating should be made available to households who make the transition. Denmark already exempts electric heating from policy costs and has successfully grown its heat pump market (between 2015 and 2022 there was a fivefold increase in heat pump installations). This pragmatic and inexpensive stop gap will cost £390m a year for both direct electric heating and heat pumps, or £60m a year for heat pumps alone.

Resource local government to enforce higher standards in the rented sector

Higher standards for renters legislated by the Renters Rights Bill and supporting regulation will only translate into home improvements if a new enforcement



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regime is supported by government.²⁰ If higher standards of decency, safety and energy efficiency are to translate into a meaningful improvement in the rented sector, government will need to invest in a new regime to encourage compliance and if necessary to prosecute rogue landlords. Between 2025 and 2029 E3G estimate around £700 million should be levied on privately rented properties, funding both local enforcement and the national landlord register.²¹ Per property for a four-year license, this will cost £150.

Fund trusted consumer advice and a green loan

The government has pledged to launch a home upgrade loan and subsidise consumer advice which is linked to the loan, and the other public grants. Alongside grants, low interest loans could help consumers with costs remaining after a government grant, and for larger, carbon and energy intensive households to make more extensive energy efficiency upgrades.

Local area energy planning and local heat and energy efficiency strategies

To guarantee the transition to an electric economy and low carbon heating will benefit local communities, capital needs to be allocated to create dynamic, public facing plans to understand how to reach this end goal. Local Area Energy Planning is already underway in Wales, funded by the central government and delivered through 4 regional groupings of local authorities. Meanwhile, Scotland has regulated for local authorities to produce Local Heat and Energy Efficiency Strategies (funding was not made available). To deliver both energy and heat plans, the Treasury should support DESNZ with at least £20m of capital to deliver plans across England.

²⁰ E3G, 10 July 2024, **A warmer fairer private rented sector**

²¹ E3G analysis, see appendix



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About E3G

E3G is an independent think tank working to deliver a safe climate for all.

We drive systemic action on climate by identifying barriers and constructing coalitions to advance the solutions needed. We create spaces for honest dialogue, and help guide governments, businesses and the public on how to deliver change at the pace the planet demands.

More information is available at www.e3g.org

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