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## Open letter to party leaders - the analysis behind the figures

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January 2024

### Background

UK Green Building Council is organising an [open letter to the party leaders](#) calling for a step-change in investment and policies to upgrade Britain's homes. We hope you'll join investors, businesses, charities and consumer groups in backing this campaign.

This background document sets out how we identified the scale of investment needed from government and the economic benefit of that investment.

### The analysis

We have used a new national retrofit investment [calculator](#) developed by UKGBC with a large number of partners, research partners and expert advisors assess the scale of investment needed. The calculator models the entire UK housing stock allowing users to explore the investment requirements, and benefits, of different types of retrofit measures in homes, and different allocations of investment to different household groups.

We concluded that at least £64 billion investment is needed over 10 years. Plus long-term game-changing policies to shift markets and drive private investment, including a stamp duty 'rebate to renovate' incentive, minimum standards for private rented homes and moving levies from electricity bills to general taxation. The letter sets out the huge economic benefits of that scale of investment.

Below we set out how we arrived at the headline figures in the open letter.

### Retrofit measures

The package of low energy and low carbon measures installed nationwide include: nationwide

- 100% of remaining easy cavity walls filled and lofts insulated
- 50% of treatable Solid / Hard To Treat cavity walls insulated
- 90% heat pumps and 10% other low carbon heating
- 20% PV (mostly on fuel poor homes).

### Investment distribution

We propose that £64 billion **government investment** in home energy efficiency and low carbon energy of over 10 years would involve:

- **Social housing:** government fund circa 80% of retrofit costs over 10 years circa £35 billion

- **Private rented:** government fund: fuel/near fuel poor circa 40% of retrofit costs, non-fuel poor 25% (eg subsidized interest rate), funded over 10 years.
- **Owner occupied:** fuel/near fuel poor & asset poor circa 60% of retrofit costs, fuel/near fuel poor & asset rich circa 25%, non-fuel poor & asset poor circa 50%, non-fuel poor & asset rich circa 15% (eg subsidized interest rate)
- **Strategic:** Supporting investment for: Local authority capacity investment, skills, R&D, communications etc = £7.5 billion over 25 years

Our conclusions assume that policies are introduced to bring forward the **private investment** co-funding of £94Bn over the 10 year period and a total of £237Bn through to 2050.

More generally, our conclusions assume:

- Retrofit investment, savings and benefits apply to the whole UK
- Total government and private investment over the 10 year period of £158Bn and a total of £314 billion through to 2050
- The analysis uses a proxy for 2025 retrofit prices. Implications of energy price inflation, retrofit cost inflation, retrofit installation / manufacturing efficiencies etc are not included in the analysis.

## High level assumptions behind the economic benefits

1. **Raise £78 billion in tax income to the Treasury over 10 years.**
  - The tax raised associated with the total, private and government investment spend using a tax to stimulus ratio proxy of 0.49<sup>1</sup>.
2. **Reduce household bills by an average of £300 year on year, easing the cost-of-living. This is a saving for the nation's households of over £9 billion a year.**
  - Calculated using NEED database savings for the retrofit measures.
  - Assumes upper quartile energy savings as a proxy for savings from enhanced installation practice combined with additional quality assurance such as performance measurement.
  - Energy costs used: October 2023 Energy Price Cap with social and environmental taxes removed from the electricity tariff.
  - Within 10 years, 7 million homes treated with one or more major energy efficiency measures, 9 million homes fitted with heat pumps and nearly 1m homes with other low carbon heating. Many homes will have energy efficiency and heating measures so the total number of homes treated are within the range 7 – 17 million.
3. **Tackle fuel poverty, with warm and well insulated homes that reduce bills and combat damp and mould.**
  - 70% of government investment is spent on fuel poor, near fuel poor and social housing
4. **Save £25 billion over 10 years for the NHS and wider society from avoided health and informal care costs and lost economic output.**
  - PWC modelling of social, economic and environmental benefits of retrofit.
  - Includes avoided NHS and societal costs of excess cold, dampness, and excess heat
5. **Cutting gas use by over 40% by year 10, transforming our energy security and saving over 100 million tonnes of carbon emissions.**

- Retrofit scenario compared with a counterfactual of business as usual:
    - current natural gas demand and current gas carbon emission factors
    - electrical grid decarbonising as described within BEIS report 'Updated energy and emissions projections 2021 to 2040'  
[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/1111625/updated-energy-and-emissions-projections-2021-2040.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1111625/updated-energy-and-emissions-projections-2021-2040.pdf)
  - Combined benefits reduced energy demand through energy efficiency measures and replacement of gas heating with low carbon heating installations.
- 6. Create or sustain over 140,000 direct skilled quality jobs across every neighbourhood in the country**
- Estimated using a proxi based on the capital expenditure. Direct jobs = 1/3 of capital expenditure / £170 per day / days in the year
- 7. Avoid over £60 billion in additional electricity grid generation capacity by 2035 and nearly £300 billion by 2050**
- The saving associated with the reduction in generation capacity and short term storage investment required, compared to a counterfactual scenario, to due to reduced winter load (analysis excludes additional grid reinforcement costs).
  - Counterfactual scenario: 90% of homes have a heat pump (with a SCOP of 2.5), 10% other low carbon and no homes have energy efficiency measures.
  - Data from Knauf Energy Solutions paper: 'Heat Pumps: the new Winter Peak' which assumes a Levelized Cost of Energy (LCOE of £0.064/kWh) based on: 1/3rd solar (all utility), 1/3 wind (of which half is on-shore and half off-shore), 1/3 nuclear and 1.2 TWh of grid balancing via 32m electric vehicle providing grid balancing, with a proxi that 1TWh of reduction in demand reduces peak capacity by 4.7 TWh.
  - There are many alternative electricity generation and storage scenarios with different associated investment costs.

## Next steps

**SIGN THE LETTER** Please add your \*organisation's support [here](#) before 20th February. We will be sharing the levels of support for the letter with the main parties ahead of this to inform their decision making so please add your support as soon as possible.

*\*Please note we are asking for organisations, not individuals to sign. Please only sign if you are authorised to on behalf of your organisation.*

**EXPLORE THE CALCULATOR** Please use [the calculator](#) to explore different investment options – if you were Chancellor, how much would you spend? As Secretary of State what game-changing policies would you introduce?

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<sup>1</sup>Retrofit investment calculator version 46C using scenarios 10,11 & 15. This uses the same assumption used by the [Warmer Homes Cheaper Bills](#) by Dr Donal Brown, Tom Bailey, which itself was taken from a University of Leeds macroeconomic modelling study: J. Nieto, P. Brockway, J. Barrett, Socio-macroeconomic impacts of meeting new build and retrofit UK building energy targets to 2030: a MARCO-UK modelling study Sustainability Research Institute SCHOOL OF EARTH AND ENVIRONMENT, (2020). <https://sri-working-papers.leeds.ac.uk/> (accessed March 16, 2020).