Turbocharging the benefits of Great Britain's emerging home energy efficiency sector

Commissioned by AgilityEco

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Foreword

Sharon Johnson
CEO of AgilityEco

At AgilityEco, our mission is to play a major role in eliminating fuel poverty, deliver better outcomes for low-income and vulnerable families, and prepare Britain's homes for Net Zero. Our vision is a warm, efficient and healthy home for everyone. By reducing energy bills through energy efficiency improvements, we can help the most vulnerable in society keep warm and well and reduce the burden on healthcare services.

To significantly reduce carbon emissions from homes in Great Britain, we need a clear, long-term policy runway to tackle the energy affordability challenge and the need for decarbonisation of domestic dwellings, combined with the certainty of government funding. Such a framework will not only bring many households out of fuel poverty, but it is also an undeniably attractive economic opportunity. It is a key enabler to unlock significant private investment and boost economic growth.

In this paper, produced in partnership with Baringa, we outline the £140 billion in potential benefits that the residential energy efficiency sector can bring to the economy, including a higher GDP, increased tax revenue, and the creation of numerous job opportunities.

Investing in this sector offers not only economic gains but also transformative environmental and societal benefits. These include reduced energy bills, lower living costs, enhanced property values, decreased healthcare costs, and relief from grid pressure. Ultimately, these initiatives will reduce carbon emissions and propel the UK towards its ambitious Net Zero goals.

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Executive summary

Improving the energy efficiency of residential housing stock to EPC C or above (warm homes) is not just an environmental imperative: it is a powerful economic strategy that can deliver multifaceted benefits for society.

Upgrading housing stock to EPC C will unlock £140 billion in benefits

Investing approximately £16bn of government funding in home energy efficiency has the potential to unlock an additional £49bn of private finance. This combined £65bn is the amount needed to raise Great Britain's (GB) housing stock to EPC C.

This investment brings a significant return. Upgrading the housing stock to EPC C is projected to generate up to £140bn in benefits for the wider GB economy by 2040.[1] Crucially, this is not just a long-term enterprise. Prioritising investment in warm homes can provide an immediate economic uplift – a potential £50bn[2] of the total £140bn benefit can be unlocked over the next five years.

The government must attract private sector investment in warm homes

To realise these benefits, the government must attract the £49bn of private finance by providing the right conditions for effective collaboration between the public and private sectors.

A **consistent policy framework** is the first condition. The government must maintain policy and funding momentum and avoid disruptions. A committed Warm Homes Plan, underpinned by **stable and long-term funding**, will provide certainty for investors and industry. In light of recent events, it is essential to maintain a consistent policy framework that provides the necessary stability for the Energy Company Obligation (ECO), which plays a crucial role in addressing affordability through deep retrofits for the most fuel-poor households. The introduction of the Warm Homes Plan Local Grant funding further complements this by offering more targeted support for decarbonisation, ensuring a comprehensive approach that balances both affordability and sustainability. A multichannel strategy, combining these initiatives, is key to achieving long-term decarbonisation goals while ensuring vulnerable households are not left behind.

Other conditions include **creating incentives and settings** that attract private finance, investing in high-quality **workforce development and training** programs that can meet demand, and **educating and incentivising consumers** to adopt energy-efficient measures. The Labour government's initial commitments are positive developments, but they will need to go further to ensure public funding is more than matched by private money.

This paper sets out the hugely positive case for committing to nationwide upgrade to EPC C – and how the government can foster a climate that attracts the requisite private finance. By taking decisive action now, we can create a sustainable and prosperous future, ensuring GB's transition to net zero delivers maximum economic and societal benefits.

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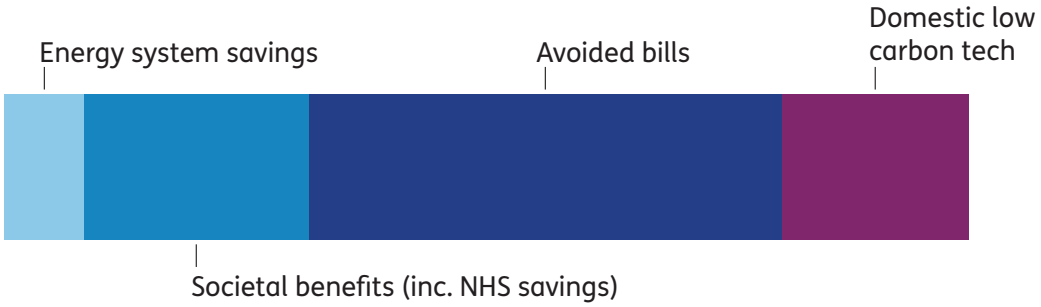
The £140 billion prize

The twin imperatives of domestic energy efficiency and energy bill affordability are crucial for the GB economy and the wellbeing of households, as outlined in the Fuel Poverty Strategy and Climate Change Act. In addition, the government's Warm Homes Plan[3] recognises what may have been missed previously – that delivery against these twin imperatives brings huge potential for economic growth and job creation, as well as significant progress towards net zero targets.

An estimated 16.3m homes in GB are below EPC C; upgrading that housing stock to EPC C (warm home) is an enormous opportunity. Dedicating £16bn of government funding to this transition could unlock £49bn in private finance. This £65bn of total investment could lead to £140bn of potential economic and social benefits by 2040, with £50bn of that unlocked by 2030.[1]

The £140bn in benefits will touch multiple areas of the GB economy, including NHS savings (see Figure below).

The £49bn in benefits by 2030 is realised across multiple sectors of the economy



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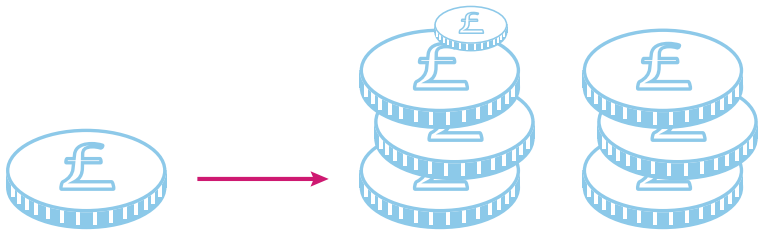
Economic benefits

- **Higher GDP and tax revenue**: Decarbonisation can boost GDP, increase tax revenue, and create numerous job opportunities. Analysis from Cambridge Econometrics and Verco indicates that investing in energy efficiency measures yields significant returns – for every £1.00 of government investment, GDP increases by £3.20 and VAT rises by £3.00.[4] Increased tax revenues can be reinvested into public services such as healthcare, education, and infrastructure.



- **Job creation**: The warm homes transition can create a significant number of new jobs (estimated increase of 13%[5]). The Construction Industry Training Board (CITB) estimates this could be in the region of 350,000 new skilled jobs by 2028,[6] leading to increased income tax revenues and National Insurance contributions. Training facilities in GB have the capacity to train 40,000 new heat pump installers per year,[7] preparing for the projected c.14,200 full-time or c.45,000 part-time installers needed for heat pump retrofits by the early 2030s.[8] Comprehensive support for this sector will create a virtuous circle of job creation, attractiveness to prospective employees, and increased skills and innovation across the value chain. We must take action today to prepare for the future market, creating the jobs and infrastructure necessary to achieve the required level of decarbonisation.
- **Reduced cost of capital**: Private equity can offer significant additional funding that complements government investment, increasing the capital available for energy efficiency projects. This approach can foster cross-sector collaboration, enable risk-sharing, and amplify the overall impact of these projects.

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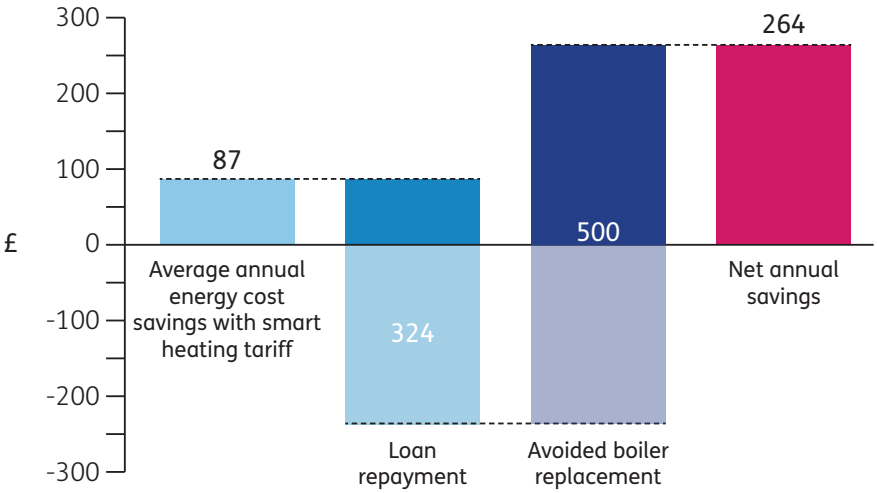
Consumer benefits

- **Reduced energy bills**: Homeowners can save significantly on energy bills, alleviating cost-of-living pressures. Upgrading a home to EPC C from EPC E is estimated to deliver average annual bill savings of c.£415.[9] Funded schemes have reduced energy bills for the most vulnerable, with the Energy Company Obligation 3 (ECO3) scheme alone achieving estimated lifetime bill savings of £8.547bn.[10]
- **Consumer savings – existing properties**: Baringa analysis indicates that installing a 10-kW heat pump instead of replacing a gas boiler results in a net annual savings of £264 (see Figure below).[11] Additionally, having well-insulated homes could save consumers over £5bn annually. Government funding (grants or subsidised consumer loans) will help reduce hardware costs. They will also help the market scale and move towards self-sufficiency, as well as create opportunities for private lenders to develop attractive loan products that boost uptake.

Projected annual average savings from heat pump retrofit with 10-year loan term with a 5% annual interest rate



- **Consumer savings – low-carbon properties**: Homes with low-carbon technologies like heat pumps and solar batteries are commanding a premium. The Octopus ZeroBills initiative estimates a net consumer savings of £8,500 over 25 years compared with a gas-heated home.[8] Often, these savings are also realised by homes taking advantage of new residential low-carbon investments that increase efficiency, reducing the cost of ownership and/or bills.
- **Increased property values**: There is a growing commercial case for low-carbon technologies in the housing market. A Sustainable Markets Initiative[8] report showed that heat pumps can increase property value by approximately 1.7% to 3%, with solar installations adding around 0.5% to 2%. A Rightmove study of over 300,000 homes found that consumers are willing to pay £56,000 more for homes which are EPC C compared to EPC F.[12]

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Societal benefits

- **Reduced healthcare costs**: Improving energy efficiency in homes can significantly reduce national healthcare costs. Cold homes exacerbate many underlying conditions.[13] Upgrading GB's housing stock to EPC C could reduce NHS winter peak patient numbers by 30% for cold-home-related conditions. Enhanced energy efficiency could also prevent up to 670,000 children from developing asthma and up to 560,000 children and adults from developing mental health conditions. Altogether, improved energy efficiency would potentially save the NHS £600m annually.[14]
- **Avoided costs of network infrastructure upgrades**: Improving energy efficiency in 13m homes could lower peak demand on the grid by up to 8%, reducing required infrastructure spend by £4bn over the next five years.[8] The Department for Energy Security and Net Zero estimates the network could need £240bn of investment up to 2040,[15] so any actions that reduce this capital requirement free up spending for other initiatives with societal benefit.

Environmental benefits

- **Meeting net zero targets**: Decarbonising domestic heating is a crucial plank of the country's net zero commitment, as it accounts for around 18% of the UK's total carbon emissions. The UK's Carbon Budgets assume significant contributions from domestic heating decarbonisation through increased energy efficiency, electrification of heating, adoption of low-carbon technologies, and behavioural changes.[16]
- **Reduced emissions**: Baringa analysis shows that effectively insulating homes could cut GB's overall emissions by 5%.[17] Fully transitioning to low-carbon technology home systems could cut GB's emissions by almost 18%.[18]
- **Power sector decarbonisation**: The decarbonisation of the built environment will also enable the decarbonisation of the power sector. Demand-side response and domestic flexibility are increasingly imperative and recognised as key drivers of system decarbonisation. The more decarbonised the housing stock, the greater flexibility there is to shift power demand and reduce peak loads during high-carbon periods.

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Challenges facing the warm homes transition

The £140bn opportunity means there is a clear benefit to creating conditions that engage private investors, large employers, future energy efficiency workers, and consumers in the transition to warm homes.

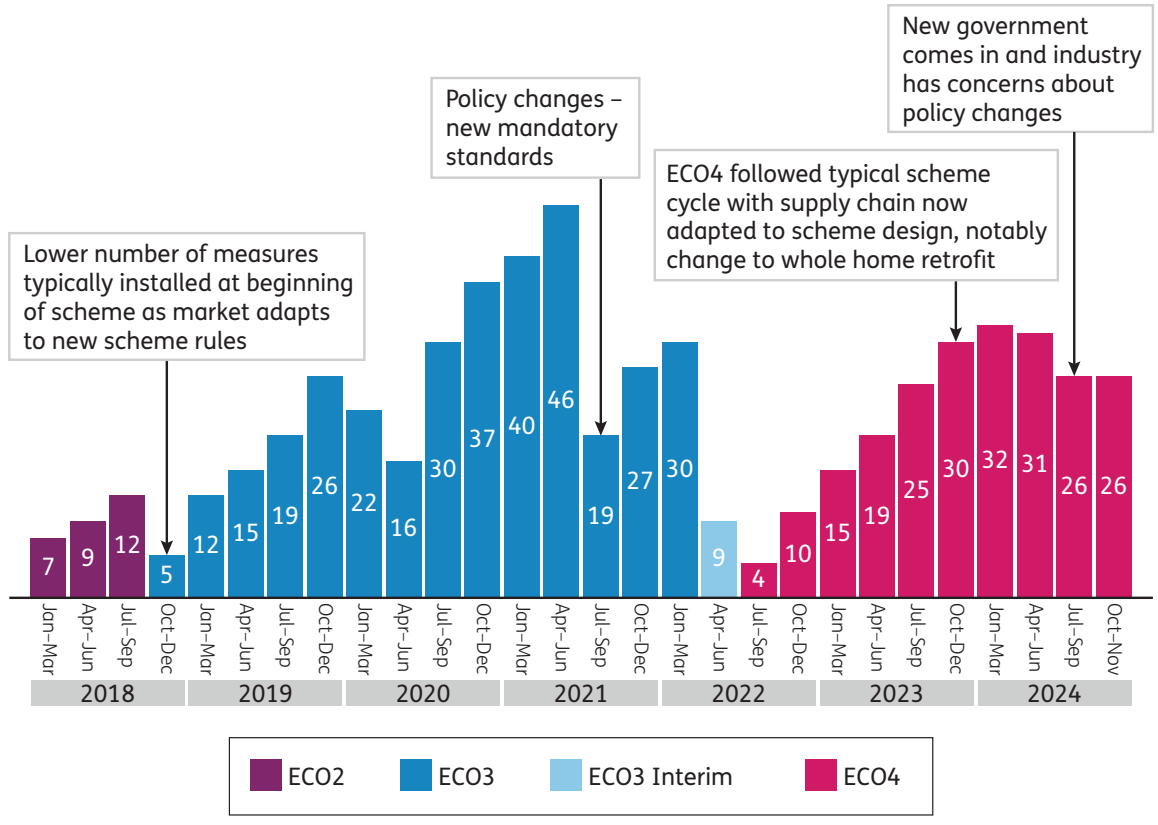
However, there are key challenges in the way of driving the warm homes transition and attracting the £49bn of private finance needed to supplement government funding.

Cyclical nature of funding

Fluctuations in funding schemes such as ECO, local authority schemes, and social housing initiatives create a volatile environment. This leads to periods of feast and famine that small businesses struggle to navigate. Lengthy and delayed consultation periods exacerbate this issue, causing delivery hiatuses every four years and making it challenging for businesses to manage labour costs during downturns.

Looking at the average number of ECO measures installed per month demonstrates the negative effect of these fluctuations. Other funding schemes, such as Home Upgrade (HUG) and Local Authority Delivery (LAD), follow a similar pattern.

Number of ECO measures installed on average per month (k)



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Fragmented supplier market that struggles to scale

The residential energy efficiency market is highly fragmented: 857 air source heat pump installers and 2,571 solar installers are registered on the Microgeneration Certification Scheme (MCS). These installers are predominately smaller businesses operating in specific geographies. They have varying capabilities and rely on subcontracted labour.

This fragmented market with interrupted funding:

- **deters companies from investing in greater numbers of skilled, high-quality direct workers**: This is a major issue given that lack of skilled capacity is a key constraint for scaling warm homes. The sector's struggle to professionalise and improve workmanship quality has hurt its reputation, affecting consumer engagement and investment. The recent concerns identified on external wall installation standards demonstrated that, without a professional and reliable industry, there is a risk that consumer trust becomes a barrier to participation.
- **hinders the sector's ability to attract the private investment necessary for growth and innovation**: Many businesses have diversified away from funded energy efficiency projects or have struggled to attract the investment required to grow their business due to the perceived high risk, further stalling the sector's growth.

Lack of a cohesive, stable policy frameworks

There is room for a high-conviction, high-certainty, longer-term domestic decarbonisation strategy.

The market is looking for an investment horizon spanning three to 10+ years. Private equity and infrastructure investors are deterred by the risk of sudden regulatory changes that drastically alter the outlook of target companies. They need stable, predictable policy frameworks that foster confidence so they can plan for sustainable growth in the residential energy efficiency sector.

> "We really believe in the long-term sectoral trends around energy efficiency and decarbonisation, but our investment committee struggled to get comfortable with the short-term nature of the ECO scheme and the potential for tweaks and changes."
>
> – **UK private equity firm**

> "We've invested in a number of GB metering transactions, as meters provide long-term, protected income streams. We haven't seen the same level of certainty investing in other behind-the-meter assets in GB."
>
> – **Global infrastructure firm**

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Government opportunity

A fundamental shift is needed to overcome these challenges so GB can realise the £140bn in economic and societal benefits by 2040.

The GB market for warm homes represents a significant opportunity for private investment to complement the government's policies across ECO4 and Warm Homes (Local Grant and Social Housing streams). The government now has the opportunity to build on its approach to date and create momentum with upgrades that deliver substantial returns to communities, consumers, private investors, and the Treasury.

Prioritise the warm homes transition in the growth agenda

Warm homes can help the government navigate the economic growth versus climate debate – it has the virtue of addressing both while delivering short- and long-term benefits. £50bn of the projected £140bn in benefits are projected to be felt within five years, so long as private finance can be integrated into domestic retrofitting. **Maintaining a top-level focus on warm homes will help the government realise its growth ambitions** while immediately lowering customer bills, reducing network upgrade costs, and improving health outcomes.[2]

Backing the emerging residential energy efficiency sector – and celebrating what it can achieve for household incomes, the environment, and the broader economy – will help encourage consumer acceptance and drive uptake of low-carbon technologies.

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Provide consistency over longer periods – and eliminate downtime during consultations

Intra-policy uncertainty prevents momentum establishing itself. For example, energy suppliers have held back funding due to delays publishing the trailed ECO plan consultation. Progress has also been slow on positive initiatives like raising EPC standards in rented properties and the Future Home Standard. Other key consultations and regulations are incomplete, delaying clarity for homeowners and investors.

The forthcoming launch of the **Warm Homes Plan** is an opportunity to affirm the government's commitment to crucial policy-led initiatives over a long runway – and ensure their smooth delivery. The planned bridge of ECO is a good starting point, enabling early progress on the future of ECO5. Providing **target and funding visibility to 2030** has the potential to be transformative for the sector.

By drawing inspiration from successful initiatives and embedding certainty and continuity in policy, the government can drive progress and address investment challenges.

Broaden funding horizons

The history of feast-and-famine cycles is off-putting to businesses forming investment plans. In today's fragmented, underinvested sector, hiring and training workers at scale comes with material risk that work will not be there.

Broadening funding horizons will provide an inviting **runway of opportunity**, delivering confidence that investment and capacity scaling will see good returns. Larger, more robust market players can then help professionalise the sector, stimulating competition and better outcomes for householders.

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Conclusion

Accelerating the decarbonisation of GB homes requires a comprehensive strategy that addresses both policy and financial barriers.

Given there is £140bn in benefits on the table, the residential energy efficiency sector's contribution to the country's prosperity should be recognised within the broader macroeconomic context, rather than being viewed solely as an energy issue. The government should implement clear, long-term policies and regulations that provide certainty for all stakeholders – particularly the private investors needed to unlock the substantial economic, environmental, and societal benefits.

What it could look like

Policy should stimulate demand at both the consumer and sector levels, leveraging market forces to maximise impact. By drawing on public funds for as little time as possible, the sector can move towards self-sufficiency and GB can achieve the greatest overall return on investment.

Key next steps could therefore include:

- **A committed Warm Homes Plan underpinned by stable and long-term funding**: Establishing long-term funding horizons will provide certainty for investors and the sector.
- **A consistent policy framework**: Avoiding disruptions and maintaining momentum.
- **Private sector engagement**: Creating incentives and conditions that attract private investment and participation from large employers.
- **Workforce development**: Investing in training and development programs to build a skilled workforce capable of meeting growing demand.
- **Consumer engagement**: Educating and incentivising consumers to adopt energy-efficient measures in their homes.

By addressing the current limitations and creating the right conditions for engagement, GB can unlock significant private investment, drive economic growth, and achieve its energy efficiency and affordability goals. The government's forthcoming Spring announcements present a critical opportunity to reinforce its commitment and set the stage for a self-sustaining, thriving home energy efficiency sector.

The Warm Homes: Local Grant, social housing fund, and ECO could significantly increase the run rate during this parliamentary term, but only if there is policy certainty and continuity between schemes. Targeting energy efficiency improvements in areas with high fuel poverty can lead to immediate reductions in energy consumption and bills. ECO3 exceeded its estimated bill savings, and ECO4 has the opportunity to enhance these savings. By leveraging these initiatives, the government can accelerate home energy efficiency improvements – resulting in warmer homes, reduced energy bills, lower carbon emissions, and better living standards.

By taking these steps, we can create a more sustainable future for generations to come.

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Footnotes

1. The government estimates that £65bn will be needed to achieve EPC C upgrades in the residential sector. It is expected that every £1 of government funding will unlock £3 of private finance (UK government, ***Heat and Building Strategy***, 2021).
2. Baringa analysis with Citizens Advice; Baringa internal market models.
3. Department for Energy Security and Net Zero (DESNZ), ***Home upgrade revolution as renters set for warmer homes and cheaper bills***, September 2024.
4. Cambridge Econometrics and Verco, ***Building the future: Economic and fiscal impacts of making homes highly energy efficient***, October 2014.
5. Construction Industry Training Board (CITB), Focusing on the skills construction needs: UK Labour market intelligence report 2024-2028.
6. The CITB's ***Building Skills for Net Zero*** report used data from the Climate Change Committee's balanced scenario. This suggested that an additional 350,000 full-time workers will be needed by 2028.
7. Heat Pump Association, 2024. Combined maximum training capacity from Heat Pump Association member training facilities.
8. Baringa analysis for the Sustainable Markets Initiative (SMI), ***Cleantech homes: Healthier living, lower bills***, July 2024.
9. Using published national statistics from DESNZ on average electricity consumption by EPC. Retail electricity pricing sourced from Ofgem publications.
10. ECO3, which ran from October 2018 to March 2022, estimated lifetime bill savings of £8.547bn achieved, exceeding the Home Heating Cost Reduction Obligation (HHCRO) target. Ofgem, ***Energy Company Obligation (ECO3) final determination report,*** February 2023.
11. The Baringa analysis illustrates the materiality of the current £7,500 Boiler Upgrade Scheme (BUS) grant available for heat pump retrofits. The modelled scenario looks at a three-bed home where the homeowner installs a 10-kW heat pump instead of replacing a gas boiler. The fully-installed cost of the heat pump is £10,000, and they use the £7,500 BUS grant. The net cost is therefore £2,500, for which the homeowner takes out a 10-year loan at 5% annual interest. The homeowner also avoids the gas boiler replacement cost of £2,500, which is assumed to be spread over five years. Once the heat pump is installed, the lower running cost versus the gas boiler results in annual energy savings of £87. The net result is an annual saving of £264. The £264 annual saving weighs the cost of the loan for the heat pump against the projected energy savings from using a heat pump with a smart tariff versus a gas boiler. It also accounts for the avoided gas boiler replacement cost (£2,500 avoided cost spread over five years).
12. UK government, ***Energy Performance Certificates (EPCs)***.
13. People with mental health issues are more likely to have lower incomes and are nearly four times more likely to be behind on energy bill payments. Rising bills exacerbate stress and anxiety for 89% of people affected, with 66% reporting feeling depressed. Community members report having to choose between heating their homes and buying food, highlighting the critical need for better energy efficiency to improve overall wellbeing and reduce healthcare costs. (***Money and Mental Health Policy Institute***, March 2022.)
14. Citizens Advice, ***Home advantage: Unlocking the benefits of energy efficiency***, June 2023.
15. Department for Business, Energy, and Industrial Strategy, ***Electricity networks strategic framework Appendix I: Electricity Networks Modelling***, August 2022.
16. Climate Change Committee, ***Sixth Carbon Budget***, December 2020.
17. Citizens Advice, ***Home advantage: Unlocking the benefits of energy efficiency***, June 2023.
18. National Audit Office, ***Decarbonising home heating***, March 2024.

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