



WARMER HOMES, BETTER SOCIETY: THE DOUBLE WIN FOR HEALTH AND ECONOMICS

NOVEMBER 2024

FULL REPORT

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WWF

Accelerating solutions together to fight climate change

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1. EXECUTIVE SUMMARY

There are clear benefits associated with decarbonising the UK's homes. Not only is it essential to tackling the climate emergency, with homes representing around one-fifth of the UK's carbon emissions, insulating and decarbonising homes will reduce energy bills, increase the UK's energy security, and generate economic growth.

However, the benefits of home decarbonisation for health and economy have tended to receive less coverage. To help address this gap, ScottishPower and WWF-UK commissioned the Association for Decentralised Energy's (ADE) Research Team to examine how home decarbonisation can positively impact for health and economy through expert interviews and case studies. This report sets out those benefits and concludes with some of the steps needed to ensure these benefits are realised.



HEALTH BENEFITS

1. REDUCED RESPIRATORY AND CARDIAC DISEASES

- Research suggests that historically high levels of Chronic Obstructive Pulmonary Disease (COPD) have been addressed through improved home fabric and ventilation.¹

A Case Study on the Health Benefits of a Home Energy Efficiency Programme in Scotland

- The study consisted of interviewing 229 households before and after receiving external wall insulation, and a hospital admission analysis of 184 postcode areas over ten years.
- **A two-third decrease in households struggling to stay warm** during winter.
- **Improvement in physical health scores** reported by the residents of +13.4%.
- **A significant drop in hospital admission rates** in the areas that received insulation compared to the ward average.

2. IMPROVED INDOOR AIR QUALITY

- Well-ventilated and well-heated homes are known to reduce respiratory issues
- Reduced harmful pollutants and improved indoor air quality can result from moving away from burning gas in homes.²

3. REDUCED BURDEN ON THE HEALTHCARE SYSTEM

- A healthier, warmer home environment can reduce physical and mental health issues, which could lead to fewer visits to healthcare facilities.
- Because of “warm prescriptions” initiatives, where healthcare professionals guide patients on accessing energy efficiency and decarbonisation schemes, they provide critical support for warmer, more energy-efficient homes, and reducing the strain on cardiovascular and respiratory healthcare service provision.

A Case Study of Tackling Fuel Poverty and Improving Health in Islington

- The Shine Community Scheme in Islington advises on fuel debt, energy efficiency and access to grants and discounts for residents who have been referred by healthcare or housing professionals.
- **The scheme has provided 38,000 measures for more than 8,400 residents and saved £700,000 in fuel bills for households.**
- Experts have argued that scaling up this kind of scheme can significantly ease the load on the healthcare system.

1 A.J. Kearns et al. (2023) [Health gains from home energy efficiency measures: The missing evidence in the UK net-zero policy debate](#) (theclaymoreproject.com). Public Health in Practice, 5, 100396.

2 CRICK Institute (2024) Understanding lung cancer initiation in never-smokers: <https://www.crick.ac.uk/careers-study/vacancies/2023-12-22-understanding-lung-cancer-initiation-in-never-smokers>

4. INCREASING HEALTH EQUITY FOR VULNERABLE POPULATIONS

- Health impacts from poorly heated homes are known to disproportionately affect school children, elderly and other vulnerable populations.³
- A targeted approach focusing on the most vulnerable households within the community can significantly reduce fuel poverty and improve living conditions for vulnerable populations.

5. REDUCED WINTER DEATHS RESULTING FROM COLD HOMES

- A targeted approach focusing on the most vulnerable households within the community can significantly reduce fuel poverty, improve living conditions for vulnerable populations, and reduce their reliance on healthcare services. For example, there is a 39% decrease in emergency admissions for elderly living in upgraded homes compared to non-upgraded homes.⁴
- Approximately 30% of excess winter deaths are linked to cold homes.

A Case Study on the Impact of External Wall Insulation through Community Energy Programmes in the Southwest of Scotland

- External wall insulation has been installed across 307 properties as part of an Area Based Scheme in East Ayrshire, South Ayrshire and Dumfries and Galloway to study the impacts on energy efficiency and health.
- **Around 80% of households reported that their homes were warmer, heated up more quickly, and retained heat better.**
- **More than 60% of households reported a decrease in the number of heating hours, more even heat distribution across rooms, and more control over their home temperatures.**
- There is also evidence of decreased condensation and dampness, and noticeable enhancement in the neighbourhood's overall aesthetics.

6. IMPROVED MENTAL HEALTH OUTCOMES

- Reducing carbon emissions through home decarbonisation initiatives can significantly improve mental health outcomes, especially among children and young people.
- Community empowerment through home decarbonisation initiatives can promote mental health through encouraging community engagement and a stronger sense of communal pride.

3 Friends of the Earth and Marmot Review Team (2011) The Health Impacts of Cold Homes and Fuel Poverty: <https://www.instituteofhealthequity.org/resources-reports/the-health-impacts-of-cold-homes-and-fuel-poverty/the-health-impacts-of-cold-homes-and-fuel-poverty.pdf>

4 Rodgers et al., (2018) Emergency hospital admissions associated with a non-randomised housing intervention meeting national housing quality standards: a longitudinal data linkage study: <https://jech.bmj.com/content/72/10/896>

ECONOMIC BENEFITS

1. REDUCED ENERGY BILLS

- **Heating costs can be reduced by up to 34%** through insulation measures and replacing a gas boiler with a heat pump (*modelling based on July 2023 price cap figure*).
- **Households could save up to £2,300 annually and reduce their CO₂ emissions by over 50 tonnes over 30 years** when comparing a low-carbon home to an energy-inefficient home with an old gas boiler (*when transport fuel costs are considered as well, modelling based on July 2023 price cap*).
- **By lowering energy bills, home insulation can ease financial pressures on households and potentially reduce inflation** by reducing demand for fossil fuels, a major contributor to consumer price inflation.

2. REDUCED MAINTENANCE COSTS

- Reduced likelihood of damp and mould in the property can help reduce the maintenance costs.

3. INCREASE IN PROPERTY VALUE (BASED ON HOME VALUE MODELLING IN 2022)

The sale value of a home can be increased by:

- Around **£5,000 - £8,000** with an air-source heat pump
- Around **£1,350 - £5,400** with solar panels
- Around **£5,400 - £7,400** with an EV charge point

In combination, around £10,000 on average for a low-carbon home.

4. INDIRECT LONG-TERM ECONOMIC BENEFITS

- Reduced public sector medical spending due to the health benefits of home decarbonisation.



POLICY RECOMMENDATIONS

To accelerate home decarbonisation in the UK, we recommend a focus on the following areas:

PROMOTING ENERGY EFFICIENCY IMPROVEMENTS

1. SCALING UP DELIVERY

With existing energy efficiency schemes (ECO and GBIS) due to end in March 2026, work needs to start now to build renewed momentum into future activity. Putting in place a single, integrated GB-wide scheme that scales up energy efficiency support for households in need is the most effective way of saving people money on their energy bills, helping reduce carbon emissions and supporting jobs in the sector. Targeted at the people most in need, the new scheme could roll forward existing funding of c. £1.5bn per annum and inject a further £1.5bn in annual government funding to ensure lower-income households have properties upgraded to a high energy standard by 2030.

2. CONSUMER ADVICE AND GREEN FINANCE

The provision of consumer advice and support is vital in driving the uptake of energy-saving measures. We recommend the Government develop its gov.uk advice service to help consumers navigate improving the energy performance of their homes.

This should include an online platform with high-level trusted information and advice, a link to local providers who can assess home energy performance, and bespoke support for households wishing to undertake more complex retrofits. It should also include support for householders through telephone support and specific, consistent local area advice for energy consumers.

Alongside this advice, steps should be taken to support the development of green finance products that expand the current market, helping ensure that homeowners can fund home decarbonisation improvements.



PROMOTING THE UPTAKE OF HEAT PUMPS

3. BOOSTING THE INSTALLATION OF HEAT PUMPS

The Boiler Upgrade Scheme (BUS) is successfully boosting the number of heat pump installations across the UK. Increasing deployment will help drive reductions in upfront costs, which will in turn be important in helping to enable a scale-up in heat pump deployment over this decade. It is therefore welcome that the Government has confirmed £295 million for the BUS over 2025 - 2026, however, it will be important that ambitious funding levels are confirmed out to at least 2028 to maintain momentum under the scheme.

4. REBALANCING POLICY COSTS FROM ELECTRICITY TO GAS

Alongside reducing the upfront cost, it will be important to improve running costs of heat pumps, which would further boost bill savings and uptake. This can be achieved by ending the distortion of putting policy costs disproportionately on electricity bills rather than gas bills. The Government should set out a roadmap for making progress with policy cost rebalancing over time, however, an immediate step would be to remove some legacy policy costs from consumer bills and publicly fund these instead.

5. GROWING THE HEAT PUMP INDUSTRY

The introduction of the Clean Heat Market Mechanism in April 2025 will support the development of the heat network market, with increased output supporting a reduction in product costs through economies of scale, innovation and learning. With the scheme in place, it will be important to ensure good forward visibility of target trajectories over the coming years to provide confidence to the industry.



2. AIM AND METHODOLOGY

The report highlights the evidence-based benefits of implementing energy efficiency and low-carbon technology (LCT) measures for home decarbonisation. Commissioned by WWF-UK and ScottishPower, ADE's Research Team conducted interviews with experts to gather and compile valuable information on how home decarbonisation positively impacted health outcomes and communities. The report showcases the wide-ranging benefits of home decarbonisation on health and economy. It concludes with some steps that need to be taken to ensure these benefits are realised.

The following methods were utilised to gather insights into the broader benefits of LCT and energy efficiency:

1. Expert Interviews

- Conducted a series of 10 interviews with community and health experts. These interviews were structured to explore the broader impacts of LCT and energy efficiency measures on health, community well-being and the environment.

2. Literature Review

- Conducted an extensive literature review by industry experts, including academic papers and reports.

3. Analysis and Synthesis

- Analysed the data collected from expert interviews, literature review, and data modelling to identify key themes and insights.
- Where appropriate, quantitative data was supplemented with qualitative insights to provide a nuanced understanding of the broader impacts.

3. HEALTH BENEFITS

3.1 REDUCED RESPIRATORY AND CARDIAC DISEASES

External wall insulation can help reduce hospital admissions related to respiratory and cardiac health. The Energy Agency's research suggests that historically high COPD levels have been addressed through improved home fabric and ventilation. The combination of measures also demonstrated improvements in cardiovascular health. Proper ventilation was also emphasised to prevent worsening illnesses like COPD.

ENERGY-EFFICIENT HOMES:

A PRESCRIPTION FOR BETTER HEALTH? A CASE STUDY FROM SCOTLAND

Revolutionising health through energy efficiency

This study examines the health benefits of a home energy efficiency program in southwest Scotland, focusing on external wall insulation and its impact on hospitalisations for respiratory and cardiovascular conditions.⁵ The findings aim to inform policymakers and homeowners working towards the UK's net-zero goals.

Study components

1. Household Interviews: Researchers interviewed 229 households before and after insulation installation, collecting data on thermal comfort and self-reported health.
2. Hospital Admission Analysis: Over ten years, hospital admissions in 184 postcode areas were analysed to compare non-elective hospitalisation rates for respiratory and cardiovascular conditions between intervention and control areas.

Healthier homes, fewer hospital visits

The study showed a significant decrease in hospital admissions in insulated areas, with a more pronounced reduction in respiratory-related hospitalisations. Post-installation, there was a two-thirds reduction in households struggling to stay warm during winter. Improved thermal comfort correlated with a 13.4% increase in residents' physical health scores.

Implications for policy and practice

The case study highlights energy efficiency measures as both environmental and preventive health strategies. It suggests that such initiatives could reduce healthcare demand and costs, emphasising the multifaceted benefits of raising energy efficiency standards.

Key takeaways

- External wall insulation improved thermal comfort, reducing the inability to stay warm by two-thirds.
- Energy efficiency as a preventive health strategy supports net-zero goals and reduces healthcare costs.
- Enhanced comfort was linked to better self-reported physical health.
- Respiratory-related hospital admissions decreased significantly in treated areas.

⁵ A.J. Kearns et al. (2023) Health gains from home energy efficiency measures: The missing evidence in the UK net-zero policy debate (theclaymoreproject.com). Public Health in Practice, 5, 100396.

3.2 IMPROVING INDOOR AIR QUALITY

Improving indoor air quality through effective energy interventions is critical for overall health outcomes, with implications for respiratory health, allergies, and other conditions. Homes can maintain stable humidity and temperature by focusing on insulation and providing post-insulation advice, contributing to healthier indoor environments. The Director of the Energy Agency Scotland stated that monitoring these factors is crucial to avoid issues such as dampness and mould, which can lead to respiratory problems.

Home decarbonisation also reduces indoor air pollution. Professor Benjamin Barratt from Imperial College London further emphasised the direct health benefits of reducing home emissions, pointing out that burning gas when cooking releases harmful pollutants that can increase respiratory and other health problems. He highlighted that vulnerable populations, including the elderly and those with pre-existing health conditions, are at greater risk when exposed to extreme temperatures or high levels of indoor/outdoor pollution. Dr Clare Weeden from Crick Institute echoed these concerns, addressing the detrimental effects of indoor air pollution on lung health. She noted that poorly ventilated or heated homes are associated with respiratory issues, allergies, and asthma, underscoring the need to explore the biological mechanisms through which pollution impacts health.

These experts agree that addressing indoor air quality through better insulation and reducing carbon emissions are essential for improving health outcomes, particularly among vulnerable populations. Focusing on sustainable energy practices and monitoring indoor environments can mitigate health risks and create healthier living spaces.

3.3 REDUCED BURDEN ON THE HEALTHCARE SYSTEM

Home decarbonisation initiatives have the potential to significantly impact the healthcare system, primarily by leading to fewer visits to healthcare facilities. Jessica Newberry Le Vay, from Imperial College London, noted that while more research is needed to understand the long-term effects fully, there are promising signs that these initiatives can reduce strain on healthcare systems.

Regarding healthcare costs, Jessica Newberry Le Vay discussed several factors that could contribute to changes due to home decarbonisation. Healthcare utilisation reduction stemming from better home environments could lead to significant cost savings. By addressing the root causes of health issues through preventive measures like insulation and appropriately supporting fuel-poor households, there is potential for long-term cost savings. Jessica's insights suggest that a well-implemented decarbonisation strategy can lead to a healthier population and a more sustainable healthcare system.

Health advocacy efforts addressing cold homes are increasingly part of nationwide programs to support vulnerable populations. Matt Copeland of National Energy Action (NEA) highlights the significant health benefits, especially for older people and those with chronic conditions. NEA's health programs collaborate with primary care to ensure patients discharged from hospitals return to warm homes, linking housing conditions to health outcomes.

NEA combines various initiatives, where healthcare professionals guide patients on accessing energy efficiency and decarbonisation schemes. This preventative approach reduces risks associated with cold homes, like respiratory and cardiovascular issues, improving public health and lowering healthcare costs. Copeland underscores the importance of health-focused initiatives in enhancing public health.

The insights of Dr Rose Chard at Energy Systems Catapult, who led the Warm Home Prescription initiative, reinforced the significant health benefits of home decarbonisation. Through her work, she has been monitoring the health and well-being impacts of home decarbonisation and energy efficiency improvements on hundreds of households. Preliminary findings from this past winter indicate that while these initiatives primarily aim to maintain the health and well-being of vulnerable households, they provide critical support by ensuring warmer, more energy-efficient homes.⁶ These improvements are expected to substantially reduce the strain on cardiovascular and respiratory health, thereby linking housing conditions directly to improved health outcomes and potentially lowering healthcare costs.



⁶ Energy Systems Catapult (2024) Warm Home Prescription® 2022-2024 trial: <https://es.catapult.org.uk/project/warm-home-prescription/>

SHINE BRIGHT:

TACKLING FUEL POVERTY AND IMPROVING HEALTH IN ISLINGTON

Introduction: the heat or eat dilemma

In Islington, 30% of residents face the difficult choice between heating their homes or eating properly. The Seasonal Health Intervention Network (SHINE⁷) addresses this by enhancing energy efficiency and reducing energy costs, improving the well-being of vulnerable residents.

A collaborative effort: the SHINE network

SHINE collaborates with over 80 partners, including GP surgeries, health visitors, housing organisations, and community groups. Vulnerable individuals receive help with fuel debt, energy efficiency, bill discounts, and grants for new boilers. This coordinated effort saves 3,200 tonnes of CO₂ and £700,000 annually.

Impact: quantifying the benefits

Energy Doctor Home Visits: Over 3,600 homes received personalised advice to reduce energy usage.

Cost Savings: Households save around £700,000 annually through reduced energy use and bill discounts.

Carbon Footprint Reduction: Saves approximately 3,200 tonnes of CO₂ each year.

Health and well-being: beyond the bills

Improving living conditions in cold, damp homes reduces respiratory illnesses and healthcare costs. Since 2011, SHINE has completed over 38,000 interventions for more than 8,400 people, including replacing 285 inefficient boilers.

Shine's innovations and replication

SHINE's model has been replicated in Hackney, Lewisham, Wandsworth, Norwich, and Hertfordshire. It is also referenced in NICE guidelines on reducing winter deaths.

Energy doctor in the home: practical solutions

Delivered by Groundwork, this program involves trained advisors providing half-day visits to offer guidance on reducing energy consumption and understanding heating systems, ensuring sustainable energy use and cost savings.

Future directions: expanding the SHINE model

SHINE aims to extend its model beyond Islington, encouraging other boroughs to adopt similar strategies to support more vulnerable households.

Conclusion: a model for nationwide implementation

SHINE's approach cuts energy costs and emissions and improves health and well-being. It offers a replicable model that can transform communities across the UK by fostering cross-sector collaboration and providing hands-on support. This case study highlights the value of holistic, community-focused interventions in addressing fuel poverty.

⁷ <https://shine-london.org.uk/>

3.4 INCREASING HEALTH EQUITY FOR VULNERABLE POPULATIONS

School children

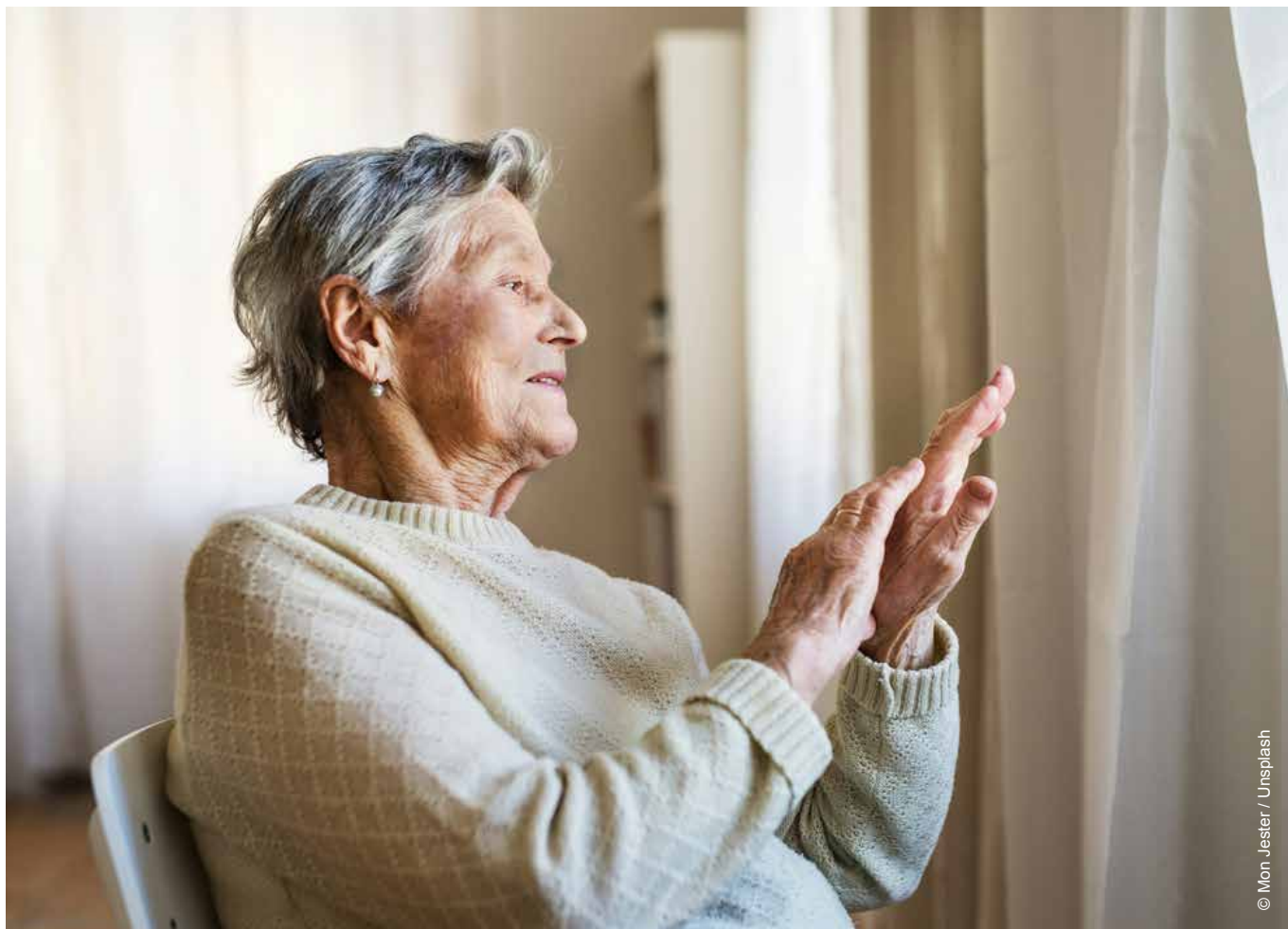
Home decarbonisation projects in fuel-poor areas have substantially impacted school children's health and well-being. According to the Energy Agency, these projects have improved indoor environments, increased school attendance and reduced sick days. Enhancing the quality of living spaces makes children less likely to fall ill due to cold or damp conditions, allowing them to attend school more consistently. In addition to health benefits, economic gains from reduced fuel bills have provided families with the resources to afford basic comforts like hot showers, further contributing to a more stable and healthier lifestyle for children.

The elderly

Holistic home improvements can also substantially reduce healthcare utilisation among older adults. Therefore, this presents a significant potential for comprehensive housing upgrades to enhance public health and reduce the burden on healthcare systems.

Populations living in fuel poverty

Fuel poverty can be alleviated through housing upgrades, ensuring a just transition to a greener economy. A targeted approach focusing on the most vulnerable households can significantly reduce energy poverty and improve living conditions. It also ensures that resources are used where they can make the most substantial impact rather than disproportionately aiding already more affluent people.



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IMPROVING HEALTH THROUGH HOME UPGRADES:

A CASE STUDY OF COUNCIL HOUSING IN THE UK

Introduction: upgrading homes, enhancing health

This case study explores the impact of upgrading 8,558 council houses to meet national quality standards on healthcare utilisation among tenants.⁸ The comprehensive improvements, including internal and external upgrades, were analysed to understand their effect on emergency hospital admissions, particularly for residents aged 60 and over.

Key findings: reduced admissions for older adults

Residents aged 60 and over living in homes that received upgrades experienced up to 39% fewer emergency hospital admissions compared to those in non-upgraded. Significant reductions in admissions were linked to improvements in electrical systems, windows and doors, wall insulation, and garden paths.

Detailed outcomes: a closer look at specific improvements

Electrical Systems: Upgrades to electrical systems were notably effective, significantly reducing hospital admissions.

Windows and Doors: Improvements in windows and doors enhanced home security and comfort and played a critical role in reducing health issues.

Wall Insulation: Enhanced insulation helped maintain consistent indoor temperatures, reducing the risk of cardiorespiratory conditions.



8 Rodgers et al. (2018) Emergency hospital admissions associated with a non-randomised housing intervention meeting national housing quality standards: a longitudinal data linkage study: <https://jech.bmj.com/content/72/10/896>

3.5 REDUCED WINTER DEATHS RESULTING FROM COLD HOMES

Many fuel-poor households struggle to heat their homes adequately during colder months. Evidence from NEA suggests that approximately 30% of excess winter deaths are linked to cold homes. Matt Copeland, Head of Policy and Public Affairs at NEA, emphasised that while short-term measures like the Warm Home Discount offer some relief, they are insufficient to address the broader issues of fuel poverty. Insulating homes provides a more sustainable and long-term solution to provide adequate heating, better heat retention, and more control over home temperatures.



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ADEQUATE HEATING:

A CASE STUDY ON THE IMPACT OF EXTERNAL WALL INSULATION THROUGH COMMUNITY ENERGY PROGRAMMES IN THE SOUTHWEST OF SCOTLAND

This case study explores the outcomes of external wall insulation across 307 properties as part of an Area Based Scheme⁹ in East Ayrshire, South Ayrshire and Dumfries and Galloway.¹⁰ The impacts on home appearance, indoor climate, energy use, and health have been studied.

Heating: a new comfort zone

With external wall insulation in place, many households experienced significant improvements in their indoor temperature. Four-fifths (80%) reported that their homes were warmer and heated up more quickly after the installation. Moreover, 86% said their homes retained heat better, 61% noticed a more even heat distribution across rooms, and 64% felt they had more control over their home temperatures.

Tackling condensation and dampness

The insulation intervention also reduced condensation and damp-related issues. The number of households reporting steamed-up windows dropped from 34% to 26%, while reports of wet or steamed walls fell from 12% to 6%. Instances of mould and staining on walls also decreased significantly, suggesting a clear link between the insulation and improved living conditions.

Better control of indoor temperature

The energy efficiency improvements were evident in reduced energy consumption and lower heating requirements. 68% of households reported a decrease in the number of heating hours required to reach a comfortable temperature. Additionally, 31% turned down their central thermostat, and 20% adjusted their thermostatic radiator valves, contributing to energy savings.

Environmental impact and net-zero progress

The study also highlighted environmental benefits, with a 23% overall energy saving based on Primary Energy indicator values and a 10-point increase in the Environmental Impact Rating. The proportion of properties achieving a Band C rating rose from 19% to 68%, leading to a 23% reduction in annual CO₂ emissions.

Community uplift: a fresh facade

Among the 307 properties that received external wall insulation, 91% reported that the external appearance of their home had “improved a lot or a little.”, indicating a noticeable enhancement in the neighbourhood’s overall aesthetics.

Conclusion: a blueprint for success

This case study demonstrates that external wall insulation enhances energy efficiency and home comfort and improves health and well-being. These findings suggest that energy efficiency measures can play a significant role in achieving net-zero goals while providing tangible benefits for households and communities. The positive results support that targeted insulation programs can effectively drive energy efficiency, reduce healthcare costs, and create more comfortable living environments.

9 <https://www.energyagency.org.uk/project/area-based-schemes/>

10 Energy Agency, NHS Ayrshire & Arran, East Ayrshire Council, South Ayrshire Council and Dumfries & Galloway Council (2019) Area Based Schemes Wall Insulation Evaluation 2015 - 2019: South Ayrshire, East Ayrshire and Dumfries & Galloway: <https://www.energyagency.org.uk/wp-content/uploads/2024/10/ABS-Wall-Insulation-Evaluation-Report-300622.pdf>

3.6 IMPROVED MENTAL HEALTH OUTCOMES

Reducing carbon emissions through home decarbonisation initiatives can significantly improve mental health outcomes, especially among children and young people. Research from Imperial College London explores the link between energy efficiency and decreased levels of depression and anxiety, with enhanced heating affordability contributing to reduced stress associated with utility costs.¹¹ As heating costs become more manageable, families experience less financial stress, which can lead to a more positive mental state. Home decarbonisation has broader impacts on mental health, emphasising that these initiatives can mitigate climate-related anxiety and anger by fostering a sense of empowerment. These insights suggest that home decarbonisation does more than improve the environment; it can play a crucial role in fostering a healthier society by reducing stressors and promoting mental health.

Mental health of households can also be promoted by empowering the community through home decarbonisation initiatives. Firstly, as energy efficiency improves and individuals experience the benefits of decarbonisation, interest in sustainability grows, leading to greater community engagement in eco-friendly practices. According to Matt Copeland at NEA, community-focused decarbonisation efforts can align with social equity, fostering a cleaner environment and a stronger sense of community and yielding tangible benefits for local communities. Secondly, home decarbonisation projects can help build a stronger sense of community. Dr Joanne Wade from ADE mentioned that communities with good housing stock tend to have a stronger sense of pride and attract new residents. This suggests home decarbonisation improves individual well-being and enhances communities' desirability and liveability.



¹¹ Imperial College London (2022) The Impact of Climate Change on Mental Health and Emotional Wellbeing: A Narrative Review of Current Evidence, and its Implications: <https://www.tandfonline.com/doi/full/10.1080/09540261.2022.2128725>

4. ECONOMIC BENEFITS

4.1. REDUCED ENERGY BILLS

Economic modelling as part of the “[Better Homes, Cooler Planet](#)” report¹², based on the July 2023 price cap figure¹³, illustrates that heating costs can be reduced by up to 34% through insulation measures and replacing a gas boiler with a heat pump.¹⁴ The report also illustrates that in a best-case scenario considering both energy bills and transport fuel costs, households could save up to £2,300 annually and reduce their CO₂ emissions by over 50 tonnes over 30 years when comparing a low-carbon home to an energy-inefficient home with an old gas boiler.

By lowering energy bills, home insulation can ease financial pressures on households and potentially reduce inflation by reducing demand for fossil fuels, a major contributor to consumer price inflation. This effect is particularly significant in the context of the recent energy security crisis, during which high energy costs have been a substantial burden for many families.

4.2 REDUCED MAINTENANCE COSTS

Home decarbonisation initiatives could reduce energy bills and eliminate mould. The Energy Agency stressed the research-supported reduction in energy bills through these measures, alongside the potential elimination of mould through effective home decarbonisation measures.

Both Dr Joanne Wade from ADE and Cerys Williams from Sero agreed that investing in energy efficiency upgrades (such as insulation) and improving ventilation would reduce the likelihood of dampness and mould in the property and thus also reduce the maintenance costs. As Joanne mentioned, “an energy-efficient property is cheaper to maintain.”

4.3 INCREASE IN PROPERTY VALUE BY INVESTING IN LOW CARBON TECHNOLOGIES (LCTS)

Improving energy efficiency in properties and installing low-carbon technologies can also increase property value. Based on a home value modelling in 2022, the “[Better Homes, Cooler Planet](#)” report showed that an **air-source heat pump could increase the sales value of a home by around £5,000-£8,000; solar panels could increase sales value by around £1,350 - £5,400; and an EV charge point could increase it by around £5,400 - £7,400.** In combination, these technologies could increase the value of a home by, on average, around £10,000.

12 WWF & ScottishPower (2022) Better Homes, Cooler Planet: How low-carbon technologies can reduce bills and increase house value: <https://www.wwf.org.uk/our-reports/better-homes-cooler-planet>

13 WWF & ScottishPower (2023) Better Homes, Cooler Planet - Report Update: <https://www.wwf.org.uk/our-reports/better-homes-cooler-planet-report-update>

14 It is estimated that by insulating and installing an air-source heat pump in a poorly insulated house with an old boiler, its annual energy cost can be reduced from £3,079 to £2,045.

4.4 INDIRECT LONG-TERM ECONOMIC BENEFITS

Better insulation and home decarbonisation help reduce health-related spending. Professor Benjamin Barratt from Imperial College London mentioned that vulnerable residents of poor housing stock are more likely to suffer long-term ailments such as respiratory diseases. This can ultimately mean that families may have to spend money consistently throughout the year to address the effects of such ailments. This could mean purchasing medicine but also travelling to visit a healthcare provider, missing work or sometimes being left unable to work. In contrast, energy-efficient homes reduce the likelihood of suffering from respiratory diseases, reducing the financial burden of purchasing medicine or accessing treatment.

With that in mind, as health experts such as Benjamin and Jessica mention, healthier families reduce the stress on public health services such as the NHS, which in turn saves money on the costs associated with patient care and treatment.



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5. POLICY RECOMMENDATIONS

This research demonstrates that home decarbonisation has clear environmental, health, and economic benefits. To accelerate home decarbonisation in the UK, we recommend a focus on the following areas:

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1. SCALING UP DELIVERY

With existing energy efficiency schemes (ECO and GBIS) due to end in March 2026, work needs to start now to build renewed momentum into future activity. Putting in place a single, integrated GB-wide scheme that scales up energy efficiency support for households in need is the most effective way of saving people money on their energy bills, helping reduce carbon emissions and supporting jobs in the sector. Targeted at the people most in need, the new scheme could roll forward existing funding of c. £1.5bn per annum and inject a further £1.5bn in annual government funding to ensure lower-income households have properties upgraded to a high energy standard by 2030.

2. CONSUMER ADVICE AND GREEN FINANCE

The provision of consumer advice and support is vital in driving the uptake of energy-saving measures. We recommend the Government develop its gov.uk advice service to help consumers navigate improving the energy performance of their homes.

This should include an online platform with high-level trusted information and advice, a link to local providers who can assess home energy performance, and bespoke support for households wishing to undertake more complex retrofits. It should also include support for householders through telephone support and specific, consistent local area advice for energy consumers. Alongside this advice, steps should be taken to support the development of green finance products that expand the current market, helping ensure that homeowners can fund home decarbonisation improvements.

PROMOTING THE UPTAKE OF HEAT PUMPS

3. BOOSTING THE INSTALLATION OF HEAT PUMPS

The Boiler Upgrade Scheme (BUS) is successfully boosting the number of heat pump installations across the UK. Increasing deployment will help drive reductions in upfront costs, which will in turn be important in helping to enable a scale-up in heat pump deployment over this decade. It is therefore welcome that the Government has confirmed £295 million for the BUS over 2025 - 2026, however, it will be important that ambitious funding levels are confirmed out to at least 2028 to maintain momentum under the scheme.

4. REBALANCING POLICY COSTS FROM ELECTRICITY TO GAS

Alongside reducing the upfront cost, it will be important to improve running costs of heat pumps, which would further boost bill savings and uptake. This can be achieved by ending the distortion of putting policy costs disproportionately on electricity bills rather than gas bills. The Government should set out a roadmap for making progress with policy cost rebalancing over time, however, an immediate step would be to remove some legacy policy costs from consumer bills and publicly fund these instead.

5. GROWING THE HEAT PUMP INDUSTRY

The introduction of the Clean Heat Market Mechanism in April 2025 will support the development of the heat network market, with increased output supporting a reduction in product costs through economies of scale, innovation and learning. With the scheme in place, it will be important to ensure good forward visibility of target trajectories over the coming years to provide confidence to the industry.





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