

Home advantage

Unlocking the benefits of energy efficiency



Executive summary

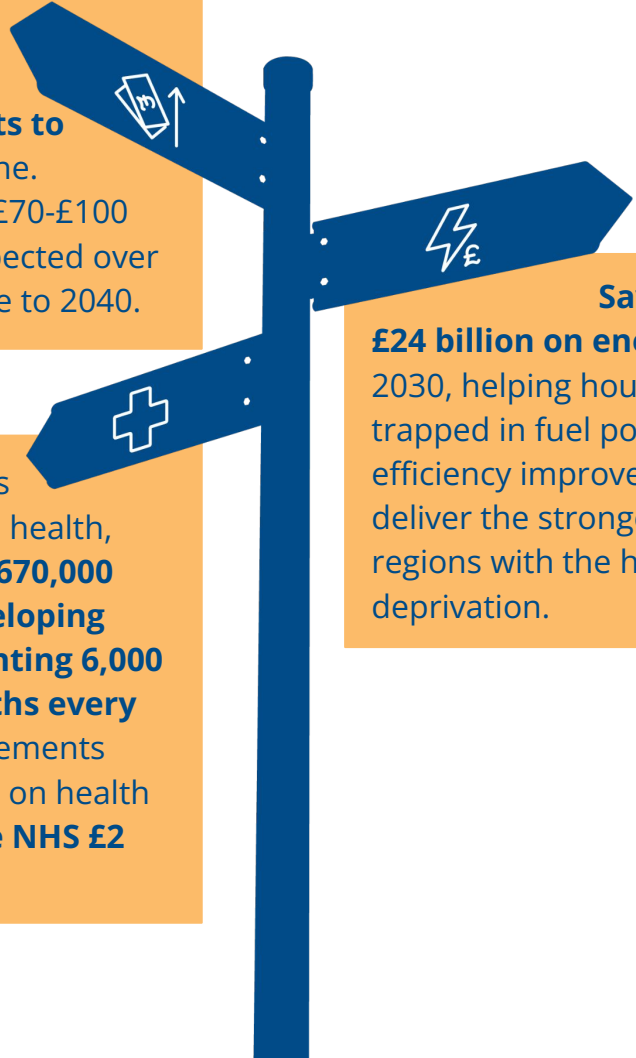
Last year, Citizens Advice published [Insulation Nation](#), which outlined that homes that upgrade their energy efficiency to Energy Performance Certificate (EPC) C level could save up to £951 per year per household.¹ Citizens Advice is calling for all homes to be upgraded to EPC C level by 2030.

Citizens Advice commissioned specialist energy consultancy Baringa Partners to conduct an in-depth analysis. The model analysed key data sources and scientific literature and combined these with tested assumptions to quantify the benefits of improving 13 million homes to EPC C.

Our research found that over 15 million homes across Great Britain are energy inefficient. These homes have an EPC of C or below, meaning they lose heat more quickly. Approximately 31 million people live in these poorly insulated properties, often facing higher energy bills and cold and draughty conditions.

But 13 million of these inefficient homes have significant potential to improve their energy efficiency and upgrade to EPC C.²

We found that upgrading these 13 million homes would:



Deliver close to **£40 billion in cumulative benefits to Britain** by 2030 alone. Further benefits of £70-£100 billion would be expected over the following decade to 2040.

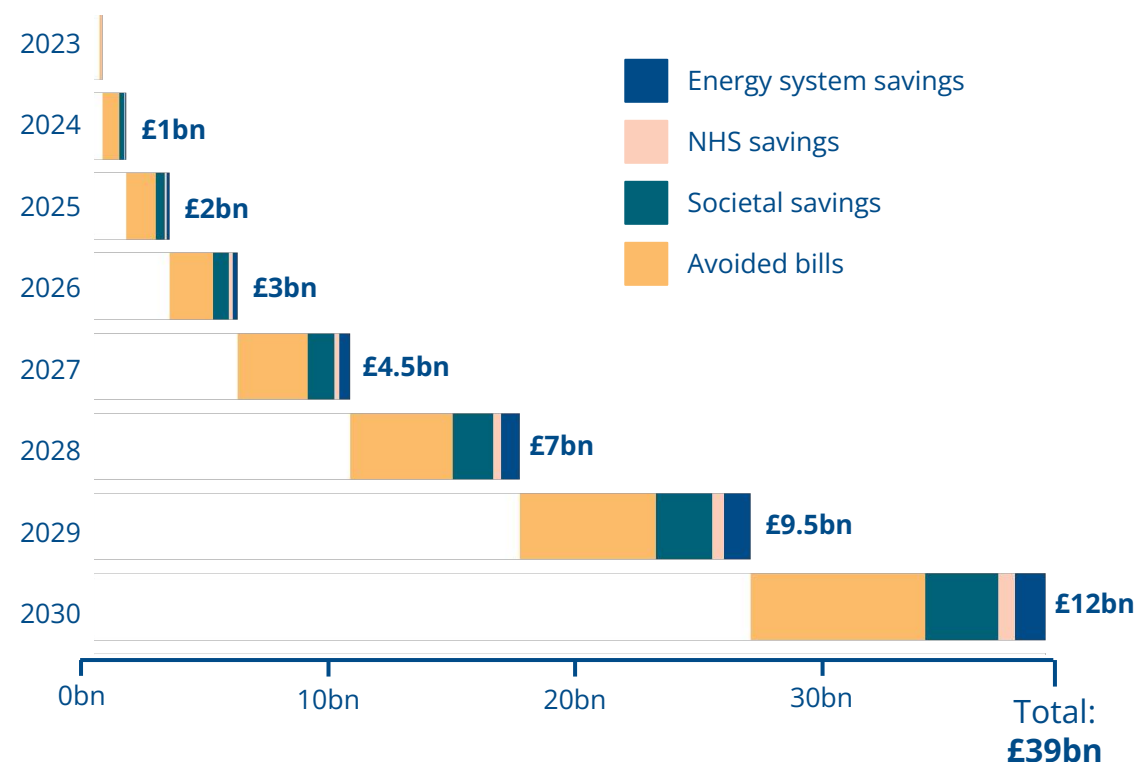
Improve the nation's mental and physical health, including **stopping 670,000 children from developing asthma** and **preventing 6,000 excess winter deaths every year**. These improvements would reduce strain on health services, **saving the NHS £2 billion** by 2030.

Save consumers £24 billion on energy bills by 2030, helping households trapped in fuel poverty. Energy efficiency improvements would deliver the strongest benefits to regions with the highest levels of deprivation.

Upgrading inefficient homes would deliver a nearly £40 billion boost

Upgrading 13 million energy inefficient homes to EPC C would deliver almost £40 billion of cumulative benefits by 2030, with approximately £70 - £100 billion in additional benefits expected over the following decade to 2040. The annual benefits would rise sharply as more homes are insulated to EPC C. This means that despite the cost of upgrading homes, the benefit would rapidly outstrip the initial investment - paying for itself within a decade of kickstarting the programme and providing ongoing benefits into the future.

Total boost between now and 2030 from upgrading homes



The £39.1 billion boost would include:



£23.8 billion in consumer bill savings due to households having to use less energy.



£4 billion in energy systems savings due to lower energy demand reducing operating and infrastructure costs.



£9.3 billion in societal savings including lower CO2 emissions and avoided excess winter deaths.



£2 billion in savings to the NHS due to lower treatment costs. This is because warmer homes would reduce the cases and severity of illnesses associated with cold homes.

Insulating homes would save consumers £24 billion in energy bills

A large part of the near £40 billion insulation boost from upgrading inefficient homes would come from consumer bill savings.

Improving energy efficiency stops heat leaking out into the atmosphere, meaning people have to use less energy to heat their homes to the same level. Based on Baringa's power price forecast, upgrading 13 million homes to EPC C would **save consumers almost £24 billion on their energy bills by 2030**. This is money which goes directly into the pockets of those who need it the most, boosting the local economy.

Cutting bills delivers savings directly to consumers and delivers the strongest benefits to people in the coldest and draughtiest homes.

Susan's story

Susan lives with her 2-year-old daughter in a ground-floor flat. Their home doesn't have sufficient insulation, so it's freezing and covered in mould. Susan has even found mould growing in her daughters' shoes and clothes, and she is concerned about the health impacts on her child.

To prevent the damp and mould, she would need to have her electric heating on for most of the day. But high energy costs mean that if Susan turns the heating on, she'll be left short of money to pay for food and other necessities.



Easing pressure on energy networks would save a further £4 billion

Insulating 13 million homes to EPC C by 2030 would reduce national and peak electricity demand by 8%, as better-insulated homes require less energy to heat. As well as directly saving consumers money on their bills, lower energy use also reduces demand on energy networks.

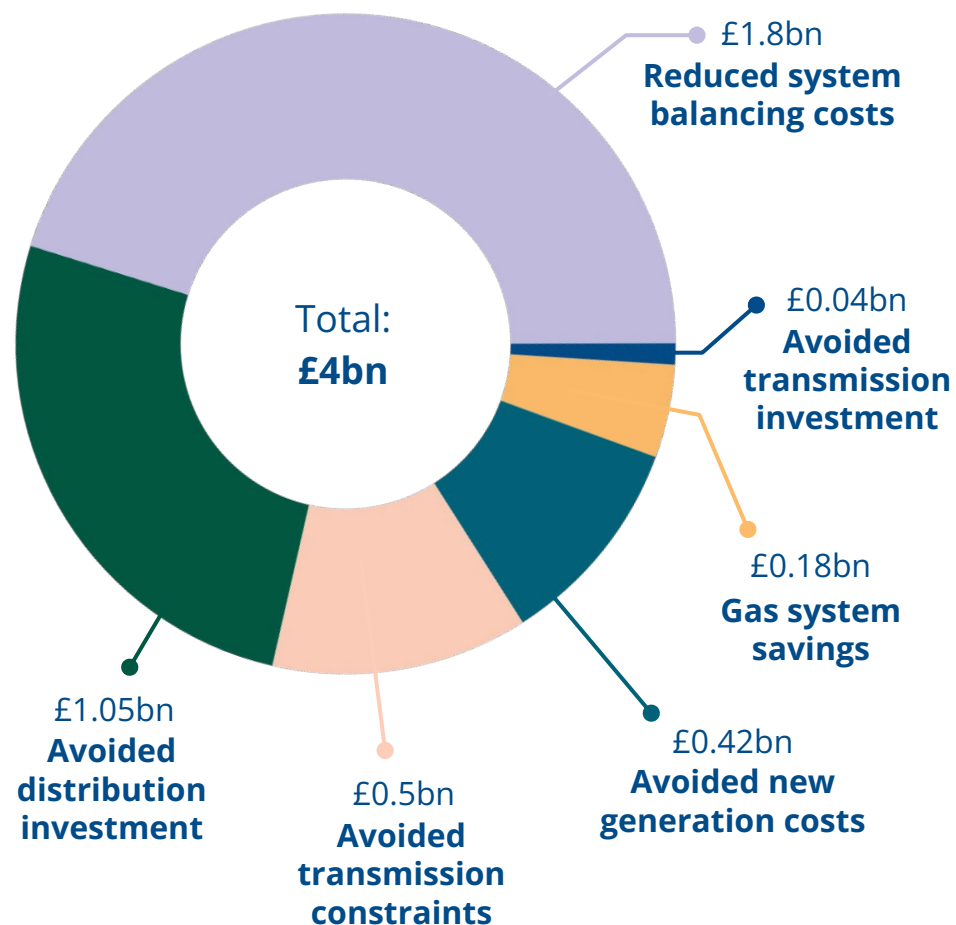
Energy network costs usually represent between 5%-20% of domestic energy consumers' bills.³ Putting less strain on energy networks lowers the cost of producing and distributing energy by:

- Reducing the need for costly infrastructure upgrades to reinforce the network and allow it to meet energy demand.
- Improving the stability of the energy grid, meaning less money needs to be spent on balancing the energy supply to match consumer demand.
- Reducing the cost of operating the gas system.

Maintaining and upgrading energy systems is expensive and resource-intensive. And the cost is ultimately passed to consumers.

Reducing energy demand prolongs the lifespan of equipment, reduces operating costs and avoids the need for new infrastructure. **This would save £4 billion in energy system costs, helping to reduce consumer bills further.**

Energy system benefits from upgrading homes:



Boosting energy efficiency would bring further societal benefits worth £9.3 billion

Insulating homes also brings further benefits to society alongside energy cost savings.

Insulating 13 million energy-inefficient homes would **reduce CO2 emissions by 33 million tonnes across Great Britain by 2030**, due to reduced electricity and gas usage. This would cut 2030 emissions by 5%, reducing air pollution and bringing £2.7 billion of value to society.

And warmer homes can also save lives. Up to 6,000 excess winter deaths could be avoided annually by insulating the nation. According to social value evaluation methods, the social and economic benefits of avoiding these deaths would be £6.6 billion.

Together, the reduction of CO2 emissions and the avoided excess winter death could be worth £9.3 billion.

£9.3 billion of societal savings:

£9.3bn
total societal
savings to 2030

£6.6bn Avoided excess winter death

£2bn Avoided gas emissions

£0.7bn Avoided electricity emissions

Improving energy efficiency would save the NHS £2 billion by 2030

Making homes warmer and more energy efficient would reduce levels of cold-related illnesses such as asthma, strokes, heart disease and mental health conditions, and make them less severe.⁴ Upgrading 13 million homes to EPC C could **reduce patient numbers for these conditions by up to 30% during the winter peak.**

This would cut the cost of treating these illnesses, delivering both immediate and long-term savings for the NHS. Insulating 13 million homes would save the NHS:

⏪ **£2 billion** by 2030 alone

⏪ A further **£600 million every year** between 2030 and 2040

Along with financial benefits, reducing patient numbers will ease the stress on the NHS at the time of year it is needed most. This would:



Reduce strain on NHS staff

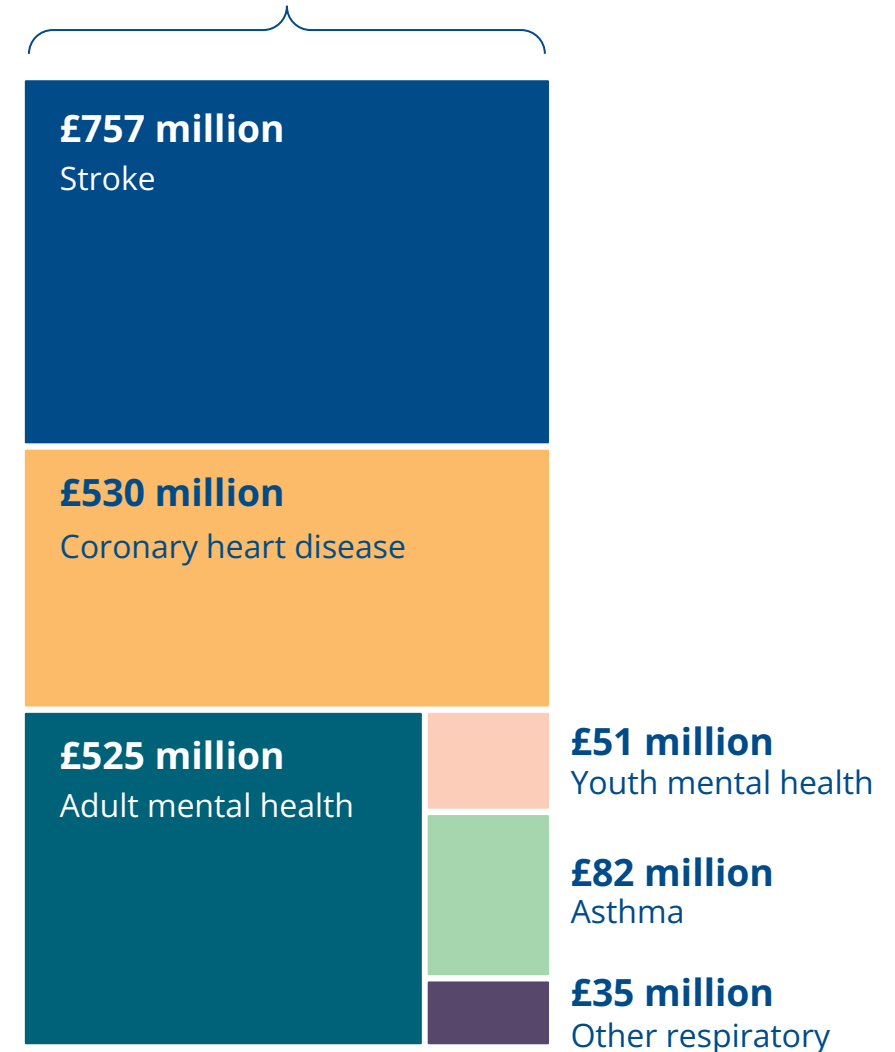


Ease pressure on overstretched ambulance services



Cut patients' waiting times, helping people receive treatment more quickly

Total: **£2bn**
estimated NHS savings to 2030



Insulating homes would prevent physical health conditions

In poorly insulated homes, the cold walls and surfaces can cause damp when they come into contact with moisture in the air. Renters in homes with an EPC D-G rating were 73% more likely to experience damp than those with an EPC of A-C.⁵ Living in a cold and damp home increases the risk and severity of a range of conditions.

In cold temperatures, the heart has to work harder to keep the body warm. Spending a long time in the cold can increase blood pressure and cause blood to thicken, **increasing the risks of heart attacks and strokes.**⁶

People living in damp and mouldy homes are also **up to 3 times as likely to suffer from asthma.**⁷ Inhaling damp and mouldy air can cause asthma to develop and get worse.

Insulating homes helps them stay warm and prevents the condensation that leads to damp and mould. Upgrading homes to EPC C would reduce the incidence and severity of illnesses from cardiovascular problems to respiratory diseases.

And upgrading 13 million homes to EPC C would **prevent 670,000 children from developing asthma**, giving them a better start in life.

Ade's story

Ade lives in a 2-bedroom social housing property with his wife. He had to resign from his job last year because of his asthma and depression, and Universal Credit is now the couple's sole income.

Ade and his wife care for their young grandchild during the week and have to keep their flat warm. Their smart meter says they have used £300 in electricity. Once Ade has paid this, he will have none of his Universal Credit income left for other essentials.

Ade and his wife are now facing the choice between heating their flat or buying food.



Warmer homes would improve mental health outcomes

Living in a cold home increases the risk of developing mental health problems, as well as physical conditions. Depression and anxiety are more common among people who live in cold and damp conditions.⁸ And 79% of people with mental health issues say housing conditions have worsened or caused their mental health problems.⁹

Cold and damp conditions can also lead to loneliness and isolation if people feel unable to invite family or friends to their home due to cold temperatures, or limit social activities to redirect spending to energy bills. This can further exacerbate mental health problems.¹⁰

Upgrading homes to EPC C level would **prevent 570,000 children and adults developing mental health conditions associated with cold homes.**



Insulating homes to EPC C would reduce the number of people with poor physical and mental health.

This would **reduce the number of days of missed school and work due to illness.** And in the long-term, it would likely **reduce the number of people kept out of work due to ongoing health conditions.** More than 2.5 million in the UK are currently not working due to long-term sickness, a record high.¹¹

Insulating homes could prevent up to 6,000 excess winter deaths every year

Respiratory and circulatory diseases are among the leading causes of excess deaths during the winter months.¹²

Living in a cold house weakens the immune system and makes it harder to resist illnesses.¹³ When people do get ill, a cold home can make them more likely to develop more serious complications.

Insulating homes to keep them warmer in winter would help stop people getting ill and make winter illnesses less severe.

This would prevent 6,000 excess winter deaths every year.

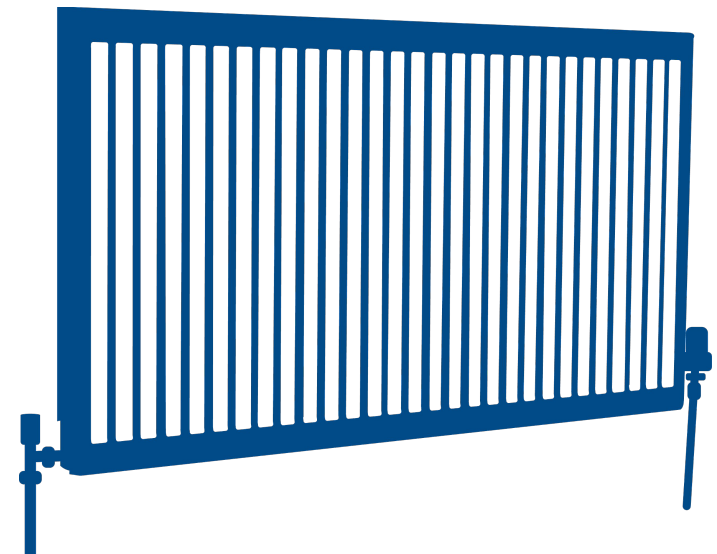
Better insulation also keeps homes cooler in summer, preventing dangerous overheating.¹⁴ During recent heat waves, there have been thousands of excess deaths among over-65s in England and Wales.¹⁵ Heat exhaustion, heatstroke, and cardiovascular diseases are the leading causes of these deaths.¹⁶ Good insulation can help to maintain safe indoor temperatures during the hottest weather.

Mary's story

Mary lives in a one-bed flat above a hairdresser with her husband, who has chronic obstructive pulmonary disease. She has no savings and is on Universal Credit.

Mary's flat is rated as EPC E level and stays cold even when the heaters are on. She can't afford to keep the heating on for a long time, leaving her home at risk of damp and mould.

A health professional has told Mary's husband that his flat is unsuitable for his condition, and that the poor living environment has worsened his health.



Boosting energy efficiency would bring billions in regional benefits

Upgrading homes to EPC C would deliver the most benefit to regions with the highest levels of deprivation.

Homes with EPC D or below are more common in Yorkshire and the Humber, the Midlands, Wales and the North West.

These regions would receive the biggest boost from insulating 13 million homes. Wales, Scotland, the North West and Yorkshire & Humber would see total societal benefits worth £400 per person between now and 2030. And the near £40 billion boost includes **£5 billion of benefits to the North West alone.**

- Regions such as the North West and West Midlands would receive the **highest benefits to the NHS per person.** The North West and West Midlands have among the most overloaded hospitals during winter peaks.
- Regions such as Wales, the North West and Yorkshire and Humber would receive the **highest social benefits.**
- Densely populated city neighbourhoods would see **reductions in air pollution due to lower heating fuel consumption and lower emissions.** Regions such as the North West have some of the worst air-polluted cities in the UK.¹⁷

The North-West, Yorkshire and the Humber and the West Midlands also have the highest levels of fuel poverty, meaning households can't afford to heat their homes to an adequate temperature.

In England, households are considered to be fuel poor if their home has an EPC rating of D or lower, and their income leaves them below the poverty line once they spend the amount required to heat their home to an adequate temperature. This is considered to be 21°C for the main living area and 18°C for other occupied rooms.¹⁸

Fuel poverty levels are set to rise, with energy bills likely to remain high despite recent price fluctuations.¹⁹ By improving efficiency, homes are warmer and bills are lower, helping people avoid fuel poverty - particularly in regions with the leakiest homes.

Relative fuel poverty per region



Very high
High
Low
Very low



Consumers need support to insulate their homes

Energy efficiency schemes will play a pivotal role in insulating homes to EPC C and unlocking the benefits of energy efficiency. The government has set up several schemes to help households insulate homes. But the existing support is insufficient, and many are left behind.

Previous Citizens Advice research has found key barriers to insulating homes under existing schemes:



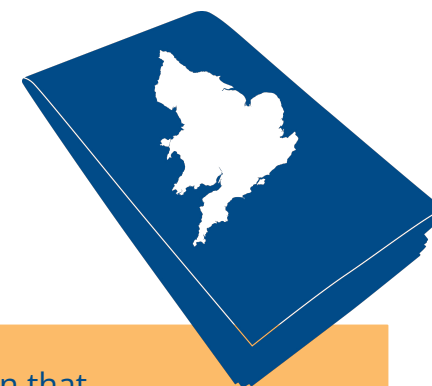
Lack of personalised advice. 3 in 5 homeowners are unsure whether energy efficiency measures would be effective or suitable for their property.²⁰ Homeowners need tailored, action-oriented advice to help them decide which measures are right for them.



Low awareness of schemes. For example, 64% of homeowners haven't heard of the Energy Company Obligation (ECO) scheme. Of homeowners that know about ECO, 74% of those that are on benefits are unsure whether they are eligible for the scheme.²¹ That means many households are missing out on the support they need to keep their houses warm.



High upfront costs. Current schemes create a cliff edge where people who aren't eligible for fuel poverty schemes but can't afford the upfront cost of energy efficiency measures can be left unable to access any support. Only a minority of homeowners who are interested in retrofitting can afford the most expensive measures without borrowing. Yet fewer than 1 in 5 homeowners are willing to borrow to fund improvements.²²



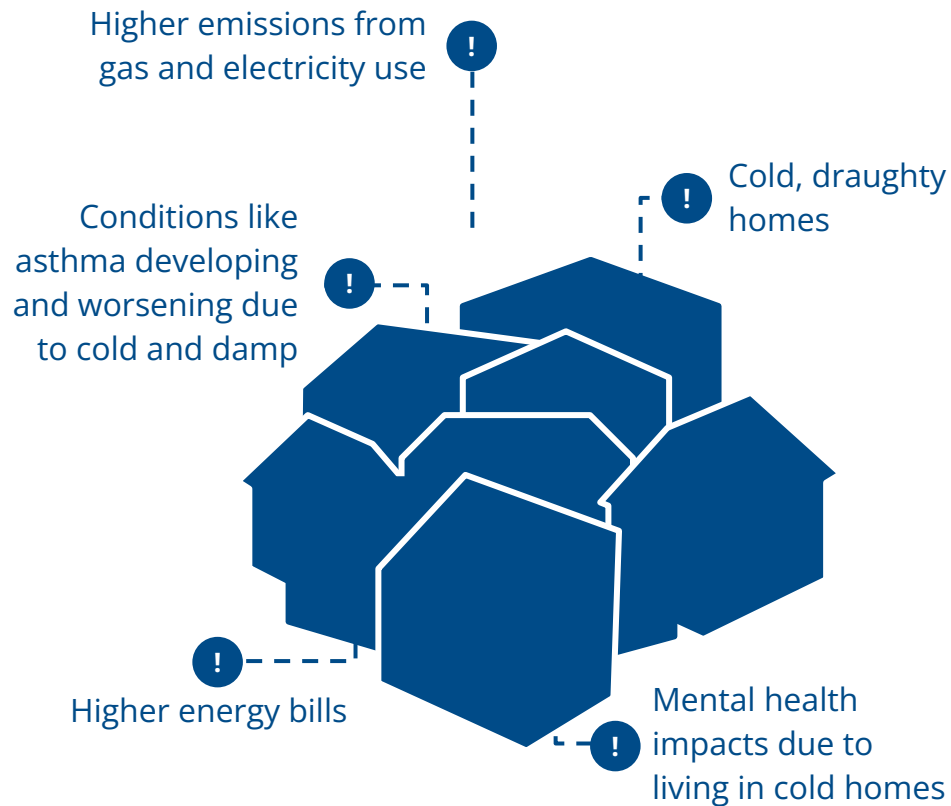
Our research has shown that upgrading homes to EPC C would create a **near £40 billion boost**, providing both financial and social benefits. But unlocking these benefits will incur upfront costs. The average cost of increasing a home's energy efficiency to EPC C is £3,800.²³

Like any large-scale infrastructure project, achieving this will require **a range of financial levers from Government funding, subsidies and private finance**. We need careful planning to meet this challenge including inputs from initiatives such as the Energy Efficiency Taskforce, and taking on learnings from other countries that have successfully rolled out large scale schemes that help people upgrade their homes.²⁴

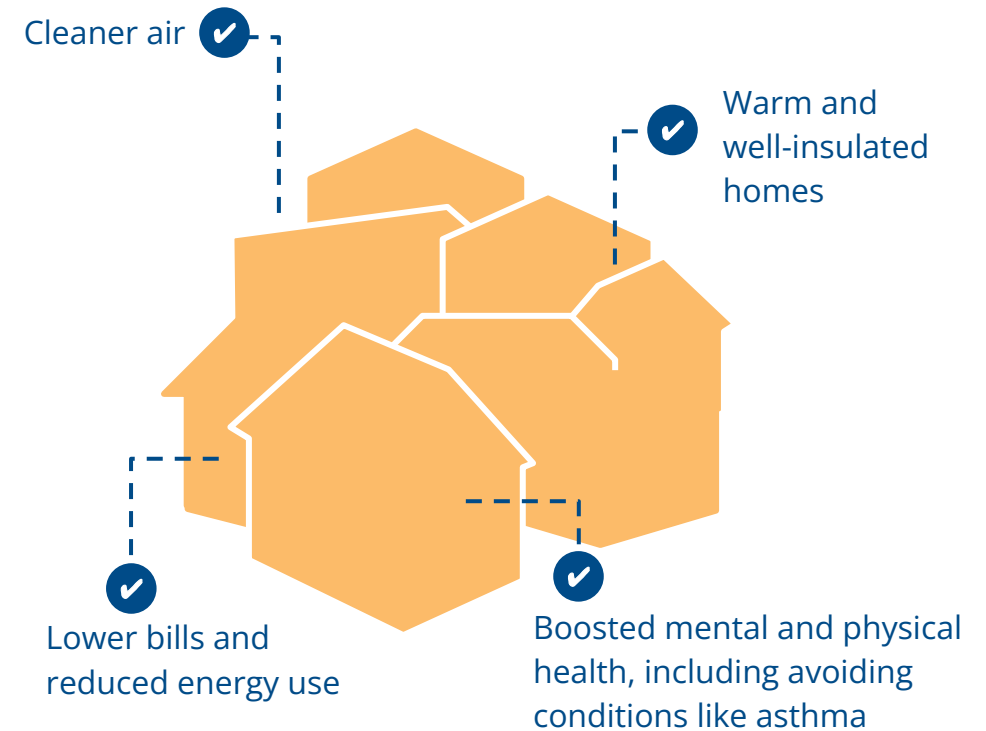
Conclusion

Upgrading 13 million homes to EPC C by 2030 is critical. Achieving this target would make the difference between keeping families warm, cutting bills and boosting health outcomes - or cold, expensive and unhealthy homes.

Great British homes in 2030, if the upgrade target isn't met



Great British homes in 2030, if the upgrade target is met



Other countries have already made good progress towards boosting energy efficiency with effective incentives. It's now time for **an energy efficiency scheme in Great Britain** that provides financial support to upgrade 13 million homes to EPC C by 2030. This would **unlock nearly £40 billion in benefits, strengthen households' energy security and improve quality of life for millions.**

References

1. Citizens Advice, [Insulation Nation](#), September 2022
2. Over 15 million homes across GB are below the EPC C level, with 13 million of them having significant potential to upgrade to EPC C level. The remaining 2 million homes may struggle to reach EPC level C or above because they're protected buildings, or because it's not technically or financially feasible to upgrade them. They will need more targeted support to improve efficiency.
3. Network costs are a fixed daily amount consumers have to pay to access energy, regardless of usage. The cost can vary widely depending on the type of energy, the type of energy tariff, the company providing it and where customers live. And consumers with less energy usage will have a higher proportion of their bill taken up by daily rate.
4. Friends of the Earth & the Marmot Review Team, [The Health Impacts of Cold Homes and Fuel Poverty](#), May 2011
5. Citizens Advice, [Damp, cold and full of mould](#), February 2023
6. British Heart Foundation, [Will cold weather affect my heart condition?](#) December 2022
7. Public Health England, [Fuel poverty and cold home-related health problems](#), September 2014
8. House of Commons Library, [Health inequalities: Cold or damp homes](#), 16 February 2023
9. Mind, [Four in five people with mental health problems say their housing has made their mental health worse](#), 3rd May 2018
10. House of Common Library, [Health inequalities: Cold or damp homes](#) 16 February 2023
11. 24. BBC, [Record numbers not working due to ill health](#), 16 May 2023
12. House of Commons Library, [Health inequalities: Cold or damp homes](#), 16 February 2023
13. NEA, [Connecting homes for health: Bringing affordable warmth to vulnerable off-gas households - Phase 1 Review](#), March 2017
14. Climate Change Committee [Risks to health, wellbeing and productivity from overheating in buildings](#), July 2022
15. BBC, [Record excess deaths in UK's heatwave summer](#), 7th October 2022
16. NHS England, [Heatwave Plan for England 2013](#), May 2013
17. The Business Desk, [North West cities are among the most polluted in the UK](#), accessed on 16 June 2023
18. Age UK, [Keep warm and keep well this winter](#) 19 January 2018
19. House of Common Library, [Fuel poverty in the UK](#), 24 March 2023
20. Citizens Advice, [Demand: Net Zero](#), May 2023
21. Citizens Advice, [Insulation Nation](#), September 2022
22. Citizens Advice, [Demand: Net Zero](#), May 2023
23. Citizens Advice, [Insulation Nation](#), September 2022
24. The Climate Change Committee (CCC) will publish its report "Climate policy that cuts cost" in June 2023. The report reviews over 100 policies worldwide that deliver both lower bills and decarbonisation.

Citizens Advice helps people find a way forward.

We provide free, confidential and independent advice to help people overcome their problems. We're a voice for our clients and consumers on the issues that matter to them.

We value diversity, champion equality, and challenge discrimination and harassment.

We're here for everyone.

citizensadvice.org.uk



© Citizens Advice

Citizens Advice is an operating name of The National Association of Citizens Advice Bureaux. Registered charity number 279057.