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RESPONDING TO THE UK GAS CRISIS THE CRITICAL ROLE OF ENERGY EFFICIENCY AND A GREEN HOMES RETROFIT DRIVE

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Household bills will jump this winter as the wholesale energy market reels from a spike in the price of gas, with further price rises expected in the spring. Knock-on effects could also include food shortages, industrial shutdowns, and bankruptcies among energy retailers. New analysis from E3G shows that the energy crisis is regressive, disproportionately impacting those on low-to-middle incomes, and that the effects are exacerbated by the UK's inefficient housing stock.

The situation underscores the UK's need to smoothly transition away from gas and onto a zero-emissions energy system, not just to fight climate change, but to reduce consumers' and the economy's exposure to volatile gas markets.

The new analysis finds that improving the energy efficiency of homes currently rated 'D' or worse for energy performance to 'C' would save households £511 per year should prices rise again in April as they are expected to – more than cancelling out the bill increases. Of the households with below average incomes living in these homes, 81% are deemed ineligible for nationally available government support. The findings make the case clearer than ever for a national energy efficiency infrastructure investment programme accessible to all, delivered through the Spending Review and forthcoming Heat & Buildings Strategy.



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The UK is dangerously exposed to global gas prices

Dramatic price rises in international gas markets have put much of Europe, including the UK, at risk of a winter energy crisis. Europe's gas prices have more than trebled in the past year and rose 70% in September alone.¹ In the first week of October, the price of UK gas futures surged 40% in two days.²

A combination of factors has contributed to these developments, including curbed Russian gas deliveries to Europe and unprecedented competition for LNG (liquefied natural gas) between Europe and Asia, where demand is rising sharply. Crucially, this demand trend is seen as likely to continue until 2035 at least, which means upward pressure on international gas prices could be the new normal.³

Gas market volatility is the source of the rising cost of energy, but the problem has been compounded in the UK by several further factors, including a fire at an interconnector site in Kent, which will disrupt electricity import capacity until the end of March, pre-planned outages across much of the UK's nuclear fleet, and unusually low wind speeds at the beginning of September.⁴

As a result, Ofgem is set to raise the energy price cap – designed to protect consumers from spiralling prices – by 12% in October. This will mean bills going up by £139 for those on fixed rate tariffs and £159 for those on prepayment plans, who tend to be on lower incomes.⁵ It is likely that the price cap will rise a further 14% in April, meaning a compound increase of almost 28% in 6 months.⁶ In the medium-term, the UK needs to move decisively away from fossil fuel power generation to reduce exposure to gas price volatility, by planning appropriate infrastructure for a modernised grid comprising a mix of renewables, flexibility, smart technology and storage.

The immediate focus this winter must be to support vulnerable and low-income households to stay warm, through financial support and advice. In parallel,

¹ <https://www.bloomberg.com/news/articles/2021-09-18/europe-faces-bleak-winter-energy-crisis-years-in-the-making>

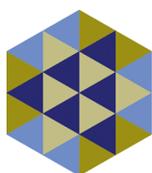
² <https://www.bloomberg.com/news/articles/2021-10-06/europe-gas-extends-record-rally-with-surge-above-130-euros?srnd=premium-europe>

³ <https://www.mckinsey.com/industries/oil-and-gas/our-insights/global-gas-outlook-to-2050>

⁴ <https://www.ft.com/content/b5a5e29a-9556-4d07-882b-10b1749efced> and <https://www.ft.com/content/b5a5e29a-9556-4d07-882b-10b1749efced>

⁵ <https://www.ofgem.gov.uk/publications/record-gas-prices-drive-price-cap-ps139-customers-encouraged-contact-supplier-support-and-switch-better-deal-if-possible>

⁶ <https://www.theguardian.com/money/2021/sep/21/uk-households-face-second-record-energy-bill-rise>



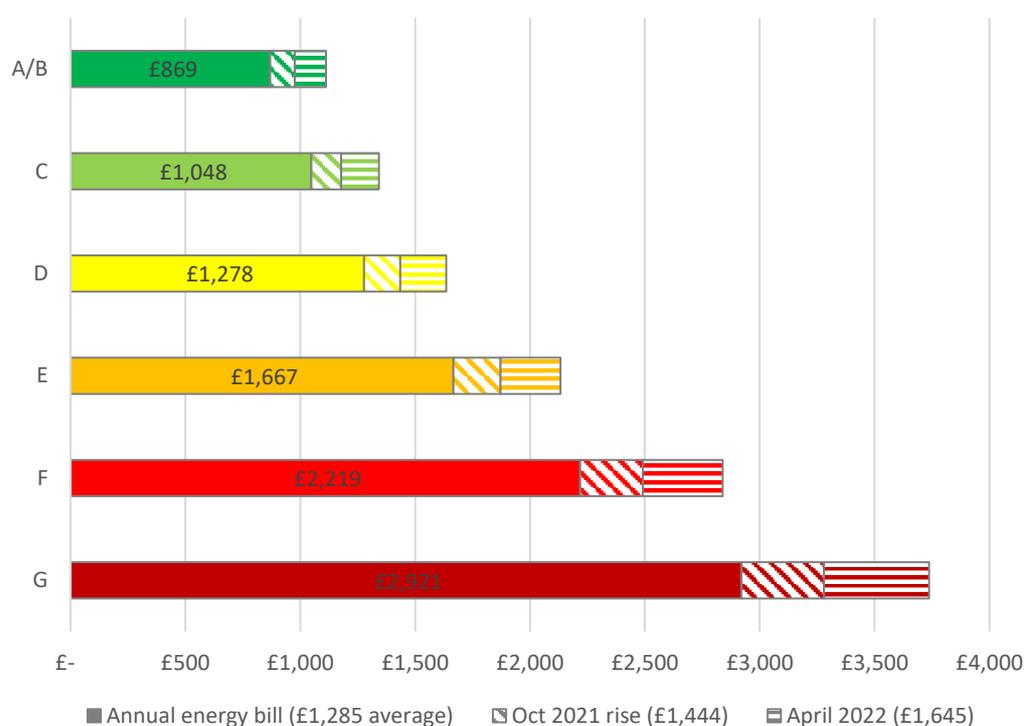
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demand reduction through energy efficiency should be prioritised as a near-term investment with immediate impact, rapidly scalable over the medium term, to permanently reduce households' exposure to volatile prices.

Households in energy efficient homes are less impacted by gas price volatility

Whenever a home is sold, rented, or built, it is legally required to have an Energy Performance Certificate (EPC), which gives a rating from A to G according to what a property costs to run compared with others. Energy efficiency is a major factor in this rating. The average rating for homes in England and Wales is EPC D.⁷ Figure 1 shows that homes in England with lower EPC ratings are more affected by energy price rises – in absolute terms – than those with higher ratings.

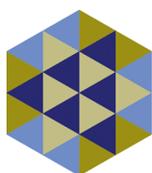
Figure 1: The impact of energy price increases (October 2021 and April 2022) by EPC band⁸



Households living in homes rated EPC D or worse face 35% higher energy costs than those living homes rated EPC C or better. By April 2022 households in homes rated D or worse will be paying an average of £470 per year more – and

⁷ ONS (2020) *Energy efficiency of housing in England and Wales*

⁸ This analysis draws on the English Housing Survey, and thus refers to England and not the whole UK. The April 2022 price rise estimate used is the lower of the two available.



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will have been hit with a bill rise that is £102 higher – than those in homes rated C or better.

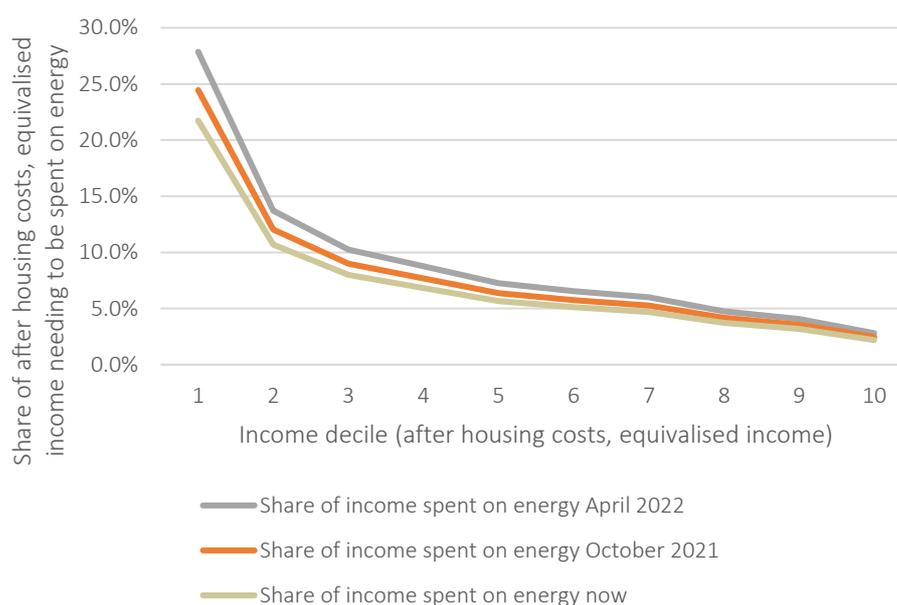
Table 1: Average energy bills before and after October and April price increases, by homes rated EPC C and above and EPC D and below

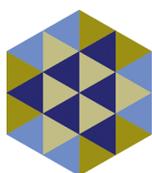
	Average bill before price cap increase	Average bill October 2021	Average bill April 2022	Average bill increase by April 2022
(All homes average)	£ 1,285	£ 1,444	£ 1,645	£ 360
Homes rated C or better	£ 1,041	£ 1,170	£ 1,333	£ 292
Homes rated D or worse	£ 1,414	£ 1,588	£ 1,809	£ 395
Difference between C & D	£ 367	£ 412	£ 470	£ 102

The energy bill increases are regressive: low-to-middle income households are the worst affected

The impact of price rises on household income (after housing costs) increases disproportionately down the income deciles. Figure 2 shows that households in lower income deciles spend proportionately more of their post-housing income on energy costs than those in higher deciles, that this effect increases as income decreases, and that the impact of price rises is more pronounced.

Figure 2: Share of after housing costs equivalised income needed for energy, by income decile



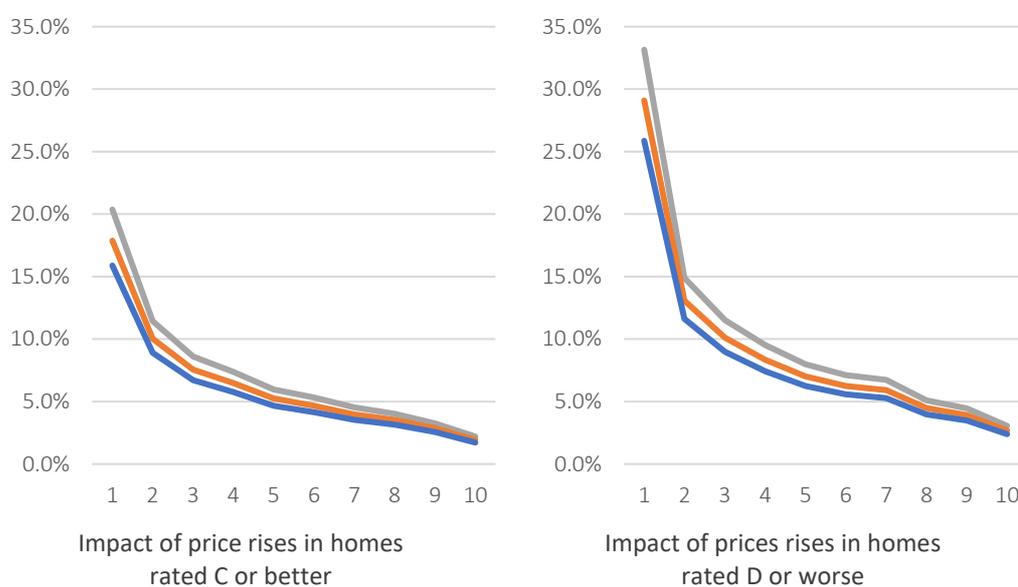


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Shown in Figure 3, this effect is even more pronounced for the 65% of households in England living in homes rated below EPC C.⁹ Energy price rises by April 2022 will eat up between £376 and £434 more of the post-housing income of those on middle incomes – from the 4th to 6th income deciles, the average (after housing costs, equivalised) incomes for which are £18,300 to £24,900 per year – in homes rated D or worse than it will for those in more efficient homes.

Across the income deciles, a lower average energy efficiency rating means the effects of energy price increases are more regressive than they are in aggregate.

Figure 3: Share of after housing costs equivalised income needed for energy, by income decile and by whether homes are rated C or better or D or worse

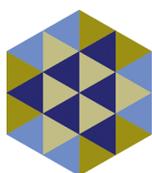


It is clear therefore that the coming squeeze on low-to-middle incomes will be exacerbated by inefficient housing. The difference is most stark for those on the lowest incomes, where those in homes rated EPC D or worse face spending almost 13% more of their post-housing income on energy compared to those in homes rated EPC C or above.

Most people on middle incomes, and many people on low incomes, have no government support for energy efficiency available to them

Among the 15.3 million households in England currently living in homes rated EPC D or worse, 22% – 8.9 million people – are in fuel poverty, all in the lowest three income deciles (see figure 5).

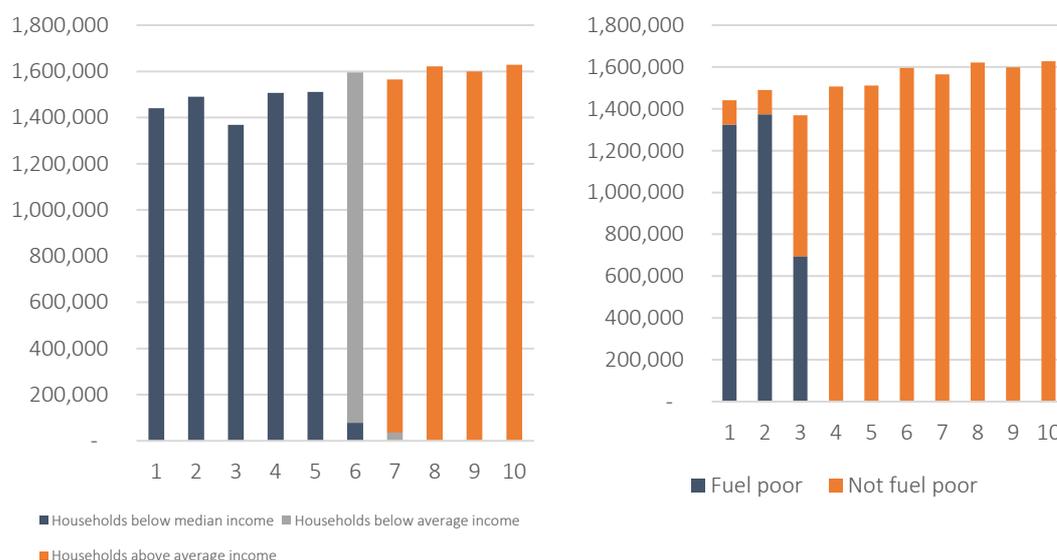
⁹ English Housing Survey 2018/19



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Lower income households are more likely to live in homes rated EPC D or lower. Of the households living in this category of home 60% – nearly 9 million in total – have a below average income (after housing costs and equivalised - meaning below £26,931). They are likely to need support with the upfront costs of energy efficiency.

Figure 4: Households in EPC D or worse rated homes by income decile, relationship to average and median income (left) and rates of fuel poverty¹⁰ (right)

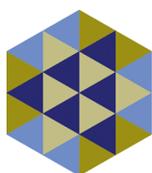


The main source of support for investment in energy efficiency in UK homes is the Energy Company Obligation (ECO), whereby energy companies fund energy efficiency improvements for eligible households and recover the costs through bills. However, as shown in Figure 5, 81% of below average income households are not eligible for ECO support.

Even for the 19% who are eligible, it would take 15 years to reach them all with support at the delivery rate seen in 2020. 4.1 million owner occupiers with below-average incomes are not eligible for ECO support, and of these, 370,000 are in fuel poverty (see Figure 5).

There is no nationally available policy or programme to support these households, following the scrapping of the Green Homes Grant earlier this year. The Local Authority Delivery scheme is available in some parts of the country,

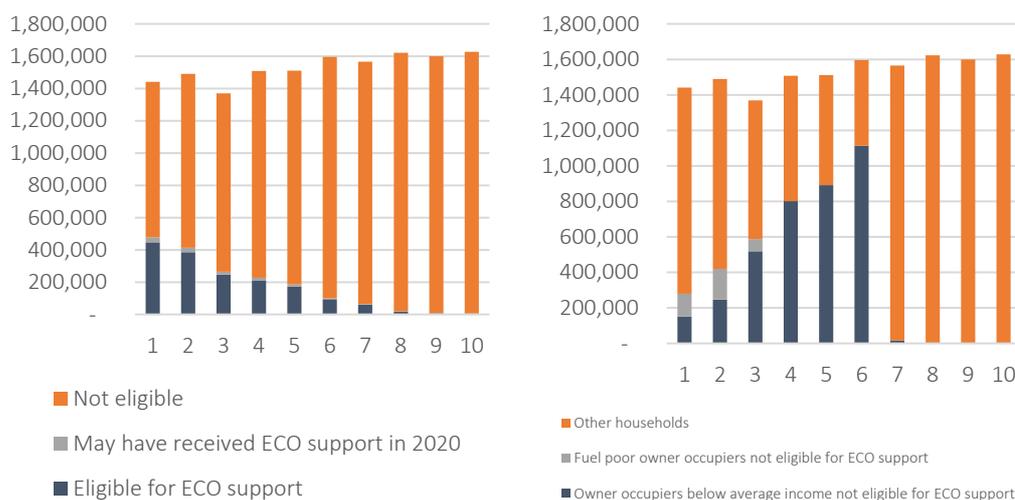
¹⁰ As measured using the Low Income Low Energy Efficiency (LILEE) indicator for England. 'Low income' in this case means an equivalised, after housing costs income of less than 60% of median income (£23,209) after fuel costs. The reason not all households in the lowest two income deciles are in fuel poverty is because some homes have a Fuel Poverty Energy Efficiency Rating of C (despite an EPC rating of D), and therefore do not meet the 'Low Energy Efficiency' threshold.



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but it is competitively awarded to local authorities who bid into a central pot of funding (£500m from July 2020, with a further £300m planned). This means access to this support is a postcode lottery and is unavailable in most areas.¹¹

Figure 5: Number of households eligible for ECO support living in homes rated EPC D or worse, by income decile (left); number of owner occupiers in low-to-middle income deciles for whom there is no national support for energy efficiency improvements (right)



While the government is supporting those on the very lowest incomes through the Homes Upgrade Grant and Social Housing Decarbonisation Fund, there is no national programme available for the huge group that the government classifies as ‘able-to-pay’. Minimum Energy Efficiency Standards (MEES) apply to the private rented sector, so there is regulatory coverage in that sector (although exemptions and weak enforcement reduce the effectiveness of this measure), but owner occupiers have no policy coverage at a national level at all.

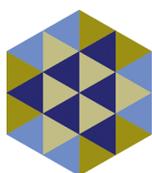
This category includes 92% of owner occupiers (16.8 million households),¹² 18% of whom live in homes that do not meet the Decent Homes Standard set for social housing.¹³ As Figure 4 and Figure 5 show, many of these households are unlikely to have the disposal income necessary to invest in energy efficiency without any support.

¹¹ BEIS (2020) *Green Homes Grant Local Authority Delivery scheme, Phase 1B: entering a bid*

For households living in social housing, the Social Housing Decarbonisation Fund is intended to fill the gap, and investment from private landlords should be partly incentivised by minimum energy efficiency standards in the private rented sector.

¹² https://www.theeig.co.uk/media/1107/eeig_learning_lessons_green_homes_grant.pdf

¹³ https://www.sustainableenergyassociation.com/wp-content/uploads/2017/03/SEA_Energy-Efficiency-A-Policy-Pathway_Final.pdf



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Those living in the least energy efficient homes are also disproportionately concentrated in the North of England.¹⁴ Their greater exposure to international gas prices and higher energy bills risks deepening existing regional inequalities and exacerbating the problems that the Government’s levelling up agenda is intended to address.

Improving homes to an EPC C rating would more than wipe out the cost of rising gas prices

As things stand, households in homes rated EPC D or worse are set to pay £395 more per year for their energy from April 2022. However, investment to bring a household rated EPC D or worse up to an EPC C rating would mean eliminate that increase, and actually leave the household £116 better off after price rises than they were before.

Table 2: Energy costs for homes rated D or worse before and after improvement to EPC C

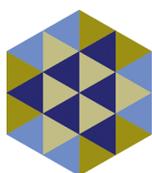
	Average bill before price cap increase	Average bill October 2021	Average bill April 2022
Homes rated D or worse	£ 1,414	£ 1,588	£ 1,809
Home improved to C	£ 1,014	£ 1,139	£ 1,298
Difference / saving	£ 400	£ 449	£ 511

Saving all households in homes rated D or worse £511 per year would mean an aggregate saving of £7.8bn per year – disposable income that could then be spent elsewhere in the economy, especially in local retail and services

Bringing homes up to an EPC C rating would largely reduce the impact of price rises on those households to the levels experienced by those already living in homes rated EPC C or better.

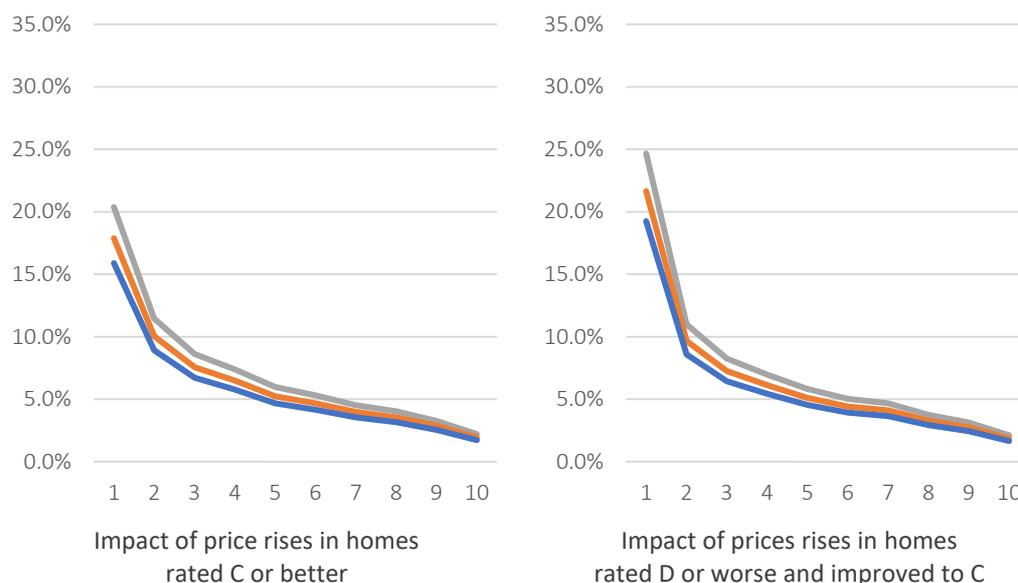
¹⁴ https://www.sustainableenergyassociation.com/wp-content/uploads/2017/03/SEA_Energy-Efficiency-A-Policy-Pathway_Final.pdf

¹⁴ <https://www.northern-consortium.org.uk/wp-content/uploads/2018/10/The-Hidden-Costs-of-Poor-Quality-Housing-in-the-North.pdf>



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Figure 6: Impact of price rises on share of after housing costs equivalised income spent on energy in homes rated EPC D or worse improved to EPC C, compared to the same impact on homes already rated EPC C



Investing in energy efficiency is also essential to meeting climate targets

The government has an ambition for all homes to reach EPC band C by 2035, as part of its overall goal to decarbonise virtually the entire building stock by 2050.¹⁵ More cost-effective and widespread uptake of low-carbon heating technology like electric heat pumps will also be made easier by higher levels of energy efficiency. Electrifying heat and moving off gas boilers (which produce 14% of all UK emissions)¹⁶ will reduce UK households' exposure to turbulent international gas prices while taking the country a big step closer to its net zero target.

The Prime Minister recently announced that the UK's electricity grid will be free of fossil fuels by 2035.¹⁷ With a decarbonised grid and electrified heating, energy efficiency will continue to keep bills low and crucially, by reducing the level of peak demand on the grid, will lower system-wide energy costs.

The Spending Review, backed up by a comprehensive Heat & Buildings Strategy, is the government's opportunity to alleviate the impacts of the energy crunch and put us on track for net zero

¹⁵ <https://publications.parliament.uk/pa/cm5801/cmselect/cmenvaud/346/34605.htm>

¹⁶ <https://www.theccc.org.uk/publication/uk-housing-fit-for-the-future/>

¹⁷ <https://www.theguardian.com/business/2021/oct/04/uk-electricity-generation-boris-johnson-conservative-conference-gas>



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The Energy Efficiency Infrastructure Group has calculated that to protect consumers as we move off gas and to meet the UK's climate targets, an energy efficiency investment package worth an additional £7bn for the remainder of this Parliament is needed, backed up with a future investment plan to 2030 and beyond. This breaks down as follows:

- a) Full support for low-income households by fulfilling outstanding Conservative Manifesto commitments to the Homes Upgrade Grant (£2.35bn this Parliament) and Social Housing Decarbonisation Fund (£3.6bn to 2030, of which £1bn by 2025).
- b) Make energy efficiency upgrades affordable for all by establishing a new, streamlined grant scheme available for all households – with £3.6bn provided in a 3-year Spending Review, tapering support from 2025.¹⁸

Without closing the current funding and policy gap for the so-called 'able to pay', through a new grant scheme and supportive policy measures (including regulation, protections, advice, and supply chain support), it is unlikely the Government will be able to meet climate targets and levelling up ambitions. The Spending Review must therefore be backed up by a comprehensive set of measures set out through the Heat & Buildings Strategy.¹⁹

Fortunately, the government has a ready pool of finance to draw on to make this investment. On 21 September, the government raised £10bn from its first ever sale of 'Green Gilt', which are intended to finance green infrastructure spending. It intends to raise at least a further £5bn later in the year. Investing this green financial windfall in energy efficiency (and low-carbon heat) would be a major step towards protecting consumers and meeting our climate targets.

The Chancellor therefore has a unique opportunity this autumn to get to grips with two crises at once – the pressure on living standards caused by rising energy costs, and the climate crisis which threatens even more profound instability in the years ahead.

Conclusion: invest now to protect consumers and increase the UK's resilience

This analysis has shown that households on low-to-middle incomes living in homes rated EPC D or worse stand to be between £373 and £434 worse off than those on similar incomes living in homes rated EPC C or better. Across all income

¹⁸ For more details on scheme design and tapering, please see <https://www.raponline.org/knowledge-center/getting-track-net-zero-policy-package-heat-pump-mass-market-uk/>

¹⁹ For more details on expectations for the Heat & Buildings Strategy please see: <https://www.theeig.co.uk/news/heat-buildings-strategy-the-benchmarks-for-success/>



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bands, lower energy efficiency makes the price rises more regressive than they are in aggregate. For those on the lowest incomes, the difference between living in a house rated EPC C or better and one rated EPC D or worse amounts to 13% of their entire post-housing costs income.

By investing now in a national energy efficiency programme, the Government could virtually eliminate the penalty paid by those living in less efficient homes. A programme to meet the Government's own target of having all homes achieve an EPC C rating would save households currently living in homes rated EPC D or worse £511 on their energy bills, combatting the regressive impact of the current energy crisis and putting the UK on a much more resilient footing as we move away from gas for good.



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About E3G

E3G is an independent climate change think tank accelerating the transition to a climate-safe world. E3G builds cross-sectoral coalitions to achieve carefully defined outcomes, chosen for their capacity to leverage change. E3G works closely with like-minded partners in government, politics, business, civil society, science, the media, public interest foundations and elsewhere.

More information is available at www.e3g.org

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