

# LOCKDOWN IN LEAKY HOMES

How families spending more time in poorly insulated homes are set to pay over the odds to keep warm.



## EXECUTIVE SUMMARY

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During the coronavirus pandemic, the British public has been advised to stay at home as much as possible, increasing the amount of energy used within households. Energy experts and fuel poverty campaigners have warned of the impacts on energy bills were this situation to extend into the winter months.

This analysis shows that, were this to happen, winter heating costs for families living in the leakiest homes could increase by £49 per month more than for those in houses that do not waste as much heat. It also finds that, even with the additional costs of a winter lockdown, heating bills for more efficient homes will still be lower than those faced by families in leaky homes year after year.

This risks more families being forced to live in cold, uncomfortable homes and jeopardises missing fuel poverty targets, as more households may be unable to afford to heat their homes. Moreover, this could exacerbate financial concerns that millions of Brits already face as a result of the ongoing crisis.

For families on the edge of fuel poverty, energy efficiency measures installed as part of the Government's new Home Upgrade Grants are expected to save households around £750 on energy bills each year,<sup>1</sup> as well as reducing energy waste and curbing emissions. The simplest additions – loft and cavity wall insulation – can save more than £200 per year.

Regional disparities in energy efficiency levels mean certain areas will be affected more by increased energy bills during lockdown. To help those in need, the Government has already announced support packages and committed to 'levelling-up' across regions. In the longer term, however, experts agree that the solution is improving building performance and limiting energy waste, rather than helping to pay costs of high bills.

In the 2019 Conservative manifesto, more than £9 billion was committed to increasing the energy efficiency of buildings, yet expected announcements on how this would be spent were missing from the 2020 Budget. At the same time, energy efficiency installation rates have fallen by more than 95% in recent years.

The findings in this report highlight the material impacts that delays to effective energy efficiency policy are having on thousands of families. It is widely seen as crucial that the nation addresses its poor levels of energy efficiency – the UK ranks worst out of 13 comparable European countries for fuel poverty and has some of the leakiest homes in Europe.<sup>2</sup>

There is currently an increased focus on energy efficiency as part of a post-coronavirus recovery package, with the Government set to release four major documents that are expected to tackle building efficiency during 2020. This report highlights the importance of getting these right.

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1 <https://www.conservatives.com/news/our-manifesto-gets-brex-it-done-and-unleashes-the-potential-of-the-whole-country>

2 <https://www.e3g.org/docs/ACE-and-EBR-fact-file-2013-03-Cold-man-of-Europe.pdf>

## INTRODUCTION

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The Government's response to the 2020 coronavirus pandemic has led to British families spending more time at home, as schools are closed and workers – where possible – carry out their jobs remotely. This change has already caused an increase in domestic energy consumption, and therefore an increase in energy costs borne by British families.<sup>3</sup>

Energy experts and fuel poverty campaigners have expressed concerns over the effects of remote working and spending more time inside the home on household finances, especially for families under financial stress, should the current situation continue through the winter months when central heating would be used for a large proportion of waking hours.<sup>4</sup>

Recent polling shows that over half of Brits (56%, rising to 75% for families with children)<sup>5</sup> recognise that they are currently using more energy as a result of lockdown however only 35% have thought about the impact that this will have on energy bills. A recent Ofgem survey<sup>6</sup> revealed that 44% of respondents also expect their financial situation to worsen during the next 6 months.

At the time of writing, it seems likely that large swathes of the population will continue to spend significantly more time at home – including working – until at least the end of 2020, with millions of households facing inflated heating bills as winter encroaches. This is particularly concerning in light of fears of a potential 'second wave' of coronavirus occurring over the next few months or years.

The UK has some of the least efficient and leakiest housing stock in Europe, with the average British home losing heat three times more quickly than its Swedish counterpart,<sup>7</sup> while the proportion of people living in leaky homes in the UK is almost a third higher than in France.<sup>8</sup>

Leaky homes not only waste more energy through roofs, walls and windows, but also inflate energy bills and make reducing carbon emissions more difficult.

Cold and draughty homes have been linked to multiple health issues, as well as excess deaths during winter months. This, combined with the increased costs, has led to leading advisory bodies prioritising the need for improved building efficiency.<sup>9</sup>

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3 <https://www.theguardian.com/money/2020/may/04/uk-household-energy-bills-to-soar-by-32-per-month> and <https://www.bbc.co.uk/news/technology-52331534>

4 <https://inews.co.uk/news/environment/draughty-houses-lockdown-coronavirus-energy-efficiency-2548215>

5 <https://www.ons.gov.uk/peoplepopulationandcommunity/wellbeing/bulletins/personalandeconomicwellbeingintheuk/may2020>

6 <https://www.ofgem.gov.uk/>

7 <http://www.energybillrevolution.org/wp-content/uploads/2013/12/ACE-Research-Comparing-the-UK-and-Sweden-3.12.13.pdf>

8 <https://www.e3g.org/docs/ACE-and-EBR-fact-file-2013-03-Cold-man-of-Europe.pdf>

9 <https://www.theccc.org.uk/wp-content/uploads/2019/02/UK-housing-Fit-for-the-future-CCC-2019.pdf> and <https://www.nic.org.uk/news/mps-highlight-need-for-swift-action-to-boost-energy-efficiency-of-uk-homes-and-workplaces/>

## ENERGY EFFICIENCY IN THE UK

Despite being seen as crucial for reducing both fuel poverty and carbon emissions, efforts to improve the energy performance of Britain's building stock has slowed in recent years. For example, the BEIS Select Committee highlighted<sup>10</sup> that rates of installation of loft and wall insulation are now around 95% lower than they were in 2012. It also found that, in order to achieve targets set in the 2017 Clean Growth Strategy, retrofit installations needed to increase seven-fold.

The energy efficiency of homes across the UK is measured by Energy Performance Certificates (EPCs). These range from A – G, with A being the most efficient. EPCs are required when a home is bought or let and underpin many of the Government's energy performance statistics and targets.

One key Government target is to bring all homes in England to EPC band C wherever 'practical, feasible and cost-effective'<sup>11</sup> by 2035, accelerated to 2030 for social housing or for families living in fuel poverty.

Current statutory energy efficiency commitments require all fuel poor homes in England to be levelled up to the same minimum energy efficiency standards of a current new-build home, which is EPC band C, by 2030. According to the Committee on Fuel Poverty (CFP), progress towards this target is flat-lining as only 12.4% of all households meet the 2030 requirement.<sup>12</sup>

The latest fuel poverty statistics<sup>13</sup> reveal that there is still some way to go to reach these targets (Table 1), although rates of fuel poverty did decrease by 0.7% from 2017 to 2018, an improvement on the 0.2% fall the year before. The CFP has identified that "overall progress is stalling, with a mixed performance across each of the three main measures".<sup>14</sup>

Fuel poverty target	2010 progress	2017 progress	2018 progress
B and E or above by 2020	81.1%	92.2%	92.6%
Band D or above by 2025	32.7%	65.9%	69.4%
Band C or above by 2030	15%	10.0%	12.4%

**Table 1: Governmental fuel poverty statistics. Source: BEIS (2020)<sup>15</sup>**

10 BEIS Select Committee (2019). Building to net-zero.

11 BEIS (2017). Clean Growth Strategy.

12 <https://www.gov.uk/government/statistics/annual-fuel-poverty-statistics-report-2020>

13 [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/882404/annual-fuel-poverty-statistics-report-2020-2018-data.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/882404/annual-fuel-poverty-statistics-report-2020-2018-data.pdf)

14 [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/754361/Committee\\_on\\_Fuel\\_Poverty\\_Annual\\_Report\\_2018.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/754361/Committee_on_Fuel_Poverty_Annual_Report_2018.pdf)

15 <https://www.gov.uk/government/collections/fuel-poverty-statistics>

The Conservative Party's 2019 election manifesto contained pledges for energy efficiency worth £9.2 billion over ten years (Table 2<sup>16</sup>). It also committed to "levelling up" spending across the regions, creating more jobs and opportunity for areas outside of London and the south east.

Many regions with the leakiest homes and highest incidences of fuel poverty would benefit from increased spending on energy efficiency and growth in highly skilled job opportunities.

Spending £ million	2020-21	2021-22	2022-23	2023-24	Totals
Social housing decarbonisation fund	0	60	240	410	£3.8 billion over 10 years
Homes upgrades grants	150	260	370	590	£2.5 billion over 5 years
Public sector decarbonisation scheme	170	640	660	690	£2.9 billion over 5 years

**Table 2: Building efficiency pledges made in the Conservative 2019 Election manifesto**

It is also widely recognised that achievement of net zero carbon emissions by 2050 will necessitate extensive improvements to the building fabric of the entire housing stock; upgraded heating systems will also be required.<sup>17</sup>

The current flagship energy efficiency scheme in England, the Energy Company Obligation (ECO) scheme has been in place since 2013. It has, however, been amended in several iterations over the years and has fallen wide of delivering the scale changes needed to meet energy or climate targets.<sup>18</sup>

ECO was refocussed onto fuel poor homes in 2018. While helping households most in need, it has been suggested that additional schemes should be brought in to address as many homes as possible, reducing both costs to the consumer and carbon emissions.<sup>19</sup>

To this end, the BEIS Select Committee energy efficiency inquiry states that "following the example of the devolved nations, we recommend three tiers of funding consisting of ECO, centrally funded local authority schemes, and a further national funding safety net, to provide a comprehensive strategy for energy efficiency for fuel poor households". The Committee believes that this would allow significant investment to be unlocked, thereby pushing up installation rates.

<sup>16</sup> [https://assets-global.website-files.com/5da42e2cae7ebd3f8bde353c/5ddaa257967a3b50273283c4\\_Conservative%202019%20Costings.pdf](https://assets-global.website-files.com/5da42e2cae7ebd3f8bde353c/5ddaa257967a3b50273283c4_Conservative%202019%20Costings.pdf)

<sup>17</sup> CCC (2019). Net-zero: the UK's contribution to stopping global warming

<sup>18</sup> <https://publications.parliament.uk/pa/cm201719/cmselect/cmbeis/1730/1730.pdf>

<sup>19</sup> <https://www.cse.org.uk/downloads/reports-and-publications/fuel-poverty/policy/insulation-and-heating/beyond-the-ECO.pdf>

While the BEIS Select Committee recommend that ECO should continue to be targeted at fuel poor households, there remains an absence of programmes to tackle the rest of the housing stock.

Simple energy efficiency measures such as loft and cavity wall insulation can save an average household around £215 on their annual energy bills whilst making the home feel a lot warmer and less draughty.<sup>20</sup> Such measures pay back investment costs in just 2 – 5 years, before locking in lower energy bills for decades to come. Estimates for more extensive retrofits, such as those in the Conservative Manifesto, reach annual savings of £750.<sup>21</sup>

More efficient, warmer homes are also more adapted to the UK's net zero future, futureproofing homes for low carbon heating systems, which generally require a higher level of energy efficiency.

The Committee on Climate Change (CCC) and BEIS Select Committee, consumer groups such as Citizens Advice, National Energy Action, as well as the Government in its manifesto promises, all acknowledge the significant opportunities that energy efficiency offers.

Although setting out their intentions to boost energy efficiency across the UK, leaders across the energy industry have suggested that current policies in place do not align with the Government's EPC or net zero targets and should be amended and improved.<sup>22</sup>

For example, the CCC says "current policy is failing to drive uptake of energy efficiency in existing homes – installation of loft and wall insulation is at just 5% of peak market delivery in 2012, despite significant remaining cost-effective potential." It recommends that "the uptake of energy efficiency measures such as loft and wall insulation must be increased" including long-term policy for able-to-pay households and in social housing.

This report will examine the effects of slow progress on energy efficiency on domestic energy bills, should remote working and social distancing measures continue into the winter months. It will assess the extent to which heating bills are likely to rise in inefficient homes across the UK compared with those with better energy performance and how increasing installation of energy efficiency measures could help to combat these rises.

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20 <https://www.biteam/publications/evaluating-the-nest-learning-thermostat/>

21 <https://www.conservatives.com/news/our-manifesto-gets-brexite-done-and-unleashes-the-potential-of-the-whole-country>

22 <https://publications.parliament.uk/pa/cm201719/cmselect/cmbeis/1730/1730.pdf>



## ANALYSIS

It is perhaps unsurprising that in a typical year, demand for heat increases during winter. On average, 76% of annual heat demand is consumed in the winter (Q4 and Q1), with just 24% in summer months. Relative to each other, energy demand increases by 218% from summer to winter.<sup>23</sup>

Spending more time at home during cold weather will see higher than normal demand for heating, and weekday patterns of heating (typically on for a few hours in the morning and a few more in the evening) are changed to reflect daytime occupation. Instead, weekend patterns of heating would occur throughout the week, increasing the amount of energy used for heating by 56%.<sup>24</sup>

The additional energy use will inflate heating bills of consumers. However, average increases in heat demand mask the reality for many living in inefficient housing, who face sharper increases in energy bills than families in more efficient homes.

In a normal year, families living in inefficient properties have to run their heating systems more, as a significant amount of heat generated escapes through poorly insulated walls and lofts. Therefore, these households face more expensive heating bills compared with families in energy-efficient properties. This is shown on Graph 1.

During a typical winter, heating bills for a family in an EPC band F-rated home are £187 higher than for an EPC C-rated property, a difference of 64%.<sup>25</sup>



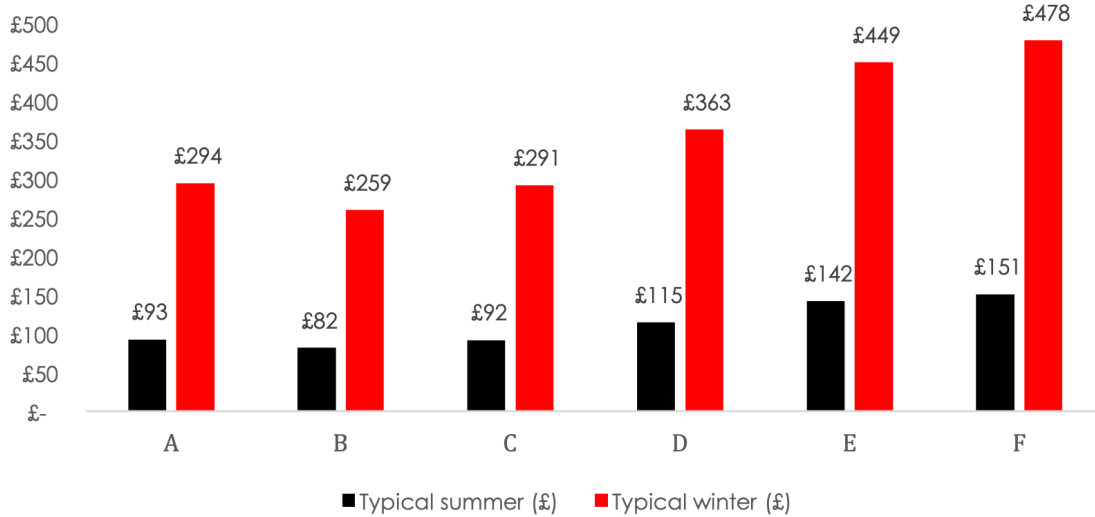
<sup>23</sup> Typically in Q1 and Q4, 116,659 GWh gas is consumed in the residential sector. This represents the winter heating season. Over Q3 and Q4, the summer, 36,649 GWh is consumed (source National Statistics). This represents a 218% increase in gas consumption in the domestic sector between summer and winter.

<sup>24</sup> The weekend heating pattern assumed by the Government's Standard Assessment Procedure (SAP) model is 16 hours on compared to weekday patterns of 9 hours on. However, this is widely viewed as unrealistic so has been reduced to 14 hours on at the weekend in this report. This weekend pattern consumes 56% more heat than the weekday.

<sup>25</sup> Homes in EPC band F have higher gas demand than those in EPC band G because only 12% of homes in EPC band G use gas as their primary energy source, instead opting for another system or fuel source, such as heating oil or coal. It is also likely that a significant proportion of homes in EPC band G use gas as their secondary heating system, explaining the lesser consumption in this band. Due to this discrepancy, the lowest performing homes considered in this work are EPC band F.



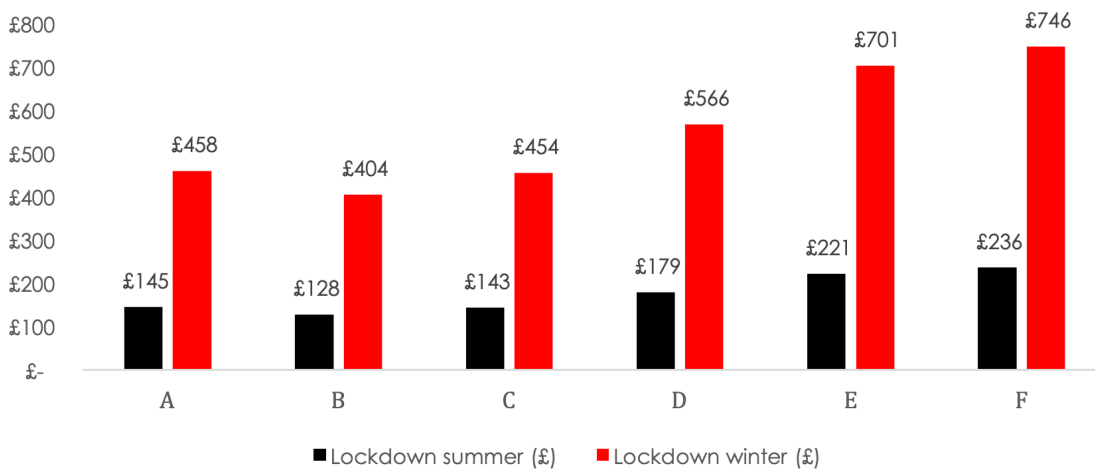
Heating bill cost (£) per season by energy efficiency band



**Graph 1: Heating bills for properties with different efficiency ratings during a normal year. Source: ECIU analysis**

However, increased heat demand associated with a winter lockdown would see this gap widen (Graph 2). Winter heating bills of occupants of leakier (Band F) homes could be £292 more than a band C home. This additional £49 per month cost could be negated if the Government’s goal of upgrading all homes to EPC C was realised.

Heating bill cost (£) per season by energy efficiency band



**Graph 2: Heating bills for properties with different efficiency (EPC) ratings during a lockdown year. Source: ECIU analysis**

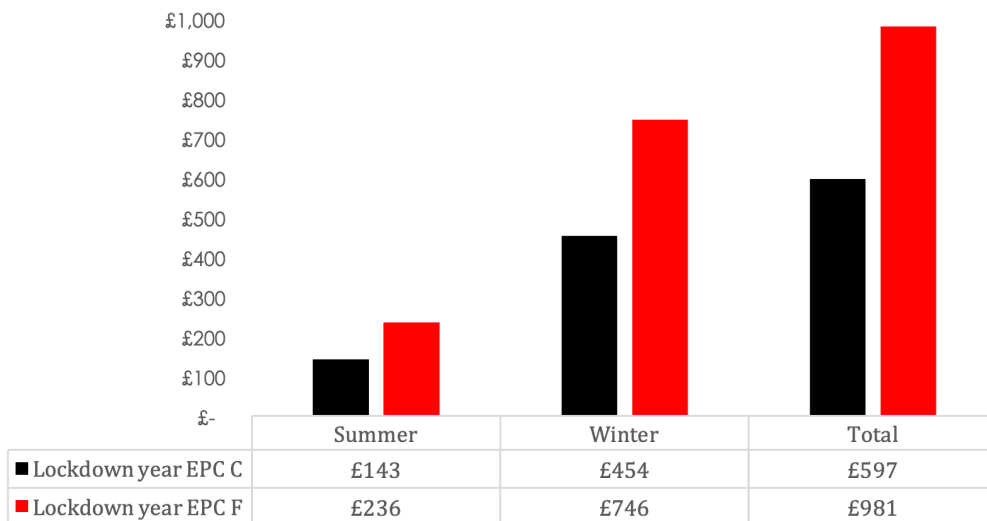
Interestingly, Graphs 3 and 4 show that even with the additional costs associated with a lockdown, winter heating bills for band C homes are still lower than band F properties during a typical winter. This highlights that, while some families may face temporarily higher energy bills, for many homes these higher costs are the normal.

Heating bill costs by EPC rating in a typical year



**Graph 3: Heating bill costs compared during a normal year in a band C home, compared with a band F home. Source: ECIU analysis.**

Heating bill costs by EPC rating in a lockdown year



**Graph 4: Heating bill costs compared during a lockdown year in a band C home, compared with a band F home. Source: ECIU analysis.**

By installing energy efficiency measures, heating costs can be cut dramatically.<sup>26</sup> There are a growing number of calls to incorporate energy efficiency measures into any economic recovery package, a move that will lock in lower energy bills for millions of families, as well as reducing the prevalence of fuel poverty.

## LEVELLING UP

Perhaps not surprisingly, areas with the largest percentage of properties rated bands F and G are also linked to above-average fuel poverty rates (Table 3). For example, in St. Ives in the South West of England, almost a quarter (24%) of all homes are rated bands F or G, while the proportion of households living in fuel poverty is nearly 5 percentage points higher than the national average.

Annual income also tends to be lower in areas with less-efficient homes and higher incidences of fuel poverty. This is particularly true for the South West of England – which comprises seven of the bottom 11 regions in terms of homes rated F and G, and average incomes £6,762 below the national average. The West Midlands and North West also have higher proportions of households in fuel poverty.<sup>27</sup>

Constituency	% C or above	% D or below	% D and E	% F and G	% fuel poor households
St Ives	18%	82%	57%	24%	14.8%
North Cornwall	22%	78%	60%	18%	12.9%
Ludlow	17%	83%	66%	17%	14.3%
Penrith and The Border	21%	79%	62%	17%	14.8%
Camborne and Redruth	24%	76%	60%	16%	12.6%
North Herefordshire	20%	80%	65%	16%	14.3%
Torrige and West Devon	24%	76%	61%	15%	12.3%
South East Cornwall	25%	75%	60%	15%	11.8%
Central Devon	24%	76%	61%	15%	12.1%
Derbyshire Dales	18%	82%	67%	15%	12.8%
Truro and Falmouth	25%	75%	61%	15%	11.7%
<b>England and Wales average</b>	<b>28.4%</b>	<b>71.6%</b>	<b>66.6%</b>	<b>5.0%</b>	<b>10.3%</b>

**Table 3: Parliamentary constituencies with the least efficient housing stock.**

Sources: Centre for Sustainable Energy and BEIS.<sup>28</sup>

<sup>26</sup> <https://www.bi.team/publications/evaluating-the-nest-learning-thermostat/>

<sup>27</sup> [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/882404/annual-fuel-poverty-statistics-report-2020-2018-data.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/882404/annual-fuel-poverty-statistics-report-2020-2018-data.pdf)

<sup>28</sup> <https://www.cse.org.uk/projects/view/1305> and <https://www.gov.uk/government/statistics/income-and-tax-by-parliamentaryconstitu>

There are estimates that to achieve EPC band A or B in all properties across the nation by 2030, an additional 220,000 tradespeople will be needed.<sup>29</sup> This comprises a variety of housing and renovation professionals, such as joiners and plumbers, and also renewable heat specialists and those with expertise in energy efficiency. Importantly, these jobs would be spread across the country encouraging economic growth and employment opportunities in all areas.

However, the coronavirus pandemic risks delaying the Home Upgrade Grants and Public Sector Decarbonisation Schemes, for which funding was set to begin this financial year (FY2020-21).<sup>30</sup> This will likely be detrimental to meeting existing fuel poverty and emissions targets, as well as to job creation.

It is expected that more detail on these efficiency schemes will be provided in the upcoming Energy White Paper, National Infrastructure Strategy, updated Fuel Poverty Strategy and Heat in Buildings Strategy, all due for release in 2020. The findings in this report highlight the urgency for progress on energy efficiency in these documents.

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[ency-2010-to-2011](#)

29 <https://parityprojects.com/net-zero-housing-workforce/>

30 [https://assets-global.website-files.com/5da42e2cae7ebd3f8bde353c/5ddaa257967a3b50273283c4\\_Conservative%202019%20Costings.pdf](https://assets-global.website-files.com/5da42e2cae7ebd3f8bde353c/5ddaa257967a3b50273283c4_Conservative%202019%20Costings.pdf)

## CONCLUSIONS

This report finds that families facing a winter lockdown in leaky homes risk paying £49 per month more to keep warm than families in better insulated properties. For families with stretched finances, or those in or close to falling into fuel poverty, this additional cost could have a significant impact on well-being.

It also highlights higher heating costs that leaky homes bring year after year, with the inflated bills associated with a winter lockdown in an EPC C rated home still lower than typical winter heating costs in an EPC F rated property.

The extension of social distancing guidelines into the winter months, with schools closed and many workers carrying out their jobs remotely will boost domestic heating demand by 56%, with the greatest increase in both energy use and bills borne by families in cold, leaky homes.

Regions of the UK with generally poor energy efficiency levels such as the South West, West Midlands and North West are likely to be more affected by the increases in heating bills. Lower incomes, higher proportions of properties rated bands F and G and increased incidence of fuel poverty mean that many households risk falling into financial difficulties should their energy bills increase.

An absence of effective energy efficiency programmes and falling rates of installation mean that there is a risk that homes are likely to remain poorly insulated and leaky well into years to come. This puts the Government's targets of raising fuel poor homes to EPC Band C by 2030, and all homes by 2035 in England, at risk.

The coming year is crucial for upgrading Britain's leaky homes, with the Government set to deliver four major documents – the Energy White Paper, the National Infrastructure Strategy, updated Fuel Poverty Strategy and the Heat and Buildings strategy. The findings of this report highlight the need for increased efforts to improve the energy performance of millions of British homes.

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