

UK Fuel Poverty Monitor

Executive Summary 2016 - 2017

*A review of progress
across the nations*



Action for Warm Homes

ABOUT THIS REPORT AND ACKNOWLEDGEMENTS

National Energy Action (NEA) and Energy Action Scotland (EAS) are national charities working to end fuel poverty and the illness caused by cold homes across the United Kingdom. NEA and EAS are grateful for the support of the organisations that responded to our call for evidence or more generally assisted us in the production of this year's report. The authors draw on other organisations' reports that are listed in the annexes. We would like to thank all of those that have contributed to the sources that have been cited, however, the views expressed are those of NEA and EAS and do not necessarily represent the views of the organisations that have been referenced in this work.

SUMMARY OF FINDINGS OF FULL REPORT

National Energy Action (NEA) and Energy Action Scotland (EAS) have produced the UK Fuel Poverty Monitor every year since 2003-04¹ allowing progress and activity to tackle fuel poverty to be tracked and compared across the four nations over time. Whilst this publication was delayed due to the General Election², as with previous editions, we provide the latest national fuel poverty statistics³ and an update on the key aspects of policy which impact low income and vulnerable energy consumers or the population at large⁴.

This year's report has a special focus on the impact living in cold, damp conditions has on the most vulnerable members of our society. We note the most at-risk groups continue to be typically older people, children and those with existing long-term illnesses. Whilst UK-wide statistics for fuel poverty are no longer produced⁵ by the UK Government, the last year that they were published in 2015 highlighted that there are over 3.5 million vulnerable households who are unable to heat and power their homes adequately across the UK; an increase of 500,000 compared to the previous year⁶. In addition, even under the relative Low Income High Costs (LIHC) indicator in England, there are 1.8 million vulnerable fuel poor households, again an increase of over 40,000 compared to the previous year⁷.

Our evidence continues to show the increased risk of heart attacks and strokes via rising blood pressure for these households, as well as causing

or worsening respiratory illnesses such as Chronic Obstructive Pulmonary Disease (COPD) and asthma. There is also strong existing evidence that cold homes can worsen arthritic, rheumatic conditions or increase propensity to falls as well. Sadly these households are also most susceptible to premature death. Using the World Health Organisation (WHO)'s estimate that 30% of winter deaths are caused by cold housing⁸, we estimate over 9,600 frail and vulnerable people across the UK are dying needlessly on average throughout the winter months due to cold homes; 80 people per day. This is not acceptable in the fifth largest economy in the world. Worry about high fuel bills and fuel debt also continues to significantly damage mental health, which is affecting an increasing number of households⁹.



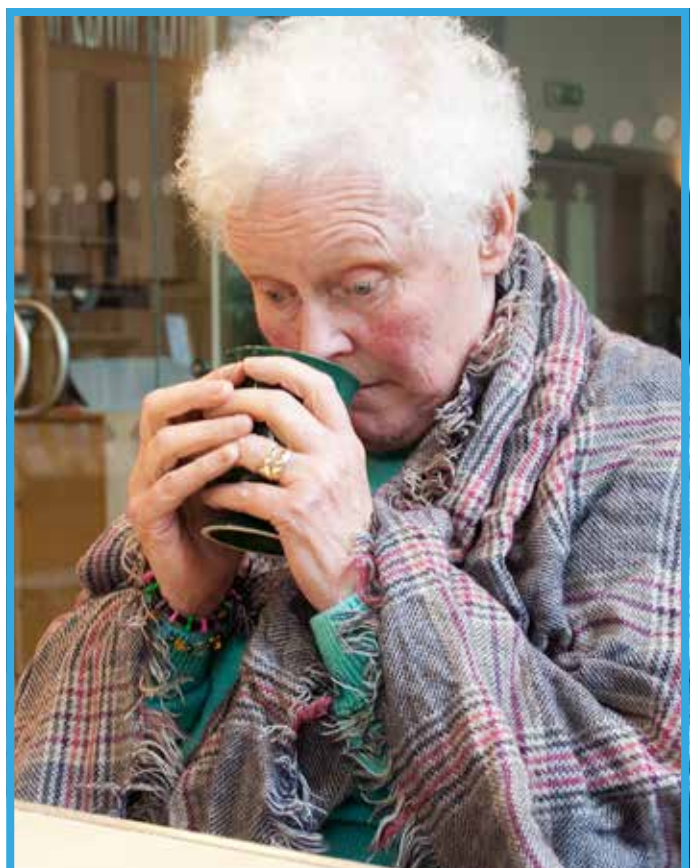
We hope this analysis further highlights the need for an adequate response to address the impacts of cold homes on health, not only to reduce needless suffering but equally to address the cost of inaction. The full report highlights that whilst the total cost of morbidity to health services of damp, cold and energy-inefficient housing across the UK is currently unknown, it is clear that the impacts reduce the operational effectiveness of, and carry significant costs to, the National Health Service (NHS)¹⁰. Conversely, addressing these costs through further action on energy efficiency will help save money. Previous estimates suggest that each £1 invested to enable affordable warmth at home generates 42p in cost savings for the NHS¹¹.

The full report also provides evidence that significant annual savings to the health sector could be achieved with less central government investment if there was greater enforcement within the private rented sector¹² or fuel poverty and health initiatives became a more common part of local health and social care commissioning. Using new analysis from a recent call for evidence, the full report demonstrates how the links between cold homes and health are being acted upon and are already shaping local, national and UK-wide delivery. This underlines that there is a strong recognition of how the cold impacts health and many organisations are already providing leadership and good practice examples of preventative action across all the UK nations. We also highlight how sharing this understanding and replicating these positive outcomes more systematically (either within each nation or across the UK) is possible.

The final section of the report draws out key recommendations which apply to the UK Government, four national governments, their respective departments, local government, and national or local agencies. The actions we propose are ambitious but achievable and start with much greater co-ordination at a local, national and UK level. In the short-term, we believe this could be enhanced by a joint ministerial summit on health and fuel poverty with representatives from across all four nations' governments. The summit should be held

by winter 2017/18 and the outcomes should include a joint public commitment formally recognising the importance of cold homes as a key determinant of ill health. The summit should also seek to establish an ongoing UK-wide taskforce (again with representatives from across all four nations' governments and their respective stakeholders) which would review the actions being taken across the nations in detail – assessing national frameworks, relevant policies and local action - and seek agreement on the key priorities that could be implemented consistently across all nations in the coming winter and beyond.

We also highlight that improved transparency and local data is required. Data and local intelligence is vital to identify households; for tracking progress and addressing gaps in delivery and for sharing best practice approaches. To improve transparency nationally a UK-wide taskforce would assess the overall scale, cost and pressures cold-related morbidity is having on health services and related agencies across the UK nations. The report should include an appraisal of the extent to which any relevant national or local policies reduce these unnecessary costs and the extent to which this is fully captured within the schemes' cost benefit analysis.



Local government and local health bodies must also be held to account for delivering their existing responsibilities and the Public Health England Quality Outcomes Framework indicators for tracking excess winter deaths, fuel poverty and cold-related morbidity that have been developed in England should be available to each nation at a local government and constituency-level and updated each year.

To improve targeting, tailored advice and referrals, the new data-matching opportunities created by the Digital Economy Act must be fully embraced with the new powers allowing local authorities, GP practices, Health and Well-being Boards (HWBs) and Clinical Commissioning Groups (CCGs) or their equivalents across the UK nations to directly access information about the support energy suppliers can provide to eligible households in their area or assist other national fuel poverty schemes. The new data-sharing powers in Great Britain also need to be introduced for all relevant Northern Ireland fuel poverty schemes.

We also call for a more consistent health-warmth delivery framework across the UK and note that an individual's chances of recovery from illness should not be dependent on where and in which country they live. This report shows that the National Institute for Health and Care Excellence (NICE) guidelines are now being interpreted in other UK nations¹³ but more can be done to transpose this blueprint for action consistently at a UK, national and local level. There is also a precious opportunity to help expand on the good practice demonstrated in some local schemes and establish a comprehensive network of registered single-point-of-contact (SPOC) health and housing referral services to help vulnerable people who live in cold homes. This service mapping can help avoid duplication of effort in some localities which could either confuse clients or be less resource-efficient when compared to a system involving central coordination by a relevant body.

Finally, above all, we underline how vitally important it is to ensure the investment in preventative programmes is sufficient to overcome the costs

of inaction. Whilst three out the four UK nations continue to invest in national programmes, currently there is no investment in UK-wide energy efficiency programmes – and GB-wide resources that might help meet the costs of morbidity are declining¹⁴. Reversing these recent trends overall is still a key priority and must be addressed. As a result we highlight that the new United Kingdom Shared Prosperity Fund and the National Productivity Investment Fund should support initiatives to meet fuel poverty commitments across the UK and more generally improve our unhealthy and inefficient housing stock. There are over 12 million homes across the UK that are less efficient than a modern home¹⁵ and over 4.5 million contain households on the lowest incomes¹⁶. The new incoming UK Government must therefore take the opportunity to make sure energy efficiency becomes a vital part of our national infrastructure. This new approach has notable support from a range of organisations¹⁷ and is being implemented in some countries of the UK and no other infrastructure investment can deliver so much.



KEY OBSERVATIONS IN ENGLAND

- Fuel poverty levels have not improved since the last report but the UK Government has recently renewed its commitment to meet statutory fuel poverty requirements
- England remains the only GB nation without a Government-funded energy efficiency scheme to sit alongside the Energy Company Obligation (ECO)
- The commitment to target ECO at those in or at risk from living in a cold home is still to be honoured and the details of the longer-term scheme have yet to be set out or consulted upon
- There is a worrying gap in provision for repairs and replacements for gas boilers and funds are no longer available for first time gas central heating systems
- The worst private rented properties are causing the greatest hardship and the most acute risks for their residents
- Urgent clarity is needed for landlords on how they will be required to meet upcoming energy efficiency requirements from next year and invest in these potentially life-threatening properties

KEY OBSERVATIONS IN NORTHERN IRELAND

- Despite a lack of up-to-date statistics NI has the highest proportion of fuel poverty across the four UK nations
- The Northern Ireland Sustainable Energy Programme (NISEP) has been extended which has sustained some activity however current and future schemes are in hiatus due to wider political uncertainty
- The pressing challenge of low household income is being exacerbated by the unregulated heating oil market
- An update on fuel poverty levels is expected later this year alongside the development of a new fuel poverty strategy

KEY OBSERVATIONS IN SCOTLAND

- Fuel poverty in Scotland has reduced since the last UK Fuel Poverty Monitor report but this is overshadowed by the failure to achieve the statutory duty to eradicate fuel poverty by 2016 as set out in the Housing (Scotland) Act
- The formation of a statutory new duty for fuel poverty eradication, a new strategy, a new fuel poverty definition and new regulations in the private rented sector are still under development and will be finalised 2018
- New powers will allow Scotland to adapt and target UK or GB-wide policies on fuel poor households
- Energy efficiency has been designated as a National Infrastructure Priority by the Scottish Government but the detail of budgets and delivery mechanisms has still to be explained in detail

KEY OBSERVATIONS IN WALES

- Whilst there has been a small decrease in fuel poverty in 2016 compared to 2015, the 2018 target to eradicate fuel poverty won't be met
- There has been a welcome continuation of resources to fund energy efficiency schemes but investment in national programmes needs to be expanded alongside levering in further funding from outside Wales
- Recognition of the impact of cold homes on health with a new Nest scheme offering assistance for low income groups with certain health conditions
- A new long-term strategy for addressing fuel poverty and a new ambitious fuel poverty target are required

SUMMARY OF THE EVIDENCE ON THE LINK BETWEEN COLD HOMES & HEALTH AND WELL-BEING

There have been a substantial number of studies carried out to examine the relationship between fuel poverty, cold homes and health. Whilst it is difficult to conclusively identify the direct, causal pathways of this relationship¹⁸, the strong association between cold homes and health has been repeatedly evidenced by many academics^{19 20 21}. Amongst the key findings from the existing wide body of research reviewed about the effects of cold on health and well-being, we highlight the following points:

The impact of winter on respiratory and cardiac conditions

- According to a 2011 report from the World Health Organisation, deaths from cardiovascular diseases are directly linked to exposure to excessively low indoor temperatures for long periods²²
- 50-70% of excess winter deaths are attributed to cardiovascular conditions, and some 15-33% to respiratory disease. As a result, the WHO estimates that 30% of winter deaths are caused by cold housing²³
- It is now also widely accepted that cardiovascular and respiratory diseases are caused or exacerbated by living in cold conditions; for every 1°C drop in temperature below 5°C, GP consultations for respiratory illness in older people increase by 19% and a 1°C drop in living-room temperature results in a rise in blood pressure amongst those aged 65-74²⁴
- People with Chronic Obstructive Pulmonary Disease (COPD) are four times more likely to be admitted to hospital with respiratory problems over the winter²⁵
- Vulnerability to dying from ischaemic heart disease and cerebrovascular disease increases significantly when the temperature drops²⁶

- Increased levels of clotting molecules in the blood during the winter months accounts for a 9-15% rise in coronary heart disease²⁷
- Indoor dampness and mould are associated with increased risk of asthma, dyspnea, wheezing, coughing, respiratory infections, bronchitis, allergic rhinitis and upper respiratory tract symptoms²⁸
- Contact with mould spores may cause allergic reactions including hay fever-type symptoms, such as sneezing, runny nose, red eyes, and skin rash like dermatitis and eczema²⁹

Mental health and well-being

The health impacts of living in a cold home are not just physical, but can also greatly impact upon mental health and well-being.^{30 31 32 33}

- Currently, more than one in four adolescents living in cold housing are at risk of multiple mental health problems³⁴
- Being unable to keep warm at home and being in fuel debt have been identified as independent predictors of Common Mental Disorder (CMD)³⁵
- Being cold at home has also been independently and significantly associated with the likelihood of a young person suffering 4 or more negative mental health outcomes³⁶
- Cold homes impact upon other avenues of life necessary for good health. For example, paying for energy might mean that a household spends less on food,^{37 38 39} running the risk of reduced calorific intake, malnutrition, and limited weight gain in infants^{40 41 42 43}

The importance of energy efficiency

- Initial evaluation findings from the Nest scheme in Wales show those people receiving heating and insulation measures benefited from a drop in

GP interventions for respiratory illness (c.4%) and asthma (c.6.5%)⁴⁴

- In areas with poor central heating coverage, mortality rates increase more rapidly when the outdoor temperature falls⁴⁵
- People living in the coldest quarter of homes are 20% more likely to die during the winter than those in the warmest quarter^{46 47}
- In one detailed study in the South West of England home energy improvements were associated with an 80% decrease in the rate of sickness absence from school for children with asthma and recurrent respiratory infections⁴⁸
- Evaluation of the Warm Front scheme found that 70% of households who increased indoor temperatures to WHO levels did not have an increased 'mortality risk' when outdoor temperatures dropped. But the mortality risk for those without improved comfort worsened by 2.2% with every 1°C fall in outdoor temperatures⁴⁹
- 9% of hypertension in Scotland could be prevented by maintaining indoor temperatures above 18°C⁵⁰

We know from this evidence and wider sources that living in cold, damp conditions can increase the risk of heart attacks and strokes via rising blood pressure, as well as causing or worsening respiratory illnesses such as COPD and asthma. They can worsen arthritic and rheumatic conditions, as well as potentially leading to increased propensity to falls. They also cause and significantly contribute to poor mental health. The most at-risk groups are typically older people, children and those with existing long-term illnesses. Whilst UK-wide statistics for fuel poverty are no longer produced, the last year that they were available highlighted that across the UK over 3.5 million vulnerable households were unable to heat their homes adequately across the UK, an increase of 500,000 compared to the previous year⁵¹.

In addition, even under the relative LIHC indicator in England, there are 1.8 million vulnerable fuel poor households, again an increase of over 40,000 compared to the previous year⁵². As illustrated in the table below, using the WHO estimate that 30% of winter deaths are caused by cold housing, over 9600 people across the UK are dying needlessly on average throughout the winter months due to cold homes; 80 people per day. This is not acceptable in the fifth largest economy in the world.



RECOMMENDATIONS AND NEXT STEPS TO END ILL HEALTH & DEATH CAUSED BY THE COLD HOMES CRISIS

As well as unnecessary costs and acute suffering, the report has demonstrated cold housing is costing over 9,600 people their lives across the UK each year. This is not acceptable in the fifth largest economy in the world. NEA and EAS make the following recommendations to national and local governments, local and national health bodies and others. Our goal is ambitious but simple: an end to ill health and death caused by the cold homes crisis.

A UK-wide recognition of the impact of cold homes on health

In order to underline the severity of the current situation, all four nations' governments must come together and put aside any political differences and establish how they can enhance greater co-ordination at a local, national and UK level. Whilst fuel poverty and health will continue to be devolved issues, there is an opportunity to develop a more coherent response to avoid unnecessary ill health or premature death. Two clear actions can help deliver this outcome:

1. In the short-term, a joint ministerial summit should be arranged with representatives from across all four nations' governments by Winter 2017/18. The outcome of this should include a joint public commitment formally recognising the importance of cold homes as a key determinant of ill health. The statement should also hold relevant national departments, local government and competent bodies to account for reducing cold-related premature mortality and the public costs of inaction.
2. The summit should seek to establish an ongoing UK-wide taskforce (again with representatives from across all four nations' governments and their respective stakeholders) which would review the actions being taken across the nations in detail – assessing national frameworks, relevant policies and local action

- and seek agreement on the key priorities that could be implemented consistently across all nations in the coming winter and beyond.

Improved transparency and local data

Data and local intelligence is vital to identify households; for tracking progress and addressing gaps in delivery and for sharing best practice approaches.

1. The UK-wide taskforce should develop a detailed assessment of the overall scale, cost and pressures cold-related morbidity is having on health services and related agencies across the UK nations.
2. The report should include an appraisal of the extent to which any relevant national or local policies reduce the unnecessary cost of cold homes and the extent to which this is fully captured within these programmes' cost benefit analysis. This analysis should be disseminated to the policy makers who took part in the original joint ministerial summit and made publicly available.
3. UK-wide standardisation of these reporting metrics would greatly assist transparency, help target delivery and crucially enable local commissioners to assess the effectiveness of existing schemes. Local government and local health bodies must also be held to account for delivering their existing responsibilities. For example, the Public Health England Quality Outcomes Framework indicators for tracking excess winter deaths, fuel poverty and cold-related morbidity that have been developed in England should be available to each nation at a local government and constituency level and updated each year.
4. To improve targeting, tailor advice and establish effective referral routes the new data-matching

opportunities created by the Digital Economy Act must be fully utilised⁵³. The new powers must allow local authorities, GP practices, Health and Well-being Boards (HWBs) and Clinical Commissioning Groups (CCGs) or their equivalents across the UK nations to directly access information about the support energy suppliers can provide to eligible households in their area or assist other national fuel poverty schemes.

5. To ensure that the intended benefits from the Digital Economy Act can be delivered for all UK households, the new data-sharing powers in Great Britain should be adopted for all relevant Northern Ireland fuel poverty schemes.

A consistent health-warmth delivery framework across the UK

An individual's chances of recovery from illness should not depend on where and which country they live in. This report shows that the NICE guidelines for England are now being replicated in other UK nations. However, progress to establish these replicable frameworks must be achieved consistently at a UK and national level as well as locally. Whilst recognising how NICE guidelines might apply across other UK nations is a matter for the devolved administrations (and health powers more generally are delegated), the NICE framework should be transposed systematically. Where key actions or equivalents are not adopted, there should be an explanation given by the relevant national bodies responsible for public health. There is also an opportunity to help expand on the good practice demonstrated in some local schemes and establish a comprehensive network of registered single point-of-contact (SPOC) health and housing referral services to help vulnerable people who live in cold homes. The following supportive actions are required:

1. The Scottish Government should create formal links between fuel poverty, energy efficiency delivery and the health sector, including building on the Scottish Public Health Network guidance and this should feature in the new fuel poverty strategy.

2. The new Public Service Boards for every local authority area in Wales should outline how they intend to address cold homes and fuel poverty in their first Local Well-being Plans next year.
3. In Northern Ireland, health must play an upfront and central role in the new Outcome Based Programme for Government (2016-2021) and this will require close alignment with the proposed action for a new Fuel Poverty Strategy.
4. Annual registration for SPOCs could be set up by respective government departments; a related agency such as the UK Public Health Register (UKPHR) or, with suitable funding, a third party. This updated information could then be shared with wider relevant national or local bodies to ensure help is delivered efficiently and gaps in provision are addressed.

Resources must reflect the costs of not taking action

The report has underlined the current scale of cold homes is needlessly costing health services and tax payers billions of pounds. Instead of treating the symptoms of cold homes we should address the causes. There are over 12 million homes across the UK that are less efficient than a modern home built today⁵⁴; over 4.5 million contain those households on the lowest incomes. The incoming UK Government must therefore take the opportunity to make sure energy efficiency is a vital part of our national infrastructure. This new approach has notable support from a range of organisations⁵⁵, is being implemented in some countries of the UK and no other infrastructure investment can deliver so much. However, currently there is no investment in UK-wide energy efficiency programmes – and GB-wide resources that might help meet the costs of inaction are even declining. Reversing these recent trends overall is still a key priority.

1. We welcome the emergence of health-based eligibility criteria in some aspects of energy efficiency delivery policy. But devolved and UK policy-making must ensure that vulnerable households in fuel poverty with a relevant health

condition are adequately prioritised for activity in all relevant energy efficiency schemes. It is also important that the customer journey reflects their enhanced needs.

2. England is now the only GB nation without a Government-funded energy efficiency scheme to sit alongside ECO. To cover the heating shortfall during the ECO transition scheme, immediate funds should be made available for crisis heating repairs, replacements and to protect fuel poor, off-gas households whose health is at risk. The Welsh Government should also further protect vulnerable households with a crisis fund for emergency heating repairs and replacements for fuel poor households that fall outside of the NEST scheme when their health is at risk.
3. The UK Government must act on the strong case for domestic energy efficiency to be regarded as a hugely important infrastructure priority as part of the National Infrastructure Commission's National Infrastructure Assessment this year –

as is the case already in Scotland. This would help unlock access to public infrastructure funding such as the new National Productivity Investment Fund or alternative structural funds such as the United Kingdom Shared Prosperity Fund. Both of these ring-fenced budgets can help the UK and national Governments meet their fuel poverty targets and more generally improve our unhealthy and inefficient housing stock.



SOURCES AND FURTHER INFORMATION

1. To view the previous editions please visit: http://www.eas.org.uk/en/uk-fuel-poverty-monitor_50608/
2. The General Election campaign period highlighted strong support for ambitious action on fuel poverty and the respective manifestos highlighted a strong cross-party consensus on the need for greater investment to improve energy efficiency. The Conservative Party announced that as well as protecting more customers from unfair bills, they will meet the existing commitment to upgrade all fuel poor homes to a reasonable standard of energy efficiency by 2030. They also announced they will mean test Winter Fuel Payments for wealthier pensioners to improve social care. The Labour Party committed to insulate 4 million homes to help 'those who suffer in cold homes each winter'. They also pledged homeowners will be offered interest free loans to improve the efficiency of their properties and to re-establish the Landlord Energy Saving Allowance so taking up energy efficiency improvements in the private rented sector is adequately encouraged alongside tougher national minimum energy efficiency standards. Liberal Democrats, Plaid Cymru, the Scottish Nationalist Party (SNP), the Green Party and UK Independence Party all committed to other actions which can help end fuel poverty.
3. Prior to 2013 there were only limited differences in the overall approach to how fuel poverty was defined and modelled within the nations. In Scotland for example, there was a more stringent interpretation of a satisfactory heating regime for vulnerable households which meant these groups were assumed to require a higher temperature to reach an adequate standard of warmth in their homes. The methodology applied to Wales and Northern Ireland differed to a lesser extent and was based on a very similar methodology to England. However, following the findings of the Independent Review of Fuel Poverty in England led by Professor John Hills in July 2013, the UK Coalition Government modified the timetable to address fuel poverty in England and simultaneously confirmed that they would modify the common definition of fuel poverty with a new measurement, specific to England, with immediate effect. The 'new' measurement of fuel poverty under the Low Income High Cost (LIHC) measure is explained fully further into this report and the definition based on the 10% measurement is still used in Wales, Scotland and Northern Ireland.
4. Whilst much of the UK's energy policy is assumed to be a devolved matter, in reality, certainly across Great Britain, the policy mechanisms to address fuel poverty represent a complicated mix of devolved and reserved powers and responsibilities. The purpose of the UKFPM is therefore to scrutinise relevant policy areas where the national governments and assemblies across the UK have adopted various approaches in addressing fuel poverty and the impact felt by UK Government policy across the UK.
5. Until 2016, the UK Government continued to provide a UK wide estimate of the number of fuel poor households under the 10% indicator of fuel poverty and provided a breakdown of whether these households were classed as vulnerable. This followed a commitment to continue to report under the previous indicator to track progress within the UK Government's response to the Hills' Review.
6. Annual Fuel Poverty Statistics Report 2015, DECC, page 76. Please note the time lag in publication of official fuel poverty statistics, generally around two years between collection and publication, means that these estimates are not for 2015 but 2012.
7. Annual Fuel Poverty Statistics Report, DECC, 2016, page 47.
8. Environmental burden of disease associated with inadequate housing: A method guide to the quantification of health effects of selected housing risks in the WHO European Region, Edited by Braubach Jacobs Ormandy and primary research by Janet Rudge, World Health Organization 2011, page 81.
9. The average amount of debt owed by domestic customers who have a debt repayment arrangement set up between Q3 2012 and Q1 2016 has increased by circa £75 in this period.
10. Peters, J. and Stevenson, M. (2000) Modelling the health cost of cold housing. In Rudge, J., Nicol, F. (Eds.), Cutting the Cost of Cold: Affordable warmth for healthier homes. Taylor & Francis, London.
11. Friends of the Earth and Marmot Review Team, 2011, The Health Impacts

- of Cold Homes and Fuel Poverty. Available at: http://www.foe.co.uk/sites/default/files/downloads/cold_homes_health.pdf [Accessed 06/03/2017]
12. Mason, V., Roys, M., 2011. The Health Costs of cold dwellings. Building Research Establishment, Watford
 13. NICE's guidelines are officially England-only and decisions on how their guidance applies across other UK nations is made by the devolved administrations.
 14. The delivery of home energy efficiency improvements which has reduced by an average of 75% compared to 2008-2012. See: CCC, Meeting Carbon Budgets – 2016 Progress Report to Parliament, June 2016 which highlighted annual rates of cavity wall and loft insulation in 2013-2015 were 60% down and 90% down respectively on annual rates in 2008-2012.
 15. A modern home usually has an Energy Performance Rating Certificate of EPC band C or above. The numbers of existing homes below this threshold provided are from E3G.
 16. 'Low income' is defined as less than 60% of median equivalised income after housing costs and fuel costs.
 17. See: Effective Policy Efficient Homes, Confederation of British Industry (CBI) 2015, p2; Better Homes: Incentivising Home Energy Improvements, Hall and Caldecott 2016, p27; Too Hot to Handle? How to decarbonise domestic heating, Howard and Bengherbi 2016, p.14; A report on initial positions, Committee on Fuel Poverty 2016, p4 and After the Green Deal: Empowering people and places to improve their homes, recommendation 5, Rosenow and Sagar 2015.
 18. Shortt, N. and Rugkåsa, J. 2007. "The walls were so damp and cold" Fuel Poverty and Ill Health in Northern Ireland: Results from a housing intervention. *Health and Place*. 13 (1) pp. 99-110. (page 100)
 19. Liddell, C. and Morris, C. 2010. Fuel poverty and human health: a review of the recent evidence. *Energy Policy*. 38, pp. 2987-97 (page 2995)
 20. Thomson, H. Thomas, S. Sellstrom, E. and Petticrew M. 2013. Housing improvements for health and associated socioeconomic outcomes (Review). The Cochrane Collaboration. Published by John Wiley & Sons, Ltd
 21. Boardman, B. Introduction. In: Rudge, J., Nicol, F. (Eds.), *Cutting the Cost of Cold: Affordable warmth for healthier homes*. Taylor & Francis, London (page 4)
 22. Reference from 2015 report, ref 61
 23. Reference from 2015 report, ref 62
 24. Hajat S, Kovats RS and Lachowycz K (2007) Heat-related and cold-related deaths in England and Wales: who is at risk? *Occupational and Environmental Medicine*, 64(2), pp.93-100.
 25. Public Health England, 2014b. Cold weather Plan for England. Making the case: why long-term strategic planning for cold weather is essential to health and wellbeing. Crown Copyright.
 26. Donaldson GC, Robinson D, Allaway SL. 1997. An analysis of arterial disease mortality and BUPA health screening in men, in relation to outdoor temperature. *Clinical Science*; 92: 261-68.
 27. Woodhouse PR et al. 1994. Seasonal variations of plasma fibrinogen and factor VII in the elderly: winter infections and death from cardiovascular disease. *The Lancet*; 343: 435-39.
 28. Respiratory and Allergic Health Effects of Dampness, Mold, and Dampness-Related Agents: A Review of the Epidemiologic Evidence, Mark J. Mendell, Anna G. Mirer, Kerry Cheung, My Tong and Jeroen Douwes, January 2011.
 29. A Brief Guide to Mold, Moisture, and Your Home, U.S. Environmental Protection Agency (EPA), September 2010.
 30. Evidence Review & Economic Analysis of Excess Winter Deaths for the National Institute for Health and Care Excellence (NICE). Review 1: Factors determining vulnerability to winter- and cold-related mortality/morbidity. London School of Hygiene & Tropical Medicine, Public Health England, University College London
 31. Press, V. (2003) Fuel poverty + health: A guide for primary care organisations, and public health and primary care professionals. National Heart Forum: London
 32. Friends of the Earth and Marmot Review Team, 2011, The Health Impacts of Cold Homes and Fuel Poverty. Available at: http://www.foe.co.uk/sites/default/files/downloads/cold_homes_health.pdf [Accessed 06/03/2017]
 33. Public Health England, Sept 2014, Local action on health inequalities: fuel poverty and cold home-related health problems. *Health Equity Evidence Review* 7
 34. Marmot Review Team (2011), The Health Impacts of Cold Homes and Fuel Poverty. Friends of the Earth and the Marmot Review Team.
 35. Harris, J. Hall, J. Meltzer, H. Jenkins, R. Oreszczyn, T. and McManus, S. 2010. Health, mental health and housing conditions in England. National Centre for Social Research: London.
 36. Liddell, C. (2008) 'Policy Briefing – The Impact of Fuel Poverty on Children'. Belfast: Ulster University & Save the Children. Available at: <http://tinyurl.com/STC-Policy-Briefing-FP> [Accessed 06/03/2017]; and Barnes, M. et al., (2008). The Dynamics of Bad Housing : The Impacts of Bad Housing on the Living Standards of Children. London : National Centre for Social Research.
 37. Anderson, W. White, V. and Finney, A. 2010. "You just have to get by" Coping with low incomes and cold homes. Centre for Sustainable Energy. Available at: https://www.cse.org.uk/downloads/reports-and-publications/fuel-poverty/you_just_have_to_get_by.pdf [Accessed 06/03/2017]
 38. Beatty, T. Blow, I. and Crossley, T. 2011. Is there a heat or eat trade off in the UK? London: Institute of Fiscal Studies.
 39. Anderson, W. White, V. and Finney, A. 2010. "You just have to get by" Coping with low incomes and cold homes. Centre for Sustainable Energy. Available at: https://www.cse.org.uk/downloads/reports-and-publications/fuel-poverty/you_just_have_to_get_by.pdf [Accessed 06/03/2017]
 40. Cooper, N., Purcell, S., and Jackson, R. 2014, Below the breadline: The relentless rise of food poverty in Britain, Church Action on Poverty, Oxfam, The Trussell Trust
 41. Public Health England. 2014. Cold weather Plan for England. Making the case: why long-term strategic planning for cold weather is essential to health and wellbeing. Crown Copyright.
 42. Bhattacharya J, DeLeire T, Haider S and Currie J (2003) Heat or Eat? Cold Weather Shock and Nutrition in Poor American Families. *American Journal of Public Health*, 93(7), pp.1149-1154.
 43. Friends of the Earth and Marmot Review Team, 2011, The Health Impacts of Cold Homes and Fuel Poverty, http://www.foe.co.uk/sites/default/files/downloads/cold_homes_health.pdf
 44. Findings Report No.1: initial findings on the impact on Health of the Warm Homes Nest Scheme, Welsh Government, April 2017.
 45. Khaw K-T. 1995. Temperature and cardiovascular mortality. *The Lancet*; 345: 337-38.
 46. Public Health England, 2014b. Cold weather Plan for England. Making the case: why long-term strategic planning for cold weather is essential to health and wellbeing. Crown Copyright.
 47. Wilkinson P, Landon M, Armstrong, B, Stevenson S, Pattenden S, McKee M and Fletcher T (2001) Cold Comfort: The Social and Environmental Determinants of Excess Winter Deaths in England, 1986-96. Bristol: The Policy Press
 48. Somerville Metal. 2000. Housing and health: does installing heating in their homes improve the health of children with asthma? *Public Health*; 114, 434-39.
 49. Green G and Gilbertson J (2008) Warm front: better health: Health impact evaluation of the warm front scheme. Sheffield: Sheffield Hallam University, Centre for Regional Social and Economic Research.
 50. Shiue, I. & Shiue, M., 2014. Indoor temperature below 18°C accounts for 9% population attributable risk for high blood pressure in Scotland In: *Int J Cardiol*. 2014 Jan 15;171(1):e1-2.
 51. Annual Fuel Poverty Statistics Report 2015, DECC, page 76. Please note the time lag in publication of official fuel poverty statistics, generally around two years between collection and publication, means that these estimates are not for 2015 but 2012.
 52. Annual Fuel Poverty Statistics Report, DECC, 2016, page 47
 53. This would enable local public sector organisations, without the involvement of an energy supplier, match existing information these public sector bodies already hold on health conditions with what support the household is entitled to this would mean local authorities and GPs etc will have greater certainty that those referred will go onto receive support. This data-matching process would also support local affordable warmth programmes to secure funding from HWBs, CCGs and others (either on an individual or aggregated basis).
 54. The numbers provided are from E3G. 'Low income' is defined as less than 60% of median equivalised income after housing costs and fuel costs.
 55. NEA was a member of the Energy Bill Revolution; an alliance of children's and older people's charities, health and disability groups, environment groups, consumer groups, trade unions, businesses, politicians and public figures. See: <http://www.energybillrevolution.org/whos-behind-it/>. In addition, other organisations have noted this key opportunity; Better Homes: Incentivising Home Energy Improvements, Hall and Caldecott 2016, p27; Too Hot to Handle? How to decarbonise domestic heating, Howard and Bengherbi 2016, p.14; A report on initial positions, Committee on Fuel Poverty 2016, p4; After the Green Deal: Empowering people and places to improve their homes, recommendation 5, Rosenow and Sagar 2015; Effective Policy Efficient Homes, Confederation of British Industry (CBI) 2015, p2 and CCC, Meeting Carbon Budgets – 2016 Progress Report to Parliament, June 2016. More recently that investment in energy efficiency targeted at fuel poverty must double.



Action for Warm Homes

© NEA 2017

NEA is the national fuel poverty charity.

Registration No. 290511. www.nea.org.uk