

National Energy Action (NEA) response to the National Infrastructure Commission's Interim National Infrastructure Assessment



Action for Warm Homes

Background to NEA

NEA works to end fuel poverty and undertakes key research, national and local advocacy and works with partners from local and national government, industry and the third sector to deliver practical solutions to improve the quality of life for those living in cold homes¹.

To achieve this we aim to improve access to energy and debt advice, provide training, support energy efficiency policies, local projects and co-ordinate other related services which can help change lives. Our subsidy Warm Zones is a not-for-profit Community Interest Company that also aims to work in partnership in various locations across the country to deliver integrated packages of energy efficiency measures, benefits and energy advice².

Throughout 2016-17, NEA awarded £18 million of grants to support new & innovative approaches to tackling fuel poverty in local communities, helping to deliver 44 Projects in 2166 households. We have trained a massive 5325 people who will cascade their knowledge to an estimated 1.34 million people³. Through Warm Zones we have also delivered energy efficiency measures to 4303 households⁴.

NEA also provides the secretariat for the All-Party Parliamentary Fuel Poverty & Energy Efficiency Group to raise awareness of the problem of fuel poverty and the policies needed to eradicate it⁵.

Introduction

NEA warmly welcomes the publication of the National Infrastructure Commission's (NIC) interim National Infrastructure Assessment (NIA). The United Kingdom currently has one of the highest rates of fuel poverty and the least energy efficient housing stocks in Europe⁶. Alongside the UK Government's recent Clean Growth Strategy, the interim NIA rightly identifies the need to urgently address the energy wastage in UK homes and states dramatically enhancing energy efficiency must be a key national infrastructure priority.

As well as saving energy consumers money, this welcome approach can create economic growth throughout the UK, reduce needless emissions (including carbon dioxide and other dangerous air particulates), ensure homes are fit for human habitation and consequently help reduce other needless costs, in particular to both health and social care services. Within this response NEA therefore hopes NIC will ensure domestic energy efficiency is retained as a key priority within the final NIA and states clearly that it also supports the strong case for the re-introduction of adequate central investment, where appropriate.

Urgently delivering on these priorities is essential if the UK is to reach the ambitions presented within existing statutory targets, is to fully capture the on-going environmental and economic benefits this approach creates at the same time as ending the needless cost and suffering the extremes of fuel poverty continues to prompt.

Key points in this response

1. NEA seeks to ensure domestic energy efficiency is retained as a key priority within the final National Infrastructure Assessment. NIC must also clearly state that it recognises the need for the re-introduction of adequate central investment by the UK Government, where appropriate. This will ensure highly cost effective ways of reducing carbon emissions and creating energy

savings are not made more costly to deploy as well as helping to reduce other needless costs in the energy sector or to health and social care services.

2. Whilst NEA is urging the UK Government to take responsibility for fully monetising the benefits of meeting both statutory fuel poverty and carbon reduction commitments, NIC can also help underline these multiple benefits within the final NIA. This crucial evidence must be used to support the strong case for the reintroduction of central investment to help fund domestic energy efficiency programmes overall, especially for those in or at risk of fuel poverty.
3. In order to quickly deliver progress against the benefits this prompts in an economically and socially sustainable way, NIC should also state clearly that existing domestic energy schemes can be better targeted on those that need the most help to reduce their high energy costs, i.e. those in or at risk of fuel poverty. For example, NEA supports the extension to the Energy Company Obligation (ECO) scheme out to 2028 (with a review in 2022) provided this support is

targeted on those that need the most help from September 2018. NEA also highlights the opportunity for the Renewable Heat Incentive (RHI) to be better targeted at those in or at risk of fuel poverty up to 2021. We also stress that both the re-targeting of ECO and greater access to the RHI were recommended by the Climate Change Committee (CCC) and the Committee for Fuel Poverty (CFP) in their advice to the UK Government on how to meet carbon budgets and mitigate impacts on fuel poverty levels. It is critical NIC recognise these other key Non-Departmental Public Bodies (NDPBs) own advice to the UK Government when setting out the final NIA as well as the need to meet both fuel poverty and carbon statutory requirements.

4. NEA also highlights another immediate opportunity to deliver early progress on enhancing domestic energy efficiency is for NIC to state their support for urgently improving conditions in the Private Rented Sector (PRS). The Department for Business, Energy and Industrial Strategy (BEIS) have recently enhanced co-operation with the Department for Communities and Local Government (DCLG) on this key area. For example, NEA has recently welcomed the publication of the overdue consultation on improving current Private Rented Sector (PRS) regulations and the Clean Growth Strategies' aim to set a new target for the PRS to reach EPC band C by 2030, bringing the whole PRS into line with the fuel poverty targets (in England and Wales). NEA fully supports this move and stresses there is a strong business case for landlords to invest their own funds to improve these properties, particularly the least efficient homes which fail mandatory safety requirements. NIC should therefore state that landlord should be required by Government to fund energy efficiency improvements up to a cost cap of £5,000 per property to bring as many properties up to EPC band E in time for April 2018 and highlight their own support for the new EPC band C by 2030 target.
5. NEA insists as well as addressing fuel poverty specifically, local authorities have a key role to play in reducing domestic carbon emissions, reducing air pollution and facilitating public health responsibilities linked to energy efficiency. Taking joined up action in these areas will also help harness the purchasing power of large towns and cities, drive more optimal area-based solutions and create a stronger local business infrastructure. This will also capture local opportunities to enhance the overall efficiency of deploying the right technical solutions in the right localities. NEA therefore urges NIC to build on their analysis of the success the Devolved Nations have had at improving domestic energy efficiency levels. NEA believes that the best way of capturing this opportunity in England is to replicate the Scottish Government's Warmer Homes Scotland scheme and local authorities' Area Based Schemes, alongside ECO. NEA also urges NIC to recommend the UK Government support and resource civic leaders and local authorities to continue to take local action under the Home Energy Conservation Act and actively encourage energy efficiency to be a prominent part of city-wide devolution deals.
6. NIC should ensure there is greater oversight of how CIL/S106/off-set funds are invested locally and encourage local councils to use these resources to support energy efficiency initiatives that make homes warmer and healthier and in turn encourage economic growth.
7. NEA supports NIC's attempt to identify the impact Brexit will have on infrastructure opportunities. In this context, NEA suggests NIC should recommend the 2030 Energy Saving Target and all related EU energy efficiency requirements should continue to be transposed in the UK. The Department for Business, Energy and Industrial Strategy and the regulators Ofgem and Northern Ireland Authority for Energy Regulation (NIAER) also should run their own call for evidence to clarify the impact and opportunities of Brexit in the energy sector.
8. The UK Government's Clean Growth Strategy rightly notes other UK nations also still have statutory fuel poverty eradication targets based on the 10% indicator⁷ and commits to assessing the impacts the individual policies outlined in the Strategy⁸ could have on fuel poverty as part of its implementation. It is crucial this commitment is honoured and this principle is also applied to the final NIA. NEA also stresses NIC should continue to press the UK to mirror energy efficiency as an infrastructure priority consistently across the whole of the UK and unlock further access to national, UK or GB-wide funding. NEA is also calling on NIC to recommend to the UK Government they work with the devolved nations to make the energy efficiency band C requirement a UK wide goal. Whilst fuel poverty and energy efficiency is a devolved issue and some nations may want to go further, faster; this approach would be welcomed by the DAs and act as a key back-stop date. It should also be noted that many of the drivers for energy efficiency are based on the GB-wide ECO, and the reductions to this programme have had a significantly negative impact, particularly in tackling the efficiency of hard to treat homes.

Current conditions and commitments which must inform the final NIA

Low wages and sluggish growth mean many of the poorest UK households are in-work but still struggle to afford the increasing cost of living, including heating and powering their homes⁹. Fuel poverty mirrors this trend with 47% of fuel poor households in full or part-time work¹⁰. A weaker Pound following the EU referendum has also caused inflation to rise and the subsequent increase in the cost of consumer goods and services has outstripped rises in average earnings. As such, both wages and living standards are falling in real terms for millions of hard pressed, hard working UK households¹¹.

As well as the impact of low household income and general inflation, higher energy prices also continue to badly impact the economy; curtailing growth and further increasing inflation¹². This squeezes spending on other essential goods and services¹³ pushing many into further debt¹⁴ and increasing the risk of self-disconnection. As seen above, the greatest impacts of rising energy costs are disproportionately felt by some of the most vulnerable people in our society. Between 2004 and 2014 average annual domestic gas prices soared by over 125% and domestic electricity prices increased by over 75%¹⁵. In the last year all major suppliers have announced further price increases¹⁶. In addition to further targeted action on energy prices which are already planned by the UK Government and the energy regulator (Ofgem), during the Coalition Government NEA welcomed the energy efficiency based Fuel Poverty (England) Regulations 2014 which are a legal requirement the UK Government is still bound by¹⁷. More recently, NEA also welcomed that these commitments were reaffirmed in both the Conservative Manifesto¹⁸ and the Clean Growth Strategy¹⁹. As a result, the UK Government is still dedicated to ensuring fuel poor homes in England achieve a minimum energy efficiency rating of Band C by 31 December 2030 - broadly the same energy efficiency performance as a modern home²⁰.

Beyond ending the individual suffering caused by fuel poverty, the Clean Growth Strategy recognises delivering these energy efficiency based fuel poverty targets will contribute towards achieving other UK Government objectives; a successful industrial strategy²¹, supporting small business growth in every region and achieving carbon emissions reductions²². Delivering these targets will also help improve local air quality²³, reduce health and social care costs²⁴ and provide real benefits to households who are struggling financially²⁵. Currently however the fuel poverty commitments were not referenced by the interim NIA despite the fact this is a statutory requirement and only 10% of fuel poor households meet the band C requirement in England. Whilst progress is being made towards two fuel poverty strategy 'milestones'²⁶ based on current delivery there will still be around 175,000 fuel poor households living in Band F and G properties in England by 2020. Many of the fuel poor households in the worst Band F and G properties will be suffering from the worst extremes of fuel poverty and have annual fuel needs well in excess of £1,000 per year above those not living in poverty²⁷.

Monetising the benefits to secure adequate resources

Overall NEA seeks to underline our support to NIC (and more recently, the UK Government) for recognising the economic, environmental and social benefits of greater deployment of cost effective²⁸ energy efficiency improvements. Again, NEA stresses that it welcomes that this is a prominent priority within the interim NIA. Global investment in energy efficiency is growing, having already reached \$221 billion in 2015, an increase of six per cent on the year before²⁹. Currently however the UK Government invests no taxpayer resources at all into meeting the energy efficiency based Fuel Poverty target in England and there is no UK wide energy efficiency programmes. Due to the significant reductions in the only GB-wide funding (through the levy funded and supplier-led, Energy Company Obligation noted above), delivery of home energy efficiency improvements has reduced by an average of 75%³⁰ compared to 2008-2012. Reversing these recent trends is a key priority.

According to the Committee on Fuel Poverty (CFP)³¹, the Climate Change Committee (CCC)³² and think tanks such as Policy Exchange³³ current resources are less than half of what is required to meet these commitments. The latest CFP annual report published on 17th October 2017 estimates that if current investment is netted off, beyond March 2019, £14.4 billion of additional funding will be required to install the necessary energy efficiency measures in fuel poor households. As noted below, whilst it is welcome the Government's stated intention is to shift the current Energy Company Obligation (ECO) programme towards making a bigger difference for fuel poor households, in isolation this will not provide the required investment to meet current targets. The current situation is so acute we have warned an end to fuel poverty in England is currently unlikely to happen in the average lifetime of a baby born today³⁴. Against this backdrop, it was disappointing the UK Government failed to identify any new sources of central investment which could improve household efficiency in the recent Budget.

The negative impact of cold homes on people and public services

- ❖ Whichever definition of fuel poverty is applied³⁵, the physical impacts of living in a cold, damp and inefficient home are well documented and cause unnecessary suffering, premature mortality and across the UK continue to kill as many people as smoking, lack of exercise and alcohol abuse³⁶
- ❖ A baby born today and living in cold housing is also almost three times more likely to suffer from coughing, wheezing and respiratory illness. Existing evidence also highlights infants living in cold conditions have a 30% greater risk of admission to hospital or primary care facilities³⁷. As the child develops, this in turn impacts on long-term educational attainment, either through increased school absence through illness or because they are unable to find a quiet, warm place to study in the home³⁸. In adolescence, one in four teenagers living in cold housing are at risk of multiple mental health problems³⁹
- ❖ Home energy improvements help to tackle these issues and one detailed study showed an 80% decrease in the rate of sickness absence from school for children with asthma and recurrent respiratory infections⁴⁰. Despite this progress, almost one in five households with a child under 16 lives in fuel poverty and the risk increases for lone parent households, one in four of whom are fuel poor⁴¹
- ❖ As noted above, as an adult enters work, low wages and sluggish growth currently mean many are in-work but still struggle to afford the increasing cost of living, including heating and powering their homes⁴². Fuel poverty mirrors this trend with 47% of fuel poor households in full or part-time work⁴³
- ❖ Many other low income households also face increasingly unmanageable situations; repaying large or growing debts whilst being excluded from signing up to the cheapest energy deals⁴⁴. This can create huge anxiety which exacerbates existing mental health problems, leading to further depression and potentially suicide⁴⁵. In later life, the impact of a cold home often compounds poor physical health and loneliness. The cold badly enhances the risks of health conditions including cardiovascular and respiratory diseases, falls and injuries and mental ill health, costing the NHS an estimated £1.36 billion each year.⁴⁶
- ❖ Cold, damp homes are also a significant contributor to Excess Winter Deaths (EWDs) that occur each winter across the UK⁴⁷. Within the last month, new ONS figures revealed the second highest EWDs in England and Wales for 5 years⁴⁸ and we estimate at least 10,290 of these were attributable to cold homes. Despite being unpalatable premature mortality has a clear cost⁴⁹. Conversely more comfortable internal temperatures in homes will lead to fewer premature winter deaths and reduce costs to mental health and social care services.

Whilst NEA recognises there are limitations to public spending and the scale of investment required to meet current statutory fuel poverty targets is significant we stress that:

- ❖ The measures included within the BEIS's Fuel Poverty MAC curves highlight it is possible to meet the interim and final fuel poverty targets cost effectively and will generate positive savings for society
- ❖ The investment to meet both the fuel poverty targets and PRS requirements can be defrayed across a number of parties via co-funded initiatives (central government, private and social landlords; LAs; LEPs; utility companies, escos, gas and electricity network operators as well as other key actors such health agencies, charities and community groups)
- ❖ The counterfactual costs of not meeting national targets are many times greater; just the cost to health services of treating the morbidity associated with cold homes would be sufficient to meet the shortfall in current investment⁵⁰

In addition, NEA has not attempted to monetise the following set of benefits that could be achieved with the introduction of adequate investment in this area:

- ❖ The direct value of reductions in bills and energy arrears for households or how this would increase spending within poorer communities
- ❖ The avoided cost of reducing carbon emissions or improving air quality via alternative actions
- ❖ The avoided costs of investment in non-efficient forms of embedded power generation which can increase local air pollution
- ❖ The value of reductions in rent arrears, void periods for landlords⁵¹ and higher stamp duty yields to HMT Treasury
- ❖ Uplifts in VAT yields to HMT Treasury for energy efficiency measures compared to the lower rates applied to VAT on gas and electricity.
- ❖ The positive impact of reducing inflation, gas imports and the effect on the UK's balance of payments
- ❖ The extent of the creation of a healthier workforce and jobs from a more buoyant energy efficiency industry
- ❖ The value to the UK economy of wider benefits such as upskilling workforce
- ❖ The value of avoided costs to energy consumers of reducing network reinforcement by Network Operators⁵². In turn, the positive impacts of also reducing civil utility works taking place in UK streets
- ❖ More comfortable internal temperatures in homes will lead to fewer premature winter deaths and despite being unpalatable premature mortality has a clear cost⁵³
- ❖ The reduced costs to mental health and social care as reductions in bills can lead to less stress and better mental health for occupants and keep people living in their homes longer
- ❖ The cost effectiveness of free interventions such as advice which can also create less damp and mould growth within homes which in turn reduces respiratory problems at little or no cost

Whilst NEA is urging the UK Government to take responsibility for fully monetising the benefits of meeting both statutory fuel poverty and carbon reduction commitments, NIC can also help underline these multiple benefits within the final NIA. This crucial evidence must be used to support the strong case for the reintroduction of central investment to help fund domestic energy efficiency programmes overall, especially for those in or at risk of fuel poverty. There is also now strong cross-party consensus on the need for more ambitious policies⁵⁴. There is also a strong case for central investment and it has been hugely well received that NIC believe domestic energy efficiency should be regarded as a hugely important infrastructure priority⁵⁵. The detail within this response is set out to aid the Commission, both in terms of the final NIA and the bespoke study into energy efficiency which will consider how an ambitious programme of energy efficiency improvements should operate which must be published and feed into the final NIA. In this context, NEA notes it is an active member of the Energy Efficiency Infrastructure Group. NEA has helped produce a new report by Frontier Economics which recommends a comprehensive Buildings Energy Infrastructure Programme to achieve major energy savings across the UK. Key recommendations include introducing a new target for all low-income households achieving a C rating by 2030 and subsidies for all low-income home-owners to make energy efficiency renovations to their properties. NEA stresses this form of infrastructure project is a key opportunity and the UK Government should now build on this momentum and state early they too regard domestic energy efficiency as a key national infrastructure priority and will seek to unlock much needed resources to fund energy efficiency programmes overall.

The final NIA must recognise the scale of the opportunity

NEA also believes the final NIA must recognise the scale of this opportunity. The UK Energy Research Centre (UKERC) and Centre on Innovation and Energy Demand (CIED) have recently underlined the scale of the cost-effective potential to reduce energy demand. The recent report "*Unlocking Britain's First Fuel: The potential for energy savings in UK housing*"⁵⁶ noted that one half of the energy currently used in UK housing could be saved by investing in a mix of current energy saving technologies. In addition, cost-effective investments to 2035 could save around one quarter of the energy currently used, an average saving of £270 per household per year at current energy prices. This saving is approximately equivalent to the output of six nuclear power stations the size of Hinkley Point C. Using Treasury guidance for policy appraisal, this investment has an estimated net present value of £7.5 billion.

Historic deployment of conventional energy efficiency measures is also still benefiting the UK and the economy and the UK Government's own analysis states⁵⁷ that between 2000 and 2009, energy consumption per UK household fell by 17 per cent. This was mainly driven by a reduction in household consumption for space heating. Had no improvements been made in home insulation and more efficient heating systems since 1970, household energy consumption would have almost doubled. In addition, the average new home built in England requires about half as much energy per square meter as the average existing home and two thirds of the 2050 UK housing stock are expected to have been homes built before 2009.

In future the UK Government estimated in their 2012 Energy Efficiency Strategy that cost effective investments in energy efficiency could save the UK 196TWh in 2020, equivalent to the output from 22 power stations⁵⁸. There is also further evidence⁵⁹ that demand on the electricity network can be reduced through domestic energy efficiency and can be implemented as an alternative to network reinforcement. It can also reduce the need for gas storage facilities which have already declined nationally. Alternatives to reinforcement or storage that may be appropriate could be encouraging a distribution network operator to help replace inefficient electrically heated systems; providing a contribution towards connecting a household to a modern efficient district heating; helping fund solid wall insulation; providing capital towards lighting improvements, low cost energy saving appliances or battery storage alongside microgeneration. NEA has also recently trialled many innovative technologies⁶⁰. Despite this progress and the potential, the UK continues to have one of the highest rates of fuel poverty and one of the most energy inefficient housing stocks in Europe⁶¹ and many of the innovations and business opportunities to address this situation are already known⁶².

Targeting support on those that need the most help and addressing gaps in provision

As noted above, NEA supports the extension to the Energy Company Obligation (ECO) scheme out to 2028 (with a review in 2022) provided Ministers meet their commitment to target this support on those that need the most help from September 2018. NEA highlights the opportunity for the Renewable Heat Incentive to also be better targeted at those in or at risk of fuel poverty up to 2021. We also stress that both the re-targeting of ECO and greater access to the RHI were recommended by the Climate Change Committee (CCC) in their advice to the UK Government on how to meet carbon budgets and mitigate impacts on fuel poverty levels. ECO is currently the only domestic energy efficiency delivery mechanism in England. As notes above, NEA supports the commitment to extend the levy funded ECO scheme out to 2028 (with a review in 2022). However, whilst NEA welcomes the planned extension of the scheme (and the latest phase of the ECO scheme - 'the ECO transition' - is expected to increase the proportion of the scheme which will be targeted at low income households), the lengthening of the transition scheme to 18 months (from the original proposals of 12 months) has resulted in a delay to the fully fuel poverty focused, better targeted scheme. This is despite the 2015 Fuel Poverty Strategy for England stating the Government would target this support on those that need the most help. The delay to a better target ECO policy has already lead to a large shortfall in activity of around £1bn lifetime savings for the poorest households with the highest energy costs over the 18 month transition period. Ministers have yet to confirm how the new phase of ECO from September 2018 will fully focus on those in or at risk of fuel poverty, with a consultation is planned for March this year. NEA stresses its supports for the extension to the ECO scheme out to 2028 is contingent on Ministers meeting their commitment to target this support on those that need the most help from September 2018.

In addition, to the delays to better target this policy (a recommendation the Climate Change Committee has frequently referenced⁶³), a new cap on gas boilers within the ECO transition, means there is a big gap in provision for low income or vulnerable consumers who cannot afford to repair or replace existing gas boilers. If a household faces financial barriers to repairing or replacing their faulty heating appliance, there is virtually no support provided nationally⁶⁴ and the prolonged loss of space heating in particular has the potential to detrimentally impact on a household's health and wellbeing, especially during winter and amongst occupants most vulnerable to living in a cold home. A broken or unsafe gas appliance is also likely to prompt the use of secondary heating appliances. Using electric portable heaters is recognised as one of the most expensive forms of heating⁶⁵. Alternatively, alongside poor ventilation, use of combustion room heaters such as LPG and solid fuel fires can significantly increase carbon monoxide (CO) exposure risk⁶⁶. Furthermore, older and unsafe boilers are less energy efficient⁶⁷, increase carbon emissions⁶⁸ and lead to heightened risks for nearby neighbours also as a result of CO poisoning⁶⁹ or potentially, in extreme situations, fires and gas explosions⁷⁰. In this context, NEA stresses the overlooked opportunity to provide emergency support in the recent Budget could have hugely damaging consequences and should be reviewed urgently.

NEA also recognises the intent in interim NIA and the Clean Growth Strategy is to shift delivery away from gas boiler replacements towards alternative renewable or low carbon heating systems. However, NEA is concerned that market driven capitalisation models (similar to the FiT's 'rent-a-roof' model) are likely to fail to provide equal access to low income off gas households in time to meet the first fuel poverty milestone or the remaining period the Renewable Heat Incentive (RHI) is budgeted for up to 2021. NEA has argued that out of the current RHI budget an annual ring-fence could be created for fuel poor households off the gas network who cannot afford the upfront costs of renewable heat technologies (and potentially provide a small on-going operational subsidy to ensure these households are compensated for any increase in fuel costs or maintenance costs).

As with the better targeting of the ECO policy, this recommendation was also made by the CCC⁷¹ in their advice to the UK Government on how to meet carbon budgets and mitigate impacts on fuel poverty levels. NEA's own recent research into heat decarbonisation and social equity also noted this approach would be far more cost-effective overall⁷². NEA also believes this dual approach would be a much more balanced and reliable way for these differing programmes (ECO and RHI) to directly support the attainment of the fuel poverty targets to improve the energy efficiency of fuel poor homes to band E by 2020 and the subsequent milestones and the final 2030 target. In addition, from 2018, it is hoped that ECO resources should be used to provide targeted insulation improvements to these households to ensure they have access to the RHI policy. The latter will be made even more feasible when enhanced data sharing is introduced which can reduce policy costs and help the most vulnerable households access this support.

The NIA should prioritise improvements in the Private Rented Sector

NEA welcomes the recent Clean Growth Strategy's recognition that privately rented homes are causing the greatest hardship and the most acute risks for their residents⁷³. 35% of all fuel poor households in England are in this tenure, over 850,000 households⁷⁴. There are also 267,000 F/G rated homes in the private rented sector, with a further 13,000 in Wales. Currently, 122,000 of these least efficient PRS households contain those suffering from the worst extremes of fuel poverty, with resultant fuel poverty gaps in excess of £1,030 meaning they need to spend £1,000 per year above those not living in poverty⁷⁵. The UK Government also rightly notes the imminent need to improve these conditions and meet the minimum energy performance standards which come into force from April this year⁷⁶. This will also support the need to ensure no fuel poor households live in these same EPC bands by 2020.

NEA and a wide range of organisations welcomed these necessary statutory requirements. Following the publication of the Clean Growth Strategy, the Government has now also published the overdue consultation on improving current PRS regulations. There is a strong business case for landlords to invest their own funds to improve these properties, particularly the least efficient homes which fail mandatory safety requirements. Landlord should also be required to fund energy efficiency improvements up to a cost cap of £5,000 per property to bring as many properties up to EPC band E in time for April 2018. There is however a worrying lack of urgency on whether landlords will be required to use their own funds to bring properties up to EPC band E in time for April 2018 and not benefit from unnecessary five year exemptions. Astonishingly, HMO properties will also not be fully covered by national standards for PRS⁷⁷ despite an NEA survey which highlighted these worst rental properties have such inadequate heating and insulation that it is impossible to keep them warm and free from damp⁷⁸.

NEA also notes the UK Government's recent commitment to encourage social landlords to continue to improve the energy performance of social housing. NEA welcomes this step and highlights that this will improve the capital value of the property and there is also solid evidence that energy efficiency improvements helps to reduce rent arrears and void periods for landlords⁷⁹. This finding was as a result of detailed research with twenty-five social landlords managing over 500,000 homes in England and Wales to investigate whether energy efficiency improvements to homes that reduce energy bills provide any reduction in voids, rent arrears and other costs faced by landlords. The results are very promising and have helped quantify the following impacts:

- ❖ There is a correlation between the energy efficiency of the homes and the number of void days. As homes become more energy efficient they are void for a shorter length of time - on average band B properties remained void for 31% less time than those in bands E and F;
- ❖ Administration costs are considerable for voids. Landlords with more energy efficient stock are spending less on refurbishing void homes, less on repairs and less on staff time to manage voids

- ❖ The levels of rent arrears experienced by landlords ranged between 3.5% and 28%, with an average of 14% and there is a correlation between length of time in arrears and energy efficiency of homes
- ❖ Colder homes, especially those in band F, have on average two weeks more rent arrears than the rest of the bands each year. The highest performing band A properties spent 30% less time in arrears compared with the worst performing homes
- ❖ An analysis of further costs incurred shows that time spent seeking overdue rent payments, legal costs and court costs decline by around 35% for more energy efficient homes

This demonstrates that there can be a strong business case for landlords continuing to maintain invest in their stock, particularly the least efficient homes. The near-term priority is to urgently improve the remaining stock not improved by the national Decent Homes programme. In providing any additional support for social landlords, the UK Government should also stress the need for social landlords to consider helping support private low income households that have exercised their 'right to buy' within larger areas of social housing but may not have any of their own capital to invest in improving the energy efficiency of their own homes. In addition, given the need for both social and private landlords to meet their responsibilities for financing energy saving measures themselves (and not rely on tenants to fund these measures through their energy bills), NEA suggest the Government should also urgently clarify the PaYs option should only be deployed in privately rented sector (PRS) if a property has not been served or is subject to a statutory enforcement order through the housing health and safety rating system (HHSRS) procedure. If social housing tenants are also to be targeted for new PaYs as a minimum this should only be the case for insulation measures or where the landlord is prepared to pay the PaYs charge or the energy bill is covered by the rent. This will ensure highly cost effective ways of reducing carbon emissions and creating energy savings are not made more costly and less attractive or less effective to deploy.

More broadly NEA believes the following actions are also needed to improve the PRS and will require close co-operation with the Department for Communities and Local Government (DCLG):

1. Build capacity of local authority environmental health officers (EHO) to enforce the Housing Health and Safety Rating System (HHSRS).
2. Introduce a nation-wide mechanism that enables local authorities to specify how many improvement notices under HHSRS have been served to landlords for category one and two hazards and for what for reasons (e.g. excess cold).
3. Consider a central resource for an 'EHO of last resort' which would act as a backstop for the enforcement of housing standards.
4. Consider reintroducing the Landlord's Energy Savings Allowance (LESA) to incentivise landlord energy efficiency investment.
5. Improve homes in multiple occupation (HMO) properties to the same national standards as the PRS.
6. Consult on developing and introducing a mandatory national licencing scheme for private landlords in England.

The UK Government must also ensure domestic consumers connected to district heating networks (especially within social housing schemes) are protected by adequate consumer protection. The final NIA should highlight this requirement. In this context, NEA welcomes the recent announcement that the Competition Market Authority (CMA) will be carrying out an investigation in this area and will review the findings of a recent Citizens Advice report⁸⁰ which recommended publishing details of the number and location of heat networks across Great Britain. This should be publicly available information. All heat suppliers should also have minimum efficiency standards and a regular maintenance and inspection regime in place. This should include checking all heat meters at least once every two years to make sure users are being billed for the right amount of heat. All heat suppliers should also maintain a list of vulnerable customers (a Priority Services Register) and ensure that these customers are treated as a priority during periods of system downtime (both anticipated and unanticipated). The UK Government should also work with the industry to consider what bespoke and targeted advice is required to help DH consumers controlling their heating and understanding their billing.

The importance of enhancing co-operation with the Devolved Nations

It is welcome that the interim NIA recognises importance of enhancing co-operation with the Devolved Nations. The UK Government's Clean Growth Strategy also rightly notes other UK nations also still have statutory fuel poverty eradication targets based on the 10% indicator⁸¹ and commits to assessing the impacts the individual policies outlined in the Strategy⁸² could have on fuel poverty as part of its implementation. It is crucial this commitment is honoured and this principle is also applied to the final NIA. NEA stresses NIC should also continue to press the UK to mirror energy efficiency as an infrastructure priority consistently across the whole of the UK and unlock further access to national, UK or GB-wide funding. NEA is also calling on the UK Government to make the Strategies' energy efficiency band C requirements a UK wide aspiration. Whilst fuel poverty and energy efficiency is a devolved issue, many of the drivers are significantly impacted by the actions of the UK Government. In this context it should also be noted that many of the drivers for energy efficiency are based on the GB-wide ECO, and the reductions to this programme have had a significantly negative impact, particularly in tackling hard to treat homes. There are also good practice examples across all the UK nations and sharing this experience routinely can support positive improvements in the health and well-being of the population at large and especially those households in vulnerable circumstances. For example, the interim NIA and recent Industrial Strategy also notes how other nations across the UK are accelerating the deployment of domestic energy efficiency⁸³ faster than in England. NEA therefore urges NIC to build on their analysis of the success the Devolved Nations have had at improving domestic energy efficiency levels. NEA believes that the best way of capturing this opportunity in England is to replicate the Scottish Government's Warmer Homes Scotland scheme and local authorities' Area Based Schemes, alongside ECO.

NIC's UK wide remit is a hugely important aspect to sizing the scale of this opportunity. For example, NEA NI works closely with the Northern Ireland Fuel Poverty Coalition⁸⁴ which recently outlined how energy efficiency should be regarded as a key infrastructure priority to reduce the alarming level of cold homes in NI⁸⁵. As well as ensuring energy efficiency is seen as an infrastructure priority across the whole of the UK, NEA is calling on the UK Government to make the Strategies' energy efficiency band C requirement a UK wide aspiration. Similarly, in Wales, NEA Cymru works with Citizens Advice Cymru to lead a Coalition supported by a range of key organisations working to take forward the fuel poverty agenda⁸⁶. The Coalition produced its manifesto 'Ending Wales' Cold Homes Crisis' for the National Assembly for Wales' election in May 2016. The manifesto introduced five key priorities for domestic action for the next Welsh Government and also called on the UK Government to support their efforts and make energy efficiency an infrastructure priority and drive wider improvements in the energy performance of buildings and tackle fuel poverty. The Welsh Government's Infrastructure and Wales' Investment Plan⁸⁷ subsequently aims to achieve and drive up energy efficiency improvements to tackle fuel poverty. As NI, there is however a pressing need to mirror energy efficiency as an infrastructure priority consistently across the whole of the UK and unlock further access to national, UK or GB-wide funding.

Response to the consultation questions

Question 1) How does the UK maximise the opportunities for its infrastructure, and mitigate the risks, from Brexit?

Unless certain forthcoming EU targets are met, some limited legislation continues to be transposed domestically or additional domestic actions are taken, the UK leaving the EU could have a negative impact on the UK economy, strain the UK's trade balance (via needless importation of fossil fuels and other raw materials) as well as badly impact the people who struggle to keep their homes adequately warm. The extent to which the UK can insulate itself from import dependency for all fuels (and other raw products such as steel to build new power stations or over headlines) will have a clear impact on the UK's trade balance. In responding to these risks, NEA believes the greatest opportunity to enhance national competitiveness in the energy sector is to reduce energy demand. NEA also supports NIC attempt to identify the impact Brexit will have on infrastructure opportunities. In this context, NEA suggests NIC should recommend the 2030 Energy Saving Target and all related EU energy efficiency requirements should continue to be transposed in the UK. The Department for Business, Energy and Industrial Strategy and the regulators Ofgem and Northern Ireland Authority for Energy Regulation (NIAER) also should run their own call for evidence to clarify the impact and opportunities of Brexit in the energy sector.

Question 9) What strategic plans for transport, housing and the urban environment are needed? How can they be developed to reflect the specific needs of different city regions?

NEA insists as well as addressing fuel poverty specifically, local authorities also have a key role to play in reducing domestic carbon emissions, reducing air pollution and facilitating public health responsibilities. Taking joined up action on these areas will also help harness the purchasing power of large towns and cities, drive more optimal area based solutions and create a stronger local business infrastructure. It will also ensure local opportunities to enhance the overall efficiency of deploying the right technical solutions in then right localities are not overlooked. NEA therefore urges NIC to build on their analysis of the success the Devolved Nations have had at improving domestic energy efficiency levels. NEA believes that the best way of capturing this opportunity in England is to replicate the Scottish Government's Warmer Homes Scotland scheme and local authorities' Area Based Schemes, alongside ECO. NEA also urges the UK Government to support and resource other civic leaders and local authorities to continue to take local action under the Home Energy Conservation Act and actively encourage energy efficiency to be prominent part of city devolution deals.

Question 11) How can the Section 106 and Community Infrastructure Levy regimes be improved to capture land and property value uplift efficiently and help fund infrastructure? Under what conditions are new mechanisms needed?

A key opportunity, already being acted upon a few London Boroughs⁸⁸ (and elsewhere in England), is to influence how Section 106, contributions to the Community Infrastructure Levy (CIL) and "Allowable Solution" funds from new zero carbon development is used to help improve existing homes. Planning obligations under Section 106 of the Town and Country Planning Act 1990 (as amended), commonly known as s106 agreements, are a mechanism which make a development proposal acceptable in planning terms, that would not otherwise be palatable. S106 agreements are often referred to as 'developer contributions' and are now paid into a CIL. Under the CIL regulations there is a wider range of opinions regarding what funds can be spent on locally. Whilst some local councils are using s106 agreements or their CIL funds to help deliver valuable local projects (like local energy efficiency projects), often it is not clear how councils spend the incomes collected from CIL and it is absorbed into the council's capital programme in order to subsidise the services they deliver. Previous research from Consumer Focus found that on projected rates of house building, Allowable Solution funds could also have provided around £190 million pa nationally, enough to improve the energy efficiency levels of 397,000 low income households' homes, up to EPC C by 2025. The purposes of the intervention therefore is to ensure there is greater oversight of how CIL/S106/off-set funds are invested and encourage local councils to use these resources to support energy efficiency initiatives that make homes warmer and healthier and in turn encourage economic growth.

Question 13) What will the critical decision factors be for determining the future of the gas grid? What should the process for deciding its future role be and when do decisions need to be made?

Ofgem currently requires Gas Distribution Networks (GDNs) to play an active role in supporting fuel poor households, and to work collaboratively with other parties to provide funding for in-house works. Coupled with the development of a new interactive mapping solution for off gas grid homes, NEA supports the need to ensure current connections targets within GD1 are met. However, on behalf of all the GDNs NEA recently undertook a review of progress toward meeting the 2021 target in the different nations. The report found that at the halfway point, progress across England as a whole has slowed where around 44% of connections have been completed due to the constrained funding landscape for in-house measures. In addition, NEA are hoping the following issues will be addressed before or as part of RIIIO 2:

- Need to encourage better targeting by using the Digital Economy Act powers to identify vulnerable customers
- Need to encourage insulation measures as well as heating
- Need to provide consistency in advice provision
- Need to develop a fare reward for District Heating projects
- NEA is also developing how a new energy efficiency obligation mechanism could be introduced for networks in RIIIO2
- There needs to be a better balance between the substantial incentives for Carbon Monoxide work and providing a greater focus on those in or at risk of fuel poverty
- GDNs who identify vulnerable customers who have had their boiler condemned must help facilitate a repair or replacement

In addition, heat decarbonisation is an increasingly important area for the UK to address in the coming years. There are a number of potential approaches which can reduce the carbon intensity of domestic heating, however, all of which could involve significant household upheaval and investment. This prompts the need to engage customers early, so they understand the options available and start to prepare for how the approaches to domestic heating may need to adapt. Unless adequately addressed, these factors have the potential to aggravate social equity and increase fuel poverty levels. It is therefore hoped NIC's recommendation on this area will include stating the need for to engage early on these key areas and help customers better understand and address these complex challenges. NEA also recognises the need for a shift delivery away from gas boiler replacements towards alternative renewable or low carbon heating systems. As noted above, NEA has argued that out of the current RHI budget an annual ring-fence could be created for fuel poor households off the gas network who cannot afford the upfront costs of renewable heat technologies (and potentially provide a small on-going operational subsidy to ensure these households are compensated for any increase in fuel costs or maintenance costs). As with the better targeting of the ECO policy, this recommendation was also made by the CCC⁸⁹ in their advice to the UK Government on how to meet carbon budgets and mitigate impacts on fuel poverty levels. NEA's own recent research into heat decarbonisation and social equity also noted this approach would be far more cost-effective overall⁹⁰.

Question 14) What should be the ambition and timeline for greater energy efficiency in buildings? What combination of funding, incentives and regulation will be most effective for delivering this ambition?

As noted above, a particular priority is to aim to ensure all low income households reach EPC band C by 2030 and all homes by 2035 across the whole of the UK. Beyond ending the individual suffering caused by fuel poverty, delivering these energy efficiency based targets will contribute towards achieving other UK Government objectives; a successful industrial strategy⁹¹, supporting small business growth in every region and achieving carbon emissions reductions⁹². Delivering these targets will also help improve local air quality⁹³, reduce health and social care costs⁹⁴ and provide real benefits to households who are struggling financially⁹⁵. Currently however the fuel poverty commitments were not referenced by the interim NIA despite the fact only 10% of fuel poor households meet the band C requirement in England and whilst progress is being made towards two fuel poverty strategy 'milestones'⁹⁶ there will still be around 175,000 fuel poor households living in Band F and G properties in England by 2020. Many of the fuel poor households in the worst Band F and G properties will be suffering from the worst extremes of fuel poverty and have annual fuel needs well in excess of £1,000 per year above those not living in poverty⁹⁷.

NEA also highlights another immediate opportunity to deliver early progress on enhancing domestic energy efficiency, is for NIC to state its support for improving the Private Rented Sector (PRS) specifically. The Department for Business, Energy and Industrial Strategy (BEIS) have recently enhanced co-operation with the Department for Communities and Local Government (DCLG) to enforce housing standards. For example, NEA has recently welcomed the recent publication of the overdue consultation on improving current Private Rented Sector (PRS) regulations and the Clean Growth Strategies' aim to set a new target for the PRS to reach an EPC band C by 2030, bringing the whole PRS into line with the fuel poverty targets. There is a strong business case for landlords to invest their own funds to improve these properties, particularly the least efficient homes which fail mandatory safety requirements. NIC should therefore state that landlord should be required to fund energy efficiency improvements up to a cost cap of £5,000 per property to bring as many properties up to EPC band E in time for April 2018 and highlight their support for the new EPC band C by 2030 target.

NEA also notes the UK Government's commitment to encourage social landlords to continue to improve the energy performance of social housing. NEA welcomes this step and highlights that this will improve the capital value of the property and there is also solid evidence that energy efficiency improvements helps to reduce rent arrears and void periods for landlords⁹⁸. The near-term priority is to urgently improve the remaining stock not improved by the national Decent Homes programme. In providing any additional support for social landlords, the UK Government should also stress the need for social landlords to consider helping support private low income households that have exercised their 'right to buy' within larger areas of social housing but may not have any of their own capital to invest in improving the energy efficiency of their own homes. In addition, given the need for both social and private landlords to meet their responsibilities for financing energy saving measures themselves (and not rely on tenants to fund these measures through their energy bills), NEA suggests NIC should also urgently clarify the PaYs option should only be deployed in privately rented sector (PRS) if a property has not been served or is subject to a statutory enforcement order through the housing health and safety rating system (HHSRS) procedure. If social housing tenants are also to be targeted for new PaYs as a minimum this should only be the case for insulation measures or where the landlord is prepared to pay the PaYs charge or the energy bill is covered by the rent. This will ensure highly cost effective ways of reducing carbon emissions and creating energy savings are not made more costly and less attractive or less effective to deploy.

In order to quickly deliver progress against the benefits this prompts in an economically and socially sustainable way, NIC should also state clearly that existing domestic energy schemes can be better targeted on those that need the most help to reduce their high energy costs, i.e. those in or at risk of fuel poverty. For example, NEA supports the extension to the Energy Company Obligation (ECO) scheme out to 2028 (with a review in 2022) provided this support is targeted on those that need the most help from September 2018. NEA also highlights the opportunity for the Renewable Heat Incentive (RHI) to be better targeted at those in or at risk of fuel poverty up to 2021. We also stress that both the re-targeting of ECO and greater access to the RHI were recommended by the Climate Change Committee (CCC) and the Committee for Fuel Poverty (CFP) in their advice to the UK Government on how to meet carbon budgets and mitigate impacts on fuel poverty levels. It is critical NIC recognise these other key Non-Departmental Public Bodies (NDPBs) own advice to the UK Government when setting out the final NIA and reference the need to meet both fuel poverty and carbon statutory requirements.

NEA also notes it is an active member of the Energy Efficiency Infrastructure Group. NEA has helped produce a new report by Frontier Economics which recommends a comprehensive Buildings Energy Infrastructure Programme to achieve major energy savings across the UK. Key recommendations include introducing a new target for all low-income households achieving a C rating by 2030 and subsidies for all low-income home-owners to make energy efficiency renovations to their properties. NEA stresses this form of infrastructure project is a key opportunity and the UK Government should now build on this momentum. NIC must also clearly state that it recognises the need for the re-introduction of adequate central investment by the UK Government, where appropriate. This will ensure highly cost effective ways of reducing carbon emissions and creating energy savings are not made more costly to deploy as well as helping to reduce needless costs to health and social care services. NEA also urges NIC to build on their analysis of the success the Devolved Nations have had at improving domestic energy efficiency levels. NEA believes that the best way of capturing this opportunity in England is to replicate the Scottish Government's Warmer Homes Scotland scheme and local authorities' Area Based Schemes, alongside ECO.

Question 15) How could existing mechanisms to ensure low carbon electricity is delivered at the lowest cost be improved?

The UK Energy Research Centre (UKERC) and Centre on Innovation and Energy Demand (CIED) have recently underlined the scale of the cost-effective potential to reduce energy demand. The recent report "*Unlocking Britain's First Fuel: The potential for energy savings in UK housing*"⁹⁹ noted that one half of the energy currently used in UK housing could be saved by investing in a mix of current energy saving technologies. In addition, cost-effective investments to 2035 could save around one quarter of the energy currently used, an average saving of £270 per household per year at current energy prices. This saving is approximately equivalent to the output of six nuclear power stations the size of Hinkley Point C. Using Treasury guidance for policy appraisal, this investment has an estimated net present value of £7.5 billion. Historic deployment of conventional energy efficiency measures is also still benefiting the UK and the economy and the UK Government's own analysis states¹⁰⁰ that between 2000 and 2009, energy consumption per UK household fell by 17 per cent. This was mainly driven by a reduction in household consumption for space heating. Had no improvements been made in home insulation and more efficient heating systems since 1970, household energy consumption would have almost doubled. In addition, the average new home built in England requires about half as much energy per square meter as the average existing home and two thirds of the 2050 UK housing stock are expected to have been homes built before 2009.

In future the UK Government estimated in their 2012 Energy Efficiency Strategy that cost effective investments in energy efficiency could save the UK 196TWh in 2020, equivalent to the output from 22 power stations¹⁰¹. There is also further evidence¹⁰² that demand on the electricity network can be reduced through domestic energy efficiency and can be implemented as an alternative to network reinforcement. Alternatives to reinforcement that may be appropriate could be encouraging a distribution network operator to help replace inefficient electrically heated systems; providing a contribution towards connecting a household to a modern efficient district heating or gas network; helping fund solid wall insulation; providing capital towards lighting improvements, low cost energy saving appliances or battery storage alongside microgeneration. NEA has also recently trialed many innovative technologies¹⁰³. Despite this progress and the potential, the UK continues to have one of the highest rates of fuel poverty and one of the most energy inefficient housing stocks in Europe¹⁰⁴ and many of the innovations and business opportunities to address this situation are already known¹⁰⁵.

¹ For more information visit: www.nea.org.uk.

² For more information visit: <http://warmzones.co.uk/>.

³ Many of these outcomes were achieved via our Health and Innovation Programme (HIP), a £26.2 million programme to bring affordable warmth to fuel poor and vulnerable households in England, Scotland and Wales. The programme launched in April 2015 and was designed and administered by NEA as part of an agreement with Ofgem and energy companies to make redress for non-compliance of licence conditions/obligations. To date, it remains the biggest GB-wide programme implemented by a charity which puts fuel poverty alleviation at its heart. The programme comprised 3 funds: Warm and Healthy Homes Fund (WHHF): to provide heating, insulation and energy efficiency measures for households most at risk of fuel poverty or cold-related illness through health and housing partnerships and home improvement agencies; Technical Innovation Fund (TIF): To fund and investigate the impact on fuel poverty of a range of new technologies and Warm Zones Fund (WZF): to install heating and insulation and provide an income maximisation service to households in or at risk of fuel poverty, delivered cost-effectively through partnership arrangements managed by Warm Zones.

⁴ To read the full impact report click here: <https://www.nea.org.uk/wp-content/uploads/2017/02/NEA-IMPACT-REPORT-2017.pdf>

⁵ For more information visit: www.nea.org.uk/fpeeg/about-fpeeg/

⁶ Still the Cold Man of Europe – briefing, Association for the Conservation of Energy, October 2015.

⁷ 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 however both Scotland and Wales have their own statutory duties to eradicate fuel poverty by set dates.

⁸ The UK Government noted these include impacts on energy prices, impacts on the energy needs of households through improved building fabric, and changes in the way heat is supplied.

⁹ NEA estimates that some families in fuel poverty are facing an income shortfall of up to £9,331 per year (£778 per month) to cover basic essentials, including energy. As noted below, NEA has also warned many low income households could miss out on energy rebates and the proposed new safeguard price cap. The findings are included as part of our "Bridging the Gap" report which highlights the scale of the impossible choices families will be making this winter. The report also illustrates the catastrophic impact Universal Credit could have on these families who have no savings to insulate them from falling into debt, going hungry and not heating their homes over the current 6 week waiting period.

¹⁰ Across the UK, 22% of individuals (14 million people) are in relative poverty after housing costs (they have a household income below 60% of the median). Net disposal income after housing costs of a low income household is £248 per week (£12,933 per year), equating to 60% of the UK median of £413 per week. The income after housing costs of a fuel poor household is even lower: £10,118 per year, equating to a net disposal weekly income of £194. Investigating income deciles shows the poorest 10% of UK society have a gross average weekly household income of £130 (£6,760 per year). Fuel poor households overwhelmingly comprise the poorest fifth of society: 85% of households in fuel poverty in England are located in the first and second income deciles and 78% of English households in those two deciles are fuel poor.

¹¹ The impact of Brexit on UK consumers can be characterised through four 'Ps'. The fall in Pound sterling since the EU membership referendum in June 2016 has increased import costs for UK businesses; impacting Profits. Businesses have in turn passed Price rises onto consumers in the form of a.) more expensive household goods and services (inflation), or b.) products that cost the same but have reduced in size (shrinkflation). This inflationary trend hurts the UK Population and threatens to drive up that fifth 'P': Poverty. Households below and at the margins of the poverty line can ill afford to pay more for their essential goods and services.

¹² The Bank of England (BoE) expects consumer prices to rise to 2.7 per cent by the end of this year, but other economists think that might be at the more conservative end of predictions.

¹³ Independent commentators like the Institute for Fiscal Studies (IFS), have highlighted how low income households are disproportionately impacted by spending higher percentage of their outgoings on fuel. Household Energy Use in Britain: A Distributional Analysis, Institute for Fiscal Studies and University College London funded by the Esmée Fairbairn Foundation (reference 11-2886) and by the Economic and Social Research Council (ESRC) through the Centre for the Microeconomic Analysis of Public Policy.

¹⁴ Vulnerable consumers in the retail energy market: 2017, Ofgem 16th October 2017

¹⁵ House of Commons Library, Debate Pack, Number CDP 2017/0090, Debate day 16 March 2017.

¹⁶ Page 8 Number CDP 2017/0090, Debate day 16 March 2017.

¹⁷ The Fuel Poverty (England) Regulations 2014: <http://www.legislation.gov.uk/uksi/2014/3220/made>

¹⁸ The Conservative and Unionist Party Manifesto 2017, Forward, Together: Our Plan for a Stronger Britain and a Prosperous Future, 'Fair Energy Markets', page 60.

¹⁹ The Clean Growth Strategy, Leading the way to a low carbon future, HM Government, page 77.

²⁰ EPC certificates compare current ratings of properties to see which are more energy efficient. They help tenants, landlords or home owners find out how they can save energy and money by installing improvement measures. The EPC certificate shows how much the average household would spend in this property for heating, lighting and hot water. It's graded from A to G, with A meaning an energy efficient, well-insulated, probably modern home, and G meaning a draughty old building where the wind rattles the walls. Typically, an older property with no retrofitted energy-saving technology will be around a D grade and an A-C rated home, the average new home built in England, requires about half as much energy per square meter as the average existing home. Previous research from Consumer Focus also found that on projected rates of house building, the previous Allowable Solution fund could have provided around £190 million pa nationally, enough to improve the energy efficiency levels of 397,000 low income households' homes, up to EPC C by 2025.

²¹ Draft National Infrastructure Assessment, National Infrastructure Commission, October 2017.

²² Committee on Climate Change, Next steps for UK heat policy, October 2016.

²³ The Fuel Poverty Action Plan, Greater London Authority (GLA), June 2017.

²⁴ Age UK. 2012. The cost of cold: Why we need to protect the health of older people in winter.

²⁵ NEA estimates that some families in fuel poverty are facing an income shortfall of up to £9,331 per year (£778 per month) to cover basic essentials, including energy. As noted below, NEA has also warned many low income households could miss out on energy rebates and the proposed new safeguard price cap. The findings are included as part of our "Bridging the Gap" report which highlights the scale of the impossible choices families will be making this winter.

²⁶ Upgrading as many fuel poor homes as is reasonably practicable to Energy Performance Certificate Band E by 2020 and to Band D by 2025

²⁷ The median annual income of a fuel poor household in England after housing costs is £10,118. This is £2,815 below the poverty line.

²⁸ The Government determines cost-effectiveness using Marginal Abatement Cost Curves and this ranks specific household interventions (such as wall insulation) based on their cost-effectiveness for abating greenhouse gas emissions. The MACC allows decision makers to assess how much progress is already being made and subsequently consider what it would cost (or save) to make more (or less) progress from that point. The same approach to constructing MACCs for climate change or overall energy efficiency policy can also be applied to fuel poverty and BEIS have established FP-MACCs to assess, at different points in time, what the most cost-effective interventions are and how much progress these interventions could potentially make towards fuel poverty objectives²⁸. The measures included within the current FP- MAC curves highlight meeting fuel poverty targets can be done cost effectively and will generate positive savings for society. However the cost of deploying these energy saving measures are largely outside the control of households in fuel poverty – given the capital investment that would be required to improve their energy efficiency - and instead people rely on trading off the temperatures at which they live against other necessities, exacerbating health related issues.

²⁹ International Energy Agency (2016) Energy Efficiency Market Report https://www.iea.org/eemr16/files/medium-term-energy-efficiency-2016_WEB.PDF

³⁰ CCC, Meeting Carbon Budgets – 2016 Progress Report to Parliament, June 2016 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

³¹ This breakdowns as £1.9bn to meet the 2020 EPC E milestone, a further £5.6bn to meet the 2025 EPC D milestone and a further £12.3bn to meet the 2030 EPC C target.

³² Addressing fuel poverty and meeting carbon budgets go hand in hand (CCC), 7 October 2014.

³³ Warmer Homes - Improving fuel poverty and energy efficiency policy in the UK, 2015, Policy Exchange

³⁴ See reference 31.

³⁵ The Warm Homes and Energy Conservation Act 2000 states that a person is to be regarded as living "in fuel poverty" if they are a member of a household, living on a low income, in a home which cannot be kept warm at reasonable cost. Although fuel poverty is now measured differently across the UK nations, there are significant similarities between the characteristics of households considered to be in fuel poverty. Since 2011, fuel poverty in England is defined using the Low Income High Cost (LIHC) definition to measure progress. This states that an individual is considered fuel poor where they have fuel costs that are above average (the national median level) and, were they to spend that amount they would be left with an income below the poverty line. Progress to monitor fuel poverty across the other three UK nations is still measured using the previous 10% definition. The number of households in fuel poverty in England under the Low Income High Cost (LIHC) definition is not improving and has increased by over 100,000 in 2015 - the most recent year that statistics are available for. Fuel Poverty now affects around 2.50 million households, representing approximately 11 % of all English households compared to 2.38 million households (or 10.6% of all households) in England in 2014. This too was a small increase from 2.35 million households in 2013, the level of fuel poverty prior to the fuel poverty strategy being passed in Parliament. The fuel poverty gap – an estimation of the additional amount that those in fuel poverty need to pay to heat their homes adequately compared to average households – has not shown any real progress either, and remains at around £884 million.

- ³⁶ Association for the Conservation of Energy (March 2015) Chilled to Death: The Human Cost of Cold Homes, page 2. Last year the BBC's Panorama also highlighted people are still getting ill and 9,000 people died needlessly because of cold homes in England
- ³⁷ Child Health Impact Working Group (2006) Unhealthy Consequences: Energy Costs and Child Health. Boston, MA: CHIWG.
- ³⁸ NEA (2013) The Many Faces of Fuel Poverty. Page5.
- ³⁹ NEA (2013) The Many Faces of Fuel Poverty. Page5.
- ⁴⁰ Somerville M et al. 2000. Housing and health: does installing heating in their homes improve the health of children with asthma? Public Health; 114, 434-39.
- ⁴¹ Children's Society, the families behind fuel poverty statistics, 19 February 2016.
- ⁴² NEA estimates that some families in fuel poverty are facing an income shortfall of up to £9,331 per year (£778 per month) to cover basic essentials, including energy. As noted below, NEA has also warned many low income households could miss out on energy rebates and the proposed new safeguard price cap. The findings are included as part of our "Bridging the Gap" report which highlights the scale of the impossible choices families will be making this winter. The report also illustrates the catastrophic impact Universal Credit could have on these families who have no savings to insulate them from falling into debt, going hungry and not heating their homes over the current 6 week waiting period.
- ⁴³ Across the UK, 22% of individuals (14 million people) are in relative poverty after housing costs (they have a household income below 60% of the median). Net disposal income after housing costs of a low income household is £248 per week (£12,933 per year), equating to 60% of the UK median of £413 per week. The income after housing costs of a fuel poor household is even lower: £10,118 per year, equating to a net disposal weekly income of £194. Investigating income deciles shows the poorest 10% of UK society have a gross average weekly household income of £130 (£6,760 per year). Fuel poor households overwhelmingly comprise the poorest fifth of society: 85% of households in fuel poverty in England are located in the first and second income deciles and 78% of English households in those two deciles are fuel poor.
- ⁴⁴ Many low income and vulnerable consumers, have a poor credit history; they are worried about losing out on support like the Warm Home Discount; or they face cost barriers if they attempt to switch back to a standard meter.
- ⁴⁵ Christians Against Poverty (2015) The poor pay more: Prepayment meters and self-disconnection.
- ⁴⁶ Age UK. 2012. [The cost of cold: Why we need to protect the health of older people in winter.](#)
- ⁴⁷ Worry about high fuel bills and fuel debt also continues to significantly damage mental health, which is affecting an increasing number of households. The cost of morbidity also places a huge burden on the NHS. In England alone it costs health services approximately £3.6 million per day treating cold related morbidity and in the past four years alone over £5 billion of tax payers' money has been spent treating the symptoms of cold. 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 NHS.
- ⁴⁸ While large fluctuations in the number of excess winter deaths is common and the relationship between EWM, temperature and influenza rates is complex, this year's provisional figures for the winter of 2016/17 show that excess winter deaths are 39.5% higher than last year (up by almost 10,000 from 24,580). You access the full ONS data release [here](#). Using the World Health Organisation (WHO)'s estimate that 30% of winter deaths are caused by cold housing, NEA estimate over 10,000 households died needlessly last year in England and Wales and over 9,600 frail and vulnerable people across the UK are dying on average throughout the winter months due to cold homes; 80 people per day.
- ⁴⁹ For example burial fees and exclusive rights to burial in a particular plot, cremation fees, including the cost of the doctor's certificate, funeral director's fees, flowers, coffin travel to arrange or go to the funeral, the costs for moving the body within the UK. An indication of the scale of these to a surviving family member or society are that a direct cremation costs c. £1,600, a cremation using a funeral director £3,214 and a burial using a funeral director costs £4,136. Whilst some costs are covered for low income households via a state Funeral Payment, often this is paid for on credit or often loans from a more affluent family member. This in turn inhibits a low income families spending.
- ⁵⁰ Ibid.
- ⁵¹ "Touching the voids report: The impact of energy efficiency on landlord income and business plans The report is available here: <http://www.sustainablehomes.co.uk/touching-the-voids-report>.
- ⁵² In 2015, NEA and Agility ECO produced a report investigating the possibility to divert budgets currently allocated to load-related network upgrades into local schemes that improve energy efficiency. In the report this concept is explained fully and is referred to as Alternative Investment Strategy (AIS). Specifically, the report looks to analyse the "Size of the Prize" on Northern Power Grid's network, the economic feasibility of investment in local energy efficiency and how this compares to conventional network reinforcement and practical feasibility. To read the report visit: <http://www.northernpowergrid.com/downloads/1704>.
- ⁵³ For example burial fees and exclusive rights to burial in a particular plot, cremation fees, including the cost of the doctor's certificate, funeral director's fees, flowers, coffin travel to arrange or go to the funeral, the costs for moving the body within the UK. An indication of the scale of these to a surviving family member or society are that a direct cremation costs c. £1,600, a cremation using a funeral director £3,214 and a burial using a funeral director costs £4,136. Whilst some costs are covered for low income households via a state Funeral Payment, often this is paid for on credit or often loans from a more affluent family member. This in turn inhibits a low income families spending.
- ⁵⁴ 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. For a detailed breakdown of the respective manifesto commitments please contact peter.smith@nea.org.uk.
- ⁵⁵ NEA is an active member of the Energy Efficiency Infrastructure Group, an alliance of organisations supporting a 20 year national infrastructure programme to bring all UK homes up to a decent standard of energy efficiency, warmth and comfort without increasing energy bill. It includes: CBI, Energy UK, Eon, Institute of Civil Engineers, Royal Institute of Architects, MIMA, E3G, Policy Exchange, IPPR, Bright Blue, National Energy Action, Association for Conservation of Energy, UK Green Building Council, Sustainable Energy Action, National Insulation Association, Rockwool, Kingspan, Kingfisher, Saint Gobain, SIG, GGF, Superglass, Arup, Brufma, Willmott Dixon, Npower and WWF. See www.theeeig.co.uk.
- ⁵⁶ Unlocking Britain's First Fuel: The potential for energy savings in UK housing, Sep 2017.
- ⁵⁷ Energy Efficiency Deployment Office Evidence Brief, DECC, 8 February 2012. The publication also noted that in 2010, 24 per cent of UK primary energy demand was lost through energy generation, transformation and distribution losses.
- ⁵⁸ DECC Energy Efficiency Strategy: The Energy Efficiency Opportunity in the UK (November 2012). This assessment was undertaken to meet the immediate objective to comply with the demanding EU climate and energy targets to be met by 2020, known as the "20-20-20 targets". This 'climate and energy package' was agreed by the European Parliament and Council in December 2008 and became law in June 2009. The current targets are a reduction in EU greenhouse gas emissions of at least 20% below 1990 levels, 20% of EU energy consumption to come from renewable resources (not just electricity) and a 20% reduction in primary energy use compared with projected levels, to be achieved by improving energy efficiency. NEA understands that whilst the UK will meet its Green House Gas (GHG) Emissions target, it is not on course to meet the other commitments.
- ⁵⁹ NEA response to the National Infrastructure Commission consultation on the National Infrastructure Assessment, p7 <http://www.nea.org.uk/wp-content/uploads/2016/07/NEA-response-to-the-National-Infrastructure-Commission-consultation-on-the-National-Infrastructure-Assessment-FINAL.pdf>
- ⁶⁰ In January 2016, NEA announced the first projects to be funded under a £26.2 million health and innovation programme which brings affordable warmth to over 6,000 low income and vulnerable households in England, Wales and Scotland. The programme was split into three distinct funds; two programmes delivered by NEA – the Technical Innovation Fund and Warm and Healthy Homes Fund and the third delivered by NEA's subsidiary Warm Zones cic. The Technical Innovation Fund specifically aimed to facilitate community-level trials of innovative solutions utilising measures not traditionally within the scope of current retrofit or energy efficiency programmes. Grant recipients have installed a range of technologies and are now working with NEA to ensure that robust monitoring and evaluation takes place. Alongside our partners we hope the trials provide low income and vulnerable groups the opportunity to be early adopters of the following innovative measures; hybrid and ground source heat pumps, new approaches to park home insulation, district heating, domestic CHP and biomass, new heating control systems; voltage performance optimisation units, heat stores, battery stores and heat recovery systems. There are also several projects that have trialled smaller complimentary technologies with the potential to reduce energy consumption or improve comfort. NEA are committed to ensuring the findings of this work feed into national policy making and we responded to the National Infrastructure Commission (NIC)'s Technology Study call for evidence and a Smart, Flexible Energy System, the Department of Business, Energy and Industrial Strategy (BEIS)'s and Ofgem's call for evidence. Both responses drew on early learnings from the aforementioned Technical Innovation Fund as well as evidence from other programmes and initiatives.
- ⁶¹ Still the Cold Man of Europe – briefing, Association for the Conservation of Energy, October 2015
- ⁶² The measures included within the BEIS's FP- MAC curves highlight it is possible to meet the interim and final fuel poverty targets cost effectively and will generate positive savings for society
- ⁶³ CCC, Energy prices and bills - impacts of meeting carbon budgets, March 2017 noted that if the insulation and low-carbon heat installations required to meet the carbon budgets can be successfully targeted at the fuel poor then around three-quarters can be lifted out of fuel poverty by 2030. However, meeting the Government's goal of improving fuel poor homes to efficiency band C by 2030 would require roughly doubling the funding currently provided under the Energy Company Obligation. CCC, Report to Parliament – Meeting Carbon Budgets: Closing the policy gap, 29 June 2017.
- ⁶⁴ Whist ECO continues to provide some limited support for gas boilers, from a high of 85,000 boilers installed from the three months October to December 2013, only 13,037 boilers were installed in the five months from April to August 2017, only c. 5,500 were gas boiler replacements, less than 6% of what they were at the start of ECO in 2013. There have currently been no repairs under the scheme since April 2017.

⁶⁵ Ofgem noted earlier this year that there are around 1.8m electric heating households in England (8%) with higher proportions in Scotland, 0.3m (13%), and lower proportions in Wales, where there are less than 100,000 (5%), homes using electric heating. A substantial minority (0.5m) use direct-acting heating systems without storage functionality, which instead generate heat instantly when needed, and use electricity at that time. The majority of these are electric room heaters which are high energy inefficient. Households that use electric heating tend to be of lower income. In England, around a third have incomes of less than about £14,500. This combined with higher costs of heating, means these households are more likely to be fuel poor.

⁶⁶ Carbon monoxide (CO) is a poisonous gas that in homes is caused by unsafe or the misuse of gas, oil and solid fuel appliances, along with poor ventilation. Limited research (e.g. Ezratty et al., 2011, Kokkarinen et al., 2014) suggests that those on low incomes and who struggle to afford heating costs may be more vulnerable to CO poisoning. Between 2015-2017 NEA worked with the Gas Safety Trust and GDNs to further investigate this relationship between CO exposure risk and household vulnerability. NEA would be happy to share the findings of our most recent report; "Understanding Carbon Monoxide Risk in Households on Low Incomes and in Vulnerable Situations".

⁶⁷ In a typical semi-detached home, upgrading heating controls and replacing a gas boiler that is around 80 per cent efficient (D rated) with a new boiler will save around £85 a year, whereas replacing a boiler that is 70% efficient (G-rated) could save over £300 a year. (This is based on a 70 per cent or below efficient boiler with no heating controls being replaced by an at least 90 per cent efficient boiler with heating controls.) Households which have the worst performing boilers could save even more than this. Heating and hot water accounts for about 60 per cent of what a household spends in a year on energy bills, so an efficient boiler makes a big difference, especially to those households which are struggling to pay their energy bills.

⁶⁸ Replacing a boiler could save between 0.3 and 1.5 tonnes of CO₂ each year depending on the efficiency of the boiler being replaced. 1.5 tonnes of CO₂ is the equivalent of a return flight from London to San Francisco. Boiler replacement will also have a positive impact on air quality.

⁶⁹ The National Health Service estimate that every year in the UK, more than 200 people go to hospital with suspected carbon monoxide poisoning, which leads to around 50 deaths.

⁷⁰ For example an old disused back boiler can explode if they are left unused and empty. *Woman's coffee table saves her from being chopped in half when central heating boiler explodes like a bomb*, 14 January 2015.

⁷¹ Ibid ref 20

⁷² Heat Decarbonisation: Potential impacts on social equity and fuel poverty, Maxine Frerk, Grid Edge Policy; Dr Keith MacLean, Providence Policy, September 2017.

⁷³ Fuel Poverty and Houses in Multiple Occupation, produced by Future Climate and National Energy Action, 2016.

⁷⁴ Latest fuel poverty detailed tables 2017, Department for Business, Energy & Industrial Strategy Fuel poverty statistics, 29 June 2017.

⁷⁵ The median annual income of a fuel poor household in England after housing costs is £10,118. This is £2,815 below the poverty line.

⁷⁶ From April 2018, landlords will not be able to rent out properties with energy efficiency ratings below EPC Band E (exemptions apply). The regulations apply to the domestic private rented sector in England and Wales. This is defined in section 42 of the Energy Act 2011 as properties let under an assured tenancy for the purposes of the Housing Act 1988, or a tenancy which is a regulated tenancy for the purposes of the Rent Act 1977. A high percentage of fuel poor households also live in the worst properties in the deepest fuel poverty are renting from private landlords, they must be prioritised for assistance.

⁷⁷ The regulations apply to the domestic private rented sector in England and Wales. This is defined in section 42 of the Energy Act 2011 as properties let under an assured tenancy for the purposes of the Housing Act 1988, or a tenancy which is a regulated tenancy for the purposes of the Rent Act 1977.

⁷⁸ Fuel Poverty and Houses in Multiple Occupation, produced by Future Climate and National Energy Action, 2016.

⁷⁹ Along with Rockwool and British Gas, NEA sponsored a new piece of research with Sustainable Homes "Touching the voids report: The impact of energy efficiency on landlord income and business plans"

⁸⁰ District Heating Networks: Analysis of information request, Citizens Advice, January 2016.

⁸¹ 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 however both Scotland and Wales have their own statutory duties to eradicate fuel poverty by set dates.

⁸² The UK Government noted these include impacts on energy prices, impacts on the energy needs of households through improved building fabric, and changes in the way heat is supplied.

⁸³ Industrial Strategy - Building a Britain fit for the future, HM Government, December 2017, p.26 noted that Scotland has made great strides in energy efficiency

⁸⁴ The Coalition has a membership base of over 100 organisations from across Northern Ireland; representing businesses, environmental groups, trade unions, the health sector, local councils, consumer groups, housing associations, rural support networks, the voluntary sector, student unions, young persons groups, older persons groups and faith groups

⁸⁵ Northern Ireland Fuel Poverty Coalition, A Manifesto for Warmth, 2016.

⁸⁶ As well as NEA and Citizens Advice the Wales Fuel Poverty Coalition includes Age Cymru, Care & Repair Cymru, Community Housing Cymru, Children in Wales, Friends of the Earth Cymru, Oxfam Cymru, Shelter Cymru, Disability Wales, Cynnal Cymru North Wales Energy Advice Centre and Warm Wales.

⁸⁷ CCC, Meeting Carbon Budgets – 2016 Progress Report to Parliament, June 2016. More recently that investment in energy efficiency targeted at fuel poverty must double.

⁸⁸ Lewisham and Islington Councils, please contact NEA for further information.

⁸⁹ Ibid ref 20

⁹⁰ Heat Decarbonisation: Potential impacts on social equity and fuel poverty, Maxine Frerk, Grid Edge Policy; Dr Keith MacLean, Providence Policy, September 2017.

⁹¹ Draft National Infrastructure Assessment, National Infrastructure Commission, October 2017.

⁹² Committee on Climate Change, Next steps for UK heat policy, October 2016.

⁹³ The Fuel Poverty Action Plan, Greater London Authority (GLA), June 2017.

⁹⁴ Age UK. 2012. The cost of cold: Why we need to protect the health of older people in winter.

⁹⁵ NEA estimates that some families in fuel poverty are facing an income shortfall of up to £9,331 per year (£778 per month) to cover basic essentials, including energy. As noted below, NEA has also warned many low income households could miss out on energy rebates and the proposed new safeguard price cap. The findings are included as part of our "Bridging the Gap" report which highlights the scale of the impossible choices families will be making this winter.

⁹⁶ Upgrading as many fuel poor homes as is reasonably practicable to Energy Performance Certificate Band E by 2020 and to Band D by 2025

⁹⁷ The median annual income of a fuel poor household in England after housing costs is £10,118. This is £2,815 below the poverty line.

⁹⁸ Along with Rockwool and British Gas, NEA sponsored a new piece of research with Sustainable Homes "Touching the voids report: The impact of energy efficiency on landlord income and business plans"

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¹⁰² NEA response to the National Infrastructure Commission consultation on the National Infrastructure Assessment, p7 <http://www.nea.org.uk/wp-content/uploads/2016/07/NEA-response-to-the-National-Infrastructure-Commission-consultation-on-the-National-Infrastructure-Assessment-FINAL.pdf>

¹⁰³ In January 2016, NEA announced the first projects to be funded under a £26.2 million health and innovation programme which brings affordable warmth to over 6,000 low income and vulnerable households in England, Wales and Scotland. The programme was split into three distinct funds; two programmes delivered by NEA – the Technical Innovation Fund and Warm and Healthy Homes Fund and the third delivered by NEA's subsidiary Warm Zones cic. The Technical Innovation Fund specifically aimed to facilitate community-level trials of innovative solutions utilising measures not traditionally within the scope of current retrofit or energy efficiency programmes. Grant recipients have installed a range of technologies and are now working with NEA to ensure that robust monitoring and evaluation takes place. Alongside our partners we hope the trials provide low income and vulnerable groups the opportunity to be early adopters of the following innovative measures; hybrid and ground source heat pumps, new approaches to park home insulation, district heating, domestic CHP and biomass, new heating control systems; voltage performance optimisation units, heat stores, battery stores and heat recovery systems. There are also several projects that have trialled smaller complimentary technologies with the potential to reduce energy consumption or improve comfort. NEA are committed to ensuring the findings of this work feed into national policy making and we responded to the National Infrastructure Commission (NIC)'s Technology Study call for evidence and a Smart, Flexible Energy System, the Department of Business, Energy and Industrial Strategy (BEIS)'s and Ofgem's call for evidence. Both responses drew on early learnings from the aforementioned Technical Innovation Fund as well as evidence from other programmes and initiatives.

¹⁰⁴ Still the Cold Man of Europe – briefing, Association for the Conservation of Energy, October 2015

¹⁰⁵ The measures included within the BEIS's FP- MAC curves highlight it is possible to meet the interim and final fuel poverty targets cost effectively and will generate positive savings for society