

## National Energy Action (NEA) response to BEIS Call for Evidence 'Future Support for Low Carbon Heat'



Action for Warm Homes

### About National Energy Action (NEA)

NEA<sup>1</sup> works across England, Wales, and Northern Ireland to ensure that everyone in the UK<sup>2</sup> can afford to live in a warm, dry home. 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.

### Background and Summary

Living in cold, damp, and unhealthy homes continues to cause shocking levels of unnecessary hardship and premature mortality. Across the UK, on average more than 10,000 people die each year due to living in a cold home<sup>3</sup>. The number of needless deaths is the 'tip of the iceberg' and many more people are suffering with poor physical and mental health and resulting impact on health services costing the NHS between £1.4bn and £2bn every year, in England alone. As well as the devastating impacts cold homes have on their occupant's lives, this problem extends to all of us; needless health & social care costs<sup>4</sup>, queues at GPs and A&E as well as delaying the discharge of the most vulnerable patients from hospital<sup>5</sup>. NEA believes dramatically improving domestic energy efficiency levels remains the most enduring solution to addressing energy affordability. This coupled with an effective mechanism to help fuel poor households decarbonise their supply of heat is absolutely crucial to achieving our net-zero carbon goals.

NEA recently finished the administration of a Technology Innovation Fund (TIF). Overall, over 44 projects were awarded funding (with an additional two programmes granted funding in 2017), involving 19 types of technology and 66 products. The grant recipients agreed to work with NEA to ensure that appropriate monitoring and evaluation could take place. NEA also utilised its extensive experience to work with local partners in areas experiencing high levels of fuel poverty to ensure the impacts of the technologies themselves were amplified. Where possible, there was also a focus on low income households, 61% of the residents had incomes under £16,000. In addition, NEA targeted rural and off-gas communities and EPC band D, E, F and G properties and 24% were living off the mains gas network and reliant on more expensive heating fuels. Early analysis of the initial household surveys indicated the TIF programme brought about significant benefits with high levels of satisfaction reported across the programme. These impacts included:

- Keeping warm and comfortable at home - A large majority (78.2%) of households have experienced increased thermal comfort as a result of TIF interventions
- Energy bills and affordability - Almost three quarters (73%) of households thought the affordability of their energy bills had improved since receiving their measures, with over a third (35.5%) agreeing that it had improved a lot while a further (37.5%) thought it had improved a little
- Managing energy bills - While almost half of households (48%) thought their energy bills were manageable before they received measures, this increased to over half (62%) after installation of the TIF measures
- High levels of satisfaction with our programme - The majority (85.5%) of households were satisfied or very satisfied with the assistance they had received from the TIF programme overall

The knowledge gained from these technical trials gives us a unique standpoint on which to comment on how changes in rules and structures in the energy system will impact on fuel poor and vulnerable households.

Additionally, in 2017 NEA commissioned a report "Heat Decarbonisation: Potential impacts on social equity and fuel poverty" to better understand how schemes such as the RHI and the proposals in this consultation can work to best help meet both our decarbonisation and fuel poverty goals.

We have four main recommendations for BEIS in their work to replace the RHI with a new mechanism after it ends in 2022:

1. Any new mechanism must include an up-front grant for low income households to access from the policy, helping them to benefit from decarbonising their heat supply sooner rather than later. It must also continue to be funded through general taxation or another progressive cost recovery mechanism and must not stray into regressive practices such as an energy bill levy.

2. Fuel poor and vulnerable households will likely need a sum of much higher than the proposed £4k in order to properly benefit from such a grant, with air source heat pumps costing in the region of £10k to install, even before necessary insulation work or the provision of on-going warranties. Either grants must increase in value for poorer households or should be allowed to be supplemented by other funding streams, such as the Energy Company Obligation, in order to make up the gap required to make the purchase.
3. The scale of the scheme is too low to achieve our low carbon goals. The impact assessment suggests that the level of installs of low carbon heating systems will remain broadly level when moving to this scheme at approximately 12,000 installs per year. The CCC has said that 19 million heat pumps are expected to be needed by 2050<sup>6A</sup> a straight-line trajectory from 2020 implies around 630,000 heat pumps a year. The ambition of this scheme must be increased if we are to remain on course to meet our decarbonisation goals.
4. The scheme should aim to be broadly technology agnostic, and BEIS should not rule out technologies such as hybrid heat pumps and solar thermal. Hybrid heat pumps in particular are seen by the Committee on Climate Change as an important part of decarbonising heat. They can see 85% of heat demand being met by low carbon sources, with a top up provided by natural gas, biogas, or another fuel. In their 2019 report on achieving net zero, the CCC showed that a decarbonisation of heat pathway in the 2020s would require a hybrid first approach. This would allow more households to access the scheme whilst still achieving significant of carbon savings. This would also require the need to move away from a flat rate of support.

## **Our response to this consultation**

Question 22 – Do you agree with targeting support at domestic and non-domestic installations with a capacity up to and including 45kW? Yes/No. Please provide evidence to support your response.

Yes – we agree that there should be support for domestic customers with a capacity up to and including 45kW. Non-domestic installations should be included as long as funding for domestic installations is ringfenced. 45kW gives a more than adequate capacity level for all domestic households to be able to benefit from this scheme, which is our primary concern regarding scheme design.

Question 23 – Do you agree that support for buildings technologies should change from a tariff to a grant? Yes/No. Please provide evidence to support your response.

Yes. Heat pumps typically cost approximately 4 to 5 times as much to install as a new condensing boiler, which equates to a difference in the region of £6,000 to £8,000.<sup>7</sup> The running costs of a heat pump are marginally more than that of an A-rated oil or gas boiler. In order for the lowest income households, who have minimal savings if any, to transition to low carbon heat, there must be support in the form of up-front grants to help them make the purchase. This should cover the whole cost of the installation.

Additionally, the technologies proposed within the consultation have a higher running cost than gas boilers<sup>8</sup>, the leading alternative for many households. There should be a complementary tariff to ensure that anyone taking up a heat pump within this scheme does not end up paying more than a household who heats their home using a condensing gas boiler.

A report, “Heat Decarbonisation: Potential impacts on social equity and fuel poverty”<sup>9</sup>, commissioned by NEA in 2017 found that “grants to deal with the up-front costs of in-home changes are likely to be more cost effective than ongoing payments and are essential to enable low income households to participate”. It should therefore be noted that whilst we support a subsidy to compensate for higher running costs when compared to a gas alternative, NEA believes that the support mechanism should levelise upfront costs, with this grant support being far more valuable from an accessibility perspective than tariff support. If this key balance can be struck this will give low-income households the best chance of benefitting from low carbon heating.

Question 24 – Do you agree with our proposal to offer a technology-neutral grant level? Yes/No. Please provide evidence to support your response.

No. Whilst we believe the scheme should aim to be broadly technology agnostic, a flat sum for ground source, air source and biomass boilers of £4000, is based around the costs of air source heat pump, and a perceived level of subsidy needed to drive that particular market. Being technology neutral is not synonymous with providing a flat level of support to all heat pump and biomass technologies. Bigger heat pumps cost more, and ground source are more expensive. But they also have benefits, not only to the household, but the system. In particular, ground source heat pumps are more efficiency than their air source counterparts, meaning that the overall system capacity is lower for a ground source world. This is not reflected in this proposed subsidy regime and is something that BEIS should carefully consider.

Question 25 – Do you agree that £4,000 is an appropriate grant amount to meet the aims of the scheme? Yes/No. Please provide evidence to support your response.

No. Not for low income households. In order for heat pumps to be affordable to low income households, the full value of the upfront capital and on-going warranty will need to be provided. If this provision is not made explicit, the Government should allow use of Energy Company Obligation funding to go towards the cost of the new Green Homes Grant scheme.

As in our answers to questions 24 and 25, NEA believes that the level of the grant should be flexible with regards to both technology and system size, in order to ensure that households can access the right technology and size of system to meet their particular needs.

Question 26 – Do you agree with the recommendation for a flat-rate grant? Yes/No. Please provide evidence to support your response.

A flat rate grant can be appropriate for such a scheme as long as it is complemented by other funding sources that allow low income households to afford the appropriate size of system for their home. Without such extra funding, there is a risk that systems with lower than required capacity are installed, leading to under heating which can eventually have a serious impact on the health of householders. **However, it is clearly simpler to ensure that the design of this scheme is as good as possible, so our preference is for the grant to scale with the size of installation.**

This is especially important for low income households. 30% of fuel poor households live in properties with 110m<sup>2</sup> or more of floorspace<sup>10</sup>, so could require upwards of 10kW of output to adequately heat their home. It does not make sense that a fuel poor household living in such a property should receive the same overall subsidy as a fuel poor household with a lower floorspace, as they will be unlikely to afford the extra cost.

It is imperative that low income households can access this support, and that it matches what they need in order to adequately heat their homes. Therefore, if there is an appropriate secondary funding mechanism such as ECO, then we would be comfortable with the flat rate proposed. If not, then this support mechanism should be designed to account for the needs of all households including the more than 700,000 fuel poor households living in relatively large properties.

Question 27 – If you believe a variation by capacity should be considered, please provide evidence to justify a process and level for varying the grant.

Please see our answer to question 26 above.

Question 28 – Please provide any relevant views to help inform development of the delivery mechanism.

The Renewable Heat Incentive has not benefited fuel poor homes in rural areas. This is despite the UK Government committing in 2016 to target the RHI on fuel poor households but as yet have failed to deliver on this pledge and the scheme is expected to end in 2020 . As with the better targeting of the Energy Company Obligation (ECO) policy, this recommendation was also made 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<sup>11</sup>. These key barriers persist at a time when central Government policy is increasingly looking to decarbonise these homes or take wider action to improve air quality. These challenges have been recently analysed in detail by Maxine Frerk of Grid Edge Policy and Dr Keith MacLean, Providence Policy who undertake new research on behalf of NEA into heat decarbonisation and social equity<sup>12</sup>. This work recommended three main aspects for any scheme:

- Funding any subsidies through taxation rather than the energy bill is less regressive and will avoid adverse impacts on the depth of fuel poverty.
- Grants to deal with the up-front costs of in-home changes are likely to be more cost effective than ongoing payments and are essential to enable low income households to participate
- Design of any schemes aimed at individual consumers needs careful research to understand the wider customer drivers and impacts. If schemes are to be funded through bills, then close attention should be paid to the design of the scheme to minimise the impacts on fuel poverty (for example using a protected block tariff design).

Our belief is that in addition to these three aspects, it is key that whilst there is no discrete funding scheme available for fuel poor households to decarbonise, a proportion of any funding mechanism is ringfenced for fuel poor households in order to achieve a reasonable equity of opportunity in the transition to net-zero.

Question 29 – Do you agree with the minimum efficiency requirements for heat pumps and evidence requirements? Yes/No. Please provide further evidence to support your response.

Yes. However, Low income households, living in poorly insulated housing, should not be disqualified from the grant just because they cannot afford upgrades to achieve a better EPC. Installers must be encouraged to refer eligible households into energy efficiency funding mechanisms so that they can increase the energy efficiency rating of their home and then qualify for the grant.

Question 35 – What do you consider to be the main consumer protection risks of providing support through an upfront grant and how might they be mitigated? Please provide evidence to support your response to question.

As heat consumption is diversified to new technologies and fuels, there is a risk that consumer protections and regulations cannot keep pace, leaving poorer households more exposed to a potentially harmful market. It is generally agreed that there will need to be a portfolio of heating technologies in use to fully decarbonise heat, many of which are not fully regulated as of yet. If heating fuel moves away from electricity or gas, and regulation is not swift, then households could lose consumer protection rights. Even if regulation is present, it may not be as “tight” as is currently the case with electricity and gas, leading to a ‘race to the bottom’.

All heating technologies need to be backed up with the same level of consumer protections that the majority of customers are given today through Ofgem. Government should work with Ofgem to determine how to regulate heat, not just power and gas. In order to ensure that consumers remain protected and are treated fairly, heat should be regulated instead of the fuels that are used to create it. This would mean that no matter how heat is created, there will be adequate protection and regulation for vulnerable consumers.

In terms of the risks directly associated with upfront costs, we believe that MCS, or an equivalent scheme, would give consumers adequate protections regarding the performance of the product and quality of installation. The additional requirement of an installer being a member of a consumer code would present a reasonable level of protection.

One area of concern is the adequacy of a system to keep a home warm. With a grant system, a household is incentivised to install low capacity systems to make them more affordable, especially lower income households. Installers are therefore incentivised to sell systems that are potentially undersized, leading to underheating in the winter, which could lead to health problems, or expensively heating the home using other means. This could be reconciled through only allowing installs that provide the heat requirement as laid out within the latest EPC.

Question 40 – Do you agree with not supporting solar thermal systems under the Clean Heat Grant? Yes/No. Please provide evidence to support your response.

Question 41 – Do you agree with not supporting hybrid systems under the Clean Heat Grant? Yes/No. Please provide evidence to support your response

No. The scheme should aim to be broadly technology agnostic, and BEIS should not rule out technologies such as hybrid heat pumps and solar thermal. Solar thermal has a high upfront cost but the on-going running costs are very low which is very attractive to low income consumers if the upfront costs can be defrayed. Hybrid heat pumps in particular are seen by the Committee on Climate Change as an important part of decarbonising heat. They can see 85% of heat demand being met by low carbon sources, with a top up provided by natural gas, biogas, or another fuel. In their 2019 report on achieving net zero, the CCC showed that a decarbonisation of heat pathway in the 2020s would require a hybrid first approach. Additionally, the BEIS Electrification of heat trials include hybrid heat pumps, showing that they remain in the Government’s own plans for heat decarbonisation, and they can have a positive impact on electricity network costs, reducing electricity demand at times of network constraint. Their inclusion in this grant would allow more households to access the scheme whilst still achieving significant carbon savings but would require the need to move away from a flat rate of support as suggested in our answer to questions 24, 25 and 26.

Our technical innovation fund has done four trials of hybrid heat pumps, each showing that they can have a positive impact on both carbon emissions and fuel poverty levels, showing that transitioning to low carbon heating systems need not have an impact on residents’ cost and comfort levels. Residents saved on their annual heating costs and saw a significant change in their risk of living in fuel poverty. It was found that the high upfront costs associated with the purchase and installation of a hybrid system are a barrier to uptake, and the requirement for a grant to cover some of the costs. Whilst there are cases of relatively low up front cost deals for hybrid heat pumps available now<sup>13</sup>, without support available from the proposed scheme, these systems will simply be unaffordable for low income households, and they will likely continue to burn high carbon fossil fuels for the foreseeable future.

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<sup>1</sup> For more information visit: [www.nea.org.uk](http://www.nea.org.uk).

<sup>2</sup> NEA also work alongside our sister charity Energy Action Scotland (EAS) to ensure we collectively have a UK wider reach.

<sup>3</sup> Over the last 5 years, there has been an average of 35,562 excess winter deaths. NEA estimates that approximately 30% of these are attributable to the impact cold homes have on those with respiratory and cardio-vascular diseases and the impact cold has on increasing trips and falls and in a small number of cases, direct hyperthermia. This is in line with estimates made by the world health organisation - [http://www.euro.who.int/\\_\\_data/assets/pdf\\_file/0003/142077/e95004.pdf](http://www.euro.who.int/__data/assets/pdf_file/0003/142077/e95004.pdf)

<sup>4</sup> In 2016 BRE released its revised Cost of Poor Housing (COPH) report, which estimated the cost of poor housing to the NHS based on EHS and NHS treatment costs from 2011 and includes treatment and care costs beyond the first year. It also includes additional societal costs including the impact on educational and employment attainment. Finally, it provides information in terms of QALYs (Quality adjusted life years) as well as cost benefits, and to compare with other health impacts. The report estimates that the overall cost of poor housing is £2bn, with up to 40% of the total cost to society of treating HHSRS Category 1 hazards falling on the NHS. Overall, the cost to the NHS from injuries and illness directly attributed to sub-standard homes was estimated at £1.4billion, and the total costs to society as £18.6 billion.<sup>6</sup> Research by the BRE in 2013 suggested that if all of the English housing stock with a SAP below the historic average of 41 was to be brought up to at least the current average of 51 through heating and insulation improvements, the health cost-benefit to the NHS would be some £750 million per annum.<sup>6</sup> Other estimates put the costs to the NHS of energy inefficient housing at £192 million (£35 million of which was in the private rented sector). Use of the BRE category 1 calculator put the estimated private rented sector costs to the NHS at between £37 and £674 million depending on SAP rating and occupancy level.

<sup>5</sup> Elliot AJ, Cross KW, Fleming DM. Acute respiratory infections, and winter pressures on hospital admissions in England and Wales 1990-2005. *J Public Health (Oxf)*. 2008 30(1):91-8.

<sup>6</sup> Committee on Climate Change, 2019. Net Zero: The UK's contribution to stopping global warming <https://www.theccc.org.uk/wp-content/uploads/2019/05/Net-Zero-The-UKs-contribution-to-stopping-global-warming.pdf>

<sup>7</sup> Using data from the Energy Saving Trust, a new boiler costs approximately £2,500 whilst a new air source heat pump system costs approximately £9,000 to £11,000 <https://energysavingtrust.org.uk/renewable-energy/heat/air-source-heat-pumps> and <https://energysavingtrust.org.uk/home-energy-efficiency/boiler-replacement>

<sup>8</sup> Heat pumps are more expensive to run than A-rated gas boilers, as shown by the Energy Saving Trust – see <https://energysavingtrust.org.uk/renewable-energy/heat/air-source-heat-pumps>

<sup>9</sup> <https://www.nea.org.uk/resources/publications-and-resources/heat-decarbonisation-potential-impacts-social-equity-fuel-poverty/>

<sup>10</sup> From the fuel poverty statistics 2018 <https://www.gov.uk/government/statistics/fuel-poverty-detailed-tables-2020>

<sup>11</sup> 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. For more information see <https://www.theccc.org.uk/publication/energy-prices-and-bills-report-2017/>

<sup>12</sup> <http://www.nea.org.uk/wp-content/uploads/2017/09/Heat-Decarbonisation-Report-2017.pdf>

<sup>13</sup> Both EDF and Shell Energy have been able to offer low up front cost deals under the RHI for households with oil or LPG boilers. Such deals are unlikely to be possible after the end of the Domestic RHI. See <https://www.b-snuq.com/> and <https://www.edfenergy.com/for-home/energy-efficiency/low-carbon-heating>