Energy Saving Trust response to the Welsh Government's 'Proposals for the next iteration of the Warm Homes Programme' consultation

1 April 2022

Question 1 - Do you agree the Welsh Government should balance the need to alleviate fuel poverty and create a socially just nation with the need to tackle the climate emergency, or should one of these objectives take precedence in the new Warm Homes Programme?

Our view is that whilst we agree with the twin objectives of supporting vulnerable households and tackling the climate emergency we see no reason why both of these objectives cannot be achieved simultaneously as part of the next iteration of the Warm Homes Programme. While previous iterations of the Warm Homes Programme did reduce emissions through fabric energy efficiency and the installation of more efficient gas boilers, the new Warm Homes Programme should go further in terms of improved fabric efficiency and the installation of low carbon heating systems.

In our view the primary focus of the Warm Homes Programme should be supporting fuel poor and vulnerable households. This has become even more pressing given the current energy crisis which we will feel the effects of for some time to come. There is no reason why these households cannot be the primary recipients of support, see reductions in their bills while improving their homes to become more net zero ready. In this way the current energy costs crisis highlights how lowering energy costs and decarbonising energy use can go hand in hand.

The ongoing crisis illustrates why we must move away from our reliance on natural gas and the global gas market. New research from the Regulatory Assistance Project (RAP) (see: https://www.raponline.org/knowledge-center/analysis-running-costs-of-heat-pumps-versus-gas-boilers/) has shown that after the April price rises the average cost for a typical household of running a gas boiler will climb to £934 per year while running an efficient (and correctly installed) heat pump will cost £723 per year.

Crucially, we are expecting gas prices to rise again in October with analysts predicting high prices may continue for some time. As the electricity grid further decarbonises we can expect the cost of electricity based around renewable generation to become more certain and lower cost (solar and wind are consistently the cheapest forms of generation) whereas fossil fuel prices may continue to be volatile and subject to prices set on the global market. At present, the per unit cost of electricity is kept artificially high compared to gas because of the balance of levies between the two energy sources. Last year, 2% of the price of gas came from levies whereas environmental and social levies on electricity accounted for 23% of electricity bills. We have been calling, along with other organisations, for most of these levies to be moved onto general taxation, creating a more progressive funding structure and immediately reducing the running costs of heat pumps and other electrical heating sources. The UK Government committed to rebalancing levy costs in their Heat and Building Strategy and we are expecting a consultation on these proposals to be published soon. In terms of possible alternative heat decarbonisation strategies we don't see hydrogen as a viable path for this Warm Homes Programme. We anticipate that hydrogen derived from natural gas for heating will present similar supply and cost challenges to those currently being experienced in gas markets, while hydrogen produced from renewable electricity is energy intensive and even when scaled up and using renewable sources it is unlikely to present a viable option for heating in the short to medium term.

We understand why Welsh Government has had concerns about heat pumps in the past, particularly where retrofit measures have been needed to ensure that running costs of heat pumps are comparable to gas boilers. However the fuel crisis and recent UK level policy changes have altered the landscape. Electricity prices have not risen as much as gas prices and the Boiler Upgrade Scheme put in place by BEIS will help to address the upfront capital costs. Heat pumps, when well installed and specified, can be effective both for lowering costs and for decarbonisation. Even before the energy price rises correctly installed, efficient heat pumps could outperform gas boilers in real world conditions. Gas boilers tend to operate at around 82.5% efficiency in real-world conditions rather than the 95% that is often assumed (https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/180950/In-situ_monitoring_of_condensing_boilers_final_report.pdf). Studies have also shown there are issues with oversizing of systems and poor installation of gas boilers causing significantly lower efficiencies (see: https://journals.sagepub.com/doi/10.1177/0143624420927352). Conversely, it is not uncommon for good quality heat pumps to achieve efficiencies of 400% (4 COP) with

the average somewhere around 3.3 COP despite repeated articles on heat pumps in the press assuming that heat pumps achieve only 2.5 COP (a worse case scenario).

It is likely that the UK Government will soon set a minimum standard of 2.8 COP for heat pumps and the vast majority of correctly installed systems achieve well above this. When these real world efficiencies are accounted for we see that the cost differentials between gas boiler and heat pump running costs reduce greatly and we anticipate that in many cases heat pumps will be cheaper to run than gas boilers. We would always recommend that homes installing new heating systems should also have energy efficiency measures installed. This is a no-regrets approach that reduces the running costs of all heating systems while reducing emissions.

Giving households impartial and bespoke advice throughout the retrofit process is essential, including post-install advice about how to operate low carbon heating systems optimally in more energy efficient homes. We discuss the benefits of an impartial advice service in more detail in our response to Question 14. Advice that drives positive behaviour change is extremely valuable. Recent work we undertook in Scotland on post-installation advice illustrated that households could save significant sums of money and have more comfortable homes after receiving tailored advice. The Behaviour Change Pilot (see: https://www.energysavingtrust.org.uk/sites/default/files/reports/SEEP%20-%20Advice%20%20Information%20-%20Behaviour%20change%20pilot%20-%20FINAL_06Jul16.pdf) managed by the Energy Saving Trust on behalf of the Scottish Government showed that as many as 30% of households found that their properties became too warm following the installation of energy efficient measures because they continued to use their heating systems as they had done before the measures were installed. Ensuring that households understand how to operate their heating systems effectively will ensure that the environmental, comfort and fuel bill savings of the physical measures are maximised. Evidence from the second phase of this pilot showed that such advice is welcomed as part of an energy efficiency upgrade to the property and that it can be easily integrated alongside other advice provision. All of the above approaches rely in part on having strong quality standards, such as PAS2035, to ensure that households receive the best service possible.

We recognise the concerns around the possibility of leaving households worse off after installing energy efficiency or low carbon heat measures but we think that this will not be a significant problem in practice if the above criteria are met. As a back-stop we suggest that as a principle no home which has engaged with the future Warm Homes

Programme should be left worse off, with appropriate redress and compensation procedures in place.

Question 2 – What is the gap in provision which you believe the next Warm Homes Programme should fill to achieve a greater benefit for Wales?

It is important the Warm Homes Programme continues to make a distinctive yet complementary contribution to these initiatives that are already being developed by Welsh and UK Governments.

In the context of the current crisis it is important for Welsh and UK Governments to raise the pace and scale of efforts to reduce energy use and to decarbonise in order to address the energy and climate crises. As we have indicated in our responses to other questions in this consultation the Warm Homes Programme could go further to support low carbon heat, provide support for people living in the private rented sector and redouble efforts to achieve a whole house approach.

A key area is going further on the provision of impartial advice which we have outlined in our response to Question 14. This is a cost effective way to accelerate the impact of Welsh Government programmes and improve outcomes for households in Wales.

Question 3 – In 'Homes fit for the future, the retrofit challenge', the Future Generations Commissioner for Wales estimated investment of £14.75bn over the next decade to both eradicate fuel poverty and meet our net zero ambitions. What suggestions do you have on where the funding for this level of investment should come from?

These significant funds for retrofit will have to come from a mixture of public and private sources (eg green mortgages, Property Assessed Clean Energy (PACE) on-bill financing, consequential improvements) many of which were discussed as part of the Future Generations Commissioner's report. We have discussed below some possible approaches Welsh Government could consider to increase the availability of funds below. What is not in question is that we must fund these improvements one way or another and should look to do this as equitably as possible.

As a first step, the amount of UK-level funding coming to Wales must be maximized. ECO 4 will see a doubling of available funds with 50% distributed by local authorities. We

understand Welsh Government is in talks with BEIS regarding the potential for Wales' share of these funds to be distributed by Welsh Government and how these funds can be combined with other funding sources. If this central administration is not possible it is crucial that local authorities are given the support needed to access ECO effectively. In Scotland ECO managers have helped to increase the share of funds going to Scotland (12% of ECO measures to-date have gone to Scotland versus 5% to Wales) by working with local authorities to support their ECO bids. A similar approach could be effective in Wales. We understand Welsh Government hope to play a role in distributing the flex element of ECO 4 in Wales which would also help to ensure good take up across the country.

We understand the Development Bank of Wales is undertaking some early work on financing retrofit programmes which is certainly welcome but this must become a priority. Similarly, the UK Infrastructure Bank has been given a steer by Treasury to facilitate funding of domestic retrofit and Wales should argue strongly for its fair share of available support.

Wales could consider establishing a "wealth fund" from the benefits of renewable energy projects. There are several well-known wealth funds (e.g. Norway) and such models could be adapted to a contemporary Welsh context to help share the benefits of our abundant renewable energy resources. A scheme could be designed whereby the Welsh Government (or potentially the Development Bank of Wales) would subsidise the rollout of renewable energy projects in return for a share of the project's profits. These profits would in turn be placed into a wealth fund which would invest in environmentally and socially conscious projects seeking modest returns. This fund could be used to finance an energy efficiency programme for self-funders using blended grants and low-cost loans. A similar scheme was recommended as part of the Institute of Welsh Affairs' 'Renewing the Focus: Re-energising Wales Two Years On' report. The authors recommended that as a first step the Senedd Climate Change, Infrastructure and Environment Committee should undertake an inquiry into how such a fund could work. They recommended taking lessons from Shetland which, following the Zetland County Council Act 1974, allowed revenues to be captured from the then emerging offshore oil and gas industry.

Ultimately, much of the necessary public funds will still need to come from UK Treasury and so Wales must continue to argue for control over its share of the Shared Prosperity Fund and all other UK funding pots.

Section 3 eligibility for the Warm Homes Programme

Question 4 – Who do you think should be the primary focus of the next Warm Homes Programme?

We think that the primary focus of the Warm Homes Programme should continue to be supporting low income households.

We welcome the expansion of eligibility criteria referred to in the consultation document. NEA Cymru predict that the ongoing energy crisis will see the number of households experiencing fuel poverty in Wales rise to over 280,000 households. That is a further 100,000 households since October 2021 and an 80% increase compared to Welsh Government 2018 estimates and with further rises predicted for October this number will increase further without intervention. This means that many previously 'just managing' or comfortable households will be facing significant challenges to their household finances and many will be in need of support. Many of these households will not have engaged with fuel poverty programmes previously, may not be in receipt of means-tested benefits and could be in EPC D rated homes but still paying more than 10% of their income towards energy costs. It is right that the Warm Homes Programme should support these households.

Whatever the eventual focus of the Warm Homes Programme it will be essential that the eligibility criteria and promotion of the scheme are geared towards reaching vulnerable households, with appropriate funding put in place to achieve the aims set out by the Welsh Government.

While this consultation question and its accompanying text in the consultation document are concerned with which groups should be supported we think it is important to state that the Warm Homes Programme can be a fuel poverty alleviation programme while supporting efforts to decarbonise. The two goals are not in opposition to one another.

Question 5 – At what level should the household income and savings threshold(s) be set, above which households would be excluded from home energy efficiency measures supplied at no cost to the householder?

We have concerns about the use of rigid income and saving thresholds and the possibility of this leading to households receiving no support at all if they are just above a given threshold. The spending power of one family's income compared to another

depends on a range of factors such as family size, the size of rent or mortgage repayments, how much of their income is being used to service debts, how much of their income is spent on expensive but necessary travel (e.g. to work or childcare) etc. Assessments of income should be on a case by case basis. If the Welsh Government opts for an income threshold we think that they should consider raising it to support more people impacted by the energy price increases. Self-reporting of typical costs and comfort in the home, while lacking the statistical rigour favoured for reporting purposes, can be an effective means of triaging households that engage with the service in the first instance. Assessing whether a household is spending 8%, 10% or 20% of their income on energy bills is a relatively easy way of determining what support might be available to a household.

A slightly separate but no less important issue is around certain benefits being included as part of income assessments, in particular those designed to support people with disabilities (e.g. Personal Independence Payments and Disability Living Allowance). These payments are made available to people with disabilities to help meet costs related to their disability. They are not additional income. Currently, these payments are counted as income as part of the Nest eligibility criteria which can lead in some cases to vulnerable households with a disabled family member being ineligible for support through Nest. The future scheme should consider discounting benefit payments from income assessments to allow more vulnerable households to be supported.

As for the proposal that a tapered or blended grant and loan or grant and household contribution could be employed to address some of these issues and make an area-based approach more viable, we support this proposal and can point to the positive impacts of this approach through our work in Scotland where partial grant funding or low cost loans can be very effective in prompting action (see: https://energysavingtrust.org.uk/report-update-home-energy-programmes-delivered-by-energy-saving-trust-in-scotland/). In general, our view is that an area-based element to the Warm Homes Programme is an effective approach and that the Welsh Government should consider offering some form of financing or partial grant funding to households located within a target area, that are not eligible for fully funded measures, to improve the uptake and success of an area-based approach.

Question 6 – Do you think the Welsh Government should extend the Warm Homes Programme to include other households in the owner occupier and private rented sector?

Whether support for owner occupier households who are able to meet some of the costs of retrofit comes from an expanded Warm Homes Programme or a separate but complementary scheme our view is that it is important that a majority of the funding available is ring-fenced for low income households and those in fuel poverty. Funding for other households should not come at the expense of funding for low income households There is a precedent for this model in Northern Ireland where the Northern Ireland Sustainable Energy Programme, which we deliver on behalf of the Utility Regulator, sees 80% of energy efficiency funding ringfenced for priority customers in the domestic sector. If the Warm Homes Programme were expanded to support other households in private tenure types we would want to see the funding available to low income households maintained or, better, increased in real terms.

This said, we note the position set out in the Net Zero Wales plan that the Welsh Government will prioritise "those least well off in the hardest to heat homes (EPC D-G)" whereas for "the better off" the expectation is that "the market [will] provide solutions to enable retrofit of homes". We understand the reasoning behind this position. In time it is likely that self-funding households will access financing through private providers (e.g. green mortgages), this is also the view of the UK Government. The issue is that currently private financing is not yet widely available or promoted, with clear policy on private financing yet to be published by the UK Government. In the interim, the majority of households in Wales cannot meet the upfront costs needed to undertake energy efficiency and low carbon heat retrofit and are unable to access funding support through Welsh or UK Government.

The next few years are crucial to build up the skills and supply chains needed to deliver the scale of retrofit required to meet our climate targets while addressing the deeply ingrained poverty felt by too many in Wales. For this reason, we think that the Welsh Government should look to offer a form of low cost financing and tailored advice to owner occupiers and those in private rented homes who are not on low incomes or fuel poverty. This is a view shared by the Climate Change Committee who see a significant role for government intervention until the middle of this decade for the able to pay market. This could take the form of zero interest long term loans as have been successfully delivered in Scotland for a number of years and which have now reached a point where repayments are being recycled into new loans, reducing the fiscal impact of the scheme.

Financing could also take the form of more innovative on-bill financing options such as Property Assessed Clean Energy (PACE) financing (see:

https://europace.gnesolutions.com/) or indeed any number of possible alternative models. A tapering of grant and loan dependent on household circumstances would be beneficial.

Regardless of the exact model employed we think it is important that from a consumer perspective the route to support is as clear as possible. Our view is that there should be an expansion of impartial advice provision to cover the self-funding sector. This could be very effective at unlocking private finance and increasing the adoption of energy efficiency measures and low carbon heating. Consumers should be able to contact a government-backed advice service through one point of entry before being directed to suitable support (whether that is fully-funded measures and debt advice for those in fuel poverty or access to low-cost long term financing for those more able to afford upfront costs or repayments).

We want to reiterate that if broadening the Warm Homes Programme to support self funders in the owner occupied and private rental sector is the approach the Welsh Government decides to take it should not be at the expense of supporting the most vulnerable. It is clear that funding for energy efficiency and low carbon heat retrofit will have to increase to meet fuel poverty and climate targets.

Question 7 – If yes, do you have a view on how this might be funded?

We would reiterate the argument made in our response to question 6 that it will be crucial to ringfence the majority of Warm Homes Programme funding for those who are fuel poor or on low incomes. A financing scheme for other households could be separate from the Warm Homes Programme with such a scheme feasibly being delivered via the Development Bank of Wales. However, as we described previously, there would be merit in having one point of entry for support to promote a seamless customer journey.

An expanded programme might not have to be onerously expensive if zero interest long term loans are offered as the funding source with a tapered grant dependent on household circumstances. This is the model used in Scotland by the Scottish Government and has proven successful, with loan repayments now able to be re-issued as new loans reducing annual capitalisation from the Scottish Government.

Question 8 – If other households are included in the eligibility for support through the Warm Homes Programme, should support be prioritised, for example limited to homes with a lower EPC rating such as EPC rating of D or worse?

Yes. The Welsh Government should continue to prioritise the least efficient homes and those households on the lowest incomes. Prioritising support for less efficient properties for those able to part-fund measures will have a greater impact on carbon reduction and will help maximise ability to afford loan repayments through consequent savings on energy costs.

Section 4 delivery of WHP

Question 9 – What are the ways in which low income households can be helped to offset the cost of higher energy bills in the short term if low carbon heating measures, when installed, increase bills?

Every effort should be made to prevent households having to spend more on heating their homes post-installation as this is not the outcome anyone wants. We earlier proposed a principle that no home should be left worse off following an intervention. This will mean delivering a package of energy efficiency, low carbon heat and ventilation measures to a high standard that have been specifically chosen for that property and its characteristics and providing households with advice at each stage of the process, including post-installation training and ongoing support from an impartial advice service in how to best use their heating system.

As we discussed in our response to Question 1, the higher real-world efficiencies of heat pumps compared to gas boilers, coupled with the spiralling cost of gas means that in many instances households would be cheaper to run with heat pumps than with gas boilers. When levies are re-balanced, as the UK Government have committed to, we will see the cost of running heat pumps decrease which will further increase their competitiveness.

Question 10 – Should the following be included or excluded in the next iteration of the Warm Homes Programme, taking into account carbon savings, fuel poverty, local air quality issues and market readiness?

Fabric first	Yes/No	Please detail any specific circumstances	Evidence to support your position
Cavity Wall Insulation	Yes	A relatively inexpensive but effective insulation approach. Some care should be taken to ensure that water ingress won't be an issue. Particularly a challenge on windswept coastal regions. Cavity wall top ups should also be a viable fabric improvement.	
Loft insulation	Yes	Top ups to existing loft insulation should also be allowed under any future scheme. Funding for enabling works should also be made available (e.g. clearing loft spaces)	
Insulation top up	Yes	As above. A low cost yet effective retrofit approach. Will likely not be the only measure undertaken.	
External Wall Insulation	Yes	Most likely to be deployed as part of an area-based scheme or on hard to decarbonise rural stonewalled properties. A costly measure that should either be used when more traditional approaches will not produce the thermal efficiency savings desired or when the economies of scale achieved through an area-based approach make this a more viable option.	

Replacement windows	Yes	Replacing single glazed or seriously deteriorated or damaged double glazing with new double or triple glazing should be a consideration. The cost vs benefit is less clear when it comes to replacing existing double glazing in good condition with either new double or triple glazing.	Welsh School of Architecture modelling of typical retrofit measures suggested that the level of investment required for new triple glazed windows replacing existing double glazed windows did not achieve strong thermal gains for the capital cost (which was often around 25% of the total household retrofit cost). They do suggest that the assumptions made about the materials used in the existing and replacement windows may account for some of these high capital costs but this underlines the need to consider what the best approach would be for a given property (See: https://orca.cardiff.ac.uk/135187/1/Stage%203%20report%20FINAL%2024%2009%202020.pdf)
Replacement doors	Yes	Replacing external doors is a worthwhile retrofit approach when the existing doors are of poor quality.	
Secondary glazing and draught proofing	Yes	Secondary glazing, particularly in heritage properties, is a worthwhile retrofit approach. Depending on the exact form the secondary glazing takes this can be a relatively inexpensive measure. Draft proofing, similarly, is a low cost measure that can make a dramatic difference to the	These measures are offered through Home Energy Scotland and have proven effective in improving thermal efficiency.

		thermal efficiency of a property and can be provided to a household in crisis immediately in many cases.	

Heating systems - fuels	Yes/ No	Please detail any specific circumstances	Evidence to support your position
Natural gas	Yes	Yes but only as a temporary measure or in particular circumstances.	We have reluctantly said 'yes' to this question because in principle we would like to see the installation of new gas boilers halted to help achieve our climate goals and move away from a reliance on global gas markets. We have said yes because we recognise that there may be circumstances when there is no viable alternative. Many households engage with the Warm Homes Programme and other support services at times of acute crisis, with a broken down boiler that cannot be repaired and a freezing home. In this situation every effort must be made to restore heat to the home. Wherever possible this should be a low carbon option. However, installing energy efficiency measures and low carbon heat can take time and can be disruptive, at times constraints in the number of trained installers can compound these issues and so we recognise that in these situations installing agas boiler may be the most effective short term solution, although wherever possible this should be done as a temporary measure with a view to

			subsequent retrofit and installation of low carbon heating. We have considered the possibility of offering a household subsidised or free temporary heating as part of a package that includes energy efficiency measures and a new low carbon heating system. This could address the immediate crisis but put a household on a path to lower cost sustainable heating. The same approach could be taken but with boiler repairs as the first option. We went into more detail on this topic in our response to BEIS's Phasing Out Fossil Fuel Heating in Off Gas Grid Homes Consultation (see: https://energysavingtrust.org.uk/report/our-response-to-phasing-out-fossil-fuel-heating-in-homes-off-the-gas-grid-consultation/). The wider challenge is to engage with households before a crisis situation develops and help put them on a path to retrofitting their building fabric and installing a low carbon heating system with a building passport-style approach. Importantly, the ongoing energy crisis has changed the picture when it comes to repairing or installing gas boilers. It is no longer the natural low running cost option owing to the very high wholesale price of gas which looks likely to remain high some time and potentially for the next 3 years of the Warm Homes Programme. Under these

			circumstances, installing gas boilers should not be the priority.
Liquid gas	No		Liquid gas emits more carbon than natural gas because of lower system efficiencies and wider supply chain emissions (as well as some other factors). Homes off the gas grid should also be priorities for in the installation of low carbon heating systems and so we should not look to install replacement off-gas grid systems. Finally, and arguably most significantly given the current energy crisis, liquid gas is an unregulated market meaning that homes heated with these fuels are more exposed to price shocks than other households.
Bio gas	Yes	We accept that for some properties biogas may be a viable low carbon alternative. There are some well-founded concerns around the true emissions of Low Carbon Fuels with many feedstocks coming from outside Europe and likely having significant impacts on land use and indirect emissions. As a principle, we should be aiming to source Low Carbon Fuels as locally as possible with strong standards in place and using them when no	See recent Transport & Environment report into Low Carbon Fuels: https://www.transportenvironment.org/wp-content/uploads/2021/07/UCO%20briefing%202021.pdf

		other viable alternatives are available to us.	
Biomass	Yes	Similarly, to bio-gas in some specific circumstances biomass may be a suitable solution when alternatives aren't viable. It should not be considered a first resort and the source of the fuel and any resultant emissions or impacts on the environment need to be accurately accounted for.	
Heating Oil	No	See 'Liquid Gas' response	
Hydrogen	No	We do not think hydrogen is market ready. While we understand the appeal of hydrogen in principle the reality is that unless a community is part of a hydrogen trial average households will not be able to heat their homes with hydrogen before mid-decade at the earliest and likely not before the 2030s. Our view is that the Programme as a whole would benefit from	The Climate Change Committee in their most recent advice to the UK Government made clear that hydrogen for home heating will remain a marginal use of this energy source. Under their balanced scenario only 11% of homes will be heated by hydrogen (including hydrogen hybrid boilers). There may be homes in Wales that could form part of hydrogen trials (e.g. communities around the Milford Haven Waterway as part of the Milford Haven Energy Kingdom or those close to Port Talbot Steelworks) but supporting vulnerable households in the near term will have to be achieved without hydrogen.

		greater flexibility to respond to changes in the market or reprioritisation. This means that hydrogen boilers could play a part in the future if their development exceeds expectation.	
Electric	Yes	Ideally 'electric' should mean an efficient heat pump. There may be some role for high quality resistive heating in some circumstances such as small flats but the priority should be installing the most efficient systems possible for a given property.	
Other			

Other measures	Yes/No	Please detail any specific circumstances	Evidence to support your position
Solar PV Battery Storage	Yes	For some larger properties which are challenging to retrofit and will likely have stubbornly high energy bills solar pv coupled with battery storage should be a valid consideration to reduce overall costs. The use of batteries means that households can also more easily engage with flexibility markets in the future. Solar and PV may help to deliver cheaper costs for	

		homes with heat pumps and reduce constraints on the distribution network.	
Thermal PV			
Thermal/Heat storage	Yes	Thermal storage could help households to use electricity more flexibly and benefit from using energy from the grid when it is less expensive.	
Heat/energy as a service	Yes	We think heat as a service could be a valuable model. We would like to see this trialled in the Warm Homes Programme.	
Community based systems – heat networks	Yes	Heat networks can be a very effective solution for some communities. They are often relatively inexpensive for individual households and the energy supplied can be very low in carbon emissions. There are delivery challenges in terms of the scale of work and upfront capital investment required and the need to achieve community buy in.	
Ventilation with heat recovery	Yes	Suitable ventilation must be a priority across all interventions and ventilation systems with automatic heat recovery can be a valid measure. However, the capital cost vs the thermal gains should be considered for heat recovery systems.	
Low energy lighting	Yes		
Water Saving Measures	Yes		
Other	Yes		

Question 11 – What is your view on continuing with a financial cap per household, noting that a lower cap will allow more households to gain support but of a lower value?

We agree that a cap should be applied but it is clear that caps of between £5,000 and £12,000 are not sufficient to achieve a deep energy efficiency retrofit alongside a new heating system. There is some suggestion that the relatively low existing caps have resulted in fewer energy efficiency measures and more gas boilers being installed as households make the rational decision to upgrade their heating system with the funds available, especially when facing a crisis situation with a broken boiler and a cold home. Retrofit schemes undertaken as part of the Optimised Retrofit Programme tend to range from £15,000 - £23,000 per property and so a re-evaluation of the caps available through the Warm Homes Programme would greatly enhance the level of retrofit and low carbon heating installed.

Question 12 - Do you have a view on allowing multiple applications per household over a period of five or ten years?

We think that allowing households to apply multiple times to the scheme in a given period up to the value of a cap would be beneficial and would likely result in more energy efficiency measures being installed overall. Often households engaging with the current Warm Homes Programme are undergoing a period of crisis with a heating system having broken down and the immediate priority being to keep their home warm. Allowing households to apply a second time, with energy efficiency advice provided alongside an emergency intervention to support them in choosing further appropriate measures, would see more households undertaking a phased approach to retrofit.

Enabling households to access funding more than once could also encourage boiler repair as an initial response to the moment of crisis followed by a more considered retrofit pathway being developed as opposed to the installation of a new gas boiler which locks in carbon emissions for 12 years on average.

Impartial advice and support should be available for householders who decide that they do want to go ahead and undertake significant energy efficiency works at the point of boiler replacement in order to ensure that they are able to keep their homes warm whilst making a decision and whilst energy efficiency improvements are being made. Such support could include funding for the short-term provision of "emergency" measures e.g., electric oil filled radiators to ensure that homes can be kept warm over the course of the work.

We discuss this further in our response to BEIS's Phasing Out Fossil Fuel Heating in Off Gas Grid Homes consultation (see: https://energysavingtrust.org.uk/report/our-response-to-phasing-out-fossil-fuel-heating-in-homes-off-the-gas-grid-consultation/).

Question 13 – What are your views on the methodology and targets for the next iteration of the Warm Homes Programme?

There are many valid criticisms of EPCs but our view is that they remain a useful tool. Our view is that the current EPC criteria for Nest (EPC E to EPC G with some EPC D households also able to be supported with free energy efficiency measures if they meet other criteria) is worthwhile retaining but with the understanding that some households living in homes with higher EPC ratings can still experience fuel poverty if their incomes are especially low or their energy needs higher than average. To help address these households the future iteration of the Warm Homes Programme could build on the success of the Health Conditions Pilot to take account of additional medical conditions such as cancer and arthritis which form part of the eligibility for ECO, as well as other factors that can place households at greater risk of fuel poverty including property type, single parent households, number of dependents etc. (see recent research into fuel poverty risk factors (see: https://www.sciencedirect.com/science/article/pii/S2214629621004424#t0005).

In practice this could mean that an EPC band D rated home could access fully-funded retrofit measures through the Warm Homes Programme if they also meet other qualifying criteria such as being a single-parent household. This less prescriptive approach should help to support households that might otherwise fall through the cracks such as the nearly 10% of households living in D-rated properties who are fuel poor in Wales (https://gov.wales/sites/default/files/statistics-and-research/2019-12/fuel-poverty-estimates-wales-2018.pdf), a figure that is likely to have increased since the 2018 statistics were published and almost certainly after the current energy price rises.

Energy Saving Trust has been engaged in a small scale research project with a group of other stakeholders aimed at advising Welsh Government colleagues on potential alternatives to EPC targets in the social housing sector, recognising that many properties will be unable to reach EPC A in a cost effective manner and that the targeting of EPC A for every home could have unintended consequences. This work has involved a literature review as well as modelling conducted by Energy Saving Trust and

the Welsh School of Architecture. We have proposed that Welsh Government considers adopting a Heat Loss Parameter (HLP) (W/m^{2}K) target (with some important caveats and clarifications) for individual properties. This is an approach supported by a wide range of stakeholders. Modelling work considered two packages of retrofit measures (a medium and light retrofit) performed on three common Welsh archetypes to determine what the eventual HLP would be, with the ambition being a HLP between 2 and 3 W/m^{2}K. A HLP of between 2 and 3 is considered highly thermally efficient with this likely to mean that a heat pump could operate at low cost (provided that it has been sized and installed correctly and the household knows how to use the system). Such an approach is already used as part of the Republic of Ireland retrofit scheme which sets a Heat Loss Parameter of 3.3 W/m^{2}K as the minimum thermal efficiency which must be reached before a heat pump can be installed. The HLP is also already calculated automatically as part of the existing SAP calculation.

This modelling work suggested that at relatively reasonable cost (£16,000-£20,700) and without the use of External Wall Insulation, the target Heat Loss Parameter range could be achieved with heat pumps installed and heating costs comparable between gas central heating systems and heat pumps. Importantly, a HLP of 2-3 cannot be considered the objective by itself. It suggests that a given property is more thermally efficient but this does not by itself mean that heating costs will be low or comfort guaranteed. To achieve low costs household behaviour plays a significant role as does the distribution of heat within the home – larger properties with heat pumps installed reached HLP of 2.5/2.6 and then met a figurative fork in the road at which point a lower HLP could be achieved with expensive EWI and challenging improvements in airtightness (which would likely reduce bills as well as emissions) or lower running costs could be prioritised with the buildings having improvements to the heat distribution system (e.g. resizing radiators) at lower capital cost but with no impact on the headline HLP figure.

The Welsh Government should consider adopting a HLP target of between 2 and 3 W/m^{2}K alongside the EPC and kWh targets as a workable way of assessing improvements to thermal efficiency and to give an indication of the possible heat pump readiness of a home. To encourage more ambitious fabric first retrofit a sliding scale of incentive could be adopted so that more retrofit projects target HLPs of 2 or below, being mindful that, as discussed above, achieving a very low HLP might not be the most cost effective or consumer-focused outcome.

The cost effectiveness of measures will have changed since this modelling was carried out. The modelling used pre-April 2022 price cap running cost figures and does not take account the savings from the Boiler Upgrade Scheme or recent VAT cut on energy efficiency and renewable energy measures. We are in the process of updating this modelling to take account of changes in the cost of measures and their energy and cost-saving potential.

Question 14 – Should the next iteration of advice services focus only on domestic energy efficiency?

To lower costs and improve the energy efficiency of homes the role of an impartial advice and support service from a trusted source will be important.

In our view the next iteration of the advice service should, as a minimum, offer additional advice on low carbon heating options. The Nest advice line regularly receives calls asking for advice around installing heat pumps and other low carbon heating options. An impartial service will help consumers have confidence in the choices they need to make around additional energy efficiency measures and low carbon heat as well which will help lower costs in addition to lowering carbon emissions.

An impartial advice service would:

- Provide user-friendly, practical advice available through multiple channels which is responsive to people's needs
- Provide tailored and specific advice to address the unique issues that people face as a result of their personal circumstances and property characteristics and help them understand the options that are available
- Proactively engage people with the benefits of decarbonising their homes and moving to low carbon heat
- Help people to recognise how taking action will benefit them personally
- Refer people to installers of measures, UK Government and Welsh Government schemes (eg ECO)
- Refer people into wider support services and the priority service register.
- Provide reassurance and support throughout the process and advise and help people making changes to their homes
- Help people to understand what support is available at all stages of the process and how to access this, for instance grants and funding schemes.

- Provide advice on what happens if anything goes wrong and how they can get redress.

The direction many of our neighbours are taking is towards a more holistic one-stop-shop-style approach, with both Northern Ireland and the Republic of Ireland recently announcing plans to either begin working towards the creation of a one-stop-shop network or their continued rollout.

This follows the success of Home Energy Scotland (HES) which employs many features of a one-stop-shop approach to deliver more comprehensive, tailored and bespoke support to households of all tenures. This has helped to achieve strong results in terms of reducing household running costs and carbon emissions. The lifetime carbon saved by customers using the wider Scottish network of support in 2019-20 is estimated to be more than 382,000 tonnes CO2. Total lifetime energy bill savings from the network since its inception are estimated to be well over a billion pounds (see: https://energysavingtrust.org.uk/report/home-energy-programmes-delivered-by-energy-saving-trust-in-scotland-2021/). Scottish Government has just announced a 20% increase in resource for HES. A similar type of service in Wales could mean advice being made available on small scale renewables with signposting to relevant funding options and support made available in terms of employing contractors.

Providing a wider range of services from one point of access and integrating support services would result in a better customer journey. A wrap around service that takes a customer from initial call or engagement right the way through to post-install quality verification and advice on the best way to use their system would help to support the most vulnerable. Especially if the service can engage contractors and offer enabling works to the household.

The above changes are of course predicated on the assumption that resources are made available to meet the needs of an expanded and more complex service.

We note the reference to the Simple Energy Advice service offered in England. While the UK Government is making improvements, at the moment the service does not provide the tailored, person-centred and bespoke advice that has proven to be effective elsewhere, including in Wales. It is our strongly-held view based on the impact of Home Energy Scotland in improving outcomes for households that Wales needs a service providing specific personalised advice which builds on the many years of energy advice experience held in Wales. Greater understanding of local conditions and

stronger partnership work with local professionals are a couple of the additional benefits a Welsh service offers.

Question 15 – If not, how might domestic energy efficiency advice services in Wales be integrated with other advice services designed to maximise income and tackle poverty?

The Nest advice line regularly receives calls asking for advice around installing heat pumps and other low carbon heating options. The expanded provision of impartial advice will help consumers have confidence in the choices they need to make around additional energy efficiency measures and low carbon heat as well as which will help lower costs.

We think this advice and existing advice can be integrated in to one single point of access. This one stop shop approach combined with extensive referral paths in and out would result in a better customer journey. These referrals should go beyond energy efficiency advice into fuel debt, income and other advice services locally and nationally (eg Citizens Advice). A wrap around service that takes a customer from initial call or engagement right the way through to post-install quality verification and advice on the best way to use their system would help to support the most vulnerable.

Question 16 - Please share your views on the delivery of energy efficiency advice services and whether these should be independent of organisations appointed to deliver home energy efficiency improvements for householders?

It is always important that installers give good advice. But they can't give advice over a long period - as they give advice at point of installation only.

What is important is to have an impartial advice service that is available at all times to all Welsh households who are struggling. In particular, there is a need to ensure households in Wales have access to consistent, comprehensive and personally tailored impartial advice and support that can help them make decisions as they seek to reduce their energy costs, reduce their energy use and transition to low carbon heating.

Question 17 – What standards should be used for the installation of energy efficiency measures?

We think that installation work completed as part of the future Warm Homes Programme should adhere to PAS2035 to align with other UK and Welsh retrofit programmes and help to ensure that installations are completed to the highest standard. Low carbon heating installations should be completed by MCS certified installers. The scheme should be flexible enough to allow installer requirements to be updated to reflect any improvements to PAS or other relevant standards.

Section 5 - Skills and green growth

Question 18 – How can the Warm Homes Programme better support the development of skills and jobs in the low carbon and housing retrofit sectors?

The use of companies based in Wales to deliver the Warm Homes Programme has been a welcome success, as have the apprenticeships that have been offered through the programme. All installations completed through Nest used 100% Welsh installers. Moving forward an even greater focus on increasing skills across the country and strengthening local supply chains would be welcome. We know from our experiences helping to deliver similar programmes in Scotland that SMEs and trainees can benefit greatly from these government programmes (see 'Our Sub-Contractors' in the latest WarmWorks annual report – https://www.warmworks.co.uk/download/4870/).

A significant proportion of the additional costs for rural property retrofit is because supply chains in rural areas tend to be weaker with fewer suitably skilled tradespeople. At a fundamental level it would be welcome to see the focus on upskilling and training of the current programme continue with a particular focus on developing local supply chains and training apprentices in rural areas.

Section 6 – Legislation

Question 19 – Do you think the Warm Homes Programme needs to be set out in detailed Regulations, or can it be simply supported by scheme guidance published by the Welsh Government?

Our view is that there is value in the Programme being defined in the statute book as it gives confidence to householders, participatory organisations and consumer advocates that the Programme will continue to run, year on year. There is, however, a case for reducing how prescriptive the underlying legislation is, by defining certain

elements of the scheme (for example the available measures and the eligibility criteria) through scheme guidance from the relevant Minister. This approach would give confidence to the sector, while ensuring that policymakers retain the flexibility to adapt the scheme to changing circumstances, so that it can improve and evolve over time.