

11<sup>th</sup> June 2018

# Energy Saving Trust's response to A Future Framework for Heat in Buildings Call for Evidence

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Energy Saving Trust is pleased to respond to the call for evidence on A Future Framework for Heat in Buildings, launched by the Department for Business, Energy and Industrial Strategy.

The Energy Saving Trust is the leading, impartial sustainable energy organisation, focused on changing the way we use energy in homes, communities and road transport. We provide advice on sustainable energy to millions of citizens each year, work on behalf of governments and businesses to administer energy saving programmes, and carry out research. We work principally in the UK but also in partnership with other energy agencies across Europe and globally.

We seek to influence government to develop a positive and effective policy framework for sustainable energy. We provide policy insight to governments from our work with individual householders, community groups, businesses, local authorities and other stakeholders, and from our international insight.

EST is the leading organisation working with householders on energy efficiency. We run the Energy Saving Advice Service for BEIS. In both Wales and Scotland we deliver a range of programmes including those that work with community groups and local authorities to support the delivery of community energy schemes.

## **Key points:**

- It is essential that BEIS sets out a long term regulatory framework for heat decarbonisation. This should include a firm end date for installation of high carbon fossil fuel heating of 2030, based on boiler lifetimes and the UK's 2050 decarbonisation target. It should also include firm targets for improving energy efficiency performance of buildings (based on the ambitions set out in the Clean Growth Strategy), as well as short term targets and a tightening up of Part L of the building regulations.
- Engagement with consumers and industry needs to form a part of BEIS heat strategy. BEIS should start laying the groundwork now to encourage consumers to shift away from fossil fuel based heating systems, through advice and advertising to promote and normalise the concept of low-carbon heating. BEIS should also engage with heating installers, to encourage them to offer low-carbon heating to households and provide them with the training and skills needed to install low-carbon heating.
- In the short term the government should support energy efficiency programmes, in order to reduce carbon emissions and to prepare homes for low-carbon heating, as renewable heating performs better and is cheaper to run in properties with high thermal retention. BEIS should be considerate of the impact its heat decarbonisation policies can have on low-income households. Off-gas grid properties are more likely to be in fuel poverty, and oil boilers tend to be the lowest cost heating option. BEIS needs to consider what support low-

income households will need to make the transition from high carbon fossil fuel heating to renewable heating; for example, renewable heating tends to have a high upfront capital cost which low-income households cannot afford.

## **A Pathway to Regulation**

### **1 - Do you agree that the policy framework should focus initially on enabling the market to drive the transition away from high carbon fossil fuels, and in the longer term on helping consumers and industry to comply with regulations?**

The policy framework is already trying to enable the market, though the RHI, with limited success so far. We need to set out regulatory targets to give a clear deadline for the phase-out of fossil fuel based heating systems to drive the market for low-carbon heating. Then, the government can focus in the short term on enabling the market to drive a transition and encouraging early movers, with focus on regulatory compliance in the long term. Long term regulations must be set out in advance, along with short and medium term targets, in order to create a clear long term framework for heat decarbonisation; this would be the best way to ensure market stability and action.

It may be necessary to legislate to set out strong regulatory targets, and avoid the potential instability caused by changes in government. (The Climate Change Act is a good example of legislation providing certainty across successive governments, whilst the changes to the Zero Carbon Homes policy provide an example of how changes in government can provoke uncertainty over long term policy commitments).

### **2 - How should government best engage with existing and emerging heating markets, consumers and other stakeholders, to ensure regulations are designed in a way that works for everyone?**

Government needs to engage with all relevant parties: customers, installers, manufacturers and fuel suppliers to ensure that they are aware of policy developments (and any upcoming targets/regulations) to enable a smooth transition. Government should collaborate with all these stakeholders (or their representatives, e.g. member associations, consumer representatives) to ensure that the planned framework does not have any unintended consequences; and to make full use of the knowledge and resources that these stakeholders can bring to the table.

Government should ensure that their engagement is as open and wide reaching as possible. Established industries in the market are likely to resist change and will have the resources and the strong representation to influence policy. Government must ensure that they are not only listening to representatives of incumbent heating technologies.

### **3 - How could a firm end date for high carbon fossil fuel installations be delivered through regulations? How much time do manufacturers, suppliers and installers trading in high carbon fossil fuels need to prepare for a firm end to new installations?**

We welcome the proposal of a firm end date. The government has in the past used regulation to effectively drive market change, with that relating to condensing boilers being the most relevant example; in that case building regulations were used to mandate that all replacement and newly installed boilers, a similar approach could be taken here, using building regulations to ensure oil and LPG boilers, and later all gas boilers, are replaced by renewable heating systems. In the car industry, the 2040 ban on petrol and diesel cars already seems to be having a positive market impact.

A firm end date must consider industry investment cycles and take account of how much time must reasonably be allowed for a transition. It must also take account of boiler lifespan. A typical new boiler will last 12 years<sup>1</sup>, depending on how well it is maintained; therefore if Government needs to decarbonise heating by 2050 to meet its carbon targets, then the very latest end date for installation of fossil fuel based boilers would be 2038, preferably earlier to leave some leeway. It may well be that in order to meet interim carbon targets, high carbon fossil fuel boilers may need to be phased out earlier. We would expect that a firm end date of 2030 for high carbon fossil fuel heating would give adequate time for industry to prepare, while also allowing time for installed boilers to reach the end of their operational lifetime before 2050.

## **Cleaner Heating Technologies for off-gas grid properties**

**4 - What is the potential for non-domestic buildings to transition away from the use of high carbon of fossil fuel heating? Is the use of high carbon forms of fossil fuel driven by process heating requirements, with space and water heating requirements secondary to this? Are different solutions required for different heat uses and are there cleaner alternatives?**

No comment

## **Alternatives to Oil and Coal systems in domestic and non-domestic buildings**

**5 - What do you think are the main technology choices for reducing heating emissions from off gas grid households, businesses and public sector organisations (e.g. transitional technologies)?**

We feel there is limited scope for transitional heat generation technologies in off-gas grid households. For those using oil, the only 'transitional technology' would be LPG, which would reduce carbon emissions by around 15%, while costing the consumer around 50% more in heating bills (at current oil/LPG prices), and locking the household into this option for the lifetime of the boiler, for 12 years. Off-gas grid homes should aim to move straight to heat pumps where possible.

Energy efficiency technologies can be considered key transitional technologies. Reducing heat demand is a key aspect of decarbonising heat. Not just for the fact that using less energy results in fewer emissions, but also because heat pumps work more efficiently in a well-insulated property. Heat pumps in particular benefit from energy efficiency measures; heat pumps perform more efficiently when providing lower temperature heat, which becomes more viable in high efficiency homes. High efficiency will also mean reduced impacts on the electricity network from electric heating, and thermally efficient homes are more easily heated to a comfortable level.

**6 - What do you think are the main technology choices for achieving near zero emissions from off gas grid heating (technologies which are consistent with our 2050 targets)?**

We think that the main technology choices for achieving near zero emissions from off-gas grid heating will be heat pumps, and biomass/biogas boilers and possibly micro-CHP. There may also be a role for hydrogen fuelled boilers and hydrogen fuelled micro-CHP, if large scale production of clean hydrogen can be achieved. Energy efficiency improvements will also be a key element of decarbonising heating, as outlined in our answer to question 5.

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<sup>1</sup> [https://www.ofgem.gov.uk/system/files/docs/2018/01/eco2t\\_measures\\_table\\_-\\_jan\\_2018\\_-\\_v1.2.pdf](https://www.ofgem.gov.uk/system/files/docs/2018/01/eco2t_measures_table_-_jan_2018_-_v1.2.pdf)

## **Biomass, bioliquids and biopropane**

**7 - What evidence is there that bioliquids can provide an affordable and sustainable alternative to fossil fuel heating? What are the technical barriers and what might the impacts on domestic and business consumers be? How scalable are sustainable supply chains and is there a maximum amount of bioliquids which can be supplied?**

No comment

**8 - What evidence is there that biopropane can provide an affordable and sustainable alternative to fossil fuel heating? What are the technical barriers and what might impacts on domestic and business consumers be? How scalable are sustainable supply chains and is there a maximum amount of biopropane which can be supplied?**

No comment

**9 - Do you have any evidence on the air quality impacts of the use of solid biomass, bioliquids and/or biopropane?**

We do not have any relevant evidence. However, we note that the majority of air quality issues occur in urban areas. If the government is proposing using biofuels in rural areas then air quality issues should be limited.

## **Hybrids and gas driven heat pumps**

**10 - Are there any oil and heat pump hybrids currently on the market (in the UK or elsewhere), and if so how does the cost compare with conventional systems or with a heat pump? Could they be used with bioliquids? What impacts do they have for domestic and business consumers, for example in terms of ease of use and comfort levels?**

We are aware that there are oil heat pump hybrids on the market. However, we are opposed to the use of oil based hybrid heat pumps; they prolong the use of a high carbon fuel and will continue to leave the customer vulnerable to fluctuations in the price of oil.

**11 - We understand there are gas heat pump hybrids on the market that can be used with LPG. How widespread are these (in the UK or elsewhere) and how does the cost compare? Could they be used with biopropane or other biogases? What impacts do they have for consumers, for example in terms of ease of use and comfort levels?**

We are aware that Western Power Distribution and Wales & West Utilities are running a field trial of hybrid heat pumps in Bridgend<sup>2</sup>, while the trial uses homes connected to the gas grid, it could still provide useful information on impacts on customers and the wider energy system. Initial research for the project by Imperial College indicates that the savings to the energy system from avoided network reinforcement could be £1.3 billion a year, and that hybrid heat pumps have the potential to reduce carbon emissions (compared to heat pump only systems) as at times of high electricity demand, burning gas in a high efficiency boiler produces less carbon than using a heat pump whose electricity demand would be supplied by marginal electricity sources such as CCGT; the presence of biogas could further improve the carbon savings. Surveys of prospective trial participants found that lack of awareness would be a barrier to hybrid heat pump uptake, only 12% of respondents had good

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<sup>2</sup> <https://www.westernpower.co.uk/Innovation/Projects/Current-Projects/FREEDOM.aspx>

knowledge of the technology; however, once the concept was explained 90% of respondents found the technology appealing, with cost savings being the main factor.

**12 - What role might hybrids have in the short term to facilitate the longer term transition to clean heating off the gas grid?**

Hybrid heat pumps may be able to drive transition, especially in homes with high heat demand where standalone heat pumps may not be appropriate. They can also be a bridging technology which can benefit from reduced cost and increased customer acceptance. However, in the long term hybrid heat pumps will need to be replaced with renewable heating, or use carbon neutral fuels, such as biofuels or hydrogen. Therefore, government must take all necessary steps to ensure that hybrid heat pumps are only used in the short term and avoid lock-in to hybrid heat pump technologies.

**Electric heating, including heat pumps**

**13 - To what extent are space requirements an issue during a heat pump installation? How often are heating distribution systems replaced (hot water tanks, radiators and/or pipework)? How often are additional thermal efficiency measures for the building required?**

The main space concern for heat pumps would be if there is space for a hot water tank to enable heat storage and thus the ability to take advantage of time of use tariffs. In most cases of retrofit, unless the building is already quite efficient, additional thermal efficiency measures will need to be taken to ensure that the heat pump is running at optimal efficiency; this will be especially prevalent among the older (pre-1980) building stock. New builds should already be efficient enough that no additional thermal efficiency measures should be needed before the installation of heat pumps

**14 - What potential is there for heat pump costs to come down (both kit and installation)? How can industry show leadership in making this happen?**

No comment

**15 - Are there any drawbacks of smart/more efficient storage heaters, vs other types of electric heating? And, if so, how are these to be overcome? What are the benefits of smart and more efficient storage heater products compared to traditional storage heaters? In which types and tenure of buildings are storage heaters most likely to be useful? Would storage heaters be a likely solution where electric heating is not currently used? How about where electric heating is currently the secondary heating source?**

The main drawback is that electric storage heaters are more expensive to use (even for those on an Economy 7 tariff) and more carbon intensive than heat pumps. In fact, electric storage heaters are currently the most expensive heating option, even with 100% efficiency and using an Economy 7 tariff. The introduction of increasingly flexible tariffs, such as ones where tariffs go to zero at times of low demand, could improve the comparative cost of electric storage heaters. But our view is that electric storage heaters should not be an option for homes where electric heating is not currently used, they should switch straight to heat pumps instead.

**Rural Heat Networks**

**16 - Is there scope for more use of rural heat networks and communal heating systems? What are the barriers and how might they be overcome?**

We welcome the consideration of rural heat networks and community heating. Heat networks have the potential to improve operating efficiencies, benefit from economies of scale, and deliver environmental benefits. They also have collectively lower maintenance costs than individual heating systems.

A key barrier is the need for buy in from the whole community; which will require coordination between homes businesses and community/public buildings. A key question is who is going to drive this co-ordination and deliver the heat network. Ideally it would be a local authority or community energy association, either alone or working in a public/private partnership, in order to deliver a heat network scheme that is suited to the needs of the community, and that is accountable to the community. Our work with local and community renewable energy schemes shows that a degree of community involvement brings benefits including increased revenue for local authorities or community funds, local opportunities for training and internships and educational benefits. However, many local organisations will not have the skills or knowledge to deliver communal heating, so there is a clear need for advice and capacity building to help these organisations engage with suppliers and installers, and to deliver heat networks that will benefit the community.

**17 - Are there specific ownership and funding models that may be suitable for heat networks and communal heating systems in off gas grid areas?**

As mentioned in our response to question 16, we feel that a level of community ownership, either with local authorities or community groups being the sole owner or through public/private partnerships, delivers increased benefits to the community compared to entirely private schemes.

**Innovation**

**18 - What evidence is available about further innovations to improve the performance, efficiency and customer proposition of heat pumps? Are there opportunities for innovation in delivery and installation, particularly those innovations that might reduce kit and installation costs or hassle for consumers?**

No comment

**19 - What is the role of the heating industry in delivering cost reduction through innovation? What steps are the industry already taking and what more could be done?**

No comment

**20 - What other innovation opportunities and innovative technologies are available for rural homes off gas grid? At what technology readiness levels are they and do they require government support to move them towards the market?**

We feel there are opportunities for innovative advice and engagement techniques. In Scotland, Energy Saving Trust is already using innovative advice techniques which could be applied elsewhere in the UK.

As part of the Scottish Government's advice services in Scotland which are delivered by the Energy Saving Trust an in-home renewables survey is available to householders including those living in rural homes off the gas grid. Householders, get detailed support and a visit from a specialist advisor, who will advise them on the best renewable heating for the household and help them through the installation process. In our experience this kind of in depth advice is necessary for boosting public interest in newer or more complicated technologies that they may not be familiar with. We are also

piloting, on behalf of the Scottish Government, an Energycarerer approach, where vulnerable customers living in off-gas homes receive multiple visits from a specialist advisor, who will help them access support for home repairs and energy efficiency improvements and guide them through the installation process. Also on behalf of the Scottish Government we have piloted a Smart Meter Advice Project, in which households with smart type meters installed allowed advisors access to their meter data. The advisors then use this data to provide tailored advice on how to reduce their energy usage and improve the efficiency of their property. The pilot has seen high consumer satisfaction and work has been underway for a number of years to enable advisors to access (provide they have consumer consent) and provide advice based on smart meter data. This service is set to be rolled out across Scotland later this year.

**21 - What can government do to ensure that future policy encourages and supports future innovations and cost reductions in technologies?**

No comment

**Enabling uptake of clean heating**

**22 - Please provide views and evidence on how different obligation approaches could be used to drive the transition to clean heating during the early 2020s? Are there any areas worth specifically targeting? Are there situations in which obligations would be counter-productive? Do you have any views on other short term regulatory options that could be pursued, besides those considered above?**

We are not convinced that the obligation approach is the correct one to take when it comes to heating, as they can be difficult to administer and enforce. ECO manages to work as it deals with a small number of suppliers who are already highly regulated. Trying to replicate an obligation approach for the myriad different fuel suppliers, installers or manufacturers of heating systems would be far more difficult. We understand that when the RHI was first introduced there was consideration of using an obligation approach to fund it but that was considered to be unworkable.

Furthermore, obligations such as ECO should be one part of a funding mix. One of the challenges with the ECO programme, particularly as it supports more expensive measures in hard to treat homes, is the regressive nature of its funding. It imposes an additional burden on the poor across the country, for the benefit of only those that are in the worst performing homes.

**23 - What do you think about the options set out above for an obligation? Do you have any evidence as to potential impacts, burdens or unintended consequences?**

We would support an obligation on installers to provide information on low-carbon systems; they are often the point of contact for consumers and are one of the most trusted sources of advice. However, we are concerned that they may lack the knowledge to provide advice on low-carbon heating, and may be disinclined to provide such advice if they do not have the capacity to deliver low-carbon heating. Thus such a route would also need to include support for the development of skills and knowledge of low-carbon heating systems to installers in order to work effectively.

We would also support funding for energy efficiency, as we argued earlier (question 5), improving energy efficiency is a key step in reducing carbon emissions and preparing homes for low-carbon heating. However the level of funding for ECO is not currently sufficient to deliver the target of bringing all fuel poor homes up to an EPC C by 2030, in addition to the issues with the scheme we

highlighted in question 22. As far as ECO and low-carbon heat is concerned, in its current form, measures installed under ECO are not eligible for the RHI. In our response to the ECO3 consultation<sup>3</sup> we outlined our concerns with this approach. These were: that RHI has seen limited success to date and that more needs to be done to support renewables; and that off-gas grid properties will miss out, as the proposals mean ECO funding cannot be used to install oil or renewable heat in such homes, leaving either LPG or electric storage heating, both of which are costly and carbon intensive. We would welcome support for low-income households to transition to low-carbon heat under ECO, but there must be consideration of how this will interact and be supported by any future extension of the RHI, in order to provide a joined up policy approach.

We feel that engaging with DNOs and GDNs is an essential part of the heating transition, in order to ensure that network disruption and the need for network reinforcement is kept to a minimum.

When it comes to obligations on manufacturers of oil based heating systems and oil suppliers, as mentioned in our response to question 22, we feel that these would be difficult to put into practice. Mandating sales of low-carbon heating could be difficult if there is a lack of demand, and under an obligation approach companies are often inclined to take the least cost option for fulfilling their obligations, rather than the option that is most fit for purpose.

**24 - What further options for short term regulation exist that we have not considered in this call for evidence? Do you have any evidence as to the associated impacts or burdens of any further options suggested?**

There are a number of short term regulatory options that could be considered:

- Carbon pricing could be used to level the playing field between fossil fuels and renewable heating, though it could cause increased energy costs for low income households.
- Tightening Part L of the building regulations to enforce the installation of low-carbon or more efficient heating systems.
- Extending the Boiler Plus regulations to oil boilers.
- Providing fiscal incentives for energy efficiency and low-carbon heating, such as linking stamp duty or council tax to the energy/environmental performance of the building.
- Any short term measures should be presented as part of a co-ordinated package of measures to encourage low-carbon heating as part of a long term regulatory framework

**25 - How can DNOs or GDNs take a leading role in deploying clean heating?**

No comment.

## **Financing Clean Heating**

**26 - How can we encourage and unlock private sector finance in the absence of a subsidy?**

The only way to effectively unlock private finance in the absence of subsidy is to use regulation to drive the market. If low-carbon heating is not economically competitive then the only reason private finance will invest is if there is subsidy support to make it economically viable or if they are compelled to do so through regulation. A long term policy and regulatory framework is needed to provide certainty to the market and encourage investment into low-carbon heating.

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Third party assignment of rights, as used in the non-domestic sector, could be an option for encouraging private finance of low-carbon heating, but protection of consumer rights must be carefully considered. Zero-interest loans and equity release schemes could also drive private investment and are already doing so in Scotland.

**27 - If there was some targeted subsidy, such as for low income or vulnerable households or for building local supply chains, what would this need to look like? Do you have any evidence that subsidy is necessary?**

We welcome the fact that ECO is now focused on low-income households, which should help drive energy efficiency improvements in this area; however more action is needed, especially on identifying and targeting low-income households. Working with local authorities to identify such households is often beneficial (provided the local authorities are properly resourced), as they have a good knowledge of the housing stock and can help to develop area based supply chains. Energy Saving Trust provides a Home Analytics service, which is a database of the UK housing stock and its energy efficiency status, which can be used amongst other things, to identify energy inefficient homes in fuel poverty. This service has been used in the past by energy companies to identify ECO recipients and the Scottish Government funds EST to provide the service free to all local authorities in Scotland.

Installation of renewable heat would need to receive increased support to help low-income households transition. Due to the high capital cost of installing renewable heating, and given that low-income households have limited access to capital, grants may be a necessity to help this group transition to renewable heating.

Both Wales and Scotland have support schemes that provide grants to fuel poor households to install energy efficiency measures

### **New Market Approaches**

**28 - Novel business models for selling clean heating have not taken off in the UK market, why is this? What is needed to stimulate the development of this market in the UK?**

The lack of a clear indication from government of the phase out of fossil fuel heating leads to less incentive to develop new business models. In order to stimulate the development of new markets we need to raise consumer awareness and encourage a shift away from the status quo in how we think about the provision of energy and heat.

It may also be that installers in the UK lack the resources to offer new business models; a collaborative approach should be encouraged to bring together different technologies and actors in the energy sector to find new ways of delivering heat.

In the short term, the smart meter rollout could help consumers engage more closely with how they use energy and could help to encourage a shift in thinking about the provision of energy and heat.

**29 - What could be done, apart from subsidies, to encourage new approaches? Are there any approaches that have worked particularly well in other countries and that could be replicated in the UK?**

A clear trajectory for the phase out of fossil fuel heating will help encourage new approaches to heating. A shifting from ownership models to leasing models, as we are already seeing in the transport sector, where households lease their boiler and the cost is incorporated into their fuel bills could begin

to change the way we think about heat provision. The Energiesprong approach is an example that has worked well in other countries.

### **30 - What could be done to support a whole-house approach of combining interventions and technologies?**

We welcome the focus on whole-house approaches as they can often be cheaper and more effective than incremental approaches to energy efficiency. To support such an approach would need increased training of installers so that they have the capability to offer whole-house solutions rather than individual measures, increased data sharing between installers of different measures and collaboration between heating installers and energy efficiency providers.

Mandating heating installers to provide information on energy efficiency measures could also help; as would a clear (and well publicised) long term trajectory for minimum EPC standards, to encourage homeowners to take a whole-house approach to bring their homes up to a long term standard rather than individual measures to meet short term standards. Where there is subsidy/support for installations, additional incentives for the installation of multiple measures (as proposed in the ECO3 consultation) could also be helpful.

## **Local Approaches**

### **31 - How can government best tap into and support community and local authority efforts? Are there any successful examples that can be built upon?**

There are many examples of thriving communities that are actively taking an interest in the energy requirements of their local community and that are increasingly looking to take on a strategic 'whole-system view' of energy requirements within their community. Not every community has the resource, skills or capacity to do this, but where these exist they should be encouraged and supported.

In Scotland a pilot project to develop four local energy plans is underway in the Highlands and Islands Region. This is joint funded through Interreg North Sea Region and the Scottish Government. The COBEN project<sup>4</sup> (COmmunity BENefits of Civic Energy) has developed a methodology to support communities to develop their own local energy plans. The methodology<sup>5</sup> is currently being tested as part of the pilot and will be updated further in the second half of 2018. As part of the initial call for interest to participate in the pilot covering the Highlands and Islands region notes of interest were received groups in 21 locations. Where there is an active interest to take ideas forward in a strategic approach they should be encouraged and supported.

Local Energy Plans consider the opportunities for heat in buildings as well as demand for power in residential and non-residential buildings and transport and the opportunities for demand management, storage and energy efficiency. It is by taking a strategic view that communities are able to develop an approach that identifies what can be achieved and bring local knowledge and commitment to achieving solutions.

The village of Drumnadrochit near Inverness is one of the four locations currently developing a Local Energy Plan. The plan was issued for consultation in May 2018 and is due to be finalised in early July

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<sup>4</sup> <https://www.localenergy.scot/what-is-local-energy/local-energy-plans/>

<sup>5</sup> <https://www.localenergy.scot/media/110261/local-energy-plan-working-methodology-mar-2018-v1.pdf>

2018. The development of the plan has been led by a steering group of representatives from local organisations and as part of the pilot has included representatives from the local authority, Local Energy Scotland and Home Energy Scotland. Local engagement has been a key aspect of developing the plan and ensuring local ownership of the actions. The approach adopted has sought to include people through encouraging local people not usually involved in the field of energy to become involved and act as local ambassadors. It is hoped that these individuals will continue to be involved to take forward and implement the actions identified in the local plan. The Local Energy Plan will form a part of the wider Community Action Plan that is due to be developed in 2018. A local Green Event has been scheduled for the end of September 2018 that will bring together many of the multiple themes that will influence transforming the use of energy locally. It will cover opportunities of individuals and organisations to take action across heat, energy efficiency, transport and local produce and the community is working with many agencies to promote the centrally available funding streams to support this. It has also been developed to consider requirements of the Local Development Plan and the developing area of Local Heat and Energy Efficiency Strategies that is being developed to be taken forward by local authorities in Scotland.

The opportunity to identify and take forward opportunities to decarbonise heat in local communities can come about from many drivers. In Drumnadrochit local knowledge, combined with a strategic approach adopted by local community organisations and an opportunity to fund an initial feasibility study, as the local energy plan has been developed, has seen the proposal to develop a community district heating scheme to provide heat from waste water to three community assets move forward. A proposal to fund a full feasibility study is now being developed. It is only through tapping into this level of local knowledge and enthusiasm that some projects that are potential viable and fundable will be realised.

**32 - What could be done to drive action from local planning? What are the pros and cons of approaches that rely on local planning? What evidence is there that such approaches produce desired outcomes?**

Local community organisations frequently lack the volunteer resource and capability to address the challenges that they are required to tackle. Supporting communities that have an appetite to take forward a strategic approach local energy planning and the opportunity to support actions that will decarbonise heat in people's homes and community owned assets should be encouraged and supported.

**33 - Do local approaches provide a possible model for delivering a firm end to fossil fuel installations through regulation? For example, by establishing oil free zones starting where it is most deliverable, and joining them up over time.**

Local community led approaches can work well in some locations and are to be encouraged. Community led approaches will only be successful where is a resource, commitment and capability to take this forward.

**Building the consensus around clean heating**

**34 - How can we increase consumer awareness and interest in clean heating technologies?**

Consumer interest depends on a number of factors all being present:

- Clean heating technologies have to be an appropriate and realistic option for many consumers.
- Consumers have to be aware of the appropriate options, at the time when they are making decisions about heating systems.
- Consumers have to trust the information they are being given about less familiar technologies, including technical and economic performance, reliability and impact on lifestyle.

The Each Home Counts Review established that consumers seek advice from different sources at different points in their home improvement journey, and that there is a need for both impartial advice provision and increased consistency of advice from all sources, including installers. The Review also highlighted the importance of trigger points in householder engagement.

We believe that, once other barriers have been mitigated, awareness of and interest in clean heating technologies can best be developed through a three-pronged approach:

- Further development of independent advice sources to ensure clean heating technologies are given at least equal prominence to like-for-like replacement options.
- Encouraging heating installers to discuss all technically appropriate heating options when quoting to replace an existing system.
- A proactive awareness raising campaign, including national and local advertising, working with existing groups and networks such as the Big Energy Saving Network, and working with the private sector to encourage campaigns such as the recent heat pump advertising campaign run by an energy supplier.

These activities in combination can work together to increase acceptance of clean heating technologies as modern but normal, and therefore low risk and worth considering.

### **35 - What are the best methods of engaging directly affected consumers?**

Consumers need to be engaged at the point when they are considering a replacement heating system, whether as a planned upgrade or a distress purchase following a system failure. Clearly a key way of engaging with consumers at this point is through the installer, particularly for a distress purchase where there may be little time for the householder to research the subject more broadly.

Modifications to building regulations will have a major impact in engaging consumers at this point, even if the regulations offer multiple options rather than a prescribed solution, as with the current Boiler Plus requirements. Where choices on how to comply are available, installers should be required to signpost to the impartial guidance mentioned previously, and this requirement should be written into the guidance for all relevant competent person schemes, MCS installer, Gas Safe Register and future Each Home Counts installer certification.

We would also recommend that Energy Performance Certificates be reformatted to give renewable heating options higher prominence, again with links to impartial sources of information and advice for further guidance. This will increase engagement with home buyers at another key trigger point, especially if a fiscal incentive linked to stamp duty is introduced.

Advice services will also play a big part in raising public awareness and engaging with directly affected customers. As part of the Scottish Government's advice services in Scotland householders are offered an in-home renewables survey, where they get detailed support and a visit from a specialist advisor, who will advise them on the best heating, energy efficiency and microgeneration options for the property and advise them through the installation process. In our experience this kind

of in depth advice is necessary for boosting public interest in newer or more complicated technologies that they may not be familiar with. This is in addition to the Energycarer in home support for vulnerable customers that is also offered in Scotland.

**36 - How can we best work with heating engineers to benefit from their knowledge and experience, and their access to customers?**

This is potentially difficult as there may be a significant amount of inertia with heating engineers who are used to installing oil/LPG boilers on a regular basis so getting them to start shifting to low carbon heat may be a big ask. Furthermore, there will be heating engineers who have tried to access the low carbon heat market and may have had a bad experience of it due to significant changes in demand resulting from RHI tariff changes.

Heating engineers can be required to provide certain information (as mentioned in the response to Q35) and they can be required to fit or offer certain solutions through the building regulations. However, they will also have an inherent incentive to propose the range of systems they are able to install themselves. It is therefore vital the installers of conventional systems are encouraged and enabled to offer low carbon alternatives as well.

Heating engineers will decide whether to invest in the training and certification necessary to offer new technologies based on their perception of the scale of the new market, and its threat to their current market. Again, other barriers to uptake, such as cost differential and uncertainty around performance, need to be addressed first so that installers see the benefit of diversifying.

We manage a supply chain programme on behalf of the Scottish Government and in October 2017 we produced a report in partnership with Scottish Enterprise looking at the energy efficiency and low carbon market in Scotland. Suppliers were included in this research and we asked those that weren't MCS/Green Deal certified why this was the case. Reasons given were: uncertainty on level/sustainability of market demand, high costs of (re)training and certification and lack of capacity to deliver large projects. The executive summary from this research can be found here - <http://www.energysavingtrust.org.uk/scotland/businesses-organisations/supply-chain/research>. We are also happy to provide a full copy of the report if required.

So, in short heating engineers need to be convinced that there is a long term market for them. Once convinced they are more likely to invest in training and certification which could be accelerated if support and/or funding was available for them. At that point they will then be in a better position to sell the benefits of low carbon heat to their customers particularly if it's cost effective.

## **Sector Skills**

**37 - What steps are needed to ensure installers, manufacturers and the entire supply chain have access to new skills frameworks?**

We understand that a lot of work was done by Summit Skills who managed the Renewable Energy Skills Forum on behalf of DECC. A key output of this forum was an "approved" list of training providers for renewable heat. After Summit Skills was abolished we understand this was taken up by the Ground Source Heat Pump Association and as such we would recommend speaking with them. If further work is needed on low carbon heat training then a reconvening of this forum would be a good start.

**38 - What should the respective roles be for the fossil fuel market and the low carbon heating market in ensuring installers have the skills they need for the future?**

No comment

**Other options**

**39 - What other options should we be considering to target key barriers to taking up clean heating?**

The key barriers to low-carbon heating are cost, awareness, confidence in the technology, the ability of installers to install it, and lack of a long term vision. The development of a long term regulatory framework and the communication of such a framework to the public is essential. We have already highlighted the importance of advice and in-home support on improving awareness and accessibility (questions 34/35).

For improving the economic benefits to the household, the government should consider financial and/or fiscal support outside of direct subsidy. Zero-interest loans can help households overcome the high upfront cost of installing low-carbon technology; such a scheme has been successful in Scotland. Council tax rebates tied to a home's environmental performance could also be an option, as could stamp duty land tax rebates and reducing VAT for low-carbon heating. Green mortgages and equity release schemes could also provide financial support for low-carbon heating.

**40 - What intervention would make the biggest difference ahead of any regulation?**

Setting out a clear regulatory trajectory and engaging with consumers and installers on the steps they need to take to meet the long term regulations.

**New Build**

**41 - Why is oil being installed in some new buildings currently? Are there particular factors or characteristics that are leading to oil being chosen over lower carbon alternatives? What are the barriers to installing a clean heating technology in these buildings?**

Oil is currently the cheapest fuel option for off-gas areas (despite the volatility of oil prices). It is also a familiar technology with high consumer acceptance, which leads housing developers and self-builders to favour the technology over others.

Under current building regulations it is still possible to install oil boilers in new build and still meet Part L standards through increased energy efficiency measures; hence government should consider reviewing these standards if it wants to discourage oil heating.

**42 - Do you have any evidence of the cost of retrofitting clean heating in current new build, compared to the cost of building to that standard now?**

No comment

**43 - What are the relative costs and benefits of installing clean heating systems in new build compared to installing futureproofing measures?**

No comment

**44 - What would be the most cost-effective and affordable measures to decarbonise new buildings? Please make reference to specific forms of clean heating or futureproofing measures.**

In our experience the most cost effective decarbonisation measure for most buildings is to improve their thermal efficiency; this will also maximise the benefit of renewable heating systems, by reducing the required capacity, and thus the initial capital cost, and by reducing the bill costs and the impact on the electricity network.