

# Net Zero, Technology and Tenants



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**In Spring 2022, Placeshapers, Tpas England and the Sustainable Energy Association hosted a roundtable event with engaged social housing tenants across England and heat pump manufacturers Mitsubishi and Vaillant. The event sought to help social housing tenants to understand heat pumps better, and for the manufacturers to understand their end users' needs and questions.**

## Background to the session

Social housing tenants are likely to have new low carbon heating systems fitted before many owner occupiers and private renters. Many social housing landlords are already installing heat pumps, and all are developing plans to ensure their housing stock meets the Government's 2050 Net Zero target.

Two research reports published last year – Residents Voices in the Net Zero Journey and the Social Housing Tenant Climate Jury – found that switching to low carbon home energy technology involves significant behaviour change for people. We have heard from tenants that this technology isn't as user friendly as it could be and may not reflect tenants needs or how tenants live their lives in regard to energy budgeting or usage. We also heard there is a real lack of clear, impartial information and advice available, and little clarity over who to look to for this information. Tenants and landlords told us it feels like it has been assumed that social housing tenants are confident users of alternative heating systems and smart technologies, where often they have many very legitimate questions and concerns.



We sought to facilitate more ongoing discussions with social housing tenants who are soon to be users of new heating systems with technology manufacturers. We hoped this would help build knowledge and trust in the installed technology for tenants. We also wanted to give valuable insight into the future design and practical application of the various technologies and solutions. Our aim was to test our belief that it would be possible to adapt the technology, or the support and advice on how to use it, to ensure low carbon heating systems and controls.



## Roundtable Event

We convened a virtual roundtable discussion with heat pump manufacturers, including Mitsubishi Electric, Vaillant and tenants to enable them to discuss these issues together to shape better products, solutions and user guidance.

We set the scene with an explanation of what a heat pump is and how it works. It was important to explain how heat pump technology differs from traditional gas boilers in how the heat is delivered into the home.

We then facilitated questions and discussion between tenants and the heat pump manufacturers.



# Key Discussions

Tenants had a lot of questions and comments. We have listed some of the key questions and comments and the answers given as an appendix to this paper.

Discussions during the session centred around three key areas:

- 1 Understanding the running costs
- 2 Understanding the impact of installation
- 3 Understanding behaviour change

It was clear throughout the discussions that tenants were still very unsure about the new technology and were unsure where to go to for trusted sources of information about it.

## 1. Concerns with the running costs

All tenants attending the event had questions about costs. For many this was simply:

***“How much will a heat pump cost to run compared to my current boiler?”***

The problem is that there is no simple answer to this question as it will depend on many factors including the current energy tariff, the type of heat pump installed, the property type, how efficient the home insulation is, the heat pumps location and the source temperature through the year (air or ground).

But that lack of easy comparison makes building trust in the new technology difficult. It's a perfectly reasonable request from tenants to have access to this information

early on even if it can't be specific. People need some sort of guide to the relative costs of a heat pump compared with a gas boiler for different property types and sizes.

The point was also raised about how much this will all cost for landlords given other current economic pressures and whether the technology we are installing now will prove to be the most cost effective in the future.

### Examples of the key questions:

- ***“What are the actual running costs?”***
- ***“Will it save me money in the long run or short term?”***
- ***“How much will a heat pump cost to run compared to my boiler?”***



## 2. Concerns with the impact of installation

There was a lot of discussion around installation and property circumstances that tenants were keen to understand. Heat pumps run differently compared to traditional heating systems, so additional space may be required for water tanks etc, and changes to the current radiators and pipework may be required. Tenants had a lot of questions about this, and they didn't know where to go for answers. Many were concerned they didn't have space for a heat pump.

The quality of workmanship in installing a heat pump was also a big concern. Many tenants shared stories of being let down previously by their landlord's contractors when having significant work done in their homes. Trust in, and quality of, workmanship are key challenges as tenants understand and accept that installation would create mess and disruption. Care and trust with the contractor were a significant worry for tenants who need to be convinced that contractors are capable of delivering to the highest standards.

It's clear that tenants felt that the standard of workmanship needs to be vastly improved. Contractors need to be honest, reliable, and clear up after they've finished work. Tenants cited examples of previous work when they were left with a lot of mess to clear up or to cover the cost of damages caused during the work.

Tenants also had concerns that they would be left unable to move furniture back into place after the work had been completed, which they were physically unable to do. This isn't the role of the installer, so needs to be addressed in the landlords' future processes.

It was also very clear that landlords' performance on repairs needs to improve now. Tenants' previous experience of how their landlords have managed work, will have a big impact on how tenants will react to decarbonisation works in the future. Where work has been poor, there will be a lot of mistrust, adding to tenants feeling that they were being forced to "accept" being "carbon neutral guinea pigs".

### Examples of the key questions:

- ***"Will it be messy to install?"***
- ***"Will my radiators need removing? Will I need to redecorate?"***
- ***"Who will be contracted to do the work? Will they have to abide by certain standards?"***
- ***"How much space will be needed in my home?"***
- ***"What kind of insulation work will need to be carried out in my home alongside the heat pump?"***
- ***"What will the product quality be like?"***
- ***"Will they be noisy?"***
- ***"Are there enough engineers to fix them if they go wrong?"***

### 3. Concerns with changing of behaviour

The energy efficiency of the home is extremely important with heat pumps in order for them to run efficiently, so good insulation is essential.

Heat pumps are also used differently to central heating and will require behaviour changes. For example, opening windows is not encouraged to limit loss of heat, but may be required to maintain good air quality. Heat pumps remain on all the time, with controls to maintain a consistent temperature, whereas many people turn their central heating on and off at various times through the day.

This is a fundamental shift in the behaviour of how people lives in their homes. Tenants who participated in the roundtable discussion acknowledged that a change would be needed to adjust to using heat pumps, but many were concerned about this. People want to continue to open windows, and dry their clothes indoors on radiators, for example.

The controls used for the heat pumps that are placed in tenants' homes was also a topic of conversation, with people having heard rumours that they are difficult to use. They also didn't know where to get advice and information on how to operate them successfully. When asked, participants were split 50/50 on who should be responsible for teaching them about and improving the usability of the controls - the housing provider or manufacturer.



A discussion was held on the potential need for an Energy Assessor, Retrofit Coordinator or Project Manager who could explain the running costs and implications of the new heating system to the tenant and offer guidance on required behaviours for each individual installation of a heat pump.

#### Examples of the key questions:

- ***“Will I be given guidance on how to operate it?”***
- ***“Will I be responsible for ‘maintaining it’ – like bleeding the radiators?”***
- ***“Do you have to ‘behave’ differently when your home is heated with a heat pump? Can you open the windows?”***
- ***“Will a bespoke assessor offer information beforehand so cost, use of the technology, disruption, etc are discussed?”***

# Recommended Actions

## Recommendations for Government, Social Housing Landlords, Technology Manufacturers and Industry.

### For Government

1. As a matter of urgency, government, the low carbon heating industry and the social housing sector should work together to provide independent, simple, clear, and joined up consumer advice. This should be freely and readily available to all social housing tenants.
2. In addition, government should run a high-profile consumer awareness campaign about low carbon heating technologies. This campaign should help answer key questions, showcase best practice, build interest and create demand.
3. Consumers need indicative information about the running costs of low carbon heating technologies. Government needs to urgently lead the industry in the provision of cost data for consumers.
4. Government funding schemes for the social housing sector need to allow for the provision of in person, tailored advice through a Retrofit Coordinator or Project Manager to answer tenants' questions throughout the process. Funding schemes should also cover costs for furniture removal and general maintenance of the home before and after the installation of the low carbon heating system.



## For Social Housing Landlords

1. Landlords must ensure current and planned maintenance is delivered to the highest possible standard to build trust with tenants for future work installing low carbon heating systems.
2. Communication with tenants is key. The social housing sector should work with the low carbon heating industry and government to provide independent, simple, clear and joined up consumer advice.
3. The social housing sector should work collaboratively to collate and share advice and best practice on low carbon heating installation systems and key queries from tenants, such as the space needed for the technology, operating costs and potential savings.
4. Consider using an Energy Assessor, Retrofit Coordinator or Project Manager who has responsibility for working closely with the tenant throughout the process of installation of the low carbon heating system, including discussing the importance of the work they are having done and any new behaviours required as part of the process.

## For Technology Manufacturers and Industry

1. Provide indicative or average running costs for the use of the low carbon heating technology within different standard archetypes of property.
2. Work with the social housing sector and government to provide independent, simple, clear and joined up consumer advice, including clear information on how to get the best out of the low carbon heating technology and what lifestyle changes and behaviours will be needed.
3. Work with landlords and tenants now to make heating system controls as user friendly and simple to use as possible.
4. Develop case studies of successful projects to demonstrate low carbon heating systems in action for consumers.

## Next Steps for PlaceShapers and Tpas

We will continue to raise awareness and provide more opportunities for tenants, landlords and industry to discuss these issues together and share information and learning from the sector as it happens so that residents are kept up to date.



*Our thanks to Mitsubishi Electric and Vaillant for their involvement in this report.*





# Appendix

## Net Zero, Technology and Tenants – Questions and Answers

**Q:** *I live in a bungalow. How big will the water cylinder be? I am concerned about required space.*

**A:** It depends on the size of the property, but generally it's an additional space about the size of an airing cupboard that you will need.

**Q:** *Are you struggling putting Heat Pumps (HP) into properties with sub-standard insulation?*

**A:** A survey/assessment needs to be carried out beforehand to assess the heat loss. Depending on these results, insulation measures could be required before the installation of the HP. It's important to get the HP sized correctly. Additionally, it is also about ensuring the correct pipes are used and suitable radiators.

**Q:** *Regarding radiators and storage heaters, space is tight in my home with its size and my furniture. What's the size of the radiators needed? Are they huge?*

**A:** There are solutions for all homes. Modern radiators can be more compact with 3 parallel panels and fins to keep required wall space used to a minimum. In addition, it is best practice to insulate the property first if this is highlighted at the survey/design stage. Increased insulation can reduce the required radiator size.

**Q:** *Our EPC has just been reviewed and has a D rating and new flooring has been suggested. Will the social housing providers deal with and pay for this?*

**A:** Landlords are expected to pay for the retrofit. It is important that they also factor in the inconvenience and disruption of the work done and ensure they leave your home in a good state after the work is completed.

**Q:** *What about the refrigerants used which aren't very environmentally friendly?*

**A:** Modern refrigerants are more environmentally friendly and improving all the time.

**“To get hot water it seems you need to run heat pumps all year which is very costly.”**

**Q: A relative has a heat pump and hates it. When there are any problems with it, installers appear to be badly trained as to the repair of it. I am wondering if the technology is being installed before installer skills have been improved which needs to be done first.**

**A:** It is widely known and accepted by Government and the sector that both the number and quality of installers needs to be improved. Action is being taken on this but progress needs to escalate.

**Q: I have heard that you can't open windows once the HP has been installed, I sometimes like to open a window. Can you open windows?**

**A:** Consumer behaviour change is going to be needed as the HP temperature is lower than you experience with gas boilers. You may need some air circulation but are not going to be advised to leave the windows open when trying to heat the home.

**Q: How will the new generation of HPs compare to current models? A family member has got a heat pump and in hindsight would have never had it installed because of the high running costs.**

**A:** The latest heat pumps are increasing in efficiency all the time. In the past electricity has been significantly higher in cost than gas for heating. Even the greater efficiency of heat pumps could not compensate for this. In future this will hopefully change as government are reviewing this. In addition, it is important to ensure any insulation measures are done on the home ahead of heat pump installation to ensure maximum comfort and minimum running costs.

“I live in a 1960s house in the countryside. I have already experienced hassle when the boiler was fitted and there isn't the space to put in a cylinder. The only outside space suitable to install the heat pump is accessible to anyone and so it could easily be tampered with. Also, there is not only mess, but the decoration gets ruined. Being on pension credit we have no money to replace things that are in good working order.”

**Q: What is life span of HPs?**

**A:** The average life span is 15 years, but if well installed and maintained it may last up to 20 years. Longer than with a traditional boiler.

**Q: Electrification of heat is going to create huge demand. Isn't this going to cause problems for the National Grid? What about storage?**

Increased electricity demand is an issue that is being reviewed and plans put in place to resolve this issue. Shifting a large portion of the housing stock from fossil fuel (gas) heating, and its dedicated gas network, to electrical heat will increase the load onto the electrical grid.

**Q:** We are being forced to use low carbon technologies through government legislation. There is more than enough information available on capital costs, but not enough on how much it actually costs to run a heat pump. Tenants need some indication of running/operating costs of e.g. a 1 or 2 bedroom property with average insulation. Has any work been done on this and is this information available? If not, why is not in the public domain for easy access?

**A:** Existing housing stock and consumer behaviour is extremely varied, so it is very difficult to make assumptions. Analysis needs to be done per property and take into consideration user behaviour.

Where we have figures around this there are many caveats, and therefore figures are only a prediction. But it would be good to give people numbers of indicative costs to provide an incentive to switch to HPs.

“I am interested in examples of the types of heat pump controls available as it would be good to have controls that can work remotely either by the owner or someone else to make them easier and more suitable to use.”

**Q:** I have no problem with HP technology, however electricity use will go up dramatically. Electricity is mainly produced from gas so what's the point of it all? How do you get the best out of your heat pump? The average tenant who has a property suitable for a HP will not be able to afford or understand how to run it.

**A:** Gas boilers create a lot more CO<sub>2</sub> (carbon) emissions compared to heat pumps so by using a HP, tenants will considerably lower their carbon footprint. The electricity mix is evolving every day, and this reflects the amount of renewable energy naturally available (wind/solar). Over the years the grid carbon content has been decreasing dramatically and the government plan to continue in this direction.



