Addressing the key barriers to widespread heat pump adoption: a response to BEIS

In this response, MCS sets out its position on the six key barriers to widespread heat pump adoption as described by BEIS.

The 'barriers' were presented to an audience of several hundred participants from industry, academia, charities and NGOs in a webinar on 11th May 2021 titled 'Innovation requirements for the deployment of heat pumps in the UK'.

As part of its 'Ten Point Plan for a Green Industrial Revolution', the UK Government has set itself a target of 600,000 heat pump installations a year by 2028[1]. The Government also aims to build 300,000 new homes a year by the end of the decade[2].

The numbers don't lie: even if the Government mandates that all new-builds are required to incorporate fossil-fuel free heating – creating an instant market boost for the installation of heat pumps – an additional 300,000 properties a year would need to be retrofitted with heat pumps. Given that around 32,000 were installed in the UK in 2020[3], there is a clear and urgent need for a range of supportive, long-term policy measures to be introduced to facilitate installations at a rate required to meet the Government target.

This position is also held by the Committee on Climate Change (CCC), the statutory body tasked with overseeing the UK Government's progress in meeting its obligations under the 2008 Climate Change Act. The CCC[4] notes:

> '[Net zero] is only possible if clear, stable and well-designed policies to reduce emissions further are introduced across the economy without delay.'

MCS strongly supports that statement.

In relation to the widespread adoption of heat pumps in the UK, the six key barriers that BEIS see as preventing this are:

1. **Cost:** ASHPs cost £7-14k, and GSHPs cost £15-35k. Heat pumps can also increase fuel bills if poorly installed or installed in homes with high heat losses and insufficient energy efficiency.

[1] https://www.gov.uk/government/publications/the-ten-point-plan-for-a-green-industrial-revolution
[2] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/924574/Long-term_Delivery_of_Social_and_Affordable_Rented_Housing_PRINT.pdf
[3] https://www.ehpa.org/market-data/
[4] https://www.theccc.org.uk/publication/net-zero-the-uks-contribution-to-stopping-global-warming/

2. **Disruption:** At present, a heating system is typically a distress purchase. It takes on average 2.5 days [for a team of two] to install a heat pump and waiting times to book an installation can be long.

3. **Noise:** Air-source heat pumps (ASHP) create noise which must be below 42dB, requiring installation of one metre from neighbours' windows to fall under permitted development. As such, an increasing number require full planning permission.

4. **Thermal comfort:** Heat pumps operate more efficiently at low flow temperatures and are slower to reach room temperature compared to fossil fuel heating systems, requiring behavioural change from users.

5. **Space constraint:** Some homes don't have space for an outdoor unit (ASHP) or ground array – a ground-source heat pump (GSHP), including piping, control kit, hot water tank and buffer tank.

6. **Aesthetics:** 1 in 16 people who installed a heat pump under the Renewable Heat Incentive (RHI) were dissatisfied with how the heat pump looked, despite being 'green' early adopters.

MCS supports the efforts made by the Department for Business, Energy and Industrial Strategy (BEIS) in addressing these barriers; however, we would like to stress that they are not new. They were identified and addressed in reports written for the Deparment of Energy and Climate Change (DECC) in 2013[5,6] and 2016[7], and its successor, BEIS, in 2017[8] and 2020[9].

The CCC 2013 report – 'Pathways to high penetration of heat pumps'[10] – posed many of the same questions asked by BEIS at their recent webinar, and provided a range of answers to them. The report made the following policy recommendations that the CCC believed would lead to a high penetration of heat pumps within the UK:

- **Enhanced heat pump certification (requiring installer and consumer training) with sustained information campaigns should be implemented in the next few years.** Given the low costs of this measure and the current importance of awareness barriers (including time to research) we recommend that these measures are implemented in the next few years.
- **Heat pump uptake should be stimulated by the end of this decade in new homes through tightening carbon standards for new homes.** Regulation of new homes first is a highly effective means to tackle behavioural and suitability barriers to heat pump uptake. By targeting the standard based on carbon (in Part L of the Building Regulations) the policy retains the flexibility to allow other options to reduce emissions that may be more cost-effective in certain circumstance or different scenarios.

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[5] Frontier Economics and Element Energy 2013 'Pathways to high penetration of heat pumps' available at https://www.theccc.org.uk/wp-content/uploads/2013/12/Frontier-Economics-Element-Energy-Pathways-to-high-penetration-of-heat-pumps.pdf

[6] DECC (2013) 'The Future of Heating' – available at https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/190149/16_04-DECC-The_Future_of_Heating_Accessible-10.pdf

[7] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/498962/150113_Delta-ee_Final_ASHP_report_DECC.pdf

[8] Vivid Economics & Imperial College 2017 'International Comparisons of Heating, Cooling and Heat Decarbonisation Policies' – available at https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/699674/050218_International_Comparisons_Study_MainReport_CLEAN.pdf

[9] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/943712/heat-pump-manufacturing-supply-chain-research-project-report.pdf

[10] See 5 above, p.119

- **Policies should encourage uptake of heat pumps in off-gas homes in the 2020s.** Off-gas grid homes are one of the most cost-effective home types to target as the heat pumps are replacing high-carbon heating options, such as oil, in the homes. Policies, such as an extended and optimised RHI or an off-gas grid carbon standard, could be used to encourage this. However, we note that many off-gas grid homes are poorly insulated and therefore suitability criteria and/or complementary energy efficiency measures may be needed to ensure heat pumps are not installed in unsuitable homes.
- **A Green Deal or similar financing arrangements for heat pumps may be important in the 2020s.** Heat pumps have high capital costs relative to gas boilers (and other conventional alternatives). To reduce financial barriers and remove the hurdles that discourage consumers to invest, the Green Deal or a similar loan guarantee arrangement for heat pumps could be important. Moreover, if any carbon standard on heating system replacement were implemented, these financing arrangements could help mitigate the potential negative impacts of consumer-facing, sudden upfront costs when replacing a heating system.

MCS supports the conclusions made in the CCC 2013 report, but observes that none of the recommendations have made it into policy in the eight years since the report's publication, with the notable exception of the RHI (soon to end), the short-lived Green Deal and its successor, the failed Green Homes Grant.

We are now in a position whereby the RHI is due to close in March 2022, with little detail provided yet on its successor, the Clean Heat Grant. Overall, this policy inertia has resulted in only a small increase in the number of installed heat pumps in the UK – 17,862 in 2013 rising to around 32,000 in 2020[11]. While in relative terms that represent an 80% increase, the figures are dwarfed by the growth in the heat pump sector in France. During the same period France saw numbers increase from 118,175 in 2013 to nearly 400,000 in 2020 – an increase of over 300%[12].

In 2017, BEIS commissioned a report – 'International Comparisons of Heating, Cooling and Heat Decarbonisation Policies'[13] – that noted:

> 'Effective [energy] transitions have been supported by a package of policies which span regulation, information, standards, research and development and long-term targets. The key ingredients of success in shifting to low carbon sources have been sustained policy support over time and the implementation of packages of policies which address the investment case, as well as a range of barriers (technical, information, innovation) and the interaction with other areas of policy (building codes, development of new infrastructure).'

More worryingly, as recently as March 2021, the Environmental Audit Committee's (EAC) report on energy efficiency in existing housing[14] observed:

> 'Emissions reductions from the UK's 29 million homes have stalled, which makes a comprehensive programme of home energy efficiency even more urgent. The failure of Government schemes yet to address this challenge adequately is therefore both disappointing and of great concern'.

The report highlights a number of policy failures and stresses the need for Government to:

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[11] https://www.ehpa.org/market-data/

[12] https://www.ehpa.org/market-data/

[13] Vivid Economics & Imperial College 2017 'International Comparisons of Heating, Cooling and Heat Decarbonisation Policies' p.4 – available at https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/699674/050218_International_Comparisons_Study_MainReport_CLEAN.pdf

[14] https://committees.parliament.uk/publications/5171/documents/52521/default/

'set long term targets, with appropriate support mechanisms of multi-year duration, to give businesses certainty and not change the goalposts along the way'

Among the recommendations are:

- Introducing a new, long-term scheme to replace the Green Homes Grant that provides the financial support for homeowners and builds trust within the construction sector.
- Reducing VAT on the labour element of refurbishment and renovations to five per cent and the reducing the rate of VAT payable on energy saving materials should also be reinstated to the previous level of five per cent.
- Working with the financial sector to ensure awareness and uptake of green financial products and develop more pilots into innovative financing mechanisms alongside stamp duty rebates and low interest loans.
- The Government should build on its advice service to provide more specialist, bespoke advice[15].
- Change Energy Performance Certificates (EPC) to reveal not just the fuel cost, but the energy and carbon metrics in its headline rating.
- Eventually replace the EPC system with building renovation passports, which have the potential to provide much more accurate data on energy usage and provide homeowners with long-term renovation strategies that can minimise disruption to their homes.

MCS strongly supports the conclusions from the 2017 BEIS report and those of the EAC.

In the following sections, we outline our response to each of the identified 'barriers'. Our responses add further weight to the conclusions made by DECC in 2013, BEIS in 2017, the CCC in 2019 and the EAC in 2021 of the need for long-term policy support to aid the widespread adoption of heat pumps in the UK.

Cost

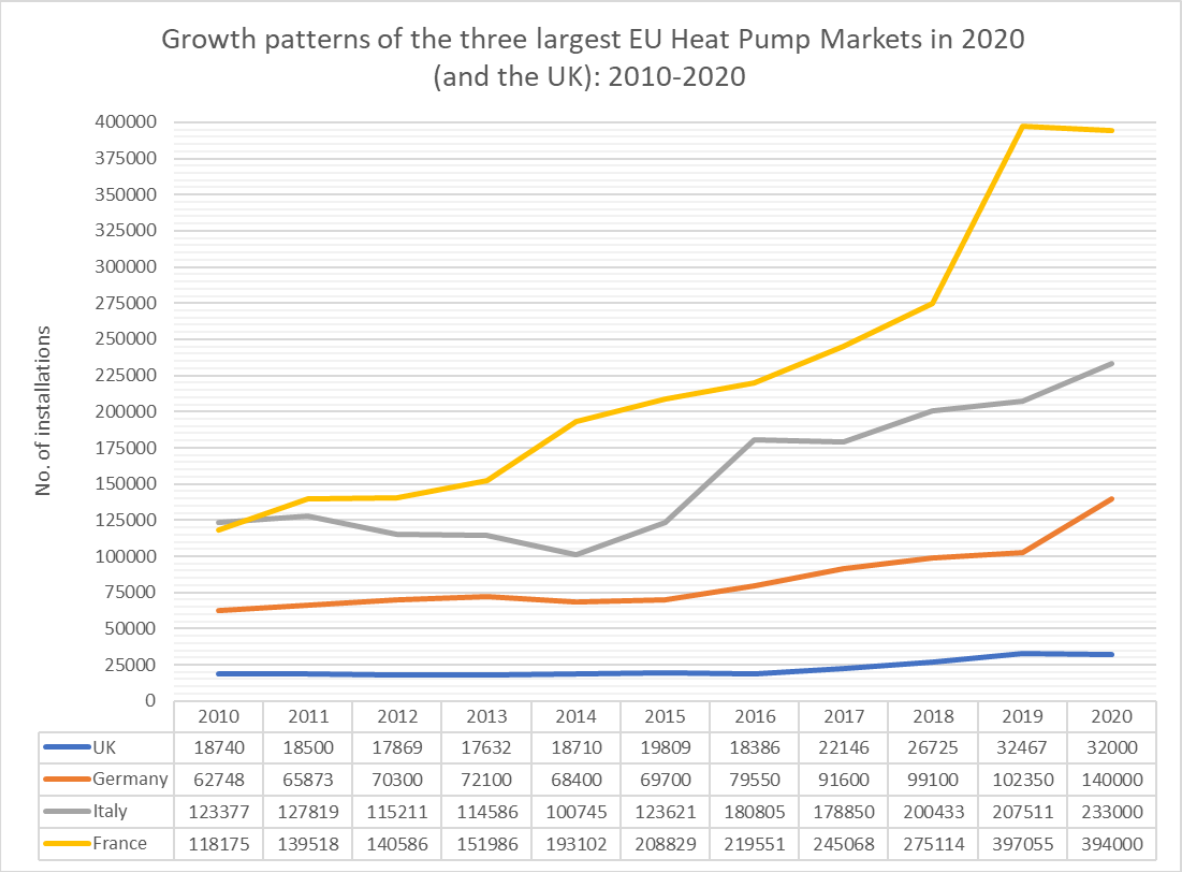
A brief analysis of the policy landscape in France, Germany and Italy (see Table 1.), combined with an analysis of the number of heat pump installations (see Figure 1.), compares progress made by each country in increasing the adoption of heat pumps. The introduction of a range of financial and regulatory measures, in addition to those mandated by the EU, has resulted in a clear, measurable impact on the number of heat pump installations in each country.

Table 1 Key policy measures in support of energy transitions in France, Germany and Italy

France	• 1999-present: reduced rate of VAT (5.5% compared to 10%) on energy efficiency products. • 2009-present: 0% 'eco-loan' of up to €30,000 available for energy efficient residential renovations to finance retrofitting pre-1990-built properties . • 2010-present: Habiter mieux – programme targeted at alleviating fuel poverty through grants of up to €60,000 for energy efficiency upgrades. • 2012-present: 'Regulation Thermique' – all new single-family dwellings must achieve primary energy consumption less than 50 kW/m^2 per year. In practice, this effectively removes direct electric heating from all new-builds. • 2014-present: reducing tax on less carbon intensive fuels and removing subsidies and tax rebates on fossil fuels.

[15] Advice further supported by the 2020 'Energising Advice' report produced by the MCS Charitable Foundation. The report reveals that current provision of energy advice and information on retrofitting homes is inadequate and urges the Government to take a new, more radical approach to benefit homeowners across the UK. Current advice availability varies depending on where you live, and in many parts of the UK is too basic for the practical complexities of deep retrofit. The report is available here: https://static1.squarespace.com/static/5aafe1e7620b85e2e8c9ba88/t/5fcf670110aae77571707edb/1607427851935/MCS+Charitable+Foundation+-+Energising+Advice+Report.pdf

	• 2014-present: CITE (Tax Credit for Energy Transition) – up to 30% of capital costs of energy efficient and renewable energy equipment with a limit of €16,000.
Germany	• 2014-present: National Action Plan on Energy Efficiency – a consumer information, advice and financial incentive campaign to increase uptake of energy efficiency measures. • 2015-present: CO_2 Building Modernisation Programme – low-interest loans and subsidies of up to €30,000 for energy efficient residential renovations. • 2016-present: introduction of building standards requiring a 25% reduction in primary energy consumption and 20% reduction in heat transfer loss. • 2026 – banning the installation of oil heating systems in new and existing buildings (with some exemptions for certain building types).
Italy	• 2007-present: Energy Efficiency Tax Rebate Programme – tax credits that began at 45% are now 110% of the costs incurred in retrofitting energy efficiency measures. • 2013-present: Renewable energy for heating and cooling support scheme – up to 40% of investment costs repaid in annual instalments of between two to five years.



	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
UK	18740	18500	17869	17632	18710	19809	18386	22146	26725	32467	32000
Germany	62748	65873	70300	72100	68400	69700	79550	91600	99100	102350	140000
Italy	123377	127819	115211	114586	100745	123621	180805	178850	200433	207511	233000
France	118175	139518	140586	151986	193102	208829	219551	245068	275114	397055	394000

Figure 1 Comparison of heat pump installations 2013-2020 - France, Germany, Italy and the UK[16]

By decreasing upfront costs to homeowners through grants, subsidies, loans and reduced VAT rates installation numbers have shown a clear upward trend from 2013 across France, Germany and Italy.

[16] EHPA (2020) 'European Heat Pump Market and Statistics Report – 2020'

As shown in a 2019 report[17] produced for the CCC, low-carbon heating in the UK has the potential to be cost-effective when built into new homes from 2021. Lifetime carbon savings of over 90% are achieved at a building cost increase of around 1-2%. Built to high efficiency standards, low-carbon heat in the form of an ASHP will reduce the lifetime running costs of a home compared with an equivalent house with a gas boiler.

Of equal significance in the move to net-zero, the report notes:

> 'a semi-detached home built in 2020 with gas heating and retrofitted with an ASHP in 2030 can be expected to emit more than three times more (or 9-10 tonnes) carbon over 60 years than if the heat pump was installed when the house was built. If 300,000 homes are built annually by the mid-2020s, each year of delay in adopting lower-carbon heat technologies could result in several million tonnes of avoidable carbon emissions, even if the technology were to be retrofitted after only 10 years.'

However long-term, Government-backed green financing initiatives, such as those that have proven effective in France, Germany and Italy, are currently absent from the policy landscape. The Government's efforts in this area, the Green Deal and its successor, the Green Homes Grant, were both scrapped well before their intended end dates. This has left a policy vacuum in which the heat pump sector is being tasked with 'addressing the key barriers to widespread heat pump adoption' that have been well-known for a number of years, had potential policy solutions identified, and had real-world examples across Europe from which to draw upon. As recently as March 2021, this point was made to Government by the EAC[18]:

> 'The success achieved in Germany through its state-funded low interest loans is on the scale that the UK should be aspiring to and the Government should consider how the National Infrastructure Bank could be used as a vehicle to support homeowners.'

While lacking much in the way of concrete policy commitments, the recent energy white paper[19] does indicate that Government support in the form of subsidies or grants to support the widespread adoption of low-carbon technolgies in the building sector may be lacking:

> 'Meeting our commitments to decarbonise and improve the energy performance in buildings will require the mobilisation of around £100 billion of capital across homes, businesses and the public sector over the 2020s alone. **It is investment that must come principally from businesses and homeowners, and from landlords of domestic and commercial premises.** Growing the market for green finance products will be essential to leveraging this scale of private capital and demands a partnership between the financial services sector and suppliers, manufacturers and energy services companies.'

(emphasis added)

As the French, Italian and German examples show, and as the IEA notes in its analysis of the global heat pump market[20]:

> '...subsidies have proven effective to offset the upfront cost of heat pumps and initiate market dynamics that accelerate their uptake in newly built buildings. Removing this financial support

[17] https://www.theccc.org.uk/publication/the-costs-and-benefits-of-tighter-standards-for-new-buildings-currie-brown-and-aecom/
[18] https://committees.parliament.uk/publications/5171/documents/52521/default/
[19] HM Government (2020) 'Powering our Net Zero Future' – https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/945899/201216_BEIS_EWP_Command_Paper_Accessible.pdf
[20] IEA (2020), Heat Pumps, IEA, Paris https://www.iea.org/reports/heat-pumps

> could considerably impede higher heat pump adoption, especially of ground-source heat pumps.'

In 2019, France was achieving a sales rate of 13.7 heat pumps per 1,000 households, while Norway had the highest sales rate in Europe at 47.8 heat pumps per 1,000 households. By comparison, the UK had the second-lowest at 1.2 sales per 1,000 households[21].

The evidence on cost is clear: with appropriate government support, heat pump adoption in the UK will grow. What is also clear is the scale of that growth potential.

Disruption

Commenting on the purchase of a new boiler as a distress purchase, another of the identified 'barriers', the 2013 DECC report[22] noted that:

> 'Although boiler replacements in the UK are generally characterised as 'distress purchases', industry reports that in only 30% of cases the boiler cannot be serviced, with boilers often replaced because it is more economic to do so. Recent research with homeowners found that 'anticipated breakdown' was the main reason for 31% of respondents to purchase a new boiler and wider property renovation accounted for a further 13%.'

This suggests that up to **70% of new boiler purchases are not a distress purchase** at all, providing an opportunity for information campaigns to raise awareness of the benefits of heat pumps, and address concerns over noise, space and aesthetics.

This approach has formed part of the long-term strategy in Germany, and was recommended to the CCC in 2013 as a low-cost measure to boost the uptake of heat pumps. The issue of waiting times is also removed as there is no 'distress' involved, and homeowners can plan accordingly. The issue of distress purchasing is also non-existent in the new-build sector, where up to 300,000 heat pumps a year could be installed if the Government meets its targets.

Noise

The CCC 2013 report[23] both posed the problem of noise – specifically that noise from heat pumps must be below 42dB at one metre from neighbours' windows to fall under permitted development – and a potential solution that relaxing the noise threshold to 45dB would significantly reduce this barrier without infringing on neighbouring properties. While in its 'roadmap' for the role of heat pumps, the Heat Pump Association (HPA) argues for an increase from the current volume size of outdoor heat pumps allowed under permitted planning rules from 0.6m^3 to 0.75m^3 in both new build and retrofit. They argue that this would:

> 'allow lower noise units and heat pumps which have additional equipment inside such as low noise circulation pumps, which reduces plant space requirements inside the property. It would also have the added benefit of improving the efficiency of heat pumps to further reduce carbon emissions from this already carbon saving technology.'

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[21] EHPA (2020) 'European Heat Pump Market and Statistics Report – 2020'

[22] DECC (2013) 'The Future of Heating' – available at https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/190149/16_04-DECC-The_Future_of_Heating_Accessible-10.pdf

[23] Frontier Economics and Element Energy 2013 'Pathways to high penetration of heat pumps', p.119 – available at https://www.theccc.org.uk/wp-content/uploads/2013/12/Frontier-Economics-Element-Energy-Pathways-to-high-penetration-of-heat-pumps.pdf

More recently, the 2020 Carbon Trust report 'Heat pump retrofit in London'[24] produced for the Greater London Authority noted that:

> 'with careful choice of technology and placement to minimise sound pressure it may be possible to install ASHPs even in very dense settings. There is a wide range in the sound performance of heat pumps on the market, with the sound power of models on the market ranging between 30 and 80 Db(A). Premium heat pump models with very low levels of noise will enable far more choice in the positioning of heat pumps. Likewise, careful positioning away from inhabited rooms and reflecting surfaces can mean that relatively noisier heat pumps are still able to meet noise requirements.'

It is clear there are several identified solutions to the issue of noise that would significantly reduce this barrier.

Thermal comfort

In an Energy Savings Trust (EST)[25] field trial of heat pumps, overall household satisfaction with the warmth and comfort provided was very high. In addition to the warmth they provide, they also allow a property to be cooled during hot summer periods.

High-efficiency heat pumps also dehumidify better than standard central air conditioners, resulting in lower energy usage and more cooling comfort in summer months. However, the EST field trial noted that many householders have difficulty understanding the instructions for operating and using their heat pump, which affects performance.

The 2013 DECC consumer insights study[26] of households receiving Renewable Heat Premium Payments, the predecessor of the RHI, reported that 48% of respondents would put on additional layers of clothing if they were too cold, 41% would turn up the thermostat, and 57% had used supplementary sources of heating.

Given the findings of the EST trial, this suggests that rather than requiring behaviour change, a shift in expectations and a better understanding of how to heat your home is needed. A heat pump installed to MCS standards and operating as intended is capable of providing the same levels of thermal comfort as a gas boiler, but will not provide the instant boost to which many households have become accustomed. As identified by the EAC[27] 'Energising Britain'[28] report and the example of Germany, this reinforces the need for a more comprehensive retrofit advice service for householders to ensure they gain the full benefits from their heat pump.

What the 2013 study does not explore is the conditions that led to the users feeling too cold, nor the duration of use of the secondary heat source, nor any overall changes in how users heat their homes and the impact on overall energy use. In treating all respondents as individuals, the report makes no distinction between different members of the same household and how these dynamics impacted on the use of jumpers compared to turning the thermostat up (or down) or the use of secondary heat sources. What is also not explored is how the respondents are using their heat pumps.

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[24] https://www.london.gov.uk/sites/default/files/heat-pump-retrofit-in-london-v2.pdf

[25] https://energysavingtrust.org.uk/wp-content/uploads/2020/09/Heat-pumps-getting-the-most-out-of-your-heat-pump.pdf

[26] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/265585/Analysis_of_customer_data_from_phase_one_of_the_renewable_heat_premium_payments__RHPP__schemeFINAL.pdf

[27] https://committees.parliament.uk/publications/5171/documents/52521/default/

[28] https://static1.squarespace.com/static/5aafe1e7620b85e2e8c9ba88/t/5fcf670110aae77571707edb/1607427851935/MCS+Charitable+Foundation+-+Energising+Advice+Report.pdf

These issues are highlighted in an emerging body of research[29, 30,31] into the 'real-life' use of heat pumps and smart-heating controls. This work has shown that **there is often little or no reduction in electricity consumption as energy efficiency gains are counterbalanced by increased comfort and altered heating practices. This is the key element missing from the BEIS barrier list, and most of the resulting policy recommendations.** It highlights the need for energy policy to engage with households in a more meaningful and lasting way that goes beyond the creation of economic incentives and provision of information as standalone approaches. While these approaches have been effective at increasing the number of heat pumps installed in the three countries highlighted in our response paper, questions remain over the long-term, net-energy gain from these and other low-carbon technologies that are central to meeting net-zero targets.

While we acknowledge the need for more research into long-term usage of heat pumps, there is no question that heat pumps can provide a comfortable room temperature throughout the year.

Space constraints

There is little evidence to support the idea that space constraints are a barrier to the widespread adoption of heat pumps. As the 2013 report 'Pathways to high penetration of heat pumps' notes:

> 'There is a common assumption that ground source installations are only suitable for rural, off gas properties as these properties have lower space constraints for boreholes. However, one manufacturer we consulted estimated that 50% of their ground-source installations are in central London.'

While we acknowledge that without knowing what type of property the 50% of GSHPs were installed in, it is difficult to gauge what space they had available. The mere fact that the 'common assumption' is open to challenge questions the extent to whether space is in fact a constraint.

A further challenging to the idea of space as a constraint to the widespread adoption of heat pumps is provided by the Greater London Authority (GLA), which has developed an action plan for heat pump retrofit in London[32]. The GLA has chosen heat pumps as the primary technology choice for decarbonising heat in all existing London buildings, including high-density housing, because:

> 'heat pump technology is diverse and versatile and, with appropriate design, installation and operation, heat pumps are technically viable across all London building types.'

In addition, the GLA action plan notes that:

- Modern ASHPs are capable of noise levels well below those required for permitted development in dwellings.
- Fully internal ASHPs can remove the need for an outdoor fan unit where external space is not available.
- Shared ambient loops with individual heat pumps in each flat offer a solution for blocks of flats, replacing individual gas boilers or direct electric heating.
- In dense urban areas, large heat pumps can be used in heat networks expanded to incorporate existing buildings, feeding off London's many sources of secondary and waste heat.

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[29] Bryony Parrish, Sabine Hielscher, Timothy J. Foxon (2021) Consumers or users? The impact of user learning about smart hybrid heat pumps on policy trajectories for heat decarbonisation, Energy Policy, 148

[30] Hargreaves, T., Wilson, C., Hauxwell-Baldwin, R., 2017. 'Learning to live in a smart home', Building Research and Information, 46:1, 127–139.

[31] Kirsten Gram-Hanssen, Nina Heidenstrøm, Gunnar Vittersø, Line Valdorff Madsen & Mette Hove Jacobsen (2017) Selling and installing heat pumps: influencing household practices, Building Research & Information, 45:4, 359-370

[32] https://www.london.gov.uk/sites/default/files/heat-pump-retrofit-in-london-v2.pdf

By placing heat pumps at the centre of its plans to decarbonise heat, the GLA has provided a strong endorsement of the viability and suitability of heat pumps in densely populated urban areas. This goes a long way in dispelling the notion of space as a constraining factor in the widespread adoption of heat pumps in the UK.

Aesthetics

Given that only 1 in 16 – or 6.25% – of early adopters found aesthetics an issue, there is a legitimate question as to whether this is in fact a 'barrier' at all. An alternative way of presenting the same fact would be to say that 93.75% of early adopters did not find the aesthetics of their heat pump an issue.

In addition, the vast majority of ASHPs are installed outside. The ability to position them away from a direct line of sight is far greater than with traditional gas boilers, which are installed indoors and often require boxing-in to hide them as, ironically, many people don't like the aesthetics of gas boilers and the associated pipework.

Recommendations

MCS awaits the publication of the Government's Heat & Buildings Strategy, Approved Document L – Conservation of Heat & Power, as well as the Future Homes Standard. Whether these policy documents and regulations include the necessary provisions to support the widespread adoption of heat pumps, together with greater clarity on the Clean Heat Grant, is still open to question.

We all know the UK has been here before. Most notably, the solar Feed-in-Tariff saw a massive increase in installed solar PV, in turn supporting the development of a stable, well-skilled low-carbon workforce that gradually declined as policy support became less effective.

As the MCS Renewing Britain[33] report highlights, without strong policy support following the decline and eventual withdrawal of the Feed-in-Tariff (FiT) scheme, installation numbers of solar PV declined dramatically from a peak of 203,872 in 2011 to a low of 37,215 in 2017.

MCS welcomes the efforts made by BEIS in engaging with the heat pump sector to address barriers to the widespread adoption of heat pumps in the UK. However, we reiterate: with proper, long-term policy support the UK can support and grow the small-scale renewables industry; without it that growth is transitory and soon withers, and our collective carbon-reduction efforts will falter.

The evidence from France, Germany and Italy illustrates that the same is true for the growth and support of heat pumps as an essential part of the move to net-zero. Policy inertia in the UK has led to installed heat pump numbers stagnating, just when they need to be growing exponentially to reach the Government's 600,000 target for installations per year by the end of the decade.

MCS continues to simplify its Standards and associated Certification Scheme, with the aim of providing a more accessible route to market for those gas and oil-based heating system contractors wishing to install heat pumps.

- On the 22nd June 2021, the previous Scheme requirement for a contractor to have a documented Quality Management System (QMS) was removed, reducing the administrative burden on contractors and removing any remaining need to subscribe to third-party software solutions.
- Over summer 2021, a revision to the MCS Heat Pump Standard (MIS 3005) will be published, allowing contractors to be certified for either design or installation or both. This will better reflect the way the market operates, with a significant number of installers only wishing to install heat pumps versus taking on system design.

[33] See www.renewingbritain.com

- By autumn 2021, MCS will offer contractors who are new to the Scheme a much simpler qualification-based route through to certification, similar to Gas Safe. This will reduce the cost and time taken in achieving certification.
- By the end of 2021, MCS will have consulted on a revision to the consumer protections afforded under the Scheme, with the aim of increasing consumer confidence and reducing costs and administration for contractors.

In conclusion, MCS recommends:

- Using positive tax incentives and rebates, including removing all VAT on domestic renewables, energy efficiency measures and retrofitting costs.
- Introducing an interest free loan up to £20,000 to cover capital upfront costs of retrofitting and adding zero carbon heating systems. MCS would suggest new financial tools, such as Property Assessed Clean Energy (PACE) loans, which remain with the property and not the person. This should be paid back via an energy tariff, which is no greater than the previous combined energy bill, minus current reduced energy bill. In effect, the household energy bills remain the same until the loan is paid. In effect, this is a buy-now, pay-later scheme.
- Reducing the taxation and tariffs on electricity and transferring these over to CO_2 producing fuels like gas. If you want to encourage the electrification of heat, you must reduce the artificially high price of electricity.
- Banning all fossil fuel heating from all new-build properties from 2022.
- Introducing a comprehensive and independent national energy advice service underpinned by local and regional one-stop-shop hubs to support households through the process of identifying and introducing the range of carbon reduction measures appropriate to their home.
- Establishing a new, long-term incentive scheme of at least 10 years (to replace the Green Homes Grant) for all domestic renewables and energy efficiency measures, that will substantially reduce the costs of heat pumps, to provide the security necessary to grow and sustain the heat pump sector.

The evidence is powerful: when such policies are introduced the sector can achieve significant year-on-year growth – but without them, it won't.