MCS Charitable Foundation was created by BEIS in 2018 to take on the ownership of the standards for microgeneration and responsibility for the MCS scheme which is now run by MCS Service Company, a wholly owned trading subsidiary of the Foundation. We use the profits from the MCS scheme to support our grants and research programmes which are focused on our mission of accelerating adoption of renewable energy and low carbon technologies.

MCS Service Company has submitted a detailed response to this consultation. This submission reinforces that response and makes some additional points in relation to the overall policy landscape and the pathway to the Government’s net zero emissions target.

We welcome the Government’s 2020 budgetary announcement of £9 billion funding for energy efficiency measures to decarbonise heat. We note that the Clean Heat Grant Scheme (CHGS) is a single measure intended to form part of a broader policy framework which we expect will be announced later this year. We are also aware of today’s announcement for a £5,000 grant to be made available for ‘energy-saving home improvements’ from this September.

MCS Charitable Foundation argues that it is crucial that the Government adopts a comprehensive, broader policy landscape with an ambitious focus on domestic heat decarbonisation. In particular the policy framework needs to be focused on the measures needed to get the UK onto a clear pathway to net zero emissions in buildings.

A 2019 report from the Heat Pump Association, drawing in turn from a Climate on Climate Change report, highlighted that the UK needs to increase the number of domestic heat pump installations per year from 27,000 in 2018 to over 1 million by 2030 in order for the country to be on track to meet the 2050 net zero emissions target.

Evidence supplied in this submission (see answer to question 23) suggests that the proposed grant pot of £100m, with a flat rate grant of £4,000, would sustain the level of installations just below that currently being achieved. Given the step change in installation numbers needed, we feel that the size of the grant pot is wholly inadequate in achieving the Government’s own zero carbon aspirations. Our response also sets out evidence that a flat rate grant of £4,000 is unlikely to be effective (see answers to questions 25 and 26).

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1 Budget 2020 – UK Government
Furthermore, there is growing evidence that the target date of 2050 for net zero emissions does not reflect the climate science, with a report from the Centre for Alternative Technology suggesting that it would mean accepting a much lower than 50% chance of avoiding 2 degrees of global warming. In other words, the rate of installations of low carbon heating technologies needs to be much more ambitious than even those highlighted by the Heat Pump Association. As such, we feel strongly that adopting a two year ‘holding pattern’ with this proposed grant does not fit with the urgent and strategic approach needed in this crucial decade.

The good news is that, in the wake of COVID-19, there is evidence of high public support for the policy measures needed to deliver a clear path to net zero on a more ambitious timescale, and as the Government is aware such an approach brings with it substantial new economic and job creation opportunities for the country.

This demand for increased ambition was also reflected in the views expressed by industry representatives in the MCS Low Carbon Heat Taskforce which the MCS Service Company developed to inform the MCS response to this consultation.

This consultation response therefore focuses on the questions relating to the overall ambition of the grant to stimulate the necessary step-change in low carbon heating installations as part of a pathway to net zero. All our comments are evidence-based using existing data analysis as well as newly produced, informed projections and insights.

Thank you for giving us the opportunity to engage with this policy proposal. We look forward to seeing the results of the consultation and the Government’s response.

Yours sincerely,

Adrian Ramsay, CEO

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Future Support for Low Carbon Heat Consultation - General Points

1. MCS welcomes the proposals for successor arrangements to the Domestic Renewable Heat Incentive (DRHI). The transformation of domestic energy will play a significant role in contributing to the delivery of net zero targets. To achieve this there must be a major and urgent step change in growth in the renewable heat technology market supported by investment in skills and awareness raising.

2. We have a number of specific comments on the consultation questions and the proposals which can be found in Appendix 1. In addition, we have more general comments on the overall shape of the future approach to domestic renewables. This proposal needs to be embedded in the government’s wider climate strategy to address the security of energy supply, keep bills down and achieve decarbonisation of our energy supply. Low carbon heating must play a central role in helping to meet these strategy intentions. The UK needs a future-proofed strategy which maximises take-up of low carbon heating at a stable cost to the consumer.

Policy Framework

3. Funding and incentives for low carbon heat must be designed to underpin the development and major expansion of microgeneration. There should be a clear vision of the scope and role of domestic microgeneration within the overall decarbonisation policy and clear, ambitious targets against which we can measure the scale and penetration of the technologies.

4. The sector needs this clear understanding of the policy and plans to grow low carbon heating as part of a clear pathway to net zero emissions. A major step change in deployment of renewable heat is needed during this decade so the policy framework should be focused on driving sustained growth in the sector during the next five years. The current two-year proposal does not give enough confidence for businesses to scale up, diversify nor invest in training a workforce.

Review of the proposed deployment levels and total funding available

5. We do not see the limited funding of £100 million as in any way adequate to support any significant growth of low carbon technology. We are unclear about the evidence as to how funding on this scale will change or sustain current installation levels, nor how they will make a significant difference to the achievement of the UK’s net zero carbon emissions target.
Review of the grant mechanism and flat rate

6. The amount of grant and the flat-rate, technology neutral approach needs reconsideration. A £4k flat grant is too blunt an instrument and fails to take account of the significant cost differences between low-carbon technologies. The grant should be proportionate to supply and install costs which do not appear to be part of the CHGS design.

Technology Bias

7. The CHGS proposal clearly favours Air Source Heat Pumps (ASHPs) as the renewable technology of choice. While these can be an appropriate solution for some consumers, there is a risk that Ground/Water Source Heat Pumps (G/WSHPs) will be overlooked. G/WSHPs may be more expensive upfront but they deliver better longer-term savings, both financially and in relation to reduced carbon output.

8. There are several arguments for the consultation to include Solar Thermal in the CHGS, notably; it is attractive, has low installation costs, and has a capability to provide sufficient space heating and domestic hot water. It also has huge potential when coupled with other renewable heat technologies. MCS considers that BEIS should review the evidence provided in our answer to Q40 and reconsider Solar Thermal as a credible technology type that would benefit from incentivisation.

Significant Investment in consumer education

9. The benefits of low carbon heating need to be clear and transparent to consumers and should be coupled with awareness campaigns that aim to change their understanding about domestic energy use and technology options. Even within the limitations of this scheme, without adequate education and information there is a risk that consumers will be directed by sales and marketing to financial vouchers rather than to the right technology. We are confident that government would not wish to potentially incentivise mis-selling.

International policies

10. MCS has been reviewing best practice of renewable heat policy at an international level with considerable interest. The full details of this review can be found in Appendix 4. We believe that there are learnings in the policy approach of other nations, such as Scotland and France, which provides several important drivers for the market, clearly allowing renewable energy
to thrive. A whole house approach to energy efficiency in the UK through appropriate packages of support rather than piecemeal and fragmented measures would benefit consumers, the renewables sector and support the drive to reduce carbon emissions.

**Post pandemic reflection**

11. MCS acknowledges that these proposals were prepared before the Coronavirus pandemic. We would welcome clarity as to whether BEIS will be reviewing its approach and widening it in the light of the post-pandemic recovery requirements which MCS believes should be both effective and green.
Appendix 1

MCS Charitable Foundation Response to Consultation Questions

Note: Not all questions answered

Q23. Do you agree that support for buildings technologies should change from a tariff to a grant? Yes/No. Please provide evidence to support your response.

No. Due to the short-term nature of this policy, it should be considered whether replacing DRHI at this time with a grant is the right approach.

While we recognise the current DRHI has been generously funded and not had the expected large-scale impact in encouraging the mass uptake of low-carbon heating systems and reducing costs, replacing it with a flat-rate grant of £4,000 will not necessarily support the market even while in a transitional phase.

The CHGS consultation impact assessment based on the £100m budget indicates that the heat pump market would be supported to a similar level as has been the case under DRHI. MCS is concerned that a £4,000 grant spread over two years would only fund 12,500 installations per year, when latest data from the MCS Installations Database (MID) shows that there were 13,799 Heat Pump installations and 363 Biomass installations registered with MCS in 2019 (Appendix 5, chart 1). At 2019 levels the grant will be over-subscribed by at least 13%.

Our evidence (Appendix 5, chart 3) shows that when an incentive (e.g. RHPP) is introduced, there is a surge in installations, specifically in ASHP installations. If a new grant is introduced, it will likely drive another spike in installations, but most, if not all of the funding could be used up toward ASHP installations. The design of grant application and voucher redemption processes is crucial to be effective. The proposed overall grant level is not ambitious enough and it would be likely to be used up quickly without necessary controls. However, it should be noted that these control mechanisms would result in eight distinct windows of the grant being opened up over the two-year period, skewing figures and creating peaks and troughs in installations. MCS supports a scheme which sees a certain proportion ring-fenced for different groups, for example social landlords. The CHGS should not provide grants for heat pumps installed into all types of new build housing. If we can spread the uptake of low carbon heat technologies fairly, it would also increase understanding of the benefits of these installations more widely. We need to avoid a “rush to the bottom” and not encourage a market that is influenced by hard sales techniques that target the easiest properties, or most vulnerable consumers, for installs with low cost equipment.

MCS considers that the only CHG applications that appear attractive compared to DRHI would be for small ASHP installations delivering poor value for money and not necessarily focused on maximising efficiency savings. More unscrupulous installers could target those vulnerable customers with access to capital and a motivation to contribute to improving climate change.

The grant needs to avoid skewing the market towards the “cheapest” installation using the cheapest products that tend to be less efficient and less durable. Instead the scheme needs to be linked to carbon savings, size, lifetime and efficiency of the product.
While a grant is more accessible and understandable for consumers and removes barriers for those who cannot afford the upfront capital costs, it is most likely to appeal to property owners who are likely to have access to funding anyway. Most incentives like grants and tariffs tend to favour those with more disposable income. This is demonstrated in data provided in Appendix 5, charts 4, 5 & 6a/b/c/d.

The uptake of renewable technology is higher in one person and two-person households which are economically active when compared to larger households with families. In the professional occupations which includes managers, directors and senior officials we have seen a trend that they are more likely to install a G/WSHP. It also indicates that those in higher-income professional occupations are more likely to install low carbon heating systems. MCS concludes that this group is more able to fund the right solution for their property while those in administrative, leisure, care and services roles tend to buy an ASHP – being a lower cost solution.

Another clear trend is those with knowledge of trades including heating and plumbing, are more likely to install low-carbon heating compared to other professions, suggesting that this challenge is one of consumer education as much as an adoption of technology. This shows that renewable technology is not only more accessible to those with higher incomes, but also highlights the need to address wider consumer awareness as to the benefits of installing low carbon heating.

A recent report published by the Energy Systems Catapult surveyed 2000+ people with most respondents saying that they have heard of the different low carbon heating options. Around half believed that a low carbon heating system would have a positive impact on climate change5. Yet fewer than 20 per cent said they were likely to change to a low carbon heating system when they next need a heating system replacement. The main reasons cited were that low carbon heating systems were more expensive and less convenient.

MCS acknowledges that a move towards a grant mechanism would ease the administration of DRHI. We also agree that a well-designed and delivered grant system would be easier for consumers to understand and would help overcome initial upfront cost barriers. MCS urges that if a grant is considered to be the future mechanism, it needs to be part of an integrated package of support, information and advice to help households and property owners access the right low carbon heating system, improve energy efficiency and decrease carbon emissions. Key adjustments needed to deliver the grant most effectively would include:

1. A more appropriate level of overall funding to support a step change in growth in installations as part of a clear pathway to net zero.
2. A grant level that is varied to support different technology markets and reflects the associated supply and install costs.
3. A fair grant application system with ring-fenced fund for RSLs and independent installers.
4. As a measure set against a backdrop of other supportive policies.

Q24. Do you agree with our proposal to offer a technology-neutral grant level? Yes/No. Please provide evidence to support your response.

5 Net-zero a consumer perspective - ESC
No. MCS wants the grant to vary based upon the technology type, its installation costs and efficiency savings.

The current proposal opens up complexities around selecting the most appropriate renewable heat technology with G/WSHPs, biomass and consumers all at a disadvantage. Any grant awarded should also be proportional to the costs of the product type, its installation costs and the level of efficiency savings that can be achieved. Similar consideration should be given to the proportional cost of installations in hard to treat properties.

We have some concern around how a technology-neutral grant will affect the future uptake of G/WSHPs and a real fear that this already small market will be totally stifled. This new policy clearly favours ASHPs as the renewable technology of choice. While this can be an effective solution for some consumers, there is a risk that other solutions will be overlooked that may be more expensive up front but deliver better long-term savings, both financially and in reduced carbon output.

The flat £4,000 grant as proposed makes small ASHP installations seem an appealing proposition to those without the necessary insights and knowledge. The grant will provide a heavy discount off these types of installations, which in some circumstances wouldn’t be the right technology for a consumer.

The total average installation costs (Appendix 5, chart 2) shows that the cost of ASHPs is significantly lower than G/WSHPs. It also shows that since 2013 onwards, the average cost of an ASHP installation has risen year on year.

A package of well-designed financial support is particularly important for those property owners who might benefit from installing G/WSHPs which generally require greater capital expenditure and specialist installation but can deliver greater carbon and cost savings over the long term. This is evidenced in our answer to Q25.

The flat, technology-neutral grant has advantages in simplifying access to incentives for consumers, and potentially being less bureaucratic for installers compared to the DRHI. However, it fails to take into account the nuances of the UK housing stock, and potentially discourages what could be a more appropriate technology for a home. Heat pumps are one of the primary technologies for decarbonising heat but G/WSHPs and ASHPs are distinctive and should be treated as such. This grant fails to address this.

Under the current DRHI regulations a property owner must seek permission from its distribution network operator (DNO) to install a Heat Pump. In the UK three-phase power is very rarely supplied as standard, except to larger properties. Running large heat pumps on single-phase power can present some challenges and DNO’s can influence what can and cannot be connected to a domestic supply. In these cases where a Heat Pump can’t be installed because of DNO restrictions, Biomass or Solar Thermal could be a viable option and should be permitted if the CHGS is implemented.

The Impact Assessment recognises that G/WSHPs are more efficient, meaning they will generate more renewable heat and emit less carbon than an ASHP. This should provide enough justification for G/WSHPs to be allocated a higher proportion of the grant.

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6 Ofgem – Essential Guide for Applicants
Q25. Do you agree that £4,000 is an appropriate grant amount to meet the aims of the scheme? Yes/No. Please provide evidence to support your response.

No. Evidence on the grant level cited in the consultation is limited. Although the market data is useful, there appears to be no real analysis of policy design to enhance or better understand how grants, loans and incentives can be integrated.

The consultation document refers to the Irish Heat Pump Systems Grant; however, market penetration of heat pumps is historically low in Ireland. Ireland also has a scheme which supports Solar Thermal heating in homes and awards grant ‘bonuses’ for energy efficiency if completed as a package on a home7. Its comprehensive programme of support is linked to its social welfare programme, so citing it as a standalone example does not help understand the wider context.

Looking to France we see that market penetration of Heat Pumps is much greater (Appendix 4).

The total cost of installations in the UK needs to be considered in the context of a much larger international market, especially for the installation of Heat Pumps for which the UK share is tiny. Until Heat Pumps are installed in significantly larger volumes, the UK is unlikely to see a significant reduction in the cost to consumers. This is explored further in our answer to Q26.

Our answer to Q24 explores the negative impact of the proposed grant in relation to ASHPs and G/WSHPs, but we are also concerned about the negative impact of cited costs. Your analysis shows an average off grid ASHP installation costs £10,300.

We disagree that these are true costs. G/WSHP installation costs also need to be considered when determining appropriate grant levels. An oversight of this proposal is that these haven’t been included.

For 2019, the average total installation costs (supply and fit) for low carbon heating technology were:

- ASHP mean average cost: £10,918, with average £ per kW at £1,126
- G/WSHP mean average cost: £22,507 with average £ per kW at £1,758
- Biomass mean average cost: £16,144, with average £ per kW at £666
- Solar Thermal mean average cost: £4,511, with average £ per kW at £1,504

Source: MCS Installations Database

Appendix 5, chart 2 shows the average costs (supply and fit) of certified installations by technology type over the previous nine years. This demonstrates, taking ASHPs as an example, that even with the previous incentive schemes and an increase in the number of installations over time, the cost of ASHPs has risen.

To supplement average prices for 2019, MCS has also undertaken modelling to demonstrate current market costs in relation to dwelling types. In devising these sample quotes a set of standard assumptions have been made and it should be noted that any associated building/electrical/groundwork costs would be additional. See Appendix 6 for this illustration.

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7 Sustainable Energy Authority of Ireland - grants
Taking dwelling 2 (a mid-range heat loss renovation property) as an example:

<table>
<thead>
<tr>
<th>Tech</th>
<th>Install costs</th>
<th>Total DRHI benefit</th>
<th>Capital payback through DRHI</th>
<th>Annual fuel consumption of tech</th>
<th>CO₂ Emissions</th>
<th>Potential Carbon Saving</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASHP</td>
<td>£13,932.14</td>
<td>£11,099.35</td>
<td>5.80 years</td>
<td>£930.07</td>
<td>1642.96 kg CO₂/kWh</td>
<td>81.07%</td>
</tr>
<tr>
<td>G/WSHP</td>
<td>£29,326.71</td>
<td>£32,189.69</td>
<td>5.39 years</td>
<td>£856.01</td>
<td>1512.12 kg CO₂/kWh</td>
<td>82.58%</td>
</tr>
</tbody>
</table>

Source: MCS certified Installer quote demonstration

With DRHI removed, even factoring in a £4,000 upfront grant it would still be a challenge for consumers to find the remainder of necessary funds. The G/WSHP offers better savings in relation to carbon and efficiencies but would still cost a consumer £25,326.71 under the proposed grant mechanism; as a result, the consultation’s cited “psychological threshold” as well as several other barriers to uptake would still exist.

In conclusion, the £4,000 grant isn’t enough based upon it being technology neutral and a flat rate. It will drive a market behaviour that likely won’t deliver the right solution for every property.

Q26. Do you agree with the recommendation for a flat-rate grant? Yes/No. Please provide evidence to support your response.

No. MCS doesn’t agree with the recommendation for a flat-rate grant of £4,000. It is too blunt an instrument which does not reflect the variation in costs for the different low carbon heating systems. This is explored in our previous answer to Q25.

We need to ensure that the most appropriate technology is deployed and that the market does not default to an ASHP installation based on cost when other technology types may be better for the consumer and their property (e.g. G/WSHP installations have lower running costs). This bias is likely to be exacerbated by the fact that while ASHPs are the easiest of the technology types to install and the cheapest market leading product, the technology may not be suitable for certain properties. Consideration for Biomass should also be included as there may be issues with the insulation and air tightness on certain properties. However, there are not many high temperature Heat Pumps currently available. There will be certain properties that are more difficult to heat and therefore Biomass would be a more appropriate solution. Pellet stoves can often generate more heat and may be more appealing to a smaller property. We should encourage consumers to take up the right technology for their property. It is acknowledged that this has always been a challenge, that would be compounded further with the introduction of a flat-rate grant.

We need to consider rural ‘hard to treat’ properties with higher heat loads, where the grant impact would be negligible. Oil is a more carbon intensive fuel resulting in roughly 30% higher CO₂ emissions per kWh than gas. The carbon savings to be made by switching a property heated by oil to renewables is therefore significantly higher than if switching a property heated by gas. However, it comes with a higher cost to switch to renewables. A flat rate grant would not be suitable.
MCS believes the ideal grant-based scheme is flexible in its support for the most appropriate low carbon heating solutions for an individual property and if possible, is targeted or ring-fenced to ensure individual consumers benefit most. This would need controls to avoid a high proportion of the funding being secured directly by social landlords that MCS believes should receive a separate source of funding, or indirectly by larger installers or sales organisations able to ‘work the system’ to encourage grant applications that then translate into higher sales for them.

MCS has commissioned analysis using data from the MID to determine optimal subsidy levels. The objective of the study was to determine the optimum grant level in comparison to the proposed £4,000. The X axis represents the cumulative deployment of low carbon heating and power (sub 45kW). The Y axis represents the installation price to the customer in £/kW, based on 2019 prices. The plot shows experience rates for each technology type, indicating whether prices are decreasing over time in relation to deployment (Appendix 5, chart 7).

The main finding was that Solar PV has become cheaper as more units have been installed. For Biomass and Heat Pumps, prices have remained stagnant over the last 10 years. The data shows that if demand is stimulated at this scale, the only result will be an increase in cumulative capacity, and we will not see a price reduction. UK deployment is not having an impact on a large scale, as Heat Pump installations in the UK are a fraction of worldwide heat pump installations.

This shows that the proposed grant is not going to have an impact over the two-year period and Heat Pumps will remain unaffordable. Therefore, we will remain in the same position with not enough deployment and little price reduction, decreasing the likelihood of a consumer purchasing a Heat Pump. The data also suggests that we need to innovate to reduce Heat Pump costs. There needs to be a combined package of innovation, consumer protection and support.

In summary we disagree with a flat rate grant as:

1. It will represent a meaningful discount on the average cost of an ASHP installation but is likely to restrict consumer choice and limit the use of other more appropriate but more expensive technologies.
2. Over the two-year delivery period, a flat rate grant won’t encourage market growth, nor lead to lower prices.
3. It would encourage the ‘hard sell’ of cheaper products and installations that may not be the best solution for a consumer or their property.
4. It won’t effectively target the consumers most in need, and properties most relevant.
5. It is inaccessible for low income households.
6. It isn’t an attractive subsidy for those ‘hard to treat’ and ‘off grid’ properties where retrofit costs are significantly higher.
7. It should be adjusted for heat load and technology type.

Q27. If you believe a variation by capacity should be considered, please provide evidence to justify a process and level for varying the grant.

Yes. MCS supports variation by capacity. Variation of the level of grant based on the capacity of an installation can better support consumers and their installers choose the right system for their
individual property versus one that might be cheaper. This has been explored and demonstrated in other responses.

Q29. Do you agree with the minimum efficiency requirements for heat pumps and evidence requirements? Yes/No. Please provide further evidence to support your response.

Yes. If a grant is to be implemented, MCS supports the minimum efficiency requirements for Heat Pumps and evidence requirement. We understand that government’s approach would be aligned to the Future Homes Standard (uplift to Part L building regulations), which MCS also supports.

There is scope for further intricacies to be introduced over time. For example, if replacing a gas boiler with a heat pump, the minimum efficiency for this could be higher (SCOP 3.5) based on the energy costs of electricity being three times that of gas. It would place lower burdens on the electricity grid thanks to the more efficient use of grid electricity by a Heat Pump.

MCS certified installers are required under the Heat Pump installation Standard MIS 3005 to provide the customer with a performance estimate for their system, such as flow temperature and Seasonal Coefficient of Performance (SCOP). MCS certified installers are required to explain the costs and benefits of achieving a higher SCOP.

This is the industry recognised Standard; compliance with this requirement forms part of the Scheme’s certification scheme.

Q35. What do you consider to be the main consumer protection risks of providing support through an upfront grant and how might they be mitigated? Please provide evidence to support your response to a question

The main consumer protection concern is for consumers being encouraged to invest in technologies that are not most appropriate for them. The customer needs to understand the importance of ensuring that their selected technology can provide all their heating and domestic hot water needs. Significant investment in consumer education is needed to help them not only become more conscious and informed in making decisions, but also to motivate them to choose renewable heat technologies.

At the moment, the CHGS scheme only considers Heat Pumps and Biomass, with a clear bias towards ASHPs and restrictions placed around Biomass (as explored in earlier answers). The low level, flat rate grant risks incentivising poor quality or undersized ASHP systems. We believe that most systems will be installed in homes on, rather than off, the gas grid. There are other forms of low carbon heating excluded from the proposals that might also be suitable and even more accessible, including Solar Thermal and Micro CHP. To mitigate this, the grant amount and technologies need to be considered so that consumers aren’t pushed towards cheaper, inferior products and installations.

The quarterly grant windows and capacity caps create “cliff edges” which lead to pressure selling. Reconsideration of the grant control mechanism needs to be undertaken to avoid several possibilities leading to mis-selling.

Low consumer awareness of renewable heating in relation to performance, electricity use and price will also lead to mis-selling. MCS is aware of cases where an installer will promote a range of
different systems to a customer and the customer will settle for the lowest capacity option as it is cheapest. The installer may then later say that the heat loss calculations have changed, and a higher capacity system is now required, which in turn is more expensive. Similarly, an installer may provide an attractive initial quote and then cite supply chain problems, resulting in a more expensive product and a poor deal for the consumer. In both scenarios, if outside their cooling off period, the consumer is tied into a contract that will end up unexpectedly costing them more. This problem can be exacerbated by the fact that there aren’t centrally published prices for the costs of a Heat Pump/Heat Pump models. Publication of these could help a consumer during their research as well as empowering them when comparing quotes.

Another mis-selling opportunity may arise from non-certified installers, in particular if grants are oversubscribed. An installer could build their sales pitch around grant availability and the promise of an attractive quote, with an inferior system and poor installation. The customer gets a cheap system rather than a certified, grant funded one. Consumer awareness raising is vital so that a consumer understands that they need to look for the MCS quality mark when investigating solutions.

The cost associated with servicing and maintaining a low-carbon energy system is a consumer protection risk. MCS is developing maintenance standards and more accessible insurance-backed warranties as well as a shift to a competency-based training model aligned with MCS standards to help Installers mitigate these risks.

In relation to the installation, there is a risk that the customer is quoted for an MCS certified product but an alternative, inferior product is installed. This can be monitored to a certain extent by new MCS audit regimes that are due to be introduced in 2021.

Alongside take-up of the scheme, we must ensure that consumers have a good understanding of energy efficiency and how this affects their energy bills. Consumers must begin to plan for the whole life cost of energy.

The voucher scheme also poses risks for both consumers and installers.

MCS as the industry’s Standards and quality scheme has recently enhanced its approach in placing consumer protection at its heart. This has included the integration of consumer code membership via an innovative new partnership with the CTSI approved scheme RECC (Renewable Energy Consumer Code). This offers the sector a single compliance regime that is easier to understand and comply with.

MCS sees part of our role as empowering consumers to make an informed decision when researching and installing a low carbon heat solution. We will provide impartial information, calculators and other useful tools. This will be supported with clear, targeted communications and campaigns. Ultimately, we will promote the importance of employing an MCS certified installer that they can trust.

It should be noted that the MCS Charitable Foundation has commissioned a scoping study to review the information and advice available to consumers on renewable energy and energy efficiency in the home. This is due for publication early Autumn.

Q40. Do you agree with not supporting solar thermal systems under the Clean Heat Grant? Yes/No. Please provide evidence to support your response.
No. The government maintains a technology neutral approach yet Solar Thermal as a credible renewable heat technology has been excluded from CHGS proposals on several counts.

The potential of Solar Thermal to provide not only domestic hot water, but also sufficient space heating has been worryingly overlooked. BEIS do not appear to have accepted the Solar Thermal space heating calculations, which is likely why it is excluded from the DRHI. Since Solar Thermal is now included in SAP, this should be reviewed and considered for inclusion in the CHGS. Generally, Solar Thermal installations used for space heating are a popular choice, according to our data.

There is a misconception that high levels of irradiation are required to support Solar Thermal as a form of low carbon heating in the UK. However, the levels of solar irradiation in the UK and Scotland are comparable to those of Germany, where it is already well established as a means of heating⁸. Solar Thermal is able to provide heat directly which is more efficient than converting electrical energy into heat; even on cloudy days will still work as it is not reliant on direct sunlight. Solar Thermal, more than others, is a technology that can be considered ‘climate change adapted.’

Another consideration is the potential of Solar Thermal in hybrid (pairing renewable technologies) installations. It is complementary to Heat Pump and Biomass installations. One concept gathering interest in the market is solar collectors feeding a thermal store that a Heat Pump collects. MCS would be supportive of exploring this with BEIS to promote innovation. If these technology pairings were considered in the consultation, there could be a way of upselling Solar Thermal, provided there are no penalties. The integration of Solar Thermal can improve a system’s efficiency and reduce running costs.

With ‘hard to treat’ properties, hybrid systems including Solar Thermal and another renewable heat technology type combination can be effective. As fabric tightness improves in small dwellings, Solar Thermal can increasingly be used for space heating. Traditionally, space heating accounts for 75% of heat demand, compared to 25% domestic hot water, however as fabric tightness improves, the margins get closer to 50% for each. In this scenario, Solar Thermal can provide 60% of hot water energy and up to 25% of space heating resulting in an energy saving of 45%.

Solar Thermal can provide a viable alternative and has lower capital costs. This makes it more attractive to lower-income households who cannot afford the extra costs associated with other technology types. We acknowledge that it is a cheaper technology to install, however if a proportional grant is introduced it would allow for the inclusion of Solar Thermal. A possible idea could be that if a customer purchases a Heat Pump with the grant, the customer could receive an additional £1,000 grant if they add a Solar Thermal installation. This would promote hybrid systems with a performance grant addition. The data in Appendix 5, chart 7 demonstrates that with support, there is potential for the capital costs of Solar Thermal to be reduced if installations increase. A double in deployment rates would result in a 10% decrease in costs.

A UK study from 2014 indicated that if Solar Thermal were to be deployed on a larger scale of around five million installations it could save on global warming potentially by 9%. Also, when compared with different types of Heat Pumps they were more sustainable on seven out of eleven measures of impact, including fossil fuel depletion and global warming⁹. A 2019 market report from Solar Thermal Europe found that Solar Thermal heating is competitive on price in a diverse range of scenarios. It is being used to heat domestic hot water in Greece at 2€-cents per kWh

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⁸ SISER – solar in Scotland
⁹ Domestic solar thermal water heating: A sustainable option for the UK - Benjamin Greening and Adisa Azapagic, University of Manchester
compared to a larger scale solar district heat network in Denmark where it costs below 3.5€-cents per kWh. Thermosiphon systems are widely used in other countries, which can reduce the cost of a solar thermal system by up to 50% compared with the average cost of £4,500.

The Energy Saving Trust Solar Thermal field trial provided evidence of up to a 60% contribution to hot water i.e. 60% carbon reduction versus a fossil fuel system\(^\text{10}\).

Given the flexibility in the way that Solar Thermal can be deployed and at relatively low cost when compared to other low-carbon technologies, we believe this strengthens the case for its inclusion under the CHGS\(^\text{11}\).

While the Solar Thermal landscape is becoming more positive, it needs financial support and awareness raising amongst consumers to encourage take-up. We wouldn’t want the symbolism of BEIS not supporting Solar Thermal to be damaging to the market, nor to stifle potential innovation.

45. Does your interest in this consultation relate to a particular geographical area? (select all that apply)

England: Yes
Wales: Yes
Scotland: Yes

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\(^{10}\) EST Field Trial
\(^{11}\) Solar Thermal Europe, Heat Market Report 2018
Appendix 2

Task Force Membership

MCS would like to acknowledge the contributions of the Task Force and their wider stakeholder community in formulating this response. Established in mid-May, the Task Force met regularly over six weeks to focus on addressing particular areas of the consultation.

Special thanks to:

- Bruce Allen
  CEO, HETAS and Woodsure with sector specialism(s) in Biomass installation, servicing and maintenance; certification schemes
- Nick Cater
  Owner, Birds’ Hill with sector specialism(s) in Log, Wood Pellet, Air Source Heat Pump, Ground Source Heat Pump and Solar Thermal heating systems.
- Grant Feasey
  Senior Design Engineer - Chartered Engineer, AES Solar with sector specialism in Solar Thermal
- Dr Richard Hall
  Vice Chair, IEA Solar Heating and Cooling TCP & Chair, Solar Trade Association Solar Heat Working Group with sector specialism in Solar Governance.
- Dr John Holden FIET
  Chair of MCS Heat Pump working group with sector specialism(s) in assurance, standards, certification, heat pump testing and performance.
- Andrew Hopton IEng, MIET, MCIPHE
  Director of Woodsure & Head of Quality & Certification for HETAS with sector specialism(s) in ISO17065 accredited certification schemes, including CPS and MCS Biomass product and installer and member of various BSI committees for biomass fuel, solid fuel installations, chimney and appliance standards.
- Dan Large
  Director of Solaris Energy Ltd and member of the MCS Heat Pump Working Group with sector specialism(s) in domestic & commercial Heat Pump design, installation and maintenance.
- Paul Leedham
  Managing Director of Matrix Energy Systems with sector specialism(s) in Heat Pump design, installation, maintenance and training as well as Solar Thermal, Solar PV and Micro CHP.
- Graham Lock
  Founder/Director of Low Carbon Homes with sector specialism(s) in Local Authority, community and industry domestic property retrofit engagement.
- John Thomason
  Director of Atmos Innovations Ltd as well as Member (and director) of the Solar Trade Association and Solar Thermal working group member with sector specialism in Solar Thermal, with some experience of hybrid systems where Solar Thermal is used alongside other technologies.
- Sune Nightingale
  Director at Firepower & Stovesonline as well as HETAS Technical Committee & Installation sub-committee member and BSI RHE/28 committee member with sector specialism(s) in domestic Biomass, thermal storage, MVHR systems with integrated heat pumps.
Thanks are also extended to Renaldi Renaldi, a Research Associate from University of Oxford for supporting our optimal subsidy study.
Appendix 3

MCS wishes to share its learning from the support provided to previous government incentive schemes. This is summarised below together with a chart referred to throughout this section that shows the impact of various schemes on installation volumes. The schemes referred to here are Clear Skies, RHPP and DRHI, all of which were designed to incentivise the uptake of low carbon heating systems.

![MCS certified heat installations mapped against tariff changes (2010-present)](chart)

**Chart 3: MCS certified heat installations mapped against tariff changes (2010-present)**

Key learnings:

- **Standards are critical** to determining the quality and consumer protection framework associated with a government scheme. MCS is able to work hand in hand with regulatory compliance.

- **Incentives can work but need to be proportionate** to the capital and installation cost of a given technology or they risk skewing market behaviour towards the adoption of the lowest cost solution versus the most appropriate solution; appropriate in terms of maximising carbon savings and to meeting the energy needs of an individual building.

- **The value of incentive is important**; if set too low, the market will not respond, or if set too high, it creates a draw for new operators to enter the market purely to take advantage of the funding versus motivation to deliver quality installations for consumers.

- **Incentives need to be targeted** as on their own, without an associated holistic package of support, they typically only benefit those in society who were able to finance their installations anyway.
The Clear Skies Initiative
Between 2004 and 2007, the former Department of Trade and Industry launched the Clear Skies Initiative which provided a total of £13 million grant funding (non-means-tested) to homeowners. The eligible technologies for these proportional grants were:

- Solar Thermal (£400 grant)
- Ground Source Heat Pumps (£1,200 grant)
- Biomass Boilers (£1,500 grant) and
- Pellet Stoves (£600 grant).

The grant was proportional to capital cost, which was considered more favourable than a flat-rate approach, with the value of the funding varying based on installation costs. Air Source Heat Pumps were not eligible at the time because of concerns around product efficiency. The grant was paid directly to the consumer who would select an installer, complete an application, and submit a claim with evidence.

Clear Skies was a self-certification scheme, not a third-party certification scheme, and this approach led to the creation of the Microgeneration Certification Scheme (MCS) standards for the avoidance of poor workmanship and consumer detriment.

Renewable Heat Premium Payment Scheme (RHPP)
The Renewable Heat Premium Payment (RHPP) scheme provided one-off grants to help householders and landlords with the cost of installing renewable heat technologies. RHPP launched in August 2011 and closed on 31 March 2014. RHPP was delivered in phases with a lower level of the grant being offered to householders before 20 May 2013 and the grant level almost doubling after this date. It was replaced by the DRHI on 9 April 2014.

The eligible technologies for these grants were:

- Ground and Water Source Heat Pumps (G/WSHPs)
- Air Source Heat Pumps (ASHPs)
- Solid Biomass Boilers
- Solar Thermal systems.

During the lifetime of the RHPP, financial support was given through a Householder Scheme and was administered by the Energy Saving Trust, with around £18.9 million in vouchers issued. There were separate competitions for registered social landlords, and a community scheme.

MCS analysis shows the increase in grant resulted in a spike in installations, followed by a significant drop-off during the different phases of the RHPP. This can be seen in the previous chart, equating to changes in the value of the grant as detailed below.

<table>
<thead>
<tr>
<th>Technology</th>
<th>Grant value before 20 May 2013</th>
<th>Grant value after 20 May 2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>G/WSHPs</td>
<td>£1,250</td>
<td>£2,300</td>
</tr>
<tr>
<td>ASHPs</td>
<td>£850</td>
<td>£1,300</td>
</tr>
<tr>
<td>Solid Biomass boiler</td>
<td>£950</td>
<td>£2,000</td>
</tr>
<tr>
<td>Solar Thermal systems</td>
<td>£300</td>
<td>£600</td>
</tr>
</tbody>
</table>

Source: RHPP, UK Government Analysis

RHPP claims paid for the householder scheme:
## Domestic Renewable Heat Incentive (DRHI)

The DRHI launched in 2014 to replace the RHPP. To date the total number of accredited installations under the scheme is 78,791 of which 1,540 have also installed the Metering and Monitoring Service Package (MMSP) which helps households monitor their heat consumption. The total amount of payments across all tariffs under DRHI to May 2020 was £539.1 million.

DRHI uses a degression mechanism\(^\text{12}\), and we can see in the previous chart the impact this mechanism can have on installation volumes, with the Biomass tariff starting at 14.05p/kWh for the period April - December 2014, to eventually being reduced significantly to 5.05p/kWh in 2017. This change in tariff resulted in Biomass installation registrations peaking at 5,952 in 2014 and then decreasing by around 90% to 591 during 2017.

Further modifications to the DRHI scheme saw an increase in the Air Source Heat Pump tariff in 2018, after which the chart highlights an upward trend more recently, with an increase in ASHP installations. Approximately 59,000 heat pumps have been installed under the scheme already. If a similar level of deployment were to continue, around 75,000 heat pumps can be expected by the scheme closure date\(^\text{13}\).

<table>
<thead>
<tr>
<th>Phase</th>
<th>Year</th>
<th>£million</th>
<th>£million</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase 1</td>
<td>2011/12</td>
<td>£5.5</td>
<td>£4.0</td>
</tr>
<tr>
<td>Phase 2</td>
<td>2012/13</td>
<td>£5.2</td>
<td>£3.8</td>
</tr>
<tr>
<td>Phase 2 extension</td>
<td>2013/14</td>
<td>£8.3</td>
<td>£6.3</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>£18.9</td>
<td>£14.1</td>
</tr>
</tbody>
</table>

Note: Individual values do not add up to the total due to rounding

Source: RHPP, UK Government Analysis

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\(^{12}\) DRHI Factsheet, Degression Mechanism BEIS

\(^{13}\) Heat: a policy chasm on the route towards net-zero
Appendix 4

International Policies

As part of our response formulation, MCS has reviewed best practice of renewable heat policy at an international level and would urge government to consider renewable heat policy and lessons learnt internationally.

Scotland

Scotland has a strong, joined up policy approach; its holistic view provides several important drivers for the market, clearly allowing renewable energy to thrive.

The current Home Energy Scotland programme should be used as a model UK-wide to improve energy efficiency in homes and buildings\(^\text{14}\). Under this programme, property owners can access impartial advice and it acts as a gateway to accessing an interest-free loan of up to £17,500 to install a renewable system\(^\text{15}\).

France

Looking to France we see that market penetration of heat pumps is much greater.

In 2017 alone 254,000 heat pumps were sold versus 22,000 in the UK\(^\text{16}\).

Much of this difference can be attributed to how the French government’s policy takes a whole-house approach to energy efficiency, including fabrication and installation of low carbon heating systems. A national energy advice service helps consumers access appropriate packages of support through a mix of subsidy, tax relief and loans\(^\text{17}\).

From January 2020, the lowest income households in France can access at least €10,000 in meanstested support for a G/WSHP and middle-income households around €4,000. ASHPs attract a lower rate of subsidy overall with the lowest income households able to access €4,000 and middle-income households €2,000.

Support for Solar Thermal and Biomass is also available, attracting a comparable and proportional level of subsidy. This means-tested support can be combined with a non-means tested 0% loan and attracts a reduced rate of VAT (5.5%).

There are also regional variations and lower-income households can often get further local support on top of these nationally funded initiatives.

The table shows a snapshot of the types of support offered in France to stimulate the domestic renewables and energy efficiency sector:

<table>
<thead>
<tr>
<th>Policy Measure</th>
<th>Eligibility Criteria</th>
<th>How is advice/support accessed by consumer?</th>
<th>Further Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>14 EST, Home Energy Scotland Programmes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15 EST, Home Energy Scotland Loan</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16 European Heat Pump Association, Market Data 2017</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17 Le portail de l’Économie, des Finances, de l’Action et des Comptes publics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scheme</td>
<td>Description</td>
<td>Eligibility &amp; Details</td>
<td></td>
</tr>
<tr>
<td>--------</td>
<td>-------------</td>
<td>-----------------------</td>
<td></td>
</tr>
<tr>
<td>Energy Transition Tax Credit (“CITE”)</td>
<td>Means-tested for homeowners to improve energy efficiency in their primary residence.</td>
<td>‘Faciliter, Accompagner et Informer pour la Rénovation Énergétique’ (FAIRE) is the national advice service. From January 2020, CITE and MaPrimeRenov are merged.</td>
<td></td>
</tr>
<tr>
<td>MaPrimeRenov bonus scheme</td>
<td>Calculated on two factors: 1. the income of the household 2. the energy savings made possible by installation of low carbon heating + energy efficiency measures</td>
<td>Accessed through FAIRE. Support for households is targeted at lower-income households &lt;€38,210 per year as of 2020. Further subsidies are often available for lower-income households at a local level – but subject to regional variation</td>
<td></td>
</tr>
<tr>
<td>Reduced VAT (5.5%) on energy saving and improvements works</td>
<td>Non-means tested</td>
<td>The registered professional performing the work provides a certificate for the property owner to sign. The certificate confirms improvements have been made in line with the Regulations. Reduced rate of VAT is only available on the labour and material of work carried out by the registered professional. Certificate must be retained by both parties for inspection by tax authorities.</td>
<td></td>
</tr>
<tr>
<td>A 0% eco-loan (éco-PTZ)</td>
<td>Non-means tested</td>
<td>Accessed through FAIRE. • Borrow up to €30,000 – repaid over 10-15 years • Aimed at owners and landlords to finance extensive retrofit energy efficiency measures on their properties. • Applicants must implement at least two measures to achieve a certain level of energy efficiency. • Covers all works, required including management of the project and any insurance costs. • Can be combined with the other support to create a finance package.</td>
<td></td>
</tr>
</tbody>
</table>

Sources: Renewable Energy Policy, France - Sres and FAIRE
### Chart 1: Number of Certified Heat Installations per Year

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>ASHP</td>
<td>4927</td>
<td>8447</td>
<td>9905</td>
<td>8428</td>
<td>9265</td>
<td>7529</td>
<td>8145</td>
<td>9421</td>
<td>11991</td>
</tr>
<tr>
<td>G/W SHP</td>
<td>1956</td>
<td>2330</td>
<td>1375</td>
<td>1551</td>
<td>1976</td>
<td>1793</td>
<td>1717</td>
<td>1940</td>
<td>1788</td>
</tr>
<tr>
<td>Biomass</td>
<td>744</td>
<td>1363</td>
<td>2139</td>
<td>5952</td>
<td>5618</td>
<td>1144</td>
<td>591</td>
<td>361</td>
<td>364</td>
</tr>
<tr>
<td>Solar Thermal</td>
<td>7761</td>
<td>6765</td>
<td>4683</td>
<td>3748</td>
<td>2423</td>
<td>1453</td>
<td>1142</td>
<td>602</td>
<td>567</td>
</tr>
</tbody>
</table>

Data source: MCS Installations Database

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**Appendix 5**

Data Pack

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**Number of Certified Heat Installations per Year**

- ASHP
- G/W SHP
- Biomass
- Solar Thermal

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CHART 1: NUMBER OF CERTIFIED HEAT INSTALLATIONS PER YEAR
### Average Cost of Certified Installations by Technology

**Chart 2:** Average Cost of Certified Installations by Technology

<table>
<thead>
<tr>
<th>Year</th>
<th>ASHP</th>
<th>G/W SHP</th>
<th>Biomass</th>
<th>Solar Thermal</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>£914</td>
<td>£1428</td>
<td>£1579</td>
<td>£4820</td>
</tr>
<tr>
<td>2012</td>
<td>£772</td>
<td>£1440</td>
<td>£1703</td>
<td>£4975</td>
</tr>
<tr>
<td>2013</td>
<td>£770</td>
<td>£1390</td>
<td>£1749</td>
<td>£4842</td>
</tr>
<tr>
<td>2014</td>
<td>£1792</td>
<td>£1820</td>
<td>£9603</td>
<td>£4741</td>
</tr>
<tr>
<td>2015</td>
<td>£945</td>
<td>£1278</td>
<td>£1614</td>
<td>£4512</td>
</tr>
<tr>
<td>2016</td>
<td>£2718</td>
<td>£1582</td>
<td>£1067</td>
<td>£4713</td>
</tr>
<tr>
<td>2017</td>
<td>£2321</td>
<td>£1587</td>
<td>£1067</td>
<td>£4511</td>
</tr>
<tr>
<td>2018</td>
<td>£2250</td>
<td>£1587</td>
<td>£1067</td>
<td>£4511</td>
</tr>
<tr>
<td>2019</td>
<td>£2250</td>
<td>£1587</td>
<td>£1067</td>
<td>£4511</td>
</tr>
</tbody>
</table>

**Data source:** MCS Installations Database

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### MCS certified heat installations mapped against tariff changes (2010–present)

**Chart 3:** MCS Certified Heat Installations Mapped Against Tariff Changes

Data source: MCS Installations Database

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Chart 4: Total estimated number of renewable heat installations for each age group

- 30 to 44: 31501
- 25 to 29: 10188
- 20 to 24: 5956
- 18 to 19: 3651
- 75 to 84: 8729
- 65 to 74: 13922
- 60 to 64: 9720
- 45 to 59: 30538
- 90 Plus: 1147

Source: MCS Installations Database (for ASHP, G/WHP, Biomass & Solar Thermal technologies) and Census 2011 output area data
### MCS certified Renewable Heat technology installations by household size (2007 - 2020)

<table>
<thead>
<tr>
<th>Household Size</th>
<th>Percentage of Installations</th>
<th>Number of Installations</th>
</tr>
</thead>
<tbody>
<tr>
<td>One Person Household</td>
<td>9%</td>
<td>7775</td>
</tr>
<tr>
<td>Two Person Household</td>
<td>45%</td>
<td>40520</td>
</tr>
<tr>
<td>Three Person Household</td>
<td>21%</td>
<td>18883</td>
</tr>
<tr>
<td>Four Person Household</td>
<td>17%</td>
<td>15613</td>
</tr>
<tr>
<td>Five Person Household</td>
<td>6%</td>
<td>5535</td>
</tr>
<tr>
<td>Six Person Household</td>
<td>2%</td>
<td>1913</td>
</tr>
<tr>
<td>Seven Person Household</td>
<td>1%</td>
<td>460</td>
</tr>
<tr>
<td>Eight Plus Person House</td>
<td>0%</td>
<td>278</td>
</tr>
</tbody>
</table>

Source: MCS Installations Database (for ASHP, GSHP, Biomass & Solar Thermal technologies) and Carbon 2011 output area data

**Chart 5: MCS CERTIFIED RENEWABLE HEAT TECHNOLOGY INSTALLATIONS BY HOUSEHOLD SIZE (2007 – 2020)**

- Full Time Student: 17359 - 15%
- Self Employed: 4026 - 3%
- Economically Active - Unemployed: 4197 - 4%
- Economically Active Employee Full Time: 40891 - 35%
- Economically Inactive Retired: 4409 - 4%
- Economically Inactive - Other: 21487 - 19%
- Economically Inactive - Looking After Home or Family: 2599 - 2%
- Economically Inactive Long Term Sick or Disabled: 4316 - 4%
- Economically Active Employee - Part Time: 16818 - 14%

MCS: MCS Installations Database and Census 2011 output area data


- Full Time Student: 3844 - 18%
- Self Employed: 584 - 3%
- Economically Active - Unemployed: 699 - 3%
- Economically Active Employee Full Time: 7158 - 34%
- Economically Inactive Retired: 937 - 5%
- Economically Inactive - Other: 3866 - 18%
- Economically Inactive - Looking After Home or Family: 392 - 2%
- Economically Inactive Long Term Sick or Disabled: 723 - 4%
- Economically Active Employee - Part Time: 2790 - 13%

MCS Installations Database and Census 2011 output area data


Economically Inactive
- Retired 1,088 - 5%
- Other 4,234 - 18%
- Looking After Home or Family 476 - 2%
- Long Term Sick or Disabled 804 - 4%

Economically Active
- Employee - Part Time 3,274 - 14%
- Employee Full Time 8,392 - 36%
- Self Employed 794 - 3%
- Unemployed 774 - 3%
Experience curves for MCS certified microgeneration in the UK between 2010 - 2019


CHART 7: EXPERIENCE CURVES FOR MCS CERTIFIED MICROGENERATION IN THE UK 2010 – 2019