

BEIS - Market-Based Mechanism for Low Carbon heat

Energy UK response (January 2022)

Energy UK is the trade association for the energy industry with over 100 members spanning every aspect of the energy sector – from established FTSE 100 companies right through to new, growing suppliers and generators, which now make up over half of our membership.

Energy UK represents the diverse nature of the UK's energy industry with our members delivering nearly 80% of the UK's power generation and over 95% of the energy supply for the 28 million UK homes as well as many businesses.

Executive summary

Energy UK members strongly welcome this proposal as an innovative policy mechanism. If designed correctly, with adequate safeguards to ensure quality installations and with sufficient penalties to incentivise manufacturers to build new markets rather than pay the 'fine', the mechanism could transform the low carbon heating market.

The proposals builds on approaches that have been successful in related sectors. These include the Renewables Obligation which scaled up renewable electricity production in the UK and electric vehicles mandates in California (amongst other areas).

Members support the use of a market-based mechanism as the best approach to deliver a significant cost saving. Rapid cost reductions using market-based mechanisms have already been shown to be effective in the renewable electricity sector via the Renewables Obligation and Contracts for Difference schemes.

Whether *this* policy will achieve the required scale of growth and a significant cost reduction however, will depend upon the design choices, the success in mitigating the underlying risks inherent in the approach and success in securing a more supportive wider policy environment.

Design choices

Beyond the consensus that the mechanism should sit on manufacturers (who are better incentivised to act), rather than on suppliers, the key design choices were felt to be:

- i) Model: whilst there were differing views here (including some support for a carbon emissions standard), most members supported Option 2, a parallel approach to the Renewables Obligation, in which the obligation would be based on a targeted number of installations per obligated party with tradable certificates.
- ii) Openness of the market: whilst manufacturing should deliver some level of cost reduction (via economies of scale), the real potential here is likely to come from

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innovative business models able to identify and deliver savings across the value chain – from marketing to installation to aftercare. A (relatively) open market with a range of actors from retailers to software companies to aggregators was felt to have the best scope to deliver this.

- iii) Penalties: Without significant, material penalties there will be no meaningful incentive on obligated companies to comply with their obligation and no meaningful value to the certificates/credits created by the mechanism. With this in mind, we support a financial penalty of £5,000 for each installation not achieved by the obligated parties. This figure is set at the proposed grant for heat pumps in the forthcoming Boiler Upgrade Grant scheme. Members also supported a 'buy-out' fund in which penalties would be recycled to parties meeting their obligations as this would further incentivise delivery (reducing risk to related policy such as the off-grid phase out regulations).

Underlying risks

Whilst there was a strong consensus that obligating manufacturers had the best potential for market transformation, the risks of such an approach, particularly for an emerging market, were recognised. As the obligated parties will not have a natural incentive to deliver good outcomes (the requirement is to deliver a competing product), the policy must ensure strong safeguards on both quality standards and consumer engagement.

Heat pumps are still a relatively unfamiliar technology in the UK and it is vital that heat pumps installed as a result of this (and other government schemes) result in positive consumer experiences.

The design of the scheme must ensure that the penalties are sufficiently steep to motivate most obligated parties (manufacturers) to meet the obligation with installations rather than paying the fine. As they may be acting to comply with the obligation and avoid the fine (rather than in their own interest – to grow their business), this could incentivise some to demonstrate compliance (whether to save money or through inexperience in the sector) via poor quality products, poor installations or installations that are unsuitable for the end-users needs/ expectations and/ or result in a poor consumer experience (increased bills /decreased comfort). The risk of a poorly designed mechanism here is that it risks eroding consumer trust in the emergent low carbon heating sector (making the subsequent transition harder).

The key ways of mitigating these risks are via:

- i) Quality standards – to ensure that the installations supported under this scheme are high quality, appropriately specified and installed correctly with adequate consumer protection, members support a requirement for all installations to be compliant with MCS. If additional safeguards are needed it was felt that revision to the MCS scheme might be the best way to achieve this.

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- ii) Consumer engagement: it is important that consumers understand what they are buying and that it meets their expectations
- iii) Smart controls – given the 15-20 year lifetime of systems, Energy UK supports a minimum level of smart controls so that the system can be optimised and used with time of use tariffs.

Members agreed for the need for differentiation within the scheme (with higher rewards for larger systems and where higher carbon fuels are being replaced) however, there was also a strong sense that for an effective market to develop, the scheme need to be kept as simple as possible.

It is felt that the best way to strike this balance would be via a separate follow-on consultation focussed on weightings (and any remaining issues).

Wider policy environment

The success of the scheme is highly dependent on a supportive wider policy environment. The key factors here are:

- i) Reducing the cost of electric heating relative to fossil fuels. The higher the operational saving from switching to a heat pump, the easier it will be to persuade consumers to switch. Levers here include reviewing the bill levies and existing / future carbon pricing etc. Other levers include ensuring that time of use tariffs work for retailers (via better routes to market for demand side response and locational price signals) so that this revenue stream can be matched with the bill saving to improve the consumer business case and wider changes to the electricity wholesale market.
- ii) Supporting skills: the average age of Gas Safe engineers is 55 so the supply chain is likely to require high numbers of new entrants alongside reskilling. Funding for training new entrants and apprenticeships as well as reskilling existing heating engineers will be important here.
- iii) Consumer information: Consumers need much clearer information on the options for their homes and support with understanding potential trade-offs (higher upfront cost versus lower running costs etc) to make the best choices for them. The current Simple Energy Advice web platform is not sufficient. Clearer tools based on the main housing archetypes would help here.
- iv) Retail reform: a shift away from a market based on short-term switching to incentivise long-term engagement with customers (note the emergence of new business models here will depend upon point i) above).

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Technology neutrality and establishing a level playing field: whilst members generally agree that specific interventions can be warranted and can secure significant cost reductions (as with off-shore wind and the Contracts for Difference mechanism), Energy UK has a technology neutral approach and believes that a range of low carbon heating solutions will be required to decarbonise heating. Alongside this mechanism therefore, members highlight the need for other essential pieces of the heat puzzle (for example, heat networks) which without further intervention will not reach their market potential.

A further area where innovative policy would be welcomed is to reduce the impact of the 'conventional' replacement heating market. In 2019 1.7 million replacement boilers were installed. There could be considerable scope to reduce the impact of this market (for example, using product standards or other approaches). There are consumers who may not otherwise transition until after the proposed 2035 gas phase-out date but who may be amendable to other 'plug and play' systems if the consumer proposition was sufficiently attractive. This would be parallel to the approach in transport where a performance standard will progressively reduce the impact of conventionally fuelled cars in the run up to the 2030 phase-out date.

Please get in touch if any further information on this response would be useful

Sincerely,

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Consultation questions

- 1. Do you have views on the proposal to apply this mechanism to the heating appliance market, basing the obligation on the sale of fossil fuel boilers and applying it to appliance manufacturers?**

Energy UK members agree that an obligation on manufacturers has the best scope for market transformation.

- 2. Do you have comments on how the market would be likely to evolve once this obligation was in place? For instance, do you envisage that it would be most likely to lead to growth in certain business models or consumer propositions?**

Energy UK members expect the market to evolve to accommodate new business models (including from new third parties and aggregators) in the following ways.

It is expected that a (relatively) open market, together with a supportive policy environment, will stimulate a shift in the way that some segments of consumers view replacement heating - away from a 'like for like' distress purchase to a planned, considered purchase. More heat pumps will be sold 'bundled up' with services – heating, servicing, smart controls - either as a long term contracts (parallel to a mobile phone contract) or via a variety of 'Heat-as-a-service' models.

However, this market shift will depend on whether heat pumps are an attractive whole-life economic proposition for consumers (relative to fossil fuel boilers). This requires a running cost that is significantly below the fossil fuel alternatives so that it both justifies the (perceived) 'hassle factor' of change for the consumer and able to more than 'pay back' any additional cost over the warranted life of the system. This could be achieved by a mix of rebalancing the policy costs across electricity and other fuels and / or more consistent carbon pricing across fuels.

Around 50 percent of boilers are currently purchased via dedicated finance rather than paid upfront. This suggests that a significant segment of the market is already familiar with this approach for upgrading their heating. If the barriers above can be resolved, these alternative business models may become the dominant approach to financing heating, just as in the new car sector where most households use dedicated finance (including leasing models) rather than purchasing upfront.

The proposed [obligation on mortgage lenders](#) to support eligible homes in their lending portfolio to achieve an average energy rating (of EPC C) by 2030 is likely to stimulate green mortgage and other related finance products that could support heat pump take up.

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3. Do you have views on how competitive pressure can be maintained to support cost reductions and efficiencies in the heat pump market over time, as have been seen in other sectors? Are there further steps that you feel would be justified to take within the design of this market-based mechanism to support this?

The main way of maintaining the competitive pressure will be by ensuring that the scheme has significant, material penalties for non-compliance. Without this, there will not be competitive pressure between companies to meet the obligation in the most cost-effective, efficient ways.

As the scheme could develop in expected ways, it would be useful to build in a regular review process and the ability to revise aspects as necessary through the lifetime of the scheme.

The Heat and Buildings Strategy included a commitment to review the 2028 heat pump target. If this target is revised upwards, then Energy UK would support this mechanism being reviewed with a view to aligning the target here, if deemed feasible.

4. Do you have views on how future financial support to the heat pump market, such as financial support for certain heat pump consumers, might work most effectively alongside this market-based mechanism, and how reliance on such support can be reduced over time?

A range of financing options are likely to be required (as with the transition to electric vehicles) until cost parity is achieved.

Continued support should be targeted towards those least able to pay, once the market has developed to a point where demand negates the need for a broad support scheme.

It is critical that government consider the cost not only of installation but operation of a heat pump.

The most effective way to reduce the scale of support required would be for government to make wider changes to allow heat pumps to compete on a more level playing field with incumbent technologies. Shifting or rebalancing the bill levies that predominantly sit on electricity would do this as would a more consistent approach to carbon pricing (electricity is subject to carbon pricing, whereas fossil fuels used in heating are not). Similarly, developing new markets for demand side response along with some form of locational pricing would support retailers to offer more heat pump and time of use tariffs which can provide another revenue stream to help heat pumps 'stack up' without external subsidy.

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A comprehensive approach to improving the efficiency of the building stock would support this too. Whilst some progress has been made, there are currently insufficient drivers for own occupiers (who own two thirds of the stock) to take action. Energy UK would also support a wholesale revision on the Energy Performance Certificates so that investment here is targeted at measures that make homes 'low carbon heat ready' (thermal measures, remedial action necessary to support low temperature heating such as larger emitters and low carbon heating) rather than electrical or boiler upgrades which are both better targeted via other policy levers (product standards). This would reduce the additional costs and disruption associated with some heat pump installations and by reducing the heat demand could reduce the size and cost of the system needed.

5. Do you have views on the alternative 'supplier obligation' proposal? If the government were to pursue this approach, what design considerations would help to make it work best for the energy retail market and for consumers?

Energy UK does not support placing the obligation on energy suppliers.

As highlighted in the consultation document, manufacturers seem best placed to effect the scale of change required of the mechanism. Whilst suppliers are likely to play a key role (for example, in developing new customer propositions for deploying heat pumps to their customer base), they do not have sufficient accountability for the obligation to rest with them.

This lack of direct control would be likely to incur additional costs and so be less economically efficient.

As was highlighted in the consultation document, there is a further risk that a proportion of the costs would be passed through to energy bills.

6. Do you have views on the treatment of 'air-to-air' heat pumps in the market-based mechanism? Please provide evidence to support your response.

Energy UK supports a technology neutral approach but given the stated objective of the mechanism to deliver on the 2028 target, it was agreed that the treatment of air-to-air here should align with the treatment of the technology in the 2028 target and be excluded here if it is similarly excluded from the target.

The consultation document notes that Government wants to focus the obligation on systems able to deliver both heating and hot water (since 85 percent of UK homes have wet central heating system). There was also concern that if air to air systems are included, they could be installed (used as air conditioning units) alongside the gas/ fossil fuel boiler.

Some members feel that with appropriate safeguards, the technology could be included – if for example, the technology has been installed as part of a whole-home retrofit/full

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replacement of the home heating system. With this option, however, it may be necessary for the administrator to cross-check that systems are sized to meet space heating demand. Previous local planning requirements for renewable heating in non-domestic buildings were 'gamed' by specifying undersized biomass boiler alongside a 'back-up' fossil fuel-boiler sized to meet 100 percent of demand.

Whilst it may not fit with the objective of this mechanism, the technology performed well in a research government-commissioned analysis of different electrical heating options ([Cost Optimal Domestic Electrification](#)). If not supported here, Energy UK members would welcome further clarification on government's view on the technology's potential contribution and proposals to support its deployment.

7. Do you have views on the treatment of high-temperature heat pumps in the market based mechanism? Please provide evidence to support your response.

Whilst there is a general consensus that high temperature heat pumps should be included, there is not consensus across Energy UK members on whether these assets should be treated less favourably.

Some feel that given the higher impacts on the grid and higher running costs, the design should limit their role (for example to where the MCS heat loss calculation suggests a low temperature system must struggle).

Others support the full and un-caveated inclusion of high temperature heat pumps as, with a typical coefficient of performance of 2-2.5, these are still very efficient forms of electric low carbon heating and can be a useful option the thermal (insulation) or enabling measures (e.g. larger heat emitters) may otherwise prove too much of a barrier.

There is a stronger consensus from Energy UK members on the technology's inclusion if systems were designed and operated to ensure that they operated, for the majority of the time, in a low temperature mode, only ramping up to high temperature as required to 'top up'. A requirement for controls and careful design would support this.

Some members also suggest there should be a requirement to explain any potential trade-offs to consumers – that a high-temperature heat pump operating in high temperature mode for much of the time will not generate the same level of cost and carbon savings for example.

8. Do you agree with the proposal to apply a 45kWth heat pump capacity limit? Yes/No. If no, please provide evidence to support a higher or lower capacity limit.

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Energy UK members agree that the mechanism should target domestic heating and that 45kWh is a sufficient limit to ensure that all the target group (mainly homes) are included.

Members also agree that it is appropriate for the support to be targeted at domestic installations as this is where the major cost reduction is needed (our understanding is that there is a better business case for larger non-domestic systems).

Where heat networks include domestic heating however, there may be a rationale for including them in the approach (with a suggestion here to base certificates on capacity rather than number of heat pump units sold). It is appreciated however, that basing certificates on capacity rather than number of installations would align less well with the 2028 target.

More generally however, members feel that there needs to be stronger support for both heat networks and the use of heat pumps in heat networks. Heat networks, particularly in dense urban areas are an effective and 'no regrets' technology. The Climate Change Committee's modelling highlights that heat networks are a vital building block for heat decarbonisation. The innovation set out here is welcome, but similarly investable business models are required for other essential technologies.

9.

- a. **Do you have views on the proposal for a 70kWth capacity limit for fossil fuel boilers to generate an obligation under the policy? Yes/No.**

Yes. Members agree this to be an appropriate threshold.

- b. **Do you believe that this is an appropriate level to avoid a substantial risk that this could lead to 'over-sizing' of boilers sold above the policy's limit? Yes/No. Please provide evidence to support your answers and views on how risks may best be mitigated.**

Typical domestic boilers range from ~24-42kW in size, so the 70kWth limit seems sufficiently high to avoid boiler manufacturers over-sizing installations to avoid the obligation.

10.

- a. **Do you have views on whether the market-based mechanism is an appropriate tool for supporting the 'smart' heat pump capability and use, and any limitations of this? Please explain your answer.**

Members welcome the policy as proportionate and innovative (providing the risks highlighted in this response can be effectively mitigated).

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Any heat pumps supported via this mechanism should have a minimum level of 'smart'.

The rationale for this is based on the expected lifetime of systems installed (average 15- 20 years), the potential future impact on grid stability and consumer benefit – balanced against what is a small add-on cost.

Controls will be particularly important for high temperature and hybrid heat pumps installed via this mechanism to ensure that both the efficiency/ carbon reduction and running costs can be optimised.

Heat pump manufacturers typically provide standard on/off scheduled thermostatic controls, or installers provide equivalent third party thermostatic controls. Smart controls automatically learn the thermal characteristics of the home optimising the operation of the heat pump in response. This enables a heat pump to operate at lower flow temperatures, thereby improving the coefficient of performance and removing the imperative on the user to understand how best to determine an appropriate control strategy. Smart control also enables efficient heat pump operation to be determined based on occupancy, weather forecasts, and tariff/flexibility signals.

A heat pump control standard

Members support the introduction of a heat pump control standard and (in general) a greater degree of consistency on smart controls across government programmes including SAP. Energy UK recommends that BEIS consults further on what this should include but our starting recommendations here include the following:

1. **Requirement for a proportional load control interface.** This would require heat pump manufacturers to provide standard, digital interfaces which allow for granular heat pump control in the home, provided by smart control (provided by either a manufacturer or a third party). This approach would enable Home Energy Management services, including tariff optimisation (supporting heat pump tariffs).
2. **Requirement to enable performance monitoring.** Heat pumps must provide a regular data feed to enable performance monitoring for customers and other third parties, including enabling COP reporting. This reflects the ambition set out by BEIS in its Energy Related Product Policy Framework document. For hybrid systems, this will also provide data on heat pump utilisation.

A related point (but potentially one better addressed via product standards) is to ensure that all manufacturers include clear information about the system's SCOP on their control interfaces so that this can be effectively monitored by consumers.

- b. Do you have views on whether this should be through differentiated incentives, through the exclusion of 'dumb' heat pumps from qualifying scope, or another approach?**

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As above, Energy UK members support a minimum level of smart for all heat pumps supported via this scheme.

11. Do you agree that hybrid heat pump systems should be included in the market-based mechanism? Yes / No. Please explain your answer.

Yes

Overall, Energy UK members agree that hybrids should be included (with conditions).

In general the focus of most Energy UK members is on the type of hybrids that should be included (or how they should be included – subject to conditions including a lower incentive). However, some members diverge from this view and believe that hybrids should not be included.

The rationale for the majority of Energy UK members wanting to include hybrids on some basis is based on:

- Their potential as a transitional/ bridging technology, particularly for getting consumers comfortable with a different form of heating (occupants could take longer to get 'ready' for heat pumps than their dwellings).
- Use for hard/ expensive to heat buildings or in areas where there is insufficient network capacity
- Their grid balancing potential.

The rationale for members not wishing to include them was based on:

- Lower efficiency
- Higher carbon intensity
- Potential risk in delaying the heat decarbonisation transition (for some consumers or more widely)
- Usage in practice may not be optimal without automated smart controls.

On balance, most Energy UK members support the inclusion of hybrids if subject to conditions such as these:

- i) Restricted to homes where a standalone system might be challenging (without expensive/difficult upgrades etc). This could be demonstrated via the MCS heat loss calculation.
- ii) Restricted to smartly controlled hybrid systems which deliver high percentage of heat (for example 80 percent of space heating) from the heat pump.
- iii) Supported at 0.5 level of subsidy relative to full heat pumps.

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12. Do you agree that the mechanism should differentiate between different types of hybrid system/product to focus incentives on those which are most consistent with the policy's objectives? Yes / No. Please explain your answer.

Yes

Views vary across members on how the mechanism should differentiate between hybrids systems but most agree that some form of differentiation is necessary.

Members would support a further consultation on the relative weighting but, in principle, members recommend a lower incentive for eligible hybrids (potentially 0.5) compared to full heat pumps.

Members do not feel that all hybrids should be included but only those able to supply the majority of the space heating demand with installation restricted to dwellings where a full heat pump might not be practical.

In terms of an appropriate threshold, the Committee on Climate Change recommends in various reports (including the 6th Carbon Budget) that hybrids should provide 80 percent of heating. Whilst it is not clear whether this is 80 percent of space heating or of total heat demand, members are confident that data on existing installations suggests that 80 percent of space heating (with hot water supplied where feasible) is an achievable minimum threshold.

As previously noted, members feel that heat pumps should have a minimum level of 'smart'. This is particularly important for hybrids systems so that consumers are able to optimise the operation of the system to fuel shift based on price, carbon, and time of use. This will ensure that hybrids can play a role in supporting the grid by switching to alternative fuels when margins are low.

13. Do you have suggestions on ways in which the government, the heating industry or others could manage the challenges and gain the assurances outlined, in order to include hybrid systems in a market-based mechanism without impacting on the policy's primary objectives to grow the heat pump supply chain and significantly reduce greenhouse gas emissions?

As above - members feel that hybrids have a valuable role to play in decarbonising heating and in helping consumers become more familiar with a new style of heating.

It is important to ensure that the mechanism is well designed so that the ultimate number and type of hybrids supported by the scheme, aligns with the objectives of the 2028 heat pump target.

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14. Do you have views on our proposed approach for alternative low-carbon heating appliances under the market-based mechanism?

In general, most (but not all) members support the proposals to limit the role of hybrids by overall percentage of installations and reduced credits/ incentives available for hybrids.

15. Do you agree with the proposal to distinguish qualifying installations under the obligation by appliance capacity rather than by building use? Yes/no. Please explain your response.

Yes, the proposed threshold capacity of 70tkWh should drive appropriate action.

16. Do you believe there is a need to go further to limit the scope of qualifying installations in non-domestic properties under the obligation, for instance through an upper limit on floor-size of properties? Yes/no. Please provide evidence to support your response.

No.

17. What challenges may be involved in focusing the obligation on retrofit installations only, excluding those in new-build properties, and how might these be addressed?

Members feel strongly that this mechanism should exclude installation in new build properties.

The [Future Homes Standard](#) will drive deployment of low carbon systems (likely to be largely heat pumps) in new build from 2025 and is forecast to deliver at least 100,000 heat pumps per year. The bulk of the remaining 500,000 heat pumps per year for the target will need to come from the retrofit market.

Members support this policy as an innovative policy that if well designed is likely to be successful in permanently delivering an increased supply of heat pumps and heat pumps at a lower cost. As with any innovation, there will be costs and, ultimately, these will be born by consumers. Whilst there is a clear and high differential between the installed cost of heat pumps and fossil fuel conventional fossil fuel systems (a ratio of 1 to 4 or 5), the same does not hold for new build therefore this support is not, in our view, justified.

[Analysis](#) carried out by Currie and Brown commissioned by the Climate Change Committee estimated that from 2021, heat pumps could have a lower lifetime cost than gas boilers (the lowest cost conventional system) in new build. This is because the higher thermal standards

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in new build mean that a smaller, lower capacity system is needed, installation costs are lower and no remedial works are required (larger heat emitters/ pipework changes, insulation). Whilst the upfront cost will still be higher than a boiler, the running costs (due to the low heat demand) will be lower than with a boiler and therefore that even where the full capital costs are passed through to the buyer (rather than partially covered by the homebuilder), the buyer will be better off with a heat pump.

Given this, support is not warranted here (we would instead support low carbon heating to be required in new build earlier than 2025, as it would benefit consumers overall).

In terms of the challenges this might involve, we are not familiar enough with the notification process to make recommendations here.

18. Do you agree with the proposal to focus the policy on appliance installations, in order to enable a range of risk mitigation and impact-enhancing measures? Yes/no. Please provide evidence to support your response.

Yes. Members support the rationale that this is the best way to ensure that the supported units are installed in the UK rather than overseas.

19. Do you support the proposal to incentivise the installation of low-carbon heating systems that replace fossil fuel heating systems more strongly than those that do not? Yes/no. If yes, do you have comments on how this could work most effectively?

Yes.

Members generally agree that some level of differentiation was necessary. Members would support a further consultation on the relative weighting but in general it is felt that systems replacing more carbon intensive fuels should be rewarded more highly (with potentially a few different tiers).

Members do feel however that there is a balance between using differentiation to drive deployment to where it can have the most impact and retaining a level of simplicity that is likely to be necessary to encourage new players to enter the market, innovate with new business models and drive down costs.

There is some concern that policy could drive obligated parties to concentrate on installations in homes with a relatively low heat demand. As lower capacity, lower cost units could be used here (with fewer / no remedial works) this focus would allow obligated parties to discharge the mandate at a lower cost. This would reduce the level of carbon reduction delivered and would leave the harder, and more expensive installations with less support (as

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much of the market could be focussing on delivering solutions for the more cost-effective segment).

A related concern is that by stimulating a demand for cost-effective installations in low demand dwellings such as apartment blocks, the policy could make later building-wide solutions (large communal heat pump with heat exchanged in each flat) less tenable even though this might have been preferred by tenants for both cost and space saving reasons. This risk could potentially be partly addressed via government backed guidance highlighting this as a potential option that flat-owners might want to bear in mind.

Too much of a focus on targeting dwellings where installations are likely to be cost-effective could have negative implications for these homeowners especially in off-grid areas which from 2026 could need to opt for low carbon heating when replacing their heating. There is a higher proportion of larger and hard to heat homes in this sector so, if the mechanism fails to incentivise sufficient action in reducing the cost of solutions here (including for larger capacity air source heat pumps and more efficient but higher cost, ground source heat pumps), it could risk the effective implementation of these regulations.

An opposing view here, however, is that the mechanism should follow consumer demand and therefore be shaped by those consumers wanting to take up heat pumps. Those most able to change their heating system will support market growth, delivering cost reductions and economies of scale. This would be to the benefit of those unable to change until after the relevant phase out date.

There is a further concern that homeowners need more support to understand their options for low carbon heat and balancing any potential trade-offs between the options (for example higher capital cost versus lower running costs). The proposal for a guidance for off-grid consumers is sensible, but this needs to go further and deal with common archetypes connected to the gas grid too and highlight, for example, dwellings where other low carbon systems may be more cost effective (for example direct electric or smart storage in small flats with low heat demand) or where building wide solutions are likely to be feasible (and approximately timeframes).

Without this there is a risk that the policy incentivises low quality products and low quality installations. This would pose a risk to the development of the market (damaging consumer confidence).

20. Do you support the proposal to incentivise the installation of low-carbon heating systems that replace more carbon-intensive fossil fuel systems more strongly than others? Yes/no. If yes, do you have comments on how this could work most effectively?

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There is some support from members for using differentiation (for example, more credits) as this would support the enforcement of the proposed 2026 regulations. It is noted that the current subsidy scheme Boiler Upgrade Scheme will only support 90,000 units in total between 2022 and 2024 (including SMEs) whereas the regulations are forecast to stimulate around 100,000 replacement low carbon heating systems per year.

Off grid homes can be larger and a higher proportion are classed as 'harder to heat' low EPC. The off grid households also have a higher portion of elderly and retired occupants for whom the purchase could be difficult.

As above, there is also a need to reward larger systems (where these are required) and more expensive but valuable technologies such as ground source heat pumps which could play a valuable role in the off-grid market (and can provide a stronger grid balancing role).

21. Do you support the proposal to incentivise the installation of standalone heat pump systems more significantly than hybrid heat pump systems? Yes/no. If yes, do you have comments on how this could work most effectively?

Yes. The policy needs to create new consumer demand for an unfamiliar product, low temperature heat pumps, one that is judged to be a key technology (whichever heat pathway is followed) and where therefore significant intervention is justified to rapidly scale up the supply chain.

If hybrids are incentivised to the same extent as stand alone heat pumps, there is a key risk that the policy will deliver a majority of hybrid heat pumps. Whilst most members support hybrids as having a valuable transition role, this is not the market transformation envisaged for the policy.

As stated previously, members would welcome a further consultation on weightings.

There may also need to be some guidance around the way that hybrid and high temperature heat pumps are marketed to ensure that consumers understand what they are buying and how to optimise them.

As this is a new mechanism and it is hard to anticipate how the market will respond, members think it will be important to build in a regular review process along with a provision that government can revise the scheme (for example, to cap certain technologies or amend incentives) if deemed necessary.

22. Do you support the proposal to attach a higher obligation to the sale of the most carbon intense heating appliances, such as oil boilers? Yes/no. If yes, do you have comments on how this could work most effectively?

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Yes.

This is in line with the 'polluter pays' principle. As noted earlier, however, there is a balance between incentivising desirable outcomes and retaining sufficient simplicity for the market to operate and innovate effectively.

Given this need to reduce complexity, the weighing could just apply to two categories based on the fuel source – either gas as the standard or more carbon-intensive fossil fuels with a higher obligation.

As this mechanism would start in 2024, two years before the proposed phase-out of replacement high carbon systems in 'off-grid' homes (and alongside the start of the phase out for larger off-grid non-domestic properties), this mechanism would support the delivery of these regulations.

23. Do you have suggestions for other outcomes, beyond those outlined here, for which differentiated incentives within the obligation might be appropriate? Please provide evidence to support your response.

Yes.

BEIS could seek to amend the SAP to provide credit for the provision of heat pump controls which provide value added benefits beyond the minimum controls standard proposed. This could include, for instance, learning functionality and weather compensation (control functionality already recognised under the 2018 Boiler Plus regulations). A route to build in such recognition should also be considered within the Market Delivery Mechanism policy itself.

As set out above (Q9), a larger installation could receive a higher reward. This is needed to correct the natural bias in the approach towards smaller, lower cost installations, and to adequately prepare the market to deliver for the off-grid market from 2026. This needs careful design to prevent installers oversizing systems to access the larger demand. One approach to managing this risk could be via the MCS scheme.

24. Do you have views on the most appropriate central target for the policy? What metric, including but not limited to those here, do you believe would work best to meet the policy aims and design principles? Please provide reasoning to support your response.

On the assumption that 100,000 of the targeted 600,000 annual installation target will be delivered each year from new builds, it could be safer to seek 500,000 a year from this mechanism rather than the 400,000 per year set out as the central projection in the impact assessment (to avoid a potential shortfall in delivery for the 2028 target).

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There is a wider question of whether a supply chain capable of delivering 600,000 installations per year by 2028 is sufficiently aligned with delivering on the lowest cost net zero pathway, as set out by the Committee on Climate Change (CCC), and whether the 2028 target should be revised upwards in line with the CCC's recommendation of 900,000 units per year by 2028.

The annual gas boiler market is around 1.7 million a year (plus around 100,000 oil, LPG and coal per year). Assuming that heat networks account for 20 percent of future decarbonised heating solutions (as recommended by the CCC), this would leave a potential replacement market of around 1.3 million a year by 2035 (when regulation could require all replacement heating to be low carbon). If the strategic decision of the role of low carbon gas, due in 2026, deems hydrogen's role to be better suited to locational clusters rather than more widespread (via the transmission networks), then heat pumps (of all varieties) are likely to be needed to fill much of this gap. This could require the supply chain to scale up from 600,000 units in 2028 (as per the target) to 1.3 million by 2035.

The Heat and Buildings Strategy includes a note that the 2028 target will be reviewed in 2023 based on the early evidence from the hydrogen trials. If this target is increased, the target in this delivery mechanism should also be reviewed and, if deemed feasible, adjusted upwards.

25. Do you have views on the most appropriate trading mechanism for the policy? What market arrangements, including but not limited to those here, do you believe would work best to meet the policy aims and design principles? Please provide reasoning to support your response.

The option with the most support amongst Energy UK members is Option 2: Proportion of sales with tradeable heat pump certificates. Members generally agree that this option is most likely to deliver the stated objectives of increased the number of installations and bringing down costs.

Option two offers two clear benefits:

- A. Clarity for the whole market over what the scale of obligation is and who responsibility sits with.
- B. Tradeable certificates can allow all market participants to gain value from the market created by the obligation – allowing a range of business models to develop.

26. Do you have views on options for, or considerations related to, the delivery and administration of the proposals set out in this consultation and/or to the role of an administrator? Please provide reasoning to support your response.

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Members agree that the regulator Ofgem would be most suited to administer the scheme.

As Ofgem administer the Energy Companies Obligation, this could also bring scope for synergies and operational savings.

There is some concern regarding the impact of current volumes of work that Ofgem are being required to deliver on its ability to deliver effective administration of such a significant scheme. For Ofgem to be able to effectively administer this obligation, the administrator needs to be properly resourced for the role and the approach needs to balance rigour with a commitment to supporting the low carbon heating market to develop

27. Do you have suggestions on how monetary and non-monetary penalties may be designed and administered in order to ensure compliance with the obligation?

The level/ design of the penalty is felt by all members to be critical to the success of the scheme - the level of the fine determines the value of the certificate and should be set at a rate which acts as a sufficient deterrent to guard against non-compliance.

In general, members support a penalty that is:

- financial in nature
- material and robust – ideally set at £5,000 per installation not delivered,
- visible and known to the whole market in advance (unlike, for example the fines with the Energy Company Obligation [ECO] which are applied after the event and negotiated on a case by case basis)

If the penalty is too low then the obligation would be virtually meaningless because the cost of non-compliance, and the additional incentive to install heat pumps, would be so small.

The other justification for a higher penalty is to oblige obligated parties to meet their obligation rather than pay the penalty as any shortfall in delivery here (even if temporary) could threaten the viability of the proposed off-grid regulations from 2026.

In terms of the level of the financial penalty there was a range of views amongst members. This ranged from setting it at the effective cost of a heat pump installation (c.£10,400 per installation for air source heat pumps) to £3,000. On balance, members would support a penalty of £5,000 - set at the level of the grant proposed for the Boiler Upgrade Scheme. Members generally felt this would be sufficient to drive a sufficient level of action.

In terms of the design of the penalty aspect, there as also strong support to adopt the 'buy out' model used in the Renewables Obligation Certificate (ROC) scheme. Here the known market wide penalty (the buy-out price) drives the value of certificates and the recycling of buy-out payments adds further value to certificates when there is a shortfall against the obligation target.

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This means that the further the market is away from achieving the obligation the higher than value of the certificates so it creates an incentive to catch up. This would provide a safety mechanism reducing the 'knock on risk of under delivery to the off-grid phase out regulations and creates an incentive to catch up. As with the Renewables Obligation, the buyout fund should be distributed to companies that have achieved their certificates to create an extra value to having met your target through an installation rather than just paying a fine.

28. Do you agree with the proposal to apply the obligation to the manufacturers of all fossil fuel boilers sold on the UK market, including non-UK companies? Yes/no. Please provide reasoning to support your response.

Yes. If the obligation is only applied to UK-based manufacturers it will disadvantage UK manufacturers.

Applying the obligation to manufacturers of all fossil fuel boilers sold on the UK market, including non-UK companies will ensure a level playing field.

29. Do you have views on how either the proposed or the alternative approach to ensuring the obligation applies fairly across both UK-manufactured and imported products could be delivered most effectively, while keeping administrative complexity proportionate?

No.

However, the UK is the largest gas market in the world and, therefore, likely to remain an attractive market for manufacturers.

30. Do you have views on whether, and to what extent, the policy proposals here might disproportionately impact upon certain types of consumer, with a particular focus on those in groups with protected characteristics? Please provide evidence to support your response

There exists a potential risk of "dumping" low quality units into the market in response to this mechanism. Some households will be less well equipped to deal with this than others therefore it will be very important that there are adequate safeguards on installation standards and that this mechanism is supported by a wider enabling policy including a strong focus on consumer engagement.