

7 July 2020

Submitted to heatconsultation@beis.gov.uk

Future Support for Low Carbon Heat

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.

We represent the diverse nature of the UK's energy industry with our members delivering almost all (90%) of both the UK's power generation and energy supply for over 20 million UK homes as well as businesses. The energy industry invests over £13.1bn annually, delivers around £85.6bn in economic activity through its supply chain and interaction with other sectors, and supports over 764,000 jobs in every corner of the country.

This is an industry response to BEIS's consultation on building a market framework for heat networks. Individual members may hold different views.

Overview

Energy UK broadly welcomes this consultation and the clarity provided by setting out the proposed future of subsidy for low carbon heat. The proposals align with many of the core views of industry insofar as they address upfront cost barriers for some technologies and support production of low carbon gas. However, the scope of neither the Green Gas Levy nor the Clean Heat Grant are sufficiently ambitious, and the amount of funding proposed for the latter scheme is inadequate.

Energy UK finds that support mechanisms being focused on biomethane and heat pumps means that other beneficial opportunities are undesirably restricted. Enabling continued progress in the production and sale of other technologies will be key to enabling a competitive market to deliver the decarbonisation of heat at lowest cost to consumers.

Energy UK believes that the following changes should be made to the approach:

- Widen both schemes to existing and developing technologies to incorporate as appropriate;
- Extend both the amount of funding and timeframe for the Clean Heat Grant;
- In anticipation of increased demand for low carbon heat, government should consider a review of skilled workers and certification frameworks, to ensure these remain fit for purpose;
- Energy UK is disappointed to see a lack of support for hybrid heating systems in this consultation and would urge this position to be revisited.

It should be noted that the proposed measures will not in isolation deliver wholesale decarbonisation, and a combination of measures are needed to promote uptake. Regulation, taxation, and spending measures should be included in the Heat and Buildings Strategy to drive demand for and delivery of low carbon heat.

Please find below our views to the questions posed in the consultation.

We welcome the opportunity to discuss further with BEIS or any other interested stakeholders. If this is of interest, please feel free to contact me on melody.carraro@energy-uk.org.uk.

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Consultation questions

Green Gas

- 1) **Do you agree that the tiering structure as outlined above is appropriate and would deliver the best value for money? Yes/No. Please provide evidence to support your response.**

Broadly, yes. It appears sensible that tariffs should continue to be based on the volume of gas injected into the grid and that the expansion of Tier 1 from 40,000 to 60,000 MWh per annum is welcome.

However, we would welcome BEIS to consider how it could likely be more efficient to have a single tariff; which provides a better incentive for large-scale AD plant deployment, which would maximise economies of scale and provide greater value for money for consumers.

If the ambition is to encourage a greater use of waste feedstock; these tend to be larger plants. Additionally, a large differential between tiers can act as a constraint.

- 2) **What are your views on the impact of a 15-year tariff period to support biomethane? Please provide evidence to support your response.**

Energy UK is aware that other support mechanisms for investments are also 15 years; such as wind. It is imperative to ensure that any tariff level and duration in combination are sufficient to support investment.

- 3) **What are your views on the advantages and disadvantages of a shorter 10- or 12- year tariff period and whether they would help maximise value for money? Please provide evidence to support your response.**

Determining whether a support level is sufficient to meet a developer's required return on investment, requires an assessment of the tariff price achieved against the overall tariff period length. A shorter length could be commercially possible, but would require a higher tariff price.

- 4) **Do you have any views on the appropriate tariff level, within these ranges? Please provide evidence to support your response.**

Historically, we have seen that tariffs are required to be in the 5.0-5.5p range. Developers will need to know what return on investment is acceptable and provide a view on tariff levels on that basis.

Therefore, any price level below that range would likely risk the economic viability of a project and could ultimately potentially restrict the deployment of a new plant.

- 5) **Do you have suggestions of other mechanisms that could be introduced to ensure tariffs deliver the best possible value for money – for example, additional evidence on costs and revenues that applicants to the Green Gas Support Scheme could be required to provide?**

There is support for the requirements for additional transparency around costs and revenues on the basis that it will help provide Government with a better understanding of the underlying

economics for investments. This in turn helps to set the most appropriate level of support for new plant, which benefits customers and investors.

- 6) **From experience of degression, how do you think elements such as the frequency and size of degression, and spend triggers, should change in order to ensure value for money, whilst meeting the need for investment certainty? Please provide evidence to support your response.**

One thing to be cognisant of is that when the price of natural gas falls, it affects biomethane. This needs to be taken into account when setting tariff levels.

The other challenge is that degression, to date, has led to a rush of plants seeking to commission before the deadline, meaning that grid connections are carried out in a stop-start manner, rather than in a smooth way throughout the year. In order to manage this better, we would support the guarantee that those who have successfully applied for tariffs would not be affected.

An annual review to ensure best value for money, together with a manual review process to ensure that industry views are taken into account would be wise.

- 7) **Do you have further suggestions, beyond those mentioned in this consultation, which would help the Green Gas Support Scheme to deliver the best possible value for money? Please provide evidence to support your response.**

It is important that the Green Gas Support Scheme and any future market-based mechanism is open to technological innovation and is funded by levies on gas consumption in order to contribute to balancing policy costs between gas and electricity.

Separately if a degression mechanism is used, more detailed costing information from biomethane tariff applicants would be helpful in order to better inform decision making.

- 8) **Do you agree with the proposals for tariff guarantees for biomethane? Yes/No. How could this be improved? Please provide evidence to support your response.**

Yes.

- 9) **What are your views on increasing the minimum percentage of waste feedstocks above 50%, now or in the future? What could be a suitable new threshold? Please provide evidence to support your response.**

Any threshold would need to consider the mechanism for measuring/reporting. A rolling average would appear a sensible avenue to consider, particularly in the event of any short-term loss of waste supply.

Any decision in this space would also need to carefully account for local supply chain challenges and regional differences in feedstock availability. The use of residual waste also needs further consideration.

- 10) **In light of recent amendments to sustainability criteria in the RED II, do you have any views on whether the UK should look to take into account similar changes for the Green Gas Support Scheme?**

Some members believe the UK should take into account similar changes for the Green Gas Support Scheme. Divergence on sustainability criteria across Europe could potentially result in asymmetric value of certificates.

In order to support the continuing growth of this sector there needs to be comparable sustainability measures in place. It would also be wise for Government to seek to ensure mutual recognition of guarantees of origin to avoid damaging the value of certificates.

11) Do you have any views on how the feedstock reporting process for biomethane should be amended compared to the existing RHI requirements?

No comments.

12) What measures and technologies exist for reducing ammonia emissions from digestate and what are the barriers to their widespread deployment?

No comments.

13) What are the reasons for the lack of commercial demand for digestate and how can the market for digestate be strengthened?

Energy UK understands that the lack of demand has a direct correlation to the quality itself. This in turn links back to the feedstock.

14) Do you agree with the proposal not to include an additional capacity mechanism within the Green Gas Support Scheme? Yes/No. Please provide evidence to support your response.

Yes.

15) Do you have any views on how a change of scheme participant mechanism may differ in the Green Gas Support Scheme to the RHI? Yes/No. Please provide evidence to support your response.

Energy UK would support keeping the scheme participant mechanism the same as the RHI.

The retention of a 20-year subsidy period, similar to that given for biomethane injection under the RHI, could also aid in mitigating investment risk.

16) Do you agree with the proposal to not allow any interaction between the RHI and the Green Gas Support Scheme? Yes/No. Please provide evidence to support your response.

Yes, with a caveat. Given that the Green Gas Support Scheme will only support new applications for biomethane, with the context of delayed projects caused by the COVID-19 crisis borne in mind, the need for a smooth transition between scheme and grant is paramount. Accounting for such projects that aspired to meet the RHI deadline and were unable to do so in the extenuating circumstances will be critical to continued market development.

Separately, it may be beneficial to introduce the measures this consultation sets out for financial support earlier than proposed. When it is safe to do so, advancing the delivery of incentives could bolster construction, jobs, and play a key role in the overall 'green' economic

recovery stimulus. In the past, funding for low carbon initiatives has been one of the first losses when the economy experiences a slump. Now is a good opportunity to reverse that trend.

17) Do you agree with our proposal to allow biomethane producers to decide how much biomethane they wish to claim Green Gas Support Scheme payments for within a given quarter? Yes/No. Please provide evidence to support your response or provide an alternative proposal for scheme interaction.

Yes, such that the desire for greater flexibility will be achieved.

Separately, we would add that if an application is made to the non-domestic RHI before it closes and subsequently fails, this should not stand as an impediment from applying to the GGSS.

18) What are the main barriers to the deployment of biomethane AD plants and what potential solutions could help to overcome these?

Energy UK fully recognises that **local gas network capacity** can be a barrier to development, particularly in light of lower gas demand during the summer months. More consideration is needed regarding mitigation of such development barriers here.

Another key barrier is the **capital cost of development**, which is unlikely to see major cost reductions in the near term. Likewise, the ongoing operating costs are typically rising due to increasing requirements from environmental regulation.

Planning also presents itself as another barrier. With regards to 'knowing where to connect', the provision of a heat map by networks demonstrating where there is capacity in the distribution networks would aid in planning to connect.

The proposed change to the gas quality standard to widen the Wobbe range may increase the amount of **propane** that needs to be added to enable biomethane to be injected into the network. Thus, costs will inevitably be increased. Change should not happen until the changes coming from the future billing methodology work can be implemented at the same time.

19) Do you have views on how the Green Gas Support Scheme could be improved, beyond the ways described in this consultation? Please provide evidence to support your response.

The proposed GGSS has narrowed its focus on biomethane; however, there is an opportunity for it to be technology neutral and provide meaningful support for a wider range of green gas technologies. Notably bio-SNG and bio-LPG.

The green gas and low carbon heating market in the UK is nascent. By ruling out any other technologies the Government runs the risk of restricting innovation.

20) Do you have any views on the most appropriate market-based mechanism for green gas support in the longer term, and how this might operate? Please provide evidence to support your response.

Existing boilers can operate with up to 20% hydrogen or other gasses. Injection of small amounts of hydrogen could be a near term ambition that is low cost and would simultaneously provide opportunity for some domestic green gas producers to play a role in greening the UK's heating.

Support for hybrid heat solutions utilising green gas would also be welcome. Separately, if government wants to create a consumer route to market for Hydrogen at some point into the future, then support needs to be changed.

21) Do you have any views on industry readiness for a market-based mechanism to support green gas in the longer term? Please provide evidence to support your response.

No comments.

Building Level Technologies

22) Do you agree with targeting support at domestic and non-domestic installations with a capacity up to and including 45kW? Yes/No. Please provide evidence to support your response.

Support must be appropriate for supporting all households of any financial means and not just the able-to-pay. The scheme as outlined in this consultation paper does not appear to provide sufficient support for the less able-to-pay market. Those less able to pay may suffer because of the scale of significant upfront costs not covered by the £4,000 grant. The scheme as currently proposed; unlike the Feed-in-tariff or AoR RHI, will likely be less attractive to capital markets, impacting on the low carbon heating industry's ability to access affordable capital. The structure should take into account consumer and capital market requirements for funding the missing money or the grant amount needs to be increased.

Separately, it is important that support for heat pump installations above 45kW continues beyond the closure of the RHI. A replacement scheme that offers tariff based payments to larger end-users is needed in order make heat pumps economically viable for consumers within this market.

23) 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.

Yes; the long tail tariff structure of the domestic RHI has proven unpopular with customers, who typically look for pay-back within much less time, and therefore moving to a simple upfront grant model is welcome.

However, target deployment rates will only be achieved if the grant is set at a level that takes into account all the costs of converting a home to low carbon heating.

The proposed grant funding amount does not appear sufficient to have a material impact towards meeting UK carbon targets or stimulating the market. The existing RHI is not delivering at the rate required to meet the UK's net zero target, and to continue at this pace will only reinforce the UK's position as a laggard in heat decarbonisation.

The CCC has stated that 19 million heat pumps are expected to be needed by 2050, implying around 630,000 heat pumps will need to be deployed each year, far beyond the 12,150 per annum suggested by the proposal. The decision to set such a low target for deployment raises concerns over the direction of travel for decarbonisation, as it indicates that heat pumps and other low carbon assets are being relegated to a 'fringe' technology for use only in circumstances where the existing gas network is not connected.

Low carbon gas and electrification must both play a significant role if we are to achieve decarbonisation of heat at lowest cost to consumers. Promoting uptake of the available low carbon technologies should not be seen as a risk but an opportunity to develop markets and supply chains in the UK.

The break in market continuity by removing funding for hybrid systems in off gas grid homes will have a detrimental impact on a nascent market resulting in job losses, loss in market competitiveness, loss of national and foreign investor confidence and higher than necessary grid reinforcement costs adding avoidable costs to consumer bills.

It is worth noting the success of the AoR RHI scheme, which was yielding positive results for the sale of hybrid heating systems prior to COVID lockdown. This provided some evidence that the up-front capital cost to consumers has been a major impediment to adoption of RHI funded heat pumps. Faced with high installation costs and disruption, the majority of consumers will need access to capital markets to make up the cost difference.

Metering low carbon assets and understanding the efficiency and cost impacts will be important both in ensuring a positive customer experience and in delivery of evidence of the impact of installing low carbon heat. The proposal not to measure heat production, therefore, appears out of place. There is a risk that the omission of a low-cost heat meter will expose consumers, service providers and financiers to the risks associated with a lack of knowledge of overall system performance; resulting in potential failures to correct poor consumer operation / behaviour, difficulties in system problem solving and inability to ensure that the system is delivering value for money throughout its useful life.

An electricity meter alongside a low-cost heat meter would ideally be a requirement of any grant scheme to ensure best outcomes for the consumer and for the BEIS funding.

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

In theory, yes. However, the proposed grant scheme at face value does not appear technology neutral because it excludes a number of low carbon heat technologies. Energy UK would urge a reconsideration of the inclusion of wider clean heat technologies including hybrid heating systems.

A grant is most useful only where wider price signals are also aligned across markets and taxation. A smart flexible energy system is a core element of the energy transition, and to treat heat as separate from that discussion would be detrimental to efforts to increase demand for low carbon heat. BEIS must coordinate low carbon heat policy support with wider policy developments, including the role of network price controls, charging, and policy costs in both encouraging flexible behaviours and enabling increased uptake of low carbon assets.

We are aware of BEIS efforts to ensure these policy areas are coordinated, and as such would have expected recognition in this consultation of hybrid heat systems as a part of the decarbonisation pathway for heat.

Separately, it would be worth perhaps considering underpinning any grants issued, to the efficiency of various technologies (for example GSHPs could have a higher grant than ASHPs as they have higher efficiencies and higher capital costs).

25) 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.

This funding will go some way to supporting some off-gas grid homes to transition to heat pumps. The installation of a pure heat pump will, however, typically require a consumer to carry out other interventions (such as thermal insulation) and the efficacy of a £4,000 grant in isolation may be in question.

It is not apparent from the consultation what level of consideration has been given to how the grant can be combined with other sources of capital required to undertake the works. Energy efficiency funding, for example, is not clearly linked to this scheme and may result in consumers being unable to afford the switch. Given the cost to industry of setting up new financing schemes, the duration of the scheme and its ambition in units installed, it is very likely the appropriate and required funding mechanisms needed to sit alongside the scheme will not materialise.

It should also be considered that the Clean Heat Grant Scheme not require consumers to finance upfront capital investment costs before grant vouchers are redeemed, as this would restrict the reach of support.

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

Overall, a flat-rate grant is an easily comprehensible framework for consumers and industry and delivers scheme value-for-money. It is worth noting; however, that any flat-rate grant would naturally be less attractive to buildings requiring larger installations and thus, evidence on how grant levels could appropriately be scaled in these circumstances would be welcomed.

However, Energy UK would only support the introduction of a flat-rate grant scheme on the proviso that its introduction is designed to engage capital markets in funding low carbon heat as an infrastructure investment whilst delivering best value for money to consumers and taxpayers.

The introduction of a grant-based scheme must also accommodate pure heat pumps, hybrids, the additional cost of installing stored hot water and “grid-aware” controls designed to reduce energy system infrastructure costs and consumers bills.

The proposed scheme lacks ambition in making use of a range of technologies developed by innovative UK start-ups; many of whom have received BEIS, Innovate and Ofgem R&D funding. The proposed scheme also fails to address the potential to create local “sandbox markets” for BEIS’s own indigenous technology companies that support the governments wider ambition of creating new world-class businesses. The size of the proposed scheme provides an ideal opportunity for trialling new smart consumer technology in “sandbox” market conditions. It is disappointing that the consultation lacks any reference to the use of smart technology, which appears counterproductive when considering the plethora of other policy areas which focus on and include on smart technologies.

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

See response in answer to Q.25.

28) Please provide any relevant views to help inform development of the delivery mechanism.

The scheme should not place any obligation on the home owner to meet prior energy efficiency standards e.g. EPC D. This type of constraint vastly increases the cost and complexity of customer recruitment while creating potentially a long list of pre-requisite conditions that may add unnecessary cost to converting a dwelling from high carbon to low carbon heat.

The consumer eligibility process should be as simple as possible with the survey and specification process, ensuring adequate safeguards and protections against mis-selling with post-installation monitoring; providing consumers with evidence-based protection against incorrect selling and poor workmanship.

Mandating a minimum coefficient of heat (COP) and supporting the installation with an electricity and heat meter that monitors and reports energy consumption and COP will provide the home occupant with a minimum set of evidence required for enforcing supplier compliance.

The upfront cost of a heat pump (currently c.£7,500 excluding the cost of other interventions in the home) is significantly greater than the proposed grant of £4,000. It is not apparent from the consultation whether enough thought has been given to how the grant can be combined with other sources of capital required to undertake the works. Given the cost to industry of setting up new financing schemes, the duration of the scheme and its ambition in units installed, it is very likely the appropriate and required funding mechanisms needed to sit alongside the scheme will not materialise. It is worth noting that in the case of the RHI AoR scheme it took 15 months from announcement to putting financial arrangements in place before consumer marketing commenced.

The scheme needs to be set up to allow participation of capital markets where the assets may be owned and managed by a third party as part of a service proposition. Becoming an FCA registered business is can be particularly time consuming, expensive and complex. It is important to success of a grant-based scheme to make it easy and simple for third party funding to be provided alongside a grant for low carbon heating. Ensuring guidance and simplification may make the implementation of the scheme more consumer-friendly, easy to sell and quick to implement.

Introducing a requirement to implement smart connected controls with monitoring and reporting would provide consumers and industry with much needed evidence on heat pump operational performance, energy demand and flexibility, heat demand and consumer savings. They would also increase consumer protection and support an evidence-based approach for consumers to resolve contractual disputes over heat pump performance and operational running costs.

Separately, more should to be done to balance the costs of electricity and gas as the higher running costs of electric heat are a significant barrier to investment.

Heat Pumps

29) 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; however, preparing a one-off calculation prior to installation is not substitute for providing consumers with evidence-based post installation metering and reporting over the lifetime of

the installation for ensuring consumers are adequately protected against poor workmanship and incorrect operation.

The current process of performing MCS heat loss calculation is costly, intrusive (requiring a surveyor spending time in every room in the house) and provides consumers with very little long-term protection. A number of the heat demand assumptions defined by the MCS methodology are ultimately flawed, leading to over-statement of consumer savings and benefits which frequently lead to a breakdown of trust at a critical stage in the current RHI sales cycle. These errors need to be reviewed and amended accordingly before the methodology is applied to any new scheme.

Given the proposal to mandate electricity metering, which members broadly support, the addition of a low-cost heat meter would more than pay for itself over the life of the system by providing the consumer with vital performance data on energy consumption and COP.

30) Do you agree with the proposal to require electricity metering for all heat pump installations? Yes/No. Please provide further evidence to support your response.

Yes, Energy UK supports the requirement to install an electricity meter. We would further ask that, as part of the scheme, any customer installing a heat pump be given information about smart metering to encourage uptake of smart meters at the point of installation. This will aid both suppliers and networks to understand and adapt to the impacts of heat electrification on demand.

An electricity meter on its own will provide a consumer with little meaningful data for challenging poor-quality workmanship, incorrect specification and/or inappropriate operational settings. The omission of a low-cost heat meter from 'metering for performance' may result in higher operating costs, increased consumer dissatisfaction, sector reputational damage and, therefore, an increasing level of market resistance to heat pumps.

Biomass

31) Do you agree with the proposed air quality requirements set out above? Yes/No. Please provide further evidence to support your response.

Yes.

32) Do you have any comments on how best to ensure ongoing compliance with fuel sustainability and quality requirements following the redemption of a grant?

No comments.

33) Please provide views on the appropriate requirements for the heat loss calculation, as well as the minimum heat loss value that should need to be demonstrated.

No comments.

34) Please provide views on any other criteria to ensure that biomass support is focused on hard to treat properties only.

Energy UK would welcome BEIS to consider other options aside from biomass being the only proposed supported technology for 'hard to treat' off gas grid properties in this consultation.

Biomass boilers require a relatively large amount of space to install, meaning they may not be suitable for all such 'hard to treat' dwellings that may not have sufficient space to accommodate one. The cost (particularly in the context of COVID-19 and any financial hardship that may follow) as well as any associated air quality impacts of biomass boilers also indicates that other technologies should be explored and included to ensure the most appropriate and affordable solution is available for the customer.

Consumer Protection

35) 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 question.

It is vital that consumers are sufficiently protected in any future scheme. Existing customer protections should be sufficient to meet the need for mitigation of risk. Any grant-based scheme should ensure adequate consumer protection can be administered through:

- monitoring tools;
- tools for awareness-raising (providing information to consumers about their rights); and,
- tools for stepping up enforcement and securing redress.

Monitoring and reporting of electricity consumption and heat metering would therefore be sensible. Without these basic tools, the consumer has little chance of securing redress.

Energy UK would welcome further information and evidence as to any additional consumer protection risks that may be relevant to the Clean Heat Grant scheme (when compiled and compared against those of the Domestic RHI), with suggestions on how these might be mitigated.

Financial Management of Funding Delivery

36) Do you agree with the proposed budgetary control mechanisms as a means of preventing scheme overspend? Yes/No. Please provide evidence to support your response.

Yes.

37) Do you agree that quarterly grant windows would prevent overspend and manage demand to ensure an even spread of deployment? Yes/No. Please provide evidence to support your response.

Yes.

Technologies and uses not supported through this policy

38) Do you agree with not supporting process heating under the Clean Heat Grant? Yes/No. Please provide evidence to support your response.

Yes. Process heating will require its own solutions, to be defined as part of ongoing work on hydrogen, CCUS, and industrial clusters. It may be necessary to integrate process heating

into wider support for low carbon heat at a later date, but this is unlikely to be delivered by a limited £4000 grant, and may require more significant targeted funding.

39) Do you agree with not supporting biogas combustion under the new policies? Yes/No. Please provide evidence to support your response, including any wider detail on decarbonisation opportunities for biogas combustion in rural areas.

No comments.

40) Do you agree with not supporting solar thermal systems under the Clean Heat Grant? Yes/No. Please provide evidence to support your response.

Yes.

41) Do you agree with not supporting hybrid systems under the Clean Heat Grant? Yes/No. Please provide evidence to support your response.

No. Energy UK believes that hybrid heat systems have a role to play in both reducing carbon emissions and familiarising consumers with low carbon technologies.

Research and development has shown that these systems can affect the decarbonisation of buildings in a cost-effective manner and cause comparatively less disruption than other heating systems. This makes them well placed to support those homes that wish to reduce carbon emissions but are unable or unwilling to wholly transition. In conjunction with a Biogas Boiler they also provide consumers with a choice of achieving zero carbon and in many cases at less cost than other more intrusive and expensive alternative options.

Hybrid systems are also well suited for use on a gas grid that is supplied with low or zero carbon gasses, as they use considerably less gas than existing boilers and can reduce the quantity of low carbon gas required. They also have the capability of providing much needed flexibility services to the energy system, reducing consumer bills and increasing energy system asset utilisation rates. As was the case with the Plug-in Car grant, hybrid technologies play a valuable role as a transitory technology that increases familiarity while transitioning to net zero.

Beyond this transitory role and as low carbon gas options are increasingly utilised, both on the gas network and off, these customers will wholly decarbonise. Until that point, the existing reductions made by these systems justify support.

The omission of smart or grid-aware controls as a requirement of any grant scheme is a missed opportunity. In addition to supporting effective consumer protection through monitoring and reporting, these controls have also been seen, in a number of innovation projects, to realise significant cost savings and better value for money for consumers.

Grid-aware control is the ability for grid connected equipment to behave in a way that creates value for the consumer and / or energy system in response to price, carbon or any other type of signal provided by an energy system actor (e.g. TSO, DNO, Supplier, etc.). To achieve this the controls must be able to:

- (i) forward predict energy generation / demand;
- (ii) learn consumer and equipment behaviour; and,
- (iii) respond to weather conditions.

The control outcome must take into account and deliver upon consumer preferences and be capable of participating in an aggregated demand response.

While we understand the hesitancy in applying a mandatory requirement for additional technical specifications to a grant scheme, these controls will become necessary for achieving a smart flexible energy system. As such they must be considered and any developments in capability should be considered. It may be appropriate to follow the approach taken to the various 'plug-in' grants, in which grant funding was gradually restricted to smart EV charging equipment.

Compliance

42) What improvements could be made to the proposed approach for tackling non-compliance for participants under the Green Gas Support Scheme?

No comments.

43) What are the main risks of non-compliance, fraud or gaming associated with the Clean Heat Grant?

Please see below for a summary of risks:

- The EPC survey and Heat Loss calculations are not undertaken correctly;
- The consumer is oversold the size of Heat Pump equipment;
- Installation works maybe over or under specified resulting in consumer dissatisfaction;
- The heat pump is removed after a short period of time because of poor performance – Energy UK members are aware of hundreds of heat pumps having been removed due to poor consumer experience;
- The heat pump is removed shortly after change of home ownership;
- Higher energy bills result in further consumer backlash against low carbon heat;

Hot water demand is met by instantaneous electric hot water placing unprecedented levels of short-term peak demand on the energy system.

44) What would be the most important features of an audit regime to minimise the risk of non-compliance?

No comments.

Does your interest in this consultation relate to a particular geographical area?

England, Wales, Scotland