



Department for
Business, Energy
& Industrial Strategy

Future support for low carbon heat

Closing date: 7 July 2020



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Introduction

The UK, along with countries around the world, is facing an unprecedented challenge in responding to the crisis caused by the coronavirus (COVID-19). We recognise that those wishing to respond to this consultation are likely to have pressing issues to address as a result of this crisis, such as businesses that are facing disruption to their normal business activities or supporting efforts to protect consumers. As such, we will continue to monitor our consultation period,¹ timelines and stakeholder engagement approach as the situation develops.

We are proceeding with the consultation as planned, in view of the contribution the proposals will make to supporting businesses and job creation, at a time when economic recovery will be so important. The proposed support schemes set out in this consultation will provide support to businesses, many of which are small and medium-sized UK enterprises, including manufacturers, installers and project developers in the low carbon heating sector.

The UK is the first major economy in the world to set a legally binding target to achieve net zero greenhouse gas emissions by 2050. We have already made progress towards this goal: emissions from buildings have fallen by 20% between 1990 and 2017.² However, to meet our net zero target we will need to go much further.

Currently, heating our homes, businesses and industry is responsible for a third of the UK's greenhouse gas emissions.³ Decarbonisation of heat is recognised as one of the biggest challenges we face in meeting our climate targets. The government is aiming to publish a Heat and Buildings Strategy later this year, which will set out the immediate actions we will take for reducing emissions from buildings. These include the deployment of energy efficiency measures and low carbon heating as part of an ambitious programme of work required to enable key strategic decisions on how we achieve the mass transition to low carbon heat.

The government is considering a range of measures to improve energy efficiency and support the move to low carbon heating. It has pledged over £9bn of support over the next decade separately from these proposals.⁴ The consultation sets out our plans for successor arrangements to the current Renewable Heat Incentive (RHI) scheme, which will complement this wider range of measures.

The RHI has delivered a significant contribution towards both our legally binding carbon budgets and the UK's 2020 renewable energy target. It has done much to build the supply chains for a range of low carbon heating technologies. Between 2016 and 2018, the government introduced a series of reforms to the RHI. These aimed to strengthen its focus on those technologies and the heat uses considered to be more strategically important for the long-term decarbonisation of heat, and to improve value for money and consumer protection. The government is currently consulting on "The Non-Domestic RHI – Ensuring a sustainable scheme,"⁵ which sets out plans to enact the closure of the scheme to new applicants, as well as to future-proof the scheme for existing participants.

¹ Any relevant updates will be made to the [consultation webpage](#)

² Defra (2019) [Leading on clean growth: government response to the Committee on Climate Change 2019 progress report to Parliament - Reducing UK emissions](#)

This only includes non-traded emissions; it does not include electricity.

³ BEIS (2018) [Heat decarbonisation: overview of current evidence base](#), Fig.2.1:

⁴ The Home Upgrade Grant, Public Sector Decarbonisation Scheme, and Social Housing Decarbonisation Fund commitments announced in the 2019 Conservative manifesto.

⁵ Please see [The Non-Domestic RHI – Ensuring a sustainable scheme' consultation for more information](#)

The proposals set out in this consultation build on those previous reforms and continue this direction of travel. These proposals will further focus support on strategically important low carbon heating technologies and uses, clarifying the relationship with other government support schemes, and strengthen value for money.

In this consultation, we set out proposals for a new Green Gas Support Scheme to increase the proportion of green gas in the grid, through support for biomethane injection. These proposals fulfil the 2019 Spring Statement commitment to consult on the best way to achieve greening of the gas grid. In the 2020 Budget, it was announced that this new support scheme for biomethane will be funded by a Green Gas Levy. We aim to consult on the levy mechanism in due course.

We also set out proposals for a Clean Heat Grant scheme to follow on from the RHI, to help deliver the phase-out of high carbon fossil fuel heating. This builds on the 2017 Clean Growth Strategy, where we announced the intention to phase out the installation of high carbon fossil fuels in the 2020s for properties off gas grid. Later this year, we will also publish a consultation on proposals for a regulatory framework to deliver this commitment.⁶

Support through the Clean Heat Grant will be targeted at households and small non-domestic buildings, to enable the installation of heat pumps and, in limited circumstances, biomass, to provide space and water heating. This support will help grow confidence in these low carbon technologies and supply chains. To help address the barrier of upfront costs faced by many consumers, we propose to provide this support through capital grants – paid for through exchequer funding – rather than the tariff system used under the RHI.

We believe that these proposals strike the right balance between making an appropriate contribution towards our legally-binding carbon budgets, supporting the supply chain for low carbon heating – particularly in the domestic sector – which will be crucial to enable the future phase-out of high carbon fossil fuel heating, strengthening value for money, and protecting the interests of consumers.

In order to ensure a smooth transition to the Clean Heat Grant scheme, the government will extend the Domestic RHI in Great Britain for a further year, to 31 March 2022. We will also introduce a 3rd allocation of tariff guarantees under the existing Non-Domestic RHI, with a flexible commissioning deadline.⁷ This will help to provide investment certainty for larger renewable heat projects and continue to support new biomethane production prior to the launch of a new Green Gas Support Scheme.

We are working with devolved administrations with the aim to implement these proposals across Great Britain, and to ensure these proposals are developed and delivered in a way that is consistent with their own policies on heat decarbonisation, to meet their respective climate change targets. The territorial extent of commitments beyond these proposals varies – some will be for the UK, others will be for England and Wales, or for England only. In taking forward further commitments, we will continue to work closely with the devolved administrations, recognising our common aim of emissions reduction, and the devolution settlements.

As with the RHI, we intend to appoint Ofgem as administrator for both schemes.

⁶ BEIS (2017) [Clean Growth Strategy](#)

⁷ Please see [Changes to the Renewable Heat Incentive \(RHI\) schemes' for more information](#)

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General information

Why we are consulting

To set out policy proposals and invite stakeholder views relating to new support schemes to green the gas grid, as well as decarbonise heat in domestic and non-domestic buildings.

Consultation details

Issued: 28 April 2020

Respond by: 7 July 2020

Enquiries to: Future Funding Team

Please do not send responses by post to the department during the coronavirus (COVID-19) lockdown period, as we will not be able to access them.

Email: heatconsultation@beis.gov.uk

Consultation reference: Future Support for Low Carbon Heat

Audiences:

The consultation will be of particular interest to stakeholders in the low carbon heat sector, as well as those with wider interest in the UK's net zero ambition.

Territorial extent:

The consultation is for England, Scotland and Wales. It does not include Northern Ireland.

How to respond

We encourage respondents to make use of the online e-Consultation platform, Citizen Space, to respond to this consultation wherever possible. This is the department's preferred method of receiving responses. However, responses submitted in writing or by email will be accepted.

Respond online at: beisgovuk.citizenspace.com/heat/future-support-low-carbon-heat

or

Email: heatconsultation@beis.gov.uk

Please do not send responses by post to the department during the coronavirus (COVID-19) lockdown period, as we will not be able to access them.

When responding, please state whether you are responding as an individual or representing the views of an organisation.

Your response will be most useful if it is framed in direct response to the questions posed, though further comments and evidence are also welcome.

Confidentiality and data protection

Information you provide in response to this consultation, including personal information, may be disclosed in accordance with UK legislation (the Freedom of Information Act 2000, the Data Protection Act 2018 and the Environmental Information Regulations 2004).

If you want the information that you provide to be treated as confidential please tell us, but be aware that we cannot guarantee confidentiality in all circumstances. An automatic confidentiality disclaimer generated by your IT system will not be regarded by us as a confidentiality request.

We will process your personal data in accordance with all applicable data protection laws. See our [privacy policy](#).

Quality assurance

The consultation has been carried out in accordance with the government's [consultation principles](#).

If you have any complaints about the way this consultation has been conducted, please email: beis.bru@beis.gov.uk.

Executive summary

In this consultation, we set out proposals to increase the proportion of green gas in the grid. The scheme for biomethane injection is expected to begin in Autumn 2021 and will be available to eligible new applicants for four years. We will consult on a levy mechanism to fund support for biomethane in due course.

We also set out proposals to provide targeted support to heat pumps and, in limited circumstances, biomass, through an upfront capital grant. This support will begin in April 2022, following an extension to the Domestic RHI scheme for one year. Capital grant funding will be available for two years. Key elements of policy design are set out in this executive summary below.

Green Gas Support scheme

Our proposals for green gas set out how we intend to support biomethane injection. We invite views on key elements of policy design, including:

- The structure of the tariff mechanism to best incentivise continued deployment and value for money.
- Waste feedstock and sustainability criteria.
- Views on green gas support in the longer-term, including future mechanisms and support for other types of green gas such as hydrogen.

Clean Heat Grant scheme

Support is to be delivered through an upfront grant scheme for heat pumps and, in limited circumstances, biomass. We set out proposals and welcome views on the following:

- Delivering support through an upfront grant scheme.
- A voucher system for grant delivery, designed to target the upfront cost barrier.
- Supporting domestic and non-domestic installations up to a capacity of 45kW.
- Providing a flat-rate grant across different technology types.
- A recommended support level of £4,000.
- The criteria for ensuring biomass is only installed in properties deemed not suitable for a heat pump.

Financial management of funding delivery

Our proposed framework for managing spending under the Green Gas Support Scheme includes:

- An overall annual budget cap for biomethane.
- A degression mechanism to reduce tariffs as costs reduce, to ensure value for money.
- Tariff tiers to reflect the cost of producing biomethane at different scales.

- A tariff guarantee budget cap to temporarily halt new tariff guarantee approvals if the cap is reached.

For the support for buildings-level technologies we propose:

- To limit the amount of grants against a pre-agreed budget cap.
- To allocate grants through quarterly windows to smooth deployment.

Technologies and uses not supported through this policy

There are a range of technologies and uses that are not aligned with the primary strategic aims of these proposals and where support may be available elsewhere. In this section of the consultation, we set out the rationale for not supporting the following through this policy package:

- Process heating
- Biogas combustion
- Solar thermal
- Hybrid heat pump systems
- Heat networks

Compliance

We intend to appoint Ofgem as the administrator for the schemes. The consultation sets out the expected roles of the administrator in:

- Delivering a robust audit and compliance framework for the Green Gas Support Scheme and Clean Heat Grant.

The proposals

The proposals within this consultation are divided into two key sections. The first sets out how we intend to support green gas through biomethane injection to the grid.

The second set of proposals relate to grant-funding for building level technologies. Support in this area will be paid for through exchequer funding.

Green gas

The role of green gas in decarbonising the gas grid

To meet our legally binding emissions reductions targets, we need to reduce our dependence on burning natural gas to heat our homes. Biomethane injection into the gas grid accelerates the decarbonisation of gas supplies, by increasing the proportion of green gas in the grid. This transition is a necessary step towards meeting our carbon reduction targets, including the UK's net zero greenhouse gas emissions target. We expect the Green Gas Support Scheme will contribute 9.7MtCO₂e of carbon savings over Carbon Budgets 4 and 5, and 21.6MtCO₂e of carbon savings over its lifetime. This consultation sets out our proposals for the most appropriate mechanism to increase the proportion of green gas in the grid.

The government would like a new mechanism to be in place as soon as practicable, to minimise any hiatus in support. To facilitate this, the new mechanism needs to be deliverable within existing legal powers. It is proposed that the Green Gas Support Scheme will begin in financial year 2021-22 and will run until financial year 2025-26. Under this scheme, we propose that only biomethane produced from anaerobic digestion (AD) should be supported, as currently biomethane is the only green gas commercially produced in the UK. To further decarbonise the gas grid, it may be appropriate to widen support to other green gases in the longer term. Therefore, we will also invite views on what mechanisms might be appropriate for longer term green gas support, and on the potential for including alternative sources of green gas such as hydrogen blending in the future. Any such decisions would be subject to future consultation.

Biomethane is produced from the anaerobic digestion of biomass feedstocks (e.g. food waste) and can be injected directly into the gas grid following suitable upgrading processes. As biomethane is produced from biomass, it is considered renewable and can offer significant carbon savings when compared with natural gas. The Committee on Climate Change (CCC) consider the production of biomethane from waste as a low-regrets option and recommend continued government support.⁸

In addition to contributing to the decarbonisation of the gas grid, harnessing the potential of biomethane plays an important role in reducing greenhouse gas emissions from waste and agriculture, as well as supporting jobs in rural areas. Wider government policies are expected to support further growth in the production of biomethane from AD. For example, Defra's Resources and Waste Strategy has committed the government to reducing the amount of food waste and legislating to ensure that every household and business in England separately

⁸ Committee on Climate Change (2018) [Biomass in a low carbon economy](#)

collects food waste for recycling.⁹ Biomethane can be produced from food waste that cannot be avoided, to decarbonise our gas supplies.

To date, biomethane has been supported by the Non-Domestic RHI, which has funding committed to 31 March 2021. Registered producers of biomethane receive quarterly tariff payments over 20-years, based on the volume of biomethane injected to the gas grid. As of January 2020, the RHI had supported the deployment of 94 biomethane plants¹⁰ and in 2018 3.3TWh¹¹ of biomethane was injected into the grid.

The government recognises that continued policy action is essential for maintaining investment in the AD industry and enabling the development of new production plants for the injection of biomethane into the gas grid. AD is distinguished from most other renewable technologies by having both significant upfront capital costs, and significant ongoing operating costs, due to the costs of feedstocks, maintenance, and day-to-day operations.

Through the Green Gas Support Scheme, we aim to:

- Encourage continued deployment of AD biomethane plants in order to increase the proportion of green gas in the gas grid.
- Ensure value for money.
- Minimise a market hiatus for the biomethane industry.

This consultation asks for views on key aspects of policy design to support biomethane in the short-term. An important part of this is ensuring value for money and we continue to gather evidence on this through the consultation. This consultation also asks for views on green gas support in the longer term, such as future mechanisms and support for other types of green gas, such as hydrogen.

Tariff

We propose to continue supporting biomethane production from AD plants through a tariff-based mechanism.

A tariff mechanism is particularly well suited for biomethane support, as it helps to address the significant ongoing operating costs of AD plants. Additionally, as the payments are directly related to the specific volumes of biomethane injection, it continues to incentivise ongoing biomethane production after the capital costs are paid off.

The central scenario for the tariff length, tiering structure and tariff levels that are set out in this consultation are indicative and will be refined through this consultation. In particular, we continue to seek opportunities to ensure the tariffs we offer to biomethane producers represent the best value for money. We will continue to engage with stakeholders during the consultation process on any further adjustments to these proposals to ensure that we secure the best value for money and will provide updates through stakeholder bulletins as appropriate.

Industry feedback indicates that the long-term payments under the RHI have created project bankability essential for biomethane and have been instrumental in creating a stable financial environment for investors. It is important that the new scheme continues to provide a clear

⁹ Defra (2019) [Consultation on consistency in household and business recycling collections in England](#)

¹⁰ BEIS (2020) [Renewable Heat Incentive Deployment Statistics](#), table 1.1

¹¹ BEIS (2019) [Digest of UK Energy Statistics \(DUKES\) 2019](#)

framework for investment whilst delivering key policy objectives. It is also crucial that the new scheme delivers value for money. This consultation document seeks views on our proposals for a robust cost control framework to ensure that costs do not rise unexpectedly, and a proposed tariff structure designed to incentivise value for money. We also remain interested in suggestions for any additional mechanisms which could further improve value for money in the Green Gas Support Scheme.

Approach to tiering and plant size

The cost of producing biomethane reduces as production increases.¹² Therefore, tariffs should reflect the cost of producing biomethane at different scales to ensure value for money. Tiering was introduced into the RHI in 2015, with the aim of providing more appropriate compensation to plants, to reflect the different costs of producing different volumes of biomethane. It operates by paying a higher tariff for the first designated amount of kilowatt hours of biomethane injected into the grid (the 'tier 1' tariff), and a lower tariff for the subsequent biomethane injected (the 'tier 2' and 'tier 3' tariffs), over a period of 12 months. We propose that under the new biomethane support mechanism, tariffs continue to be based on the volume of gas injected into the grid.

The current RHI tiering structure is set out in table 1 below.

Table 1: RHI Biomethane Injection	
Tier 1	First 40,000 MWh of eligible Biomethane
Tier 2	Next 40,000 MWh of eligible Biomethane
Tier 3	Remaining eligible Biomethane

Internal BEIS analysis of the RHI scheme data shows that, for plants that have been commissioned since tiering was introduced, over 90% of biomethane is produced under Tier 1. Industry feedback suggests that the current tiering structure reduces the likelihood of economies of scale and deployment of large-scale biomethane AD plants. Under the Green Gas Support Scheme, we want to ensure that plants are sized optimally based on individual characteristics and feedstock availability.

For the Green Gas Support Scheme, we propose a three-tier structure as set out in table 2 below.

¹² BEIS (2014) [Renewable Heat Incentive Biomethane Injection to Grid Tariff Review](#)

Table 2: Proposed New Biomethane Injection	
Tier 1	First 60,000 MWh of eligible biomethane
Tier 2	Next 40,000 MWh of eligible biomethane
Tier 3	Remaining eligible biomethane

We propose to:

- Set the Tier 1 limit to 60,000 MWh. We propose to increase the Tier 1 limit compared to the RHI (40,000MWh), encouraging larger plants which can achieve better economies of scale. In our assessment there should be sufficient food waste to support plants of this size in many geographical areas.
- Set Tier 2 for the next 40,000 MWh. In some areas, there may be sufficient feedstock to generate greater volumes of biomethane (for example, due to a denser population or waste feedstock being available as a by-product of other processes such as food and drink production). In these circumstances, we want to incentivise plants to unlock greater economies of scale and continue producing biomethane under the Tier 2 tariff. This would bring the overall allowance under the first two tiers up to 100,000 MWh.
- Introduce a Tier 3 tariff for biomethane production above 100,000 MWh. In rare circumstances where a plant can produce more than 100,000MWh of biomethane annually and achieve the very greatest economies of scale, it should be encouraged to do so.

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.**

Tariff length

Under the Non-Domestic RHI scheme, biomethane plants are supported through a 20-year tariff. 20-years was deemed an appropriate tariff length to support biomethane production in 2010, as AD was a relatively new technology at that time. Due to the risk involved with the upfront cost of plants, a longer payback period was seen as appropriate to encourage investment.

AD for biomethane production is no longer a novel technology. The biomethane market has developed significantly since the last time tariff length was consulted on. Better understanding of the costs and investment risks means it is now feasible to review whether a more appropriate tariff payment length can be offered. The new tariff length should reflect the market trends we have seen since the start of the RHI.

We have considered a range of options for a new tariff length, between 10 and 20-years. There are a number of benefits of a shorter tariff payment period, chiefly lower total costs and better value for public money.

These benefits need to be balanced against the potential risks of offering too short a tariff. The government recognises that investors/developers need a sufficient payment period to allow them to recover from any construction or commissioning delays and to ensure debt repayments remain manageable.

It is our view that the tariff period for the Green Gas Support Scheme should be shorter than that offered under the RHI, for the reasons set out above. Our modelling is based on an indicative 15-year tariff period. Value for money is crucial, and we are therefore also interested in understanding the possibilities of offering a tariff shorter than 15-years.

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

Tariff setting

The tariff levels proposed in this consultation are informed by our best understanding of the current costs and revenues of a typical reference biomethane plant. We have modelled this based on a combination of desk-based research, market intelligence and ongoing engagement with industry. We need to ensure that we have a robust tariff setting process that is underpinned by detailed evidence on costs. The evidence base that underpins the tariff setting methodology, as well as associated uncertainties, will be set out in more detail in the Impact Assessment.

We continue to look at additional proposals to give confidence that the tariffs we are offering provide the very best value for money – for example, by requiring applicants to provide more detailed evidence on their projected costs and revenues. We will engage further with stakeholders on this point through the consultation process, including through our stakeholder bulletin where appropriate.

Our analysis suggests that the correct tariff for Tier 1 is in the range of 4.9-5.5 p/kWh, Tier 2 is 3.25-3.75 p/kWh and Tier 3 is 1.5-2.0 p/kWh. There is some uncertainty within these ranges due to variables such as gate fees and feedstock mix used. We welcome views on the correct tariff within these ranges.¹³

¹³ Indicative tariff levels are in 2020 prices and would be recalculated to 2021 prices for the start of the Green Gas Support Scheme in 2021, accounting for inflation. We also intend to adjust tariff levels for inflation going forwards.

Table 3: Proposed New Biomethane Injection		Tariff Amount (p/kWh)
Tier 1	First 60,000 MWh of eligible biomethane	4.9-5.5 p/kWh
Tier 2	Next 40,000 MWh of eligible biomethane	3.25-3.75 p/kWh
Tier 3	Remaining eligible biomethane	1.5-2.75 p/kWh

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

Ensuring Value for Money through tariff changes

We want to ensure the Green Gas Support Scheme continues to deliver value for money, by providing a means by which tariffs can change to reflect the true costs in industry, without over-restricting growth by making the tariff too low to stimulate investment.

The RHI has a degression mechanism that responds to market signals using published trigger points, which, when met, cause the tariff to reduce (“degress”) for new applicants. This helps ensure value for money and, alongside tariff guarantees, provides investor certainty, through providing enough transparency of future tariffs to enable investment (for more information, see the ‘Non-Domestic Degression Factsheet’¹⁴). The biomethane tariff has reduced a number of times, thus increasing value for money when new deployment is achieved. However, this has not always worked well for biomethane. For example, the tariff had to be raised in the 2018 regulations due to a hiatus caused by excessive degression.

In the new Green Gas Support Scheme, we have an opportunity to learn from the RHI and other schemes in achieving the best balance between investor certainty and value for the taxpayer. We are keen to receive views on how best to achieve this balance.

We intend to base a future mechanism on the existing RHI degression mechanism, whilst reviewing detailed elements of the mechanism’s design to ensure it better meets our objectives. To ensure we are paying the most cost-effective tariff, we could, for example, adjust the frequency and size of depressions.

We also remain interested in suggestions to further improve value for money in the Green Gas Support Scheme. This could include requesting more detailed costing information from biomethane tariff applicants and conducting an annual tariff review.

¹⁴ BEIS (2019) [Non-domestic Factsheet March 2019](#)

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.**
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.**

May 29 2020: We have provided [further information on these proposals](#).

Tariff guarantees

Tariff guarantees were introduced onto the RHI in 2018 (for full information, see Ofgem Guide to tariff guarantees¹⁵), and provide investment certainty. These have proven popular, with 60 tariff guarantees granted by the end of January 2020, 31 of which were for biomethane plants.¹⁶

We intend to replicate the RHI tariff guarantee mechanism in the Green Gas Support Scheme, with some minor changes, with the aim of improving deployment and reducing administrative burden. We intend to:

- Introduce an additional stage 2a, where biomethane producers are required to inform the Administrator when construction commences. As explained in the degression section above, this is to avoid unnecessary depressions being triggered for biomethane tariff guarantees that are then not built.
- Make tariff guarantees a compulsory stage in accessing the scheme, since we expect all biomethane producers would choose this route, and it enables better risk management of the overall budget.
- Make the end of the Tariff guarantee commissioning window align with the end of the Green Gas Support Scheme; We would welcome feedback on tariff guarantees and suggestions to make the system more efficient or to improve investor confidence, whilst remaining robust and fair.
- Review deadlines for each stage to learn from experience on the RHI, and ensure they are fit for purpose for the biomethane sector.

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.**

Feedstock requirements and sustainability

Waste feedstocks

Waste feedstocks offer significant carbon savings when compared with other feedstocks, such as energy crops, largely due to upstream savings. These are avoided emissions that would have occurred if the feedstock had been put to a different use. For example, food waste that is sent to landfill releases methane, a potent greenhouse gas. Diverting it to AD to produce biomethane can provide significant emission savings. Food waste sent to AD also helps to support a more circular economy and contributes to England meeting its target to work towards

¹⁵ Ofgem (2020) [Tariff Guarantee applications](#)

¹⁶ BEIS (2020) [Renewable Heat Incentive Deployment Statistics](#), table 1.6

eliminating food waste to landfill by 2030 and to recycle 65% of municipal waste by 2035. AD represents the waste treatment route with the best environmental outcome for food waste that cannot be prevented or redistributed.¹⁷ This is because AD produces digestate (a bio-fertiliser) and generates renewable energy, which is more environmentally beneficial than just producing compost.¹⁸ Biomethane production from other waste feedstocks, including agricultural wastes, can also reduce emissions on farms. Under the Non-Domestic RHI, applicants must generate at least 50% of their biomethane from waste or residue feedstock to receive RHI payments. This requirement was introduced in the 2018 reforms to maximise the carbon cost effectiveness of the scheme.¹⁹

Previous industry feedback suggests that energy crops have practical importance for many biomethane producers by providing a stable feedstock supply when waste supply fluctuates, particularly with uncertainty in gate fees and waste contracts. Energy crops produce a higher yield of biogas than most other feedstocks and at present, maize is the main energy crop used.²⁰ Evidence suggests that some energy crops can be incorporated into arable rotations as cover crops.²¹ Where appropriate, such approaches would integrate energy and food production and could bring additional benefits to agriculture and the rural economy. There are also negatives to energy crops where these have replaced permanent pasture.

In view of the greater environmental benefits from using wastes rather than energy crops in AD, we are keen to promote the use of waste feedstocks, while ensuring continued investment and deployment. We are interested in stakeholder views on whether the industry is able to meet a higher minimum percentage of waste feedstock in AD. This is particularly important, considering other government policies coming into effect, which could increase supply.

For example, the government's recently published Environment Bill would require that every household and business in England have a separate collection for food waste, so that this can be recycled. We would expect these measures to commence from 2023 and this will significantly increase the amount of separately collected food waste available for AD.²²

In Wales, all local authorities already offer separate food waste collections. However, in some hard to reach areas, food waste is collected along with garden waste. Since 2008, the Welsh Government have supported AD as the preferred treatment of food waste, through a dedicated programme, thereby increasing the affordability for local authorities.

In Scotland, separate food waste collection was introduced in 2014 by the Waste (Scotland) Regulations 2012. Scotland has an ambitious target to reduce food waste by 33% by 2025. Diverting food waste from landfill to AD processing is a key part in managing non-edible food waste.²³

We are also interested in understanding the breakdown of the current feedstock mix used by operational biomethane AD plants, to further evaluate the environmental impacts of biomethane production and feed into future policy development.

¹⁷ Defra (2018) [Resources and waste strategy for England](#)

¹⁸ Defra (2018) [Resources and waste strategy for England](#)

¹⁹ BEIS (2016) [The Renewable Heat Incentive: A reformed and refocused scheme](#)

²⁰ Defra (2019) [Crops Grown for Bioenergy in the UK](#): 2017

²¹ Clean Growth through Sustainable Intensification Project, Defra, expected publication Nov 2020

²² Defra (2019) [Consultation on consistency in household and business recycling collections in England](#)

²³ Scottish Government (2019) [Food waste reduction: action plan](#)

- 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.**

Sustainability criteria

AD uses biomass feedstocks to produce biomethane. It is important to ensure robust and rigorous sustainability criteria for these feedstocks.

The existing RHI sustainability criteria are aligned with the Renewable Energy Directive (RED).²⁴ We intend to broadly reflect these criteria in the Green Gas Scheme, including any outcomes of “The Non-Domestic Renewable Heat Incentive – Ensuring a Sustainable Scheme” consultation on management of fossil fuel contamination in AD.²⁵

The RED has been recast to 2030 (RED II). Among other changes, the RED II introduces sustainability for forestry feedstocks, as well as greenhouse gas criteria for solid and gaseous biomass fuels.²⁶

- 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?**

Feedstock reporting

It is essential with deployment of biomethane AD under the Green Gas Support Scheme, that the feedstock used is regularly monitored to ensure compliance with the sustainability criteria. This currently occurs under the Non-Domestic RHI, where registered biomethane producers must self-report annually to demonstrate their compliance. Market intelligence suggests that this can be a burdensome process for the applicant and the Administrator. RHI participants with biomass installations (e.g. biomass boilers) can also self-report, or optionally demonstrate compliance with the sustainability requirements, using one of two independent supplier lists, the Biomass Suppliers List (BSL) or the Sustainable Fuel Register (SFR). By either purchasing biomass from the listed suppliers or registering as a self-supplier, compliance with the sustainability criteria is demonstrated.

For the new Green Gas Support Scheme, we will consider amending the feedstock reporting process for biomethane. We are keen to hear stakeholder views on whether an amended process is necessary, and which alternative methods of feedstock reporting could be employed.

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

²⁴ European Commission (2019) [Renewable Energy Directive](#)

²⁵ Please see [The Non-Domestic RHI – Ensuring a sustainable scheme’ consultation for more information](#)

²⁶ European Commission (2019) [Renewable Energy – Recast to 2030 \(Red II\)](#)

Digestate

Digestate is a nutrient rich by-product from AD that can be used as a fertiliser, which releases ammonia when stored or spread on land. Ammonia is an air pollutant that has negative impacts on human health and the environment. Defra's Clean Air Strategy is committed to introducing legislation, to require digestate in England to be spread using low-emission spreading equipment by 2025, and digestate stores to be covered by 2027.²⁷ However, these practices do not mitigate ammonia emissions to the degree necessary to meet England's legally binding ammonia reduction targets. Increased deployment of biomethane AD will increase emissions and further action is needed to reduce the impact on our air quality. We are keen to receive evidence on additional technologies and measures that could be employed to further reduce ammonia emissions from digestate, both now and in the future.

Industry feedback suggests that there is currently limited commercial demand for digestate, reducing a potential revenue stream and leading to the disposal of digestate as a waste. This could be due to a variety of reasons, such as plastic contamination or the classification of digestate as waste. We are keen to hear from stakeholders on the causes of the lack of commercial demand for digestate and potential solutions to this.

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

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

Plant eligibility

General requirements for scheme participants

The general eligibility requirements for participants in the Green Gas Support Scheme will remain largely in line with those of the RHI, where relevant to biomethane.²⁸ More detailed guidance on the general eligibility requirements will be provided in due course.

Additional capacity

Additional capacity is any biomethane produced that exceeds the maximum initial capacity agreed between the network and the producer, when the producer originally registered to inject biomethane to the grid. Existing biomethane producers who receive payments under the RHI can currently apply to receive payments for any additional capacity they inject into the gas grid. This mechanism has allowed biomethane producers, who initially sized their plants sub-optimally, to inject more biomethane into the gas grid, leading to greater carbon savings. However, internal BEIS analysis of Ofgem administrative data indicates that in practice, fewer than 10 RHI registered biomethane producers have applied for additional capacity during the scheme's lifetime.

²⁷ Defra (2019) [Clean Air Strategy](#)

²⁸ Ofgem (2018) [Non-Domestic RHI Guidance Volume 1: Eligibility and how to apply. Chapter 12: Registration for biomethane producers](#)

The tiering arrangements proposed for biomethane under the Green Gas Support Scheme should reduce biomethane producers' need for additional capacity payments, as it is designed to encourage larger AD biomethane plants from the outset.

We are therefore proposing not to include a mechanism for additional capacity payments in the Green Gas Support Scheme.

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.

Change of scheme participant

There are instances where biomethane plants are bought or sold for a variety of business reasons. Under the current RHI, while the biomethane plants themselves may be bought and sold, the scheme registration, and therefore the ability to receive payments for injected biomethane, cannot be transferred with the plant.

In "The Non-Domestic Renewable Heat Incentive – Ensuring a Sustainable Scheme" consultation, the government is proposing to introduce a clearer mechanism for the transfer of scheme registration for biomethane under the RHI. We also wish to allow appropriate changes of scheme participants where there are appropriate reasons to do so. We will use the responses to the questions in "The Non-Domestic Renewable Heat Incentive – Ensuring a Sustainable Scheme" consultation, to inform how a suitable mechanism may be designed in the Green Gas Support Scheme.

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.

Interaction with the RHI

The Non-Domestic RHI will close to new applications on 31 March 2021. The Green Gas Support Scheme is a new, separate support scheme, which will only support new applications. To ensure the schemes remain distinct, we are proposing to not allow any interaction between the RHI and the Green Gas Support Scheme. Scheme interaction would also be administratively burdensome, so prohibiting interaction will ensure smoother scheme operation.

At the Budget on 11 March 2020, the Chancellor of the Exchequer announced a flexible, third allocation of tariff guarantees on the Non-Domestic RHI. These changes will help to address any potential hiatus in support for biomethane and allow larger, better value for money plants to commission after the Non-Domestic RHI closes to applications, so long as properly made financial evidence has been submitted by 31 March 2021. Plants eligible under this change will be required to commission prior to 31 March 2022 in order to receive their tariff.

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.

Interaction with other government schemes

In May 2018, BEIS confirmed that dual participation in both the RHI and Renewable Transport Fuel Obligation Scheme (RTFO)²⁹ was permissible within the current regulatory framework. The current RHI legislation requires that in order to claim both RHI and Renewable Transport Fuel Certificates (RTFCs), producers must claim entirely for either RHI or RTFCs in a given quarter. This significantly restricts the potential for producers to benefit from diversified revenue streams, and in some instances disincentivises production beyond the limit for Tier 1 payments, restricting the carbon savings offered by the RHI.

In our separate consultation document, “The Non-Domestic Renewable Heat Incentive – Ensuring a Sustainable Scheme,” published alongside this consultation, we propose that the payment calculation formulae should be amended to allow for claiming across multiple schemes within a quarter for existing registered producers of biomethane. To ensure against double subsidy (where payments are received twice for the same molecule of gas), all biomethane will still need to be reported to the Scheme Administrator. However, producers will be able to decide to claim RHI for a portion of the biomethane produced. This change aims to give greater flexibility to the biomethane industry to diversify their revenue streams and encourage plants to maximise their production.

We propose to also allow biomethane producers participating in the Green Gas Support Scheme to claim RTFCs in the same quarter as receiving subsidy under the Green Gas Support Scheme. It is anticipated that the interaction will work in the same way as proposed in the “The Non-Domestic Renewable Heat Incentive – Ensuring a Sustainable Scheme” consultation. However, we are keen to hear views from stakeholders on alternative ways biomethane producers could benefit from interaction between government schemes and how this might work in practice.

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.

Barriers to deployment

To date, deployment of biomethane AD plants has been lower in some areas of Great Britain than in others. There are likely to be various reasons for this, including the high capital required for plants, access to gas injection points and feedstock availability. We are aware of some models being trialled to overcome these barriers, such as a number of smaller AD facilities in rural areas feeding their biomethane into a single injection point on the gas grid.

The government are keen to ensure that the benefits of this policy are accessible to all and therefore want to hear stakeholder views on the barriers to biomethane AD deployment and possible solutions to help overcome these.

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

²⁹ The RTFO encourages the production of biofuels for use in transport. For further information see: DfT (2012) [Renewable Transport Fuel Obligation](#)

Further information

We would welcome further information and evidence around issues related to the support of biomethane AD plants under the Green Gas Support Scheme.

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.

Green gas support in the longer-term

Tariff support for biomethane in the Green Gas Support Scheme will begin in financial year 2021-22 and is expected to run until financial year 2025-26. For the longer-term, we expect to focus on market-based mechanisms, which leverage competitive forces to drive down costs and ensure cost-effectiveness, as the basis for any ongoing policy support for the range of green gas options that might be commercially available.

There are a variety of approaches which might be considered for the design of a longer-term support mechanism. For example, a future scheme could potentially take the form of a Supplier Obligation, which would legally obligate gas suppliers to supply their customers with a certain volume or percentage of green gas. We welcome industry views on the most appropriate green gas support mechanism in the longer-term.

We are also interested in models such as Contracts for Difference (CfD), which has helped to drive down costs in the power sector, and would welcome evidence on whether this kind of model could deliver better value for money in future green gas support.

As outlined in this consultation, support for green gas under the Green Gas Support Scheme will be limited to biomethane only. In the longer-term, it may be appropriate to extend support to other sources of green gas, such as hydrogen, depending on the availability of cost-effective low carbon production and regulatory approvals. Hydrogen is potentially suitable as a low carbon alternative to natural gas. Hydrogen can be produced in a range of low or zero carbon ways and can be used in applications similar to natural gas without emitting CO₂ at the point of use. As well as contributing to decarbonising the gas grid, blending hydrogen into the grid could be a potential source of reliable demand for hydrogen, and play a strategic role in unlocking investment in low carbon hydrogen production facilities in future.³⁰ The government is currently working on the options for supporting low carbon hydrogen production and will provide an update on this work later in 2020. It may also be appropriate to extend green gas support in the longer-term to innovative green gas production technologies, such as advanced gasification.

Any decisions about green gas support in the longer term will be subject to further consultation.

³⁰ In 2019, government consulted on views on potential business models for carbon capture, usage and storage (CCUS) including CCUS for hydrogen production, and considered the main challenges a business model for hydrogen production is seeking to address. Source: BEIS (2019) [Carbon capture usage and storage \(CCUS\): Business models](#)

- 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.**
- 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.**

Building level technologies

While significant progress has been made in deploying low carbon heating technologies in buildings over the last decade, with over 75,000 installations under the Domestic RHI,³¹ much more needs to be done. There is an urgent need to increase the deployment of low carbon heating technologies in light of new government commitments to reach net zero greenhouse gas emissions by 2050. This can only be achieved if almost all heat in buildings is decarbonised. Existing buildings face a specific set of challenges, as installing low carbon heating tends to be more difficult and expensive than it is in new build.

One of the strongest messages from the “Future Framework for Heat in Buildings” call for evidence in 2018, was that, although there is a clear need for post-RHI subsidy, the overriding need is for a long-term pathway for decarbonising heat, ideally backed by regulations.³² This would drive increasing demand for low carbon heating and give the low carbon heat sector the certainty required to align strategies, investment plans and training, and drive forward innovation in technologies and business models.

The government accepts the need for a consistent, long-term policy framework and is clear that regulations will be needed to underpin the transformation of our building stock. Our Heat and Buildings Strategy, which we aim to publish later this year, will lay out the immediate actions we will take for reducing emissions from buildings. These actions include the deployment of energy efficiency measures and low carbon heating as part of an ambitious programme of work required to enable key strategic decisions on how we achieve the mass transition to low-carbon heat and set us on a path to decarbonising all homes and buildings. We have already consulted on a Future Home Standard, which will encourage low carbon heat in new build homes³³ and on minimum energy standards, which will deploy more low carbon heat in non-domestic, privately rented buildings.³⁴ We will be consulting separately on regulations to phase out the installation of high carbon fossil fuel heating in new and existing buildings off gas grid during the 2020s, as committed to in the Clean Growth Strategy.³⁵ The financial support set out here will lay the ground for these regulations.

In designing the proposed support scheme, we have been mindful of the need to ensure a smooth transition from the RHI towards the off gas grid regulations. The Domestic RHI will remain open to new applicants until 31 March 2022. The Clean Heat Grant is expected to begin in April 2022, with funding committed for two years, to March 2024.

Aims of scheme

The Clean Heat Grant will form part of a comprehensive package of measures to support the decarbonisation of heat in buildings and industrial processes. The government’s manifesto committed to over £9bn of support for investment in energy efficiency and low carbon heat in

³¹ BEIS (2020) [Renewable Heat Incentive Deployment Statistics](#), table 2.1

³² BEIS (2018) [A Future Framework for Heat in Buildings Call For Evidence –Government Response](#)

³³ MHCLG (2019) [The Future Homes Standard: changes to Part L and Part F of the Building Regulations for new dwellings](#)

³⁴ BEIS (2018) [Non-domestic Private Rented Sector minimum energy efficiency standards: future trajectory to 2030](#)

³⁵ BEIS (2017) [Clean Growth Strategy](#)

buildings over the next decade, through Home Upgrade Grants, a Social Housing Decarbonisation Fund, and a Public Sector Decarbonisation scheme.

A new £270 million Green Heat Network scheme was announced in the Budget. Alongside this, the £315 million Industrial Energy Transformation Fund (IETF), announced in the 2018 Budget, will provide support for decarbonising process heat.

The aim of this scheme is to provide targeted support to follow on from the RHI, as part of government action to help build supply chains ahead of future measures to phase out high carbon heating. The Department will use appropriate measures to assess supply chain health in line with these objectives.

In addition, support to low carbon heat technologies under the Clean Heat Grant will provide the following benefits:

- Up to 0.6 MtCO₂e carbon savings over carbon budgets 4 and 5.
- Allow the heating (and green finance) industry to build and refine a “retail offer” to work alongside regulation.

Enabling the delivery of the regulations is a vital step in building the supply chain to the scale where it can deliver our net zero 2050 targets and, in the shorter term, provide the cost reductions associated with a mass market.

This consultation lays out a support offer and asks for views on key aspects of policy design.

In line with the increasing focus on strategic technologies, we intend to provide support for heat pumps and provide limited support to biomass. This furthers the CCC’s recommendation that government should take immediate action to deploy heat pumps in off gas properties, with a supplementary role for biomass boilers.³⁶

The heat pumps we propose to support are air source heat pumps (ASHPs), ground source heat pumps (GSHPs) and water source heat pumps (WSHPs). We propose to support both low and high-temperature units, but not ‘hybrids’ installed alongside a fossil fuel system. Support will be available to installations providing space and water heating in buildings, but not for process heat uses, as discussed later in this consultation. We propose that the same restrictions on new-build properties that apply to the RHI will also apply to future support.

Heat pumps

Heat pumps are one of the primary technologies for decarbonising heat. Looking towards 2050, heat pumps could enable us to almost completely decarbonise heat alongside the decarbonisation of electricity generation. We are also researching the safety and feasibility of using hydrogen in the gas grid as an alternative way of providing heat at the scale required for net zero. However, while that work is ongoing it is not an option for the short-term.

Under all low carbon heat scenarios, we will need to increase deployment of heat pumps significantly in the 2020s to deliver our interim carbon budgets, replace high carbon fossil fuel systems off gas grid and set the UK on course for net zero, as the CCC has said.³⁷

³⁶ CCC (2019) [UK housing: Fit for the future?](#)

³⁷ CCC (2019) UK housing: Fit for the future?: <https://www.theccc.org.uk/publication/uk-housing-fit-for-the-future/>

Buildings off gas grid have a large proportion of the most polluting heating from oil and coal, and will not benefit from any measures to green the gas grid. There are around 1.3 million homes heated by coal or oil in Great Britain, as well as 0.2 million by LPG.³⁸ In the Clean Growth Strategy, we committed to phase out the installation of high carbon heating in buildings off the gas grid in the 2020s.³⁹ We took evidence on this from industry and other stakeholders as part of our “Future Framework for Heat in Buildings” call for evidence in 2018.⁴⁰ The evidence received reaffirmed our view that heat pumps offer the greatest heat decarbonisation potential for the majority of buildings off the gas grid. This view is also supported by the CCC.⁴¹

Biomass

Although biomass has a wider strategic role to play in overall UK decarbonisation, its use in heating buildings should be limited, as the CCC says, to maximise the overall carbon abatement that is possible from sustainable biomass.⁴²

We also need to focus support on strategic technologies like heat pumps, which are suitable for a wider range of buildings and where there is more to do to prepare the supply chain for the future phase out of high carbon fossil fuel heating.

Nevertheless, ahead of regulation, it is necessary to ensure there are heating technologies available for a broad range of properties, including those that are not suitable for a heat pump. Biomass is likely to play a role in decarbonising heating in “hard to treat” properties. These properties may not be suitable for a heat pump, chiefly due to high heat losses that cannot be brought down cost-effectively through energy efficiency improvements.

Using the domestic sector as an example, modelled analysis suggests that around 20% of off gas grid fossil fuel homes are not currently suitable for low temperature heat pumps and are better suited to high temperature heating, such as high temperature heat pumps or biomass.⁴³

We therefore intend to support biomass within the Clean Heat Grant, subject to eligibility criteria to ensure that biomass is not installed in buildings that would be suitable for a heat pump.

Finally, in line with the government’s Clean Air Strategy, we continue to place increasing importance on managing the air quality impact of burning biomass. Within the grant scheme, we propose to exclude properties in urban areas, as well as those with access to the gas grid.

Scope of support: a maximum capacity limit of 45kW

In order to target taxpayer funding most effectively in helping support the installer base for off gas grid regulations, we propose to introduce a 45kW capacity limit to focus this scheme on smaller installations. The majority of the heat pump installations supported under the RHI have a capacity less than or equal to 45kW, while almost half of total domestic and non-domestic

³⁸ BEIS modelling based on data from the English Housing Survey (MHCLG (2013) [English Housing Survey](#)) and the Scottish House Condition Survey (Housing for Social Justice Directorate – [Scottish Housing Condition Survey](#))

³⁹ BEIS (2017) [Clean Growth Strategy](#)

⁴⁰ BEIS (2018) [A future framework for heat in buildings: call for evidence](#)

⁴¹ CCC (2016) Next Steps for UK Heat Policy and CCC (2019) [UK housing: Fit for the future?](#)

⁴² CCC (2018) [Biomass in a Low Carbon Economy](#)

⁴³ BEIS (2018) [Electric heating in rural off gas grid dwellings: technical feasibility](#)

biomass installations have a capacity less than or equal to 45kW.⁴⁴ A 45kW capacity limit is also consistent with that covered by the Microgeneration Certification Scheme (MCS) for a single renewable heating product. It therefore provides a framework for ensuring installation and product standards.

As mentioned above, the Clean Heat Grant scheme has been designed as part of a broader package of commitments to support the decarbonisation of heat in buildings and in heat networks. Larger installations are likely to play a significant role in many of these schemes.

Larger biomass installations supported under the Non-Domestic RHI have often focused on higher-temperature, process heat uses.⁴⁵ Large biomass installations will be able to apply for funding under the IETF and potentially the future Green Heat Network scheme, subject to meeting existing air quality standards.

The policy intent underlying the 45kW capacity limit outlined above should not be undermined by the deployment of multiple installations under 45kW to heat one building. In such instances, we expect that only one unit would be eligible for grant funding. However, the use of individual heat pumps to heat individual units within a building, such as flats in a block, would be permissible. We also intend that individual heat pump units installed as part of shared ground loop systems be eligible for support. We will work with stakeholders to refine these details prior to making regulations for the new scheme.

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.

Grants

The tariff structure of the RHI was designed to make investing in renewable heat financially attractive, as well as support a wide range of technologies and investor types.⁴⁶ However, upfront cost has often been raised as a barrier,⁴⁷ particularly for consumers who do not have enough savings to pay for the extra upfront cost of a low carbon heat system compared to a fossil fuel alternative.⁴⁸ We therefore think it is appropriate to move away from a tariff-based mechanism for buildings technologies and to provide the next stage of support through an upfront grant mechanism. This takes forward recommendations by key stakeholders, such as the CCC⁴⁹ and Public Accounts Committee.⁵⁰

The international evidence suggests that grant schemes can produce high rates of deployment growth at reasonable cost.

We are proposing an upfront grant payment model because:

⁴⁴ Based on RHI deployment data on capacity.

⁴⁵ From analysis of Standard Industrial Classification (SIC) codes based on self-reported RHI data

⁴⁶ DECC (2010) [Consultation on the proposed RHI financial support scheme](#)

⁴⁷ BEIS (forthcoming) Transforming Heat – Public Attitudes Research and unpublished RHI evaluation interview evidence

⁴⁸ The majority of Domestic RHI applicants pay for their heating system using savings (source: Frontier economics (2017) [RHI Evaluation: Synthesis](#))

⁴⁹ CCC (2016) [Next Steps for UK Heat Policy](#)

⁵⁰ CPA (2018) Fortieth Report of Session 2017–19, [Renewable Heat Incentive in Great Britain](#)

- Grants are more attractive to households and small and medium sized enterprises (SMEs). Consumers tend to heavily discount future tariff income; SMEs often use payback as their decision factor, not total return.
- There is the potential for higher deployment at lower cost with grants compared to tariffs.⁵¹
- A solution that directly addresses upfront costs is likely to widen access to the scheme and have a better distributional impact.
- At a practical level, a grant scheme avoids the need to meter heat production, providing an opportunity to simplify certain aspects of scheme rules and administration.
- It removes any risk of overcompensation, which is a potential risk under the RHI tariff model.

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.

Recommended support level

The proposed grant level has been set on the basis of transitioning buildings heated by oil, LPG and coal, given current fuel prices and future off grid regulation. We expect uptake to be higher in off gas grid areas, although we do not propose to exclude support for heat pumps on gas grid.

The grant is intended to provide an improved value for money offer versus RHI tariff support, while providing an attractive offer for consumers. Our intention is for the scheme to target public support on those technologies that offer the best value for money and are likely to play the most important role in retrofitting individual small buildings in the off gas grid market once regulations come in.

As a result, we propose a technology-neutral, flat-rate grant of £4,000 for all technologies eligible under the Clean Heat Grant. This will put the onus on the market to find which of these offers the most cost-effective low carbon technology for each property. We expect that the majority of applicants are likely to opt for ASHPs to transition to low carbon heat, as these are lower cost than other low carbon heat alternatives. This also reflects the pattern under the RHI, where 81.5% of accredited domestic installations in 2019 were ASHPs, though there is some variation depending on area.⁵²

GSHPs and WSHPs will be eligible, and the grant may work particularly well where economies of scale can be achieved, such as in shared ground loop systems.

The higher up-front costs for biomass make a £4,000 grant comparatively less attractive than it is for ASHPs. Covering a lower proportion of the upfront cost, coupled with stringent eligibility criteria, should help to ensure that biomass is only installed in buildings that are not suitable for a heat pump.

A flat rate across all technologies is also intended to make the scheme simpler to administer and easier for consumers to understand.

⁵¹ CCC (2016) [Next Steps for UK Heat Policy](#)

⁵² BEIS (2020) [Renewable Heat Incentive Deployment Statistics](#), table M2.2

The proposed £4,000 grant level is based on several factors, including:

- *Industry:* The Heat Pump Association (HPA), in their heat pump roadmap put forward £4,000 as a suitable level of upfront funding for ASHPs for off gas grid deployment.⁵³ The HPA's assessment was that this level of funding would be an effective level to achieve further deployment.
- *Price elasticity research:* There is limited evidence on the relationship between cost and consumer uptake. However, the evidence that exists suggests that below £10,000, which is deemed a psychological threshold, price elasticity increases. If costs can be reduced below £7,000, then uptake climbs sharply.⁵⁴ Our analysis shows an average off grid ASHP installation costs £10,300, so our proposed grant amount would take the net cost to the beginning of this zone, with an effective cost to the consumer of ca. £6,300.
- *International:* International grant levels vary widely. Most of the European grants are at the ca. €2,000 level, although the grant in Ireland is €3,500.⁵⁵ A £4,000 UK grant is not inconsistent with this evidence because:

Installation costs in the UK are higher, due in part to being further from mass market. Analysis of the scheme in the Netherlands, which has seen 50% yearly growth in deployment, shows that a 9kW heat pump consumer is left with €7,600 (£6,396) to pay post-grant, almost the same as under our proposals (£6,300). In addition, European grant schemes are likely to be based on a smaller average size than the 9kW average required off gas grid in the UK. The UK tends to require larger systems due to its less energy efficient building stock.

In many European countries, heat pumps have lower operating costs relative to fossil fuels compared to the UK. This is due to different market conditions, often including significantly lower electricity prices and/or higher taxes on fossil fuels.

Under the Clean Heat Grant, we will retain the right to review grant levels in response to unforeseen market changes or if uptake falls substantially outside the expected range. This will be important given the relatively early stage of the market and the limited evidence on how grant amounts may affect total deployment numbers in Great Britain. However, we understand the importance of providing certainty to industry and would only expect to vary the grant if absolutely necessary and following consultation.

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

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.

⁵³ Heat Pumps (2019) [A Roadmap for the Role of Heat Pumps](#)

⁵⁴ Delta EE (2015) Microgen Insight Study Owner-Occupier Stated Preference Survey

⁵⁵ Sustainable Energy Authority of Ireland. [Heat Pump Systems: grant levels](#)

Variation with capacity

Our recommendation is that a flat-rate grant should be offered to all sizes of installation up to the proposed 45kW capacity limit.

Precedent for scaling grant amounts by size of installation exists in many international schemes, although there is no convergence on the appropriate level of scaling. We presently have limited data on how the actual cost of heating systems, ancillaries and labour varies by system capacity in Great Britain, which limits our ability to propose a suitable level by which the grant could be varied. We are also aware that products available on the market tend to cluster around certain sizes and that varying support levels through a strict formula is unlikely to accurately reflect these costs.

Experience from the RHI has also demonstrated that varying support by installation size can, in certain circumstances, lead to unintended behaviours, such as installing a certain size of system to maximise support.

Overall, we believe that a flat-rate grant will best meet the objectives of providing an easy to understand framework for consumers and industry, as well as delivering scheme value for money. We acknowledge that a flat-rate grant could be less attractive to buildings requiring larger installations and would welcome evidence on how grant levels could be appropriately scaled in these circumstances.

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

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

Delivery mechanism

We are keen to design a process for grant delivery that works for consumers, installers and scheme administration, which:

- Directly addresses the upfront capital costs barrier.
- Minimises the risk of fraudulent claims, and installations not being completed to a satisfactory standard.
- Ensures the right balance of roles and responsibilities between installers and consumers.
- Supports robust budget management.
- Is as simple and cost effective as possible.

We believe a voucher system would best achieve these aims. There are different ways a voucher system could work. Key to this will be how the value of the voucher can be passed on to the consumer early enough to reduce their upfront costs, whilst avoiding the risks that would be associated with disbursing funding prior to installation. We welcome views on how this could be best achieved.

There are broadly two stages of information and evidence that will need to be provided as part of the application process.

The first stage, voucher application, would take place ahead of the installation of the heating system. We would propose that this stage will require basic information about the consumer and installation. Likely examples are:

- Applicant and property details
- Postcode
- Proposed technology

We would expect this stage to be consumer-led, but welcome views on this. The intention behind voucher application is to ensure it is sufficiently robust to allow effective budget allocation and the early completion of some non-technical eligibility checks, while not requiring information that is too onerous to provide at an early stage.

The second stage is voucher redemption (i.e. payment of the grant). It should take place after the installation, to protect taxpayers from risk of fraud and assist with non-compliance. This stage would require proof of installation, including technical evidence relating to the installation, commissioning and building eligibility. Likely examples are:

- MCS (or equivalent) certificate
- Heat loss assessment (for biomass installations)

We propose that this stage be installer-led, with proof of installation and technical information provided by the installer. The entitlement to the grant would be assigned and paid directly to the installer post-installation. In order to address the upfront cost barrier, there will need to be enough certainty within this process to allow the voucher value to be discounted from the consumer's invoice. We welcome views on this.

We acknowledge that there are considerations for installers' cash flow, as well as for consumer protection, and we welcome views on this too.

We also want to ensure that vouchers are redeemed in a reasonable time period and that unused vouchers are cancelled so that funding can be released for other applicants. This will need to be balanced against the need to give consumers and installers reasonable timescales to plan and carry out the installation.

We welcome views on this application and voucher redemption process. Ahead of launch, we will be working closely with Ofgem, the intended scheme administrator, certification bodies and consumer codes, to ensure a robust and efficient voucher application and redemption process.

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

Eligibility criteria

The Domestic and Non-Domestic RHI regulations provide a framework for eligibility and consumer protection that has evolved over the life of the scheme. The government believes that, in order to provide continuity to industry and supply chains, this framework should form the basis of the Clean Heat Grant scheme. However, we are keen to make further improvements where relevant and practical, in line with delivery timescales. We also understand that the nature of a grant scheme will mean that certain eligibility criteria and

ongoing obligations will need to change. We welcome views on the proposals for heat pumps and biomass set out in the following sections.

Heat pumps:

System efficiency:

We propose that heat pump installations will need to have a Seasonal Coefficient of Performance (SCOP) of at least 2.8. The industry has raised norms of efficiency since the RHI was introduced; the proposed uplift from the RHI minimum of a Seasonal Performance Factor (SPF) of 2.5 would build upon this progress. It would also ensure consistency with the latest Ecodesign standard and our proposed minimum standard in new build.⁵⁶ For both domestic and non-domestic installations, with a capacity equal to or less than 45kW, we propose that evidence will need to be provided that the SCOP has been calculated in line the MCS SCOP calculator, or equivalent.

- 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.**

Metering requirements:

We are keen to simplify eligibility requirements where possible under the proposed grant funding model and therefore do not propose any requirement for heat meters. However, the government is aware of the need to increase consumer understanding of system performance and therefore we believe it is proportionate to require the installation of electricity meters for heat pump installations. Known as 'metering for performance', this change was introduced to the Domestic RHI to help people better understand their heat pump system's electrical usage and efficiency.

- 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.**

Biomass:

Air quality:

It is essential that high standards for air quality are met by all biomass installations. Exposure to particulate pollution is more acute in urban areas, given the number of potential sources of particulates, including transport and other background sources. We therefore wish to avoid incentivising burning biomass in urban areas and propose that installations in these areas will be ineligible for receipt of grant funding for biomass.

Urban areas in England and Wales are defined according the 2011 Rural Urban Classification published by the Office of National Statistics (ONS). Those for Scotland are defined in the

⁵⁶ MHCLG (2019) The Future Homes Standard: changes to Part L and Part F of the Building Regulations for new dwellings: <https://www.gov.uk/government/consultations/the-future-homes-standard-changes-to-part-l-and-part-f-of-the-building-regulations-for-new-dwellings>

Scottish Government 8-Fold Urban Rural Classification 2016. In line with these definitions, we are using a common threshold of settlements of 10,000 or more to define urban areas. The classification of any given location can be determined at postcode level using the ONS Postcode Directory look-up tool.

In light of the need to limit biomass in heat to niche uses, to ensure it is used most effectively, we recognise that the carbon savings of transitioning away from natural gas to biomass would be less than when replacing the high carbon fossil fuels that predominate off the gas grid. At the same time, the use of biomass on the gas grid would also introduce significant new particulate pollution, in areas where particulate pollution is already likely to be greater. We therefore feel it is also not appropriate to provide support to biomass installations in areas served by the gas network. Access to the gas network can be determined at postcode level using industry data.⁵⁷

It is our intention to carry over the approved fuel and emissions certificate requirements from the RHI. All biomass installations will require an emissions certificate from a certified body. This information is used to indicate the amount of pollutants likely to be emitted by a biomass product when burning specific fuel types. Under the RHI, emissions of particulate matter must not exceed 30 grams per gigajoule net heat output, and emissions of oxides of nitrogen must not exceed 150 grams per gigajoule net heat output.

Biomass installation owners must also use approved sustainable fuel listed on the BSL or an equivalent scheme. We anticipate that biomass fuel on this scheme will be subject to the same fuel quality measures proposed in the consultation on the “Non-Domestic Renewable Heat Incentive – Ensuring a Sustainable Scheme,” subject to the outcome of that consultation on this point.

In the government’s response to the consultation on biomass combustion in urban areas, we committed to working towards an industry standard for maintenance checks, to tackle poor maintenance of boilers, and this will be developed alongside this scheme.⁵⁸ As with the RHI, it will also be a legal requirement to comply with environmental permitting and local and national laws.

The differences in scheme design between the Domestic RHI and Clean Heat Grant scheme will alter the ongoing compliance approach regarding the air quality requirements described.

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

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?

Building efficiency:

The government wants to ensure that biomass is only installed in buildings where it is the correct technology choice and where a heat pump would not be appropriate, due to reasons such as building fabric efficiency that cannot be treated by reasonable energy efficiency measures. For biomass installations, we therefore propose that a heat loss calculation for the

⁵⁷ <https://www.xoserve.com/media/2687/off-gas-postcodes-v2.xlsx>

⁵⁸ Please see 'Renewable Heat Incentive: Biomass Combustion in Urban Areas - Government Response to Consultation' for more information.

building will need to be provided. This is to demonstrate that a minimum heat loss value has been exceeded and that the installation of biomass over a heat pump is justified.

We propose that the heat loss assessment would be completed and signed off by the installer or another qualified assessor, in accordance with British Standard EN 12831 (a method for calculation of the heat loss of a building), which is consistent with current MCS standards. However, we welcome views on the appropriate format for this heat loss calculation, as well as minimum heat loss value (W/m^2) that should need to be demonstrated for biomass to be installed.

Our intention is to limit the use of biomass to hard-to treat-properties only. Therefore, we would welcome views on any additional criteria we should consider for biomass, which would ensure installation of biomass is not carried out in properties that could be made suitable for heat pumps through other proportionate interventions.

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.

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

Consumer protection

It is vital that consumers are sufficiently protected in any future scheme. In the current Domestic RHI, we require certification of the renewable heating installation, in line with the MCS or an equivalent scheme. This ensures that people who buy renewable heating systems are covered by consumer protection schemes governing the products and their performance, as well as the quality of the installation and service they receive from the installer. Current installer standards certify that an installer can install to a defined quality, using products that have met rigorous testing standards. The standards therefore provide protection relating to technical aspects of the installation.

As part of the current MCS certification process, installers must be members of a consumer code that has been approved by the Chartered Trading Standards Institute (CTSI). There are currently two CTSI approved codes involved with the RHI; the Renewable Energy Consumer Code (RECC), and the Home Insulation and Energy Systems Contractors Scheme (HIES). The consumer codes set out standards that installers must meet in contracting with consumers. The codes cover advertising and promotion, estimates and quotes, cancellation rights, and protect against mis-selling.

We propose that MCS certification or equivalent for products and installers, and installer membership of a consumer code will be required for this scheme. This would avoid the significant costs and duplication of effort for the government and industry that would be required in introducing a separate system of consumer protection.

There are, however, clear differences in scheme design between the Domestic RHI, and Clean Heat Grant scheme. While some risks may be mitigated as a result of the new scheme design, new consumer protection risks could be introduced. For example, there may be new mis-selling or installation quality risks associated with a voucher scheme. We would welcome

further information and evidence about any additional consumer protection risks that may be relevant to the Clean Heat Grant scheme, with suggestions on how they may be mitigated.

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.

Non-financial barriers to low carbon heat

Deployment of heat pumps in the UK is low compared to many similar countries. Heat pumps in the UK tend to have been installed by “early adopters” of (green) technology, and in social housing. Capital cost is a key barrier to the wider deployment of heat pumps, but it is not the only challenge and cannot be viewed in isolation.

The government is undertaking a holistic programme of work to reduce the barriers to deployment. For example, BEIS has launched a £16.5 million Electrification of Heat Demonstration Project.⁵⁹ The project aims to raise awareness and demonstrate the feasibility of a large-scale rollout of heat pumps by installing them in a representative range of 750 homes, alongside new products and services designed to overcome many of the key barriers to deployment, such as operating costs, space, disruption, thermal comfort, noise and aesthetics.

The government is also committed to working with industry to encourage the installation of smart meters alongside heat pumps. Our smart meter rollout can reduce heat pump operating costs by enabling access to time of use tariffs and will provide greater transparency of heat pumps to electricity networks.

Heating engineers also have a key role to play in the transition to low carbon heating, not only as installers, but as a trusted source of advice. However, the number of accredited installation companies is low. While the grant scheme will drive demand and help encourage installers into the market, we are also working closely with industry to update design standards and improve the training offer to installers of low carbon heating.

⁵⁹ BEIS (2019) [Electrification of Heat Demonstration](#)

Financial management of funding delivery

Context

This section sets out the proposed framework for managing spending under the Green Gas Support Scheme and the Clean Heat Grant scheme. To ensure value for money, it is essential that each scheme has appropriate cost control measures in place to manage the budget, prevent overspend, protect taxpayers, and provide industry certainty.

The proposed budgetary control measures also need to align with the schemes' objectives to drive progress against our carbon budgets and to maintain and grow low carbon heating supply chains.

For the Green Gas Support Scheme, funding will be used to support biomethane production. For the Clean Heat Grant, funding will support the deployment of heat pumps, and biomass in limited circumstances. A small proportion of both schemes' budgets will cover their respective administrative costs.

Current projected lifetime scheme costs can be found in the Impact Assessment, published alongside this consultation.

Budget control: Green Gas Support Scheme

It is proposed that the Green Gas Support Scheme will begin in autumn 2021 and will run until autumn 2025. We expect expenditure during the first year to be minimal. This is because of the typical 12 to 24-month development time to commission a biomethane plant, plus the additional time taken to reach full capacity. We recognise that for some biomethane plants, this time could be reduced.

From year two, we anticipate a steady increase in biomethane spend. Registered biomethane producers that received tariff guarantees in the first couple of years may build plants that start to ramp up to full capacity. We expect tariff guarantees to be utilised in the scheme and offer greater budget certainty and forecasting of when spend will come online.

Once the scheme has closed to new applications, all funding will be used to support existing commitments under the scheme. Annual scheme expenditure is not likely to reduce until the first set of biomethane plants reach the end of their tariff support period.

We propose utilising the following mechanisms to manage the budget and ensure value for money, while maintaining investor confidence to enable deployment:

- Tariff tiers to reflect the cost of producing biomethane at different scales and benefitting from economies of scale.
- A tariff guarantee budget cap, which – if met – would temporarily halt new tariff guarantee approvals until the scheme could be re-opened for new tariff guarantees once a new financial year begins, or some existing tariff guarantees withdraw.
- A degression mechanism to change tariffs to reflect the true cost in the industry. This would not affect plants with existing tariff guarantees under the scheme.
- An overall separate annual budget cap for biomethane against which we can monitor scheme expenditure. As on the RHI scheme, we will retain further control over

expenditure through retaining the ability to close the scheme if this is considered necessary due to a forecast risk of overspend. To note, this power has never had to be used on the RHI as at the time of publication.

These mechanisms will build on those in place for the RHI, with decisions informed by scrutiny of data gathered by the administrator and by deployment forecasts based on market intelligence, ongoing stakeholder engagement, and evaluation evidence. We will continue to publish details of how the budget control mechanisms operate and regular updates on our latest expenditure forecasts to provide transparency and clarity for investors.

To ensure we are able to manage spend within the budget caps, and accurately forecast going forwards, we will require participants in the scheme to submit their output data and supporting evidence for each period within a specific time frame, and will consider whether readings should be quarterly or more frequent.

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.

Budget control: Clean Heat Grant

The Domestic RHI will remain open to new applicants until 31 March 2022. The Clean Heat Grant is expected to begin in April 2022, with funding committed for two years, to March 2024. We anticipate a steady deployment rate over the two years. After the second year, the scheme will close to new applications.

Under the grant scheme, we propose to issue vouchers on a first come, first served basis to applicants who meet the initial eligibility criteria for voucher application. Budget control involves limiting the amount of grants provided up to a pre-agreed budget cap. To mitigate the risk of the budget being depleted more quickly than expected, we propose quarterly grant windows, each with a budget cap. This will help to maintain budget control over scheme costs, avoid intermittent deployment, and ensure that demand will be spread out across the year while keeping administration manageable. We believe that these measures will increase industry confidence in the scheme's ability to support continued deployment of building-level technologies throughout its duration.

Our approach to budget control for the grant scheme will be informed by the experience of managing the RHI, and we will apply the same principles of regularly reviewing deployment data, engaging industry and providing transparency for stakeholders.

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.

Technologies and uses not supported through this policy

The technologies that we intend to support through the proposals set out in this consultation, are those with established strategic importance towards phasing out high carbon fossil fuels in line with the 2017 Clean Growth Strategy commitment, as well as making cost-effective contributions to carbon budgets. There are a range of wider technologies that the government understands may play a role in the longer-term decarbonisation of heating, but where there is less clear evidence or imperative for short-term action through the proposed new schemes. These are set out in the following sections. We welcome stakeholder views and evidence that can be incorporated into future policy development in these areas.

Process heating

Process heating refers to where heat is used to carry out a process. Examples include industrial and agricultural applications, such as industrial cooking, chemicals manufacture and pasteurisation. Whilst process heating has been eligible for support under the Non-Domestic RHI, the purpose of the Clean Heat Grant is to provide targeted support for space and water heating in buildings, ahead of the future phase-out of high carbon fossil fuel heating.

The UK's industrial sector remains a crucial part of the UK economy, and the government has put in place a number of measures to support the decarbonisation of industrial processes, including the IETF.⁶⁰ The IETF will have a £315 million total budget for energy efficiency and low carbon technologies, including fuel-switching options, such as biomass, electrification and hydrogen. Further information will be published in Spring 2020, with the launch of the IETF. Industrial process heating projects will be able to apply for support under this scheme.

Other lower-temperature process heat uses, such as wood drying, waste drying, crop drying, and aquaculture, have had a history of poor value for money and are no longer eligible for the RHI. Our position is that these should remain excluded from future support.

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

Biogas combustion

Whilst support for biogas combustion has been provided through the Non-Domestic RHI, our primary objectives for this policy are to green the gas grid through biomethane injection, and grow low carbon heat supply chains for key building-level technologies ahead of the future phase-out of high carbon fossil fuel heating. As such, we do not intend to support biogas combustion through these policies. The strategic fit and decarbonisation opportunity offered by biogas combustion is not clear. Recent deployment under the RHI has also remained low, with only 12 applications for accreditation to the non-domestic scheme in 2019, with an average capacity of 370kW,⁶¹ suggesting a limited decarbonisation opportunity.

Biogas combustion installations supported through the RHI have typically provided heat to a combination of on-site process, space and water heating uses. We are aware that some

⁶⁰ BEIS (2019) [Industrial Energy Transformation Fund consultation](#)

⁶¹ BEIS (2020) [Renewable Heat Incentive Deployment Statistics](#), table M1.2 and M1.3

biogas installations have historically provided heat to processes such as drying, which are no longer eligible for support under the RHI. As set out in the section on process heating, we do not intend to provide support to process heat uses through these policies.

We do recognise that there are certain rural areas further from potential biomethane injection points to the gas grid, where on-site use of biogas may provide a beneficial use of waste feedstocks. However, we presently have insufficient evidence regarding the scale or detail of these opportunities. We would therefore welcome evidence of any substantial decarbonisation opportunities that could form part of a wider strategic case to support biogas combustion.

We further explore feedstock availability in the section on 'Barriers to deployment' in the 'Green Gas' chapter.

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.

Solar thermal

As set out in this consultation, the Clean Heat Grant is aimed at providing targeted support to technologies with established strategic importance, ahead of the future phase-out of high carbon fossil fuel heating in existing buildings off the gas grid. Our view is that heat pumps and, in limited circumstances, biomass, are likely to be the key technologies to deliver this. Whilst it is possible that solar thermal will play a role in the long-term decarbonisation of heating in the UK, the technology is not a stand-alone solution for phasing out fossil fuels within buildings. As such, we do not propose to support it through this policy mechanism.

In 2016, the government proposed removing support for solar thermal under the RHI. At the time, this proposal was not taken forward on the basis that responses to the consultation suggested continued support would drive greater deployment and cost-reduction.⁶² However, despite tariffs for solar thermal under both the Domestic and Non-Domestic RHI being high relative to other technologies, deployment has remained low. In 2019, solar thermal accounted for approximately 3.5% of applications to the Domestic RHI and less than 1% of applications to the Non-Domestic RHI.⁶³ We are also not aware of any evidence of cost-reduction.

Given current cost data and recent deployment trends, we do not have any strong evidence to suggest that supporting solar thermal water heating through this scheme would prove to be an effective measure for preparing supply chains for the future phase-out of high carbon fossil fuel heating.

The government remains committed to exploring the role that low carbon technologies, such as solar thermal, can play in decarbonising UK heating emissions. We welcome further views on the proposals set out in this section.

See the 'Heat networks' section, where there is expected to be a role for solar thermal in future support.

⁶² BEIS (2016) [Renewable Heat Incentive Consultation: Government Response](#)

⁶³ BEIS (2020) [Renewable Heat Incentive Deployment Statistics](#), table M1.2 and M2.2

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

Hybrids

Hybrids consist of two or more types of heating technology, installed as part of the same heating system. While there is significant variation in the types of hybrid system or appliance available today, we define them here as a combination of a heat pump and fossil fuel boiler, with most systems using an ASHP. These may either be integrated into a single appliance or may consist of a separate boiler and heat pump, which form part of the same system. Hybrid systems are currently supported on the RHI, with a requirement for the heat output from the renewable technology to be metered for payment.

However, given our 2017 Clean Growth Strategy commitment to phase out high carbon fossil fuels (such as oil and coal) off the gas grid in the 2020s, and increasingly ambitious carbon reduction targets, the government is not minded to support hybrid heating systems through this policy. This includes hybrids that might be installed in both off and on gas grid areas. Given the limited funding available we believe that the targeted public support available under this policy should be directed towards the technologies that offer the greatest carbon savings, rather than those that may play an interim or transitional role, and which would continue to involve the burning of fossil fuels for heating.

A further consideration informing our position not to support hybrid heating systems through this mechanism, is the limited available evidence on how they perform in practice in off gas grid installations, where the Clean Heat Grant scheme is targeted. There is an inherent risk in a hybrid system that the fossil fuel boiler may still meet a significant amount of the property's heat demand, depending on usage. This could mean that carbon savings delivered by hybrid systems are lower in practice than anticipated.

In off gas grid areas, we do recognise that a future transition from heating oil and LPG to biofuels may allow the boiler element of a hybrid system to decarbonise and we recognise the work taking place within the oil and LPG industries to that end. However, we do not yet have sufficient evidence to take decisions on the potential role of biofuels in this context or that the necessary quantities of sustainable biofuel would be available to match heating demand, given competing alternative uses in transport and heavy industry.

The government continues to build its evidence base on hybrid heating systems and will be trialling the installation and consumer acceptance of hybrid heating systems through the Electrification of Heat Demonstration Project.⁶⁴ We will continue to consider the potential role of hybrid heating systems in the future.

The government continues to consider the role that gas/electric hybrid systems may play in the longer-term decarbonisation of the gas grid, noting the CCC's recommendations in their "Hydrogen in a low carbon economy" report.⁶⁵ This sets out the potential opportunities that may be afforded by widespread deployment of hybrid systems, for example in retaining the long-term value of the gas grid to the energy system, while enabling near-term reductions in carbon emissions. We are building our evidence on the opportunities and challenges posed by

⁶⁴ BEIS (2019) [Electrification of Heat Demonstration Project](#)

⁶⁵ CCC (2018) [Hydrogen in a low-carbon economy](#)

such a scenario and will say more on this in our Heat and Buildings Strategy, which we aim to publish later this year.

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

Heat networks

Heat Networks are expected to play a crucial role in the decarbonisation of heat. Heat networks are currently the only way to exploit some of the largest-scale, lowest-carbon sources of heat, critical to ensure cost-effective decarbonisation of heat in the UK. Development of heat networks is currently supported by the Heat Network Investment Project (HNIP). HNIP is investing £320 million between 2019 and 2022 to support the construction of heat networks and accelerate the growth of the market. Earlier this year, we announced the results of the first two rounds of the project with over £30 million awarded to five local authority projects and a further £10 million awarded to two private sector projects in South East London and Liverpool.

We are committed to the further expansion of the heat network sector and to ensure that the market adopts the lowest-carbon heat sources. To help meet the specific capital needs of heat networks and to give targeted financial support that will aid the transition to low carbon heat sources, the Budget announced a £270m Green Heat Network scheme. This separate fund will bridge the financial gap following the closure of the Non-Domestic RHI and HNIP and will help ensure continued investment for the market in general. It will also aim to stimulate research, development and adoption of low carbon technologies within heat networks. It is expected that this fund and policy will support the use of low carbon heat sources such as large-scale heat pumps, solar thermal, waste heat recovery and biomass (subject to meeting air quality standards). We intend that smaller scale systems with shared ground loop infrastructure will be supported separately through the Clean Heat Grant scheme. More information on the proposed boundaries between the schemes and on the design of the fund will be published in due course.

Compliance

Ofgem, as the intended administrator, will manage participant non-compliance for the Green Gas Support Scheme and Clean Heat Grant Scheme (in relation to eligibility criteria and scheme conditions). We will work closely with Ofgem to design the appropriate arrangements. Ofgem will be able to draw from their experience of administering the RHI, Renewables Obligation (RO), Energy Company Obligation (ECO) and Feed in Tariffs (FITs) schemes and tackling non-compliance under these schemes. As a general principle, the process to determine participants' compliance will be robust, while avoiding unnecessary costs and administrative burdens.

Participant compliance: Green Gas Support Scheme

It is essential that an effective and robust compliance regime is in place where a participant fails to conform with the eligibility and on-going requirements, to protect public funds.

We intend for the compliance and auditing process for biomethane plants to be based closely on the existing processes for the RHI. For on-going compliance and eligibility requirements, Ofgem may choose, for example, to use reviews, on-site audits and inspections as appropriate. It is our intention that the scheme administrator will have the discretion to carry out a suitable programme of audits to monitor compliance.

Similarly, we propose basing the compliance powers for the Green Gas Support Scheme on Ofgem's existing powers for the RHI where appropriate. These would include, but not be limited to the power to: request information from participants, conduct on-site audits; recoup support issued through tariffs; withholding, suspending or reducing tariff payments where Ofgem considers that there has been a material or repeated instances of non-compliance; and/or excluding a participant from the scheme.

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

Participant compliance: Clean Heat Grant

Due to the nature of the Clean Heat Grant, the compliance and audit regime for heat pumps and biomass will be different to the regime for these technologies under the RHI.

We will work with Ofgem and key stakeholders, including certification bodies and consumer code organisations, to design a scheme that minimises the opportunity for non-compliance, and to design appropriate controls to ensure that non-compliance is identified, including an audit regime. It is essential that there is a robust, up-front compliance regime (for instance to check evidence of installation, commissioning and eligibility criteria).

We propose that Ofgem should have the ability to:

- Carry out on-site checks before a grant is paid, as well as after payment has been made.
- Require corrective action where non-compliance is identified.
- Have the ability to recoup grant payments where corrective action is not taken, or in cases of serious non-compliance.

Information on the proposals for ongoing compliance specifically in relation to biomass boilers is in the 'Eligibility criteria' section of the consultation.

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

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

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

England

Wales

Scotland

Responses that indicate the respondent's interest relates to Scotland or Wales may be shared with the Scottish or Welsh devolved authorities respectively, unless such respondents explicitly state they do not wish for their response to be shared. No personal data relating to respondents will be shared.

Next steps

We intend to publish one or more stakeholder bulletins during the consultation period, to provide further detail on particular policy areas, which we will welcome stakeholder views on.

This consultation will close on 7 July 2020, after which responses will be analysed and a government response published in due course, subject to developments with the coronavirus (COVID-19) response, as outlined in the 'Introduction.'

Following the government response, the introduction of regulations to deliver these policy proposals will be subject to affirmative statutory instruments.

A consultation on the Green Gas Levy to fund biomethane support will be published in due course.

This consultation is available from: www.gov.uk/government/consultations/future-support-for-low-carbon-heat

If you need a version of this document in a more accessible format, please email enquiries@beis.gov.uk. Please tell us what format you need. It will help us if you say what assistive technology you use.