Department for
Business, Energy
& Industrial Strategy

Heat Networks: Building a Market Framework

Government Response

December 2021

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Contents

General Information

This document sets out the government's response to the Heat Networks: Building A Market Framework consultation, which was published on 6 February 2020 and closed on 1 June 2020. It provides a summary of responses to each question in the consultation and a brief overview of our policy proposals in each area of the market framework. This includes details of proposals which have changed since February 2020 as a result of the consultation responses and further policy development since the consultation closed.

We received 118 responses to the consultation. A diverse range of stakeholders provided their views, with respondents consisting of 11 consultancies, one developer, eight energy companies, 21 energy service companies (ESCOs), one financial investor, 23 individuals, one public institution, five local authorities, four metering companies, 11 other businesses, 16 organisations representing consumers, two think tanks, ten trade associations and four organisations classified as "other".

Contact details

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Introduction

Heat networks are a crucial aspect of the path towards decarbonising heat and reducing our greenhouse gas emissions to net zero by 2050. In the right circumstances, they can reduce bills, support local regeneration and can be a cost-effective way of reducing carbon emissions from heating. The government is proposing to establish a regulatory framework for heat networks which protects consumers, promotes technical standards, and drives forward the growth and decarbonisation of the heat networks market.

We estimate that there are currently over 14,000 heat networks in the UK, providing heating and hot water to approximately 480,000 consumers. Heat networks deliver heating, hot water, and/or cooling from a central source or sources to domestic dwellings, public sector buildings, shops, offices, sport facilities, hospitals, and universities. They are uniquely able to unlock otherwise inaccessible larger scale renewable and recovered heat sources such as waste heat, heat from rivers, and heat from mines. In 2015 the Climate Change Committee (CCC) estimated that around 18% of UK heat, up from 2% currently, will need to come from heat networks by 2050 if the UK is to meet its carbon targets cost-effectively.

There is significant potential for the number and scale of heat networks to increase dramatically. We estimate that up to £16 billion of capital investment could be needed for heat networks to deliver their full contribution to net zero. There is a growing heat network market in this country on which to build. Market growth is already supported by strong government commitments through our Heat Network Investment Project (HNIP) of up to £320m and the work of the Heat Network Delivery Unit (HNDU) supporting local authorities and project developers in the early phases of scheme development. In addition, in the Heat and Buildings Strategy we announced that we will be investing £338 million over 2022/23 to 2024/25 into a broader Heat Network Transformation Programme to scale up low-carbon heat network deployment and to enable local areas to deploy heat network zoning, which will create a step-change in low-carbon heat network market growth. This will include funding for the Green Heat Network Fund (GHNF), which aims to stimulate the growth of low-carbon heat networks by supporting low-carbon thermal generation.

Reaching the required growth rate for net-zero will require ambitious policy action. The December 2020 Energy White Paper committed to introducing heat network zoning by 2025 at the latest. We have worked and will continue to work with local government, industry, experts, and other stakeholders to establish a heat network zoning approach that is consistent with wider government policy on local government and heat decarbonisation. Our consultation on proposals for heat network zoning in England, which can be found here, closed on 19 November 2021 and we are now in the process of analysing responses. In addition, the government's commitment to low-carbon heating in new homes, as provided in the Future Homes Standard, and commitment to low carbon heating in new non-domestic buildings, as set out in the recent Future Buildings Standard consultation, creates a further significant opportunity for faster roll-out of low-carbon heat networks. To ensure this expansion is built on sound foundations, we need to make sure that the market is supported by minimum regulations on consumer protections, technical standards, and regulatory requirements on decarbonisation.

As set out in the Heat Networks: Building A Market Framework consultation, there are currently no sector specific protections for heat network consumers, unlike for consumers of other utilities such as gas, electricity, and water.[1] In 2018, the Competition and Markets Authority (CMA) completed its market study into heat networks and concluded that "*a statutory framework should be set up that underpins the regulation of all heat networks*." We published a response to the CMA's recommendations in December 2018 in which we agreed with the arguments for heat network regulations. We consulted further by running the Heat Networks: Building A Market Framework consultation between February and June 2020. We are committed to legislating to implement heat networks regulation within this Parliament and will do so at the earliest possible opportunity.

We will be appointing Ofgem as heat networks regulator. Last year's consultation proposed Ofgem as the preferred choice for heat networks regulator,

[1] The exception to this is the Heat Network Metering and Billing Regulations which provide some limited requirements regarding metering and billing arrangements.

with the majority of responses supportive of this position. We acknowledged concerns expressed by industry stakeholders regarding the costs of the regulator performing its functions and how this would affect costs on heat networks and consumers, as well as questions regarding the suitability of Ofgem as regulator. In response to feedback on the consultation, we continued engagement with industry and consumer groups to revisit our options appraisal comparing Ofgem with other options, including a detailed cost comparison with Heat Trust, the voluntary consumer protection scheme for heat networks. The exercise reaffirmed our view that Ofgem is the most desirable option – it has relevant experience from regulating the energy market, brings efficiencies from existing expertise and overheads, and offers the quickest route to regulation. Ofgem also maintains the support of the majority of our stakeholders.

This consultation has reaffirmed our view that the **Energy Ombudsman** is best placed to take on the role as the independent ombudsman service for heat network consumers. We will appoint **Citizens Advice** as the consumer advocacy body for heat networks in England and Wales.

The default option for recovering the costs of heat networks regulation would have been for these costs to fall solely on heat networks regulated entities. Assuming regulated entities would then recover those costs through heating bills, it would effectively be heat network consumers only funding the costs of regulation. Our current provisional estimates are that this approach to cost recovery would result in heat network consumers paying an extra £10 or more per consumer bill per year to fund regulation. In comparison, we estimate that gas and electricity consumers pay less than £2 per consumer per year towards regulation.

We found that without an alternative cost recovery mechanism, none of the options for regulator assessed can bring the cost per consumer of regulation down to an affordable level and down to a similar level to what gas and electricity consumers pay for regulation. We concluded from the modelling work with Heat Trust that it would regulate the market in a way and at a cost similar to Ofgem, reinforcing our view that a small consumer base in the market is driving the high estimated regulatory cost per consumer.

We are therefore proposing to introduce a cost recovery regime which ensures that Ofgem and Citizens Advice's total ongoing costs of regulating the heat networks, gas and electricity markets are spread evenly across heat network, gas, and electricity consumers. Our current provisional estimates suggest that this would amount to heat network consumers paying approximately £1.40 per consumer per year in the central case. We also estimate that this amounts to an additional £0.10 per gas and electricity consumer per year from what they currently pay for regulation – applied to our estimate of the average gas bill, this represents a 0.02% increase.[2] We have published a consultation on recovering the costs of heat networks regulation

[2] The 2020 QEP estimates that the average annual gas bill is £510 https://www.gov.uk/government/statistical-data-sets/annual-domestic-energy-price-statistics; Tables QEP 2.3.5 and 2.2.5.

alongside this Government Response where we have set out our proposal in more detail and where respondents can provide views on our proposed approach.

With the introduction of a regulatory framework, our expectation is that all heat network domestic consumers and micro-business consumers should have ready access to information about their heat network, a good quality of service, fair and transparently priced heating and a redress option should things go wrong.

We want the Heat Trust voluntary scheme to have an important role in preparing the industry as we move towards regulating the market, and we strongly encourage heat networks to register with the scheme now to prepare for regulation. We also supported the Heat Networks Industry Council in their work to establish the Consumer Protection Agreement and the Heat Network Emergency Responders group in response to the COVID-19 pandemic. We have written to signatories urging them to do more to tackle outages and improve compensation standards for outages whilst we prepare to introduce regulation.

Summary of Comments and Government Response

The following section outlines the main themes coming out of stakeholders' responses to each of the 57 questions within the consultation document. For questions which asked for a *Yes* or *No* answer, a table is provided with a breakdown of the 118 respondents into 4 categories: *Yes, No*, *Comment Only* and *Blank* (no response submitted).

At the end of each section of the document, we have provided the government's response to the main points made by respondents and highlighted any changes to our policy proposals relative to the consultation stage.

Below each question, we have provided a summary of the main themes to emerge from each question and the number of stakeholders making a particular point. In some instances, the numbers presented in the text do not correlate with the numbers in the table. This is because in many instances respondents made more than one point within their answer. This also reflects the fact that some points were made by *Comment Only* respondents who neither explicitly agreed nor disagreed with the respective question.

In general, points made by three respondents or less are excluded from this document, however these have been considered during policy development. The exception is where a point is made by a single body which represents a significant proportion of the heat network industry.

Regulatory Model

Regulatory Framework overview

Question 1: Do you agree with the inclusion of micro-businesses within consumer protection requirements?

Question 1	Response	Percentage[3]
Yes	77	65%
No	8	7%
Comment only	3	3%
Blank	30	25%

Table 1

Stakeholders tended to agree with the inclusion of micro-businesses within consumer protection requirements, with 14 respondents stating that they agreed with the proposal because bigger firms have more negotiating power than micro-businesses.

Six others agreed that protections should initially be extended to micro-businesses, but eventually domestic and micro-business needs may diverge to some extent and the Market Framework regulations should change at that point.

It was also noted by 5 respondents that micro-businesses are in many ways difficult to distinguish from domestic consumers. They engage with essential markets (e.g. water, energy, and communications) in much the same way as consumers and should, by implication, be covered by the same consumer protections.

Two respondents stated that this approach was in line with other energy supply types and a further three commented that the definition of micro-business should align with Ofgem's pre-existing definition.

Although most respondents agreed to the proposals, there were some reservations. Four respondents agreed in principle but stated further clarification would be required and that there was potential that extending the same protections to different consumer groups could result in incoherencies.

One industry trade association stated that there are specific requirements and arrangements for selling heat to domestic consumers and that, due to the fact there are a small number of micro-businesses connected to heat networks, inclusion of these types of businesses does not make sense.

Our proposed approach is outlined on page 20.

[3] Percentages within tables in this document have been rounded to the nearest integer and hence will not always add up to exactly 100%.

Question 2: Do you agree that consumer protection requirements should not cover non-domestic consumers (other than micro-businesses)?

Question 2	Response	Percentage
Yes	54	46%
No	24	20%
Comment only	10	8%
Blank	32	25%

Table 2

There was a mixed response to this question. Though the most popular response was agreement with the government's proposal, there was a substantial minority of respondents that argued for consumer protection requirements being extended to certain non-domestic consumers.

The most common supportive statement, made by 21 stakeholders, was that large non-domestic consumers have greater control and negotiating rights with suppliers and that proposals should mirror gas and electricity non-domestic supply agreements.

14 other respondents qualified their support by stating non-domestic consumers can negotiate but may still need alternative protections, regulatory oversight, and an avenue for raising issues regarding reliability and mismanagement.

Five others who agreed with the proposal suggested that domestic consumers should take priority and extending the same protections to non-domestic consumers in the current regulatory framework would be inappropriate.

11 stakeholders who disagreed with the statement in this question stated that all consumers regardless of type (domestic or non-domestic) should be protected.

Four other respondents disagreed with this statement stating that small and medium sized enterprises do not necessarily have the skills in place to negotiate effectively and therefore should be covered by consumer protection requirements.

Our proposed approach is outlined on page 20.

Question 3: Do you agree with our proposed approach to a definition of heat network, including that it should cover ambient temperature networks but not ground source heat pumps with a shared ground loop? Are there network arrangements you think would not be covered by this and which should, or vice versa?

Question 3	Response	Percentage
Yes	36	31%
No	44	37%
Comment only	16	13%
Blank	22	19%

Table 3

A significant proportion of respondents disagreed with the proposal to exclude ground source heat pumps with a shared ground loop from the definition of a heat network. A common reason for this was respondents feeling that consumers on shared ground loops have a similar need for protections as heat network consumers.

Of the 60 respondents who answered *No* or provided a *Comment Only* response (see table above), 33 stated that shared ground loops should not be excluded, often citing the following reasons within their responses:

- Shared ground loop systems come under the non-domestic Renewable Heat Incentive scheme, and some respondents felt that this means shared ground loop consumers do not benefit from the same due diligence and levels of protection as electricity consumers.
- A consumer on a shared ground loop is on a monopoly system with no alternative.
- Consumers on a shared ground loop do not have a clear, independent redress process unless accounted for within their commercial agreements, so they will fall outside of the remit of existing domestic consumer protection schemes.
- This growing portion of the market should still have consumer protections in place as a default to reflect the decarbonisation of heat networks over time.

Ten stakeholders stated it would be preferable if the definition of a heat network did not exclude based on specific technology and was instead technologically neutral.

16 respondents provided comments stating explicitly that they agreed that the revised definition should now include ambient temperature networks.

Our proposed approach is outlined on page 20.

Proposed regulatory approach

Question 4: Do you consider Ofgem to be the appropriate body to take on the role of regulator for heat networks? If not, what would be an alternative preference?

Question 4	Response	Percentage
Yes	88	75%
No	5	4%
Comment only	7	6%
Blank	18	15%

Table 4

There was broad support from respondents that Ofgem is the appropriate regulator for heat networks, with 15 respondents commenting that it would provide consistency given its existing role as energy regulator.

Although the response to this question was mostly favourable, 18 stakeholders commented that, whilst they agreed with the choice, Ofgem has a skills and expertise gap which will have to be addressed for it to be a successful regulator. 11 stakeholders highlighted that heat networks are very different to the gas and electricity markets and that Ofgem would need to adjust its approach suitably.

Of the stakeholders who had concerns with Ofgem becoming the regulator, 7 said that it is too big and/or slow to regulate the heat networks market, which is made up of many smaller entities. Five respondents made the point that the scale and maturity of the heat networks market is not yet at a level for Ofgem to be suitable, and 3 respondents suggested that mandatory industry self-regulation would be a preferable option.

One industry trade association stated that Ofgem should not be the regulator. It commented that Ofgem would come from the standpoint of the regulated gas and electricity sectors. This respondent stated that Ofgem would add complexity by attempting to implement a top-down approach when the market requires a bottom-up approach.

Our proposed approach is outlined on page 20.

Regulatory model options

Question 5: Do you agree that the proposed regulatory model is appropriate for the regulation of heat networks?

Question 5	Response	Percentage
Yes	56	47%
No	13	11%
Comment only	21	18%
Blank	28	24%

Table 5

A general authorisation model with an optional licence for rights and powers was the most popular regulatory model amongst respondents. However, several respondents wanted more stringent checks, with some stating a preference for a licensing regime.

A common point, made by 26 respondents, was that general authorisation with an optional licence for rights and powers seems like a sensible approach given the nascent state of the market.

Some respondents were more reserved in their approval, stating that certain aspects of the model should change. For example, six stakeholders stated that there needed to be clear policy around cost and that annual fees should not be excessive, as they may be passed on to consumers. Another six respondents stated that a fitness test for market participants should be required for all regulated entities rather than just those seeking a licence.

Stakeholders who disagreed with the proposed model did so for several reasons, including the ones listed below:

- Five respondents stated that a full licensing regime would be preferable.
- Four respondents were concerned that government had not carried out the necessary work to review and establish market segmentation. One industry trade association also commented that the proposed model had not considered the fact that existing and planned networks are very small in size.
- Four respondents stated that more detail was needed in the impact assessment regarding costs. These stakeholders stated the impact assessment was not detailed enough for conclusions to be made.

Our proposed approach is outlined on page 20.

Question 6: Which entity should be responsible and accountable for regulatory compliance, particularly where the heat supplier and heat network operator are not the same entity? Please explain why you think this.

Question 6	Responses	Percentage
Agree	34	29%
Disagree	14	12%
Partially Agree	12	10%
Blank	41	35%
Comment Only	17	14%

Table 6

The table shows the number of respondents that agreed and disagreed with the government's proposal that the heat supplier or network operator should become the regulated entity from the point of operation. 'Partially Agree' reflects respondents who stated that only the heat supplier or only the network operator should be the regulated entity.

14 respondents stated that responsibility should lie with the asset owner, 11 stated that it should lie with the network operator, and nine believed it should lie with the heat supplier. Of the respondents who disagreed with our proposal of the heat supplier or network operator becoming the regulated entity, 61% proposed that the asset owner should be the regulated entity. Overall, 29% agreed, 10% partially agreed, and 12% disagreed with the government's proposal.

Nine respondents argued that there should be joint responsibility for regulatory compliance, split between various entities depending on the activity in question. Four respondents stated that responsibility should lie with the entity which has the closest interaction with consumers.

Our proposed approach is outlined on page 20.

Question 7: Do you agree that consumer protection requirements during the operation and maintenance project stage should be regulated, such as pricing, transparency and quality of service?

Question 7	Response	Percentage
Yes	79	67%
No	1	1%
Comment only	16	14%
Blank	22	19%

Table 7

There was a strong positive response to this question. Stakeholders were mostly positive towards the suggested requirement of transparency with 21 noting it would be important in relation to many other issues, particularly pricing.

Seven respondents referred to heat networks as natural monopolies and stated that this often means consumers are faced with overcharging as they have no choice but to pay the price charged by the supplier as they cannot switch to an alternative supplier. Similarly, six respondents highlighted how some companies allow consumers to take on their costs rather than bear this themselves with the knowledge that consumers have little choice.

Five respondents remarked that although transparency of pricing would be beneficial, and companies should be held accountable for their prices, absolute regulation or price caps could be overly restrictive and hinder the growth of the market.

Regarding quality of service, four stakeholders mentioned that requirements ought to be put in place whereby power outages and repairs would be dealt with promptly. A further three respondents stated that compliance checks ought to be carried out before a scheme is operational, allowing for the overcoming of minor issues for systems commencing operation.

Although stakeholder response to the question was mostly positive, some respondents provided counter arguments. For example, two suggested that smaller networks could self-regulate and regulations for larger networks would be misapplied if kept the same for smaller networks. Two others felt that the consultation overlooked the importance of investor confidence in unlocking the potential of commercially viable projects. Two stakeholders commented that disproportionate administrative burdens should be avoided, especially for smaller schemes where the supplier does not operate for profit.

Our proposed approach is outlined on page 20.

Question 8: Should there be a de minimis threshold below which a) very small domestic schemes and/or b) non-domestic schemes with very few domestic consumers are exempted from any of the regulatory requirements proposed in this framework? Please explain why you think this.

Question 8a/8b	Response	Percentage
Yes	16 / 16	14% / 14%
No	35 / 32	30% / 27%
Blank	67 / 70	57% / 59%

Table 8

There was a high level of disagreement with the options of introducing de-minimis thresholds, with several responses stressing the need for good levels of protection for all heat network consumers.

15 stakeholders stated that there should not be a de minimis threshold because this would not adequately protect consumers on smaller heat networks. 11 other respondents simply stated that there should not be a de minimis threshold and that all heat networks should be covered by regulation. Six respondents were concerned that, if such a threshold were to be introduced, it may distort the market.

Two industry trade associations stated that they were not in favour of a de minimis threshold. These respondents suggested that if the proposed model is sufficiently light touch then it would not be fair to exclude consumers on smaller networks.

Ten respondents stated that there should be a de minimis threshold for the reasons set out in the consultation document. Seven qualified their approval by stating that, if a de minimis threshold is introduced, it must be set at a low level so that very few dwellings are exempt from regulation. Five others stated that an assessment of heat networks eligible for an exemption should be made on a case-by-case basis as assessed by the regulator.

Our proposed approach is outlined on page 20.

Question 9: Should there be a size threshold above which larger schemes are subject to more detailed regulation and scrutiny? If so, what type of threshold would you consider most appropriate?

Question 9	Response	Percentage
Yes	46	39%
No	36	31%
Comment only	6	5%
Blank	30	25%

Table 9

Nearly a third of respondents disagreed with the option of a size threshold for larger schemes, often citing a preference for the same level of regulation for all heat networks. A portion of respondents that agreed argued that this would help tackle anti-competitive practices.

26 stakeholders stated there should be no distinction between larger and smaller schemes and that regulations should apply to all schemes. Of those who stated there should be no distinction, some said that a size threshold may discourage the market from bringing forward larger schemes. Other respondents believed that larger

schemes would be subject to licensing anyway,[4] so there would be little point in a size threshold within the proposed framework and the level of protection received by a consumer should not be based on the size of their scheme.

However, 14 respondents stated that a size threshold seems sensible, stating that the requirement would help to prevent bad business practices such as monopolies and lack of competition. Six stakeholders stated that the size threshold should be more granular and that, although they agreed with the principle, the threshold should be flexible and account for a regulated entity's portfolio of heat networks, the output of the heat networks in question or the number of customers served. Four respondents stated that size thresholds should be scaled according to organisation type, not just the size of the organisation.

A further eight respondents stated that, although a size threshold seems sensible, the proposed threshold in the consultation of more than 2,000 consumers is too high.

Our proposed approach is outlined on page 20.

Question 10: Should an optional licence be available for entities seeking rights and powers? If not, what other approaches could be considered?

Question 10	Response	Percentage
Yes	63	53%
No	10	8%
Comment only	2	3%
Blank	43	36%

Table 10

Responses from stakeholders were mostly positive. 14 respondents stated that the rationale outlined in the consultation document was a sensible approach. 19 respondents provided further reasoning, stating an optional licence would take pressure off other heat networks not seeking these powers, reduce or remove market access barriers, and improve the overall development of the market.

Seven respondents who disagreed stated that licensing should be compulsory for all heat networks.

Our proposed approach is outlined on page 20.

[4] Our proposal is that heat network developers seeking rights and powers for commercial purposes will need to pass licence checks before commencing development. It is therefore not the case that all larger heat network schemes will be subject to licensing. All schemes will be subject to general authorisation.

Question 11: Are there any other adjustments that could be made to the proposed model to enable it to work better?

Six stakeholders highlighted the importance of ensuring that the proposed model is as flexible as possible to ensure that it can be adapted with changing circumstances. Some of these respondents suggested this could be achieved by setting a review date.

Three respondents stated that further discussion of a 'fit and proper' test was required for all heat networks, with tests at each stage of commercialisation (specification, design, build, and commissioning). They believed this had not been adequately addressed in the consultation.

Several other respondents focused their comments on costs. Two stated that there should be tighter regulation of costs for consumers. Another two respondents suggested that the regulator should consider the distribution of regulatory costs, not just between schemes of different sizes, but between parent bodies of different sizes with different resources. This, they suggested, would ensure that these costs do not fall too heavily on those who can least afford them.

One industry trade association strongly encouraged government to consider the role of zoning in mandating connections to heat networks and to remain open to a regulated investment framework.

A second industry trade association and two other stakeholders suggested that government look more closely at self-regulation as an alternative to Ofgem. That trade association also suggested that an independent body is established to scrutinise the regulator, and that standardised consumer protection is put in place. It also called for a well-defined transitional period and the need to find a balance between access to information and commercial sensitivity.

There were also comments from 2 respondents recommending overall coordination with the Heat Networks (Scotland) Act 2021 to avoid segmentation.

Our proposed approach is outlined on page 20.

Question 12: Are there circumstances in which transitionary arrangements should be introduced? If so, in what circumstances might these apply and for what length of period?

Question 12	Response	Percentage
Yes	48	41%
No	12	10%
Comment only	8	7%
Blank	50	42%

Table 11

Though there were significantly more respondents agreeing with this proposal than disagreeing, many respondents that agreed qualified their stance with certain dependencies and required features for transitionary arrangements.

11 respondents who agreed that transitionary arrangements were required stated that this was especially important for existing schemes, and potentially for schemes that are currently under construction. Seven others who stated the arrangements would be necessary qualified their comments by stating it was important that transitionary periods do not delay any action because it has been known for some time in the market that further regulation is coming.

Six stakeholders suggested that transitionary arrangements should be dependent on heat network size because small heat networks may require support to comply with regulations where resources are limited. Similarly, six stakeholders said that transitionary arrangements should be dependent on organisation type. The reason given was that organisations such as local authorities and housing associations may require transitionary arrangements whilst energy service companies (ESCo) should not need a transition period.

Four respondents' arguments against transitionary arrangements centred on not providing heat network operators with an ability to exploit consumers.

Few respondents provided a proposed length of time for transitionary arrangements. However, of those that did at least 2 years or longer was mentioned so as not to incur economic loss or material consumer detriment.

Our proposed approach is outlined on page 20.

Emerging business models

Question 13: Do you consider our proposed approach sufficiently flexible to accommodate emerging business models, including unbundling of different components of a heat network? If not, please suggest ways in which we could ensure alternative business models are not precluded.

Question 13	Response	Percentage
Yes	46	39%
No	9	8%
Comment only	14	12%
Blank	49	42%

Table 12

Most respondents agreed that the approach was flexible enough although some respondents qualified their support. Of the stakeholders who disagreed, most argued that different elements of the market should be segmented or regulated separately.

Of those who agreed that our proposed approach is sufficiently flexible, many did not provide an explanation. Some simply stated that the approach outlined in the consultation seemed sufficiently flexible to accommodate emerging business models.

Some respondents argued that the regulator should be forward looking and flexible to emerging business models. Some also stated it would be important to break down the regulatory compliance into heat generation, heat distribution, and heat delivery to help other business models to operate.

Of the nine respondents who stated that the approach would not be sufficiently flexible, a significant proportion argued that different elements of the market, such as heat supply and heat distribution, should be regulated separately, with a requirement to enable unbundling. They argued that only this approach would be sufficiently flexible.

Our proposed approach is outlined on page 20.

Government Response – Regulatory Structure

Ofgem was considered the preferred heat networks regulator by the majority of respondents to the consultation. However, we listened to the views of several respondents who expressed concerns regarding regulatory costs and the suitability of Ofgem during and following the consultation period.

We therefore revisited our analysis on the suitability of Ofgem compared with other regulatory bodies and structures, working closely with industry to understand their views. We also scrutinised Ofgem's regulatory costs through comparative modelling work with Heat Trust.

These exercises reaffirmed our view that Ofgem is the most desirable choice for regulator, and we will be appointing Ofgem to the role. It brings experience of setting and enforcing consumer protection rules from regulating the energy market. In addition, it could use its role as gas and electricity regulator to ensure heat networks are considered as part of an integrated net zero energy system and will require lower set-up costs than a new organisation. Ofgem's experience also means it offers the quickest route to regulation. Finally, Ofgem maintains the support of most of our stakeholders.

The default option for recovering the costs of heat networks regulation would have been for these costs to fall solely on heat network regulated entities. Assuming regulated entities would then recover those costs through heating bills, it would effectively be heat network consumers only funding the costs of regulation. We found that without an alternative cost recovery mechanism, none of the options for regulator assessed can bring the cost per consumer of regulation down to an affordable level and down to a similar level to what gas and electricity consumers pay for regulation.

We concluded from the modelling work with Heat Trust that it would regulate the market in a way and at a cost similar to Ofgem, reinforcing our view that a small consumer base in the market is driving the high estimated regulatory cost per consumer.

We are therefore proposing to introduce a cost recovery regime which ensures that Ofgem and Citizens Advice's total ongoing costs of regulating the heat networks, gas, and electricity markets are spread evenly across heat network, gas, and electricity consumers.

Our current provisional estimates suggest that this would amount to heat network consumers paying approximately £1.40 per consumer per year in the central case. We also estimate that this amounts to an additional £0.10 per gas and electricity consumer per year from what they currently pay for regulation – applied to our estimate of the average gas bill, this represents a 0.02% increase.[5]

We have published a consultation on recovering the costs of heat networks regulation alongside this Government Response where we have set out our proposal in more detail and where respondents can provide views on our proposed approach.

We are also working hard to see where we can achieve efficiencies and use the most proportionate approaches to regulation to ensure regulation is as cost-effective as possible for businesses and consumers. Considerations around cost-effectiveness are included in several of the Government Response boxes below.

We will also introduce formal measures to ensure scrutiny of regulatory costs. Our proposed regulatory framework will require Ofgem to report to Parliament on its monitoring, compliance and enforcement activities, and associated costs. The National Audit Office (NAO) will scrutinise Ofgem's spending (as is already the case for Ofgem's spending as energy regulator), as will HM Treasury through its Managing Public Money principles.

We have agreed that representatives from industry and consumer groups will provide an advisory function during the next phase of designing the regulatory framework. This advisory board will be able to provide government and Ofgem with views on the design and implementation of regulation and on how to ensure heat network regulation is as cost-effective as possible. The board will not have a role in legislation in the oversight of regulatory costs given the roles of Parliament and the NAO in this process.

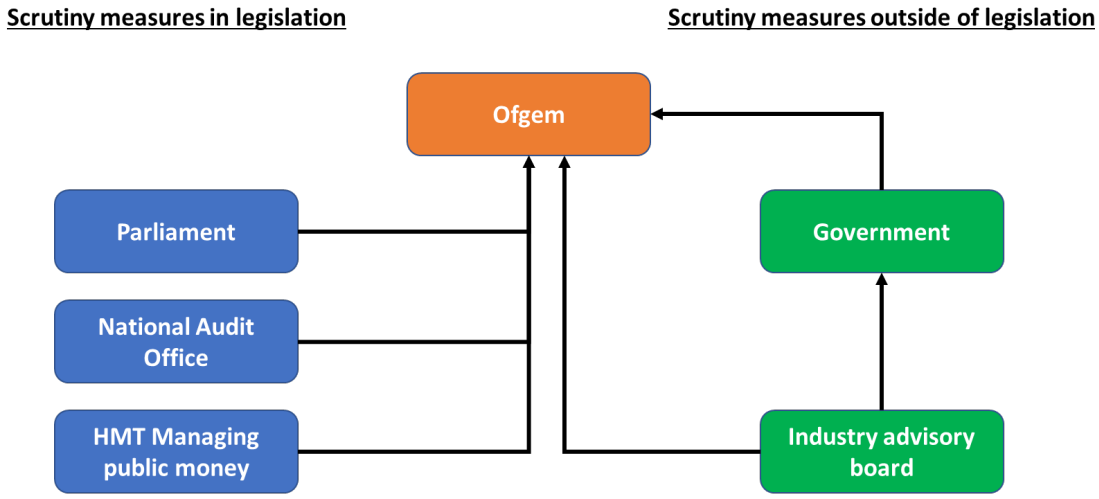

Diagram 1: Ofgem scrutiny measures

Ofgem will set and enforce consumer protection rules across Great Britain. We are working closely with the Scottish Government to ensure protections which are suitable for consumers across Great Britain.

The government has taken stakeholder views into account and has decided that all domestic consumers and micro-businesses will be protected by regulation. These consumers must receive protections regardless of whether they are supplied by a small communal network (serving one building) or large district network (serving multiple buildings). Introducing a de minimis threshold, as explored in Q8, would

[5] The 2020 QEP estimates that the average annual gas bill is £510 https://www.gov.uk/government/statistical-data-sets/annual-domestic-energy-price-statistics; Tables QEP 2.3.5 and 2.2.5

leave the significant proportion of consumers that are supplied by small communal networks without protections. We will not therefore be pursuing this option.

This means that all domestic consumers and micro-businesses will be protected by the regulatory regime, including consumer protections on pricing, transparency, and quality of service. In response to feedback to the consultation, we are considering whether certain small and medium sized enterprises should also have the option to be protected. We continue to believe, backed by responses, that larger businesses will be able to negotiate their own prices and terms of service with the heat supplier, and that typical contractual arrangements will provide adequate routes to redress for these types of consumers. Though we remain of the view that in many cases large businesses do not need to be covered by consumer protection requirements, we consulted on whether certain protections need to be extended to large non-domestic consumers within heat network zones.[6] We will also consider whether there are other instances in which large businesses would benefit from consumer protections.

We recognise that in many cases, communal heat networks and district heat networks can differ in terms of consumer experience, service provider, and steps needed to comply with future regulation. Therefore, whilst we will be introducing minimum levels of regulation applying to all heat networks, we recognise that we need to provide schemes with different routes to achieving compliance with that regulation.

Having considered feedback provided by respondents, we now propose that our definition of a heat network should cover shared ground loop heat networks. Regulations will therefore introduce protections for consumers on shared ground loops where concerns relate to problems caused by the common infrastructure, and we will keep these under review should we need to introduce further measures in future.

The diversity in network type covered by regulation is reflected in our policy to introduce outcomes-based quality of service standards, which will provide Ofgem with scope to implement standards flexibly and proportionately depending on the size and nature of the scheme. We recognise that there are many small heat networks within the market, and the outcomes-based approach seeks to ensure that the regulatory burden and cost impact on such schemes is proportionate and realistic (see ‘Consumer Protection’ section).

We also recognise that different schemes are subject to different existing obligations – for example, schemes operated by social housing providers and private landlords already need to meet obligations to consumers under the Landlord and Tenant Act. We will continue working closely with stakeholders to ensure our regulation complements and builds on these existing requirements.

[6] The heat network zoning consultation considers whether certain consumer protections, such as fair pricing, should be extended to large non-domestic consumers within zones who are required to connect as this would help address the risk of lost bargaining powers. See: https://www.gov.uk/government/consultations/proposals-for-heat-network-zoning

We intend to introduce a general authorisation regime that will enable Ofgem to enforce consumer protection rules. This will require that entities supplying heat through heat networks (that is, having a contractual agreement with customers to supply heat) and entities operating heat networks will have to be authorised to do so.[7] Both supply and operation will have a significant effect on day-to-day consumer outcomes, so we consider Ofgem needs to be able to regulate both these functions.

We recognise that in many cases, a single entity will be responsible for the supply of heat and the operation of the heat network. In these cases, only one entity will need to be authorised. However, in other cases, the heat supplier and heat network operator will be separate entities and there can be more than one supplier per network. Each of these suppliers and operators will need to be authorised to carry out supply and operation. We will consider further what regulatory requirements should fall to the asset owner.

Ofgem will manage the general authorisation process. All entities supplying heat or operating heat networks will need to notify the regulator of their intention to carry out these functions on a heat network in order to be authorised to do so. This is because all heat networks will need to meet some minimum technical standards and decarbonisation rules regardless of the types of consumers on the network, and both technical standards and decarbonisation will form part of conditions for continued authorisation (more information is provided in the Technical Standards and Decarbonisation sections below). Ofgem will have powers to set specific notification requirements for authorisation and to perform some risk-based checks.

Other roles for Ofgem will include enforcing rules on consumer protection, monitoring compliance and taking enforcement action where necessary, and issuing licences for statutory rights and powers.

We will appoint Citizens Advice as the consumer advocacy body for heat networks in England and Wales. This is necessary for ensuring that heat network consumers receive an advisory and advocacy service and that consumers in vulnerable circumstances receive priority services. Citizens Advice already provides similar functions in the energy, water, and postal sectors. This means that it is well placed to draw on existing resources and expertise to represent heat network consumer interests and provide them with independent advice. It will be for the Scottish Government to determine whether it wants Citizens Advice Scotland or another body to take on a consumer advocacy role in its regulatory framework.

[7] See page 35 of the *Heat Networks: Building A Market Framework* consultation for our definitions of a 'Heat supplier' and 'Network operator'.

Enforcement Powers

Enforcement powers

Question 14: How should government and the regulator ensure that enforcement action is proportionate and targeted? Are there particular considerations for not for profit schemes?

Many stakeholders suggested that enforcement action should be transparent and focused and should address the specific issue being enforced against with the heat network in question.

The most frequently made point, which was made by 14 respondents, was that consumers should not be negatively affected by enforcement actions. Specifically, these respondents stated that financial penalties should not be allowed to be passed onto consumers through inflated bills.

10 stakeholders stated that the best way to ensure that enforcement action is proportionate is to assess on a case-by-case basis.

10 respondents also stated that enforcement action may not be useful in cases where technical issues are the underlying cause of poor performance.

Learning lessons from other sectors was mentioned by 7 respondents as an effective way to ensure that enforcement action is proportionate and targeted. Organisations given as examples included the Charity Commission and the Environment Agency, as well as suggestions to look at approaches taken in the gas and electricity markets.

Another theme mentioned by 6 respondents was transparency which was cited as a key requirement for enforcement by a range of stakeholder types. Four stakeholders noted that enforcement guidelines or a penalties methodology were needed.

Our proposed approach is outlined on page 29.

Question 15: Do you agree that imposing fines and removing a licence/authorisation are an appropriate and adequate set of enforcement actions for the regulator of the heat network market?

Question 15	Response	Percentage
Yes	76	64%
No	6	5%
Comment only	10	8%
Blank	26	22%

Table 13

Although there was broad support for this approach, several respondents stated that the regulator should only resort to these enforcement actions in specific circumstances.

16 respondents stated that the use of penalties or revocation of a licence or authorisation should be proportionate and used only as a last resort. 12 respondents stated that there is a need for step-in arrangements or a Supplier of Last Resort for schemes where another heat supplier is required to take over at short notice because of the revocation of a licence or authorisation. 11 respondents stated that generally the approach should be to focus on supporting compliance, including with funding, before imposing any penalties.

Seven respondents also commented that consumers must not end up paying for any enforcement actions levied against heat suppliers and 5 others stated there should be procedures in place for consumers to receive redress.

Our proposed approach is outlined on page 29.

Question 16: Do you agree that the regulator should have powers to impose penalties at the entity level which are proportionate to its size, in a scenario where there are repeated or systemic failures across multiple schemes owned or operated by the same entity?

Question 16	Response	Percentage
Yes	68	58%
No	8	7%
Comment only	9	8%
Blank	33	28%

Table 14

Though most respondents agreed with the principle of applying penalties where proportionate, many qualified their support, and some noted that penalties should only be imposed where there is evidence of consumer harm.

Seven stakeholders noted that this approach would encourage compliance as the penalty would act as an effective deterrent. Six respondents stated that the penalty should depend on the nature of the regulated entity. For example, they stated that penalties may be appropriate for for-profit large organisations but not for local authorities.

Four respondents stated that penalties should only be used as a last resort and that penalties should only be imposed at the entity level where there is evidence of multiple instances of non-compliance.

Six respondents who disagreed with the approach suggested that fines should be focussed instead on where there has been evidence of consumer detriment. These respondents stated that fines should be proportionate to the consumer detriment and not to the size of the entity.

Our proposed approach is outlined on page 29.

Question 17: Do you agree that the regulator should have powers to revoke an authorisation for single networks owned or operated within a group scenario, so that the entity would still be authorised or licensed to operate those networks within the group that remain in compliance? If not, what alternative approach might the regulator take?

Question 17	Response	Percentage
Yes	73	62%
No	3	3%
Comment only	4	3%
Blank	38	32%

Table 15

As demonstrated above, most stakeholders agreed with this proposal. 14 stakeholders commented that revocation of authorisation for one network should lead to tighter scrutiny of that entity's other assets and repeat offences should lead to a bigger impact on that entity.

Five stakeholders noted that revocation of any sort requires step-in arrangements and another 5 stated that revocation should be a last resort. Four respondents suggested that other approaches should be considered, such as compliance plans and the suspension of authorisations as opposed to permanent revocation.

Our proposed approach is outlined on page 29.

Question 18: If compliance issues are more widespread within the group of networks owned or operated by the same entity, do you agree that the regulator should be able to revoke the authorisation or licence for the entity as a whole covering its entire group of networks? If not, what alternative approach might the regulator take?

Question 18	Response	Percentage
Yes	69	58%

No	13	11%
Comment only	2	2%
Blank	34	29%

Table 16

Though generally supportive of enforcement where there is evidence of compliance issues, some stakeholders raised concerns over the implications this approach may have for consumers on other heat networks owned by the same entity but which do not have the same issues.

A common theme from respondents who agreed with our proposal was that revoking the licence of an entire group of networks should only be used as a last resort and only after other compliance avenues had been exhausted. Many stakeholders who agreed also noted that this approach would require step-in arrangements to be in place.

Those who disagreed with the proposal generally stated that it would be disproportionate and would have a negative impact on customers. Some of these respondents also commented that the approach may lead to an increased investment risk and higher prices for consumers living on heat networks.

One industry trade association disagreed that the regulator should be able to revoke authorisations covering an entity's entire group of networks because authorisation will be granted on a scheme-by-scheme basis. Regarding the revocation of a licence, the stakeholder noted that this could be dealt with separately as they will be granted on a company-by-company basis. However, they noted that an assessment would still need to be made on the implications for consumers of revoking a licence.

Our proposed approach is outlined on page 29.

Question 19: Do you agree that individual domestic consumers should have access to ombudsman services for redress? Do you have any views as to which ombudsman is best placed to provide this function for heat networks?

Question 19	Response	Percentage
Yes	87	74%
No	1	1%
Comment only	1	1%
Blank	29	25%

Table 17

42 respondents stated the Energy Ombudsman is best placed given its existing experience in the gas and electricity markets. Citizens Advice and Which? were also mentioned, however both were only suggested by one stakeholder.

Six stakeholders commented that, for certain social housing tenants, the Housing Ombudsman may be best placed as a route to redress. These stakeholders stated that collaboration between the Housing and Energy Ombudsman is expected to be needed with clear delineation of roles.

Four respondents also made the point that complaints made by a group of individuals must be accepted, and these should not have to first go through the landlord.

Our proposed approach is outlined on page 29.

Government Response – Enforcement Powers

We will introduce a framework which ensures that cases of non-compliance with regulation are resolved by Ofgem. Where appropriate, this may involve supporting regulated entities to take steps to comply. Enforcement actions by Ofgem will only be taken in appropriate circumstances, such as where there is non-compliance causing significant consumer detriment or where the regulated entity has not taken steps to comply.

Ofgem, the independent ombudsman service (see below for details), and Citizens Advice will work closely to address compliance issues in the market. To enable this, Ofgem will have monitoring and information gathering powers and the three bodies will share information with each other through the establishment of a tripartite model which will be similar to and build from existing practices in the gas and electricity sectors.

The majority of Ofgem's compliance activities will likely be dealing with systemic issues. The independent ombudsman service will handle escalated individual consumer complaints and Citizens Advice will provide an advisory service and support to consumers, including those in vulnerable circumstances. Given a large share of the market consists of small communal networks, the work of the independent ombudsman service and Citizens Advice as frontline organisations within the tripartite model will be crucial in identifying recurring non-compliance and consumer detriment across schemes. They will also be able to report complaints and issues and make recommendations to Ofgem, which will monitor market compliance. We recognise that the large number of small entities in the market means that Ofgem will need to adopt cost-effective approaches to compliance work. BEIS and Ofgem will continue exploring proportionate approaches to compliance, such as risk-based market segmentation, and we will continue engaging with stakeholders and other regulatory bodies to identify best practice.

Where enforcement action is necessary, we intend for Ofgem to have recourse to powers equivalent to those it has for gas and electricity. These include provisional and final orders, financial penalties, consumer redress orders, revocation of a regulated entity's authorisation/licence, and powers to address schemes operating on an unauthorised basis. Regulated entities will have rights to appeal enforcement decisions.

Ofgem will have powers to revoke the authorisation for a specific heat network if problems are scheme specific. Where compliance issues are more systemic, Ofgem will have powers to revoke the authorisation of the entity in relation to all its schemes.

Financial penalties imposed on regulated entities will likely take into consideration factors such as the size of the non-compliant entity, for example in terms of number of heat network consumers, and the extent of consumer detriment caused by the non-compliance. This will achieve a balance of ensuring penalties are proportionate to the contravention whilst also acting as a deterrent against repeatedly breaching requirements. Ofgem will design the detailed policy for

calculating the size of financial penalties. We agree with stakeholders that raised concerns that financial penalties should not be passed onto consumers, and we are undertaking further policy development to explore how consumers can be protected against this risk.

We need to consider further whether financial penalties are a suitable mechanism for not-for-profit entities. They will want to be able to use surpluses to achieve organisational objectives rather than pay penalties, meaning they could serve as an effective deterrent. On the other hand, not-for-profit entities may have fewer options for absorbing the cost of a financial penalty and we want to avoid a scenario where the costs of a penalty are passed onto consumers. It is worth noting that financial penalties would only be used where warranted and appropriate.

The responses to this consultation have reaffirmed our view that the Energy Ombudsman is best placed to take on the role of independent ombudsman service and provide an independent redress route that is free for consumers with complaints regarding their heat supplier. The Energy Ombudsman was the most frequently cited body for the role by respondents. It would bring vast experience from resolving approximately 60,000 complaints each year in the energy sector, as well as its direct experience with heat networks through Heat Trust.[8] In the energy sector, Ofgem appointed the Energy Ombudsman to the role of independent ombudsman service, and we are considering whether the same process of appointment would be appropriate for heat networks.

Currently, the Housing Ombudsman handles a small number of heat network disputes involving the tenants and leaseholders of social landlords. We see a role for the Housing Ombudsman in continuing to handle these disputes, but it will not have a role in statute within the market framework. We recognise that both ombudsman services would need to work together to ensure clear and efficient complaints routes for consumers.

[8] https://www.ombudsman-services.org/sectors/energy

Step-in Arrangements

Question 20: Do you agree that step-in arrangements are necessary both to cover the risk of stranded consumers and as a deterrent against sustained failure to meet the regulatory requirements? If not, why?

Question 20	Response	Percentage
Yes	86	73%
No	1	1%
Comment only	2	2%
Blank	29	25%

Table 18

Stakeholders broadly agreed with the need for step-in arrangements, however some queried how such measures would be funded and others emphasised that step-in arrangements should be used as a last resort.

As demonstrated in the table above, the responses to this question were mostly positive. 11 stakeholders stated it was important that step-in arrangements were in place from the perspective of consumer protection and environmental protection. These respondents stated that a Supplier of Last Resort arrangement would be vital to ensure that consumers are not left without heating if their heat supplier goes into insolvency.

Nine stakeholders stated that step-in arrangements would avoid disruption of supply and mitigate against stranded consumers whilst also providing a deterrent against failure to meet regulatory requirements. This was supported by 4 respondents who stated that it might lead to good quality suppliers, increased investor confidence, and enhanced standards of service.

Six respondents mentioned that step-in arrangements may have an impact on costs. Although the respondents considered that a Supplier of Last Resort was necessary, these respondents questioned how this mechanism would be funded. Some of these respondents also noted how suppliers on smaller schemes may be more likely to fail to comply with regulatory requirements or go into insolvency and could therefore be more likely to require step-in arrangements.

Although the majority agreed that step-in arrangements were required within the regulatory framework, 6 emphasised that they should be used as a last resort and that existing step-in procedures provided for in commercial contracts, where available, should be used in the first instance.

One industry trade association disagreed with the step-in arrangements proposed and suggested an alternative approach whereby the offending scheme is subject to special measures where experts are brought in by the regulator to amend and remove the issues, with this process being funded by the non-compliant entity.

Our proposed approach is outlined on page 33.

Question 21: Do you have any examples of approaches we should be considering as we develop the step-in arrangements?

A variety of approaches were suggested by stakeholders with many emphasising that step-in arrangements should be well planned.

Eight stakeholders cited the Supplier of Last Resort and Special Administration regime in the energy retail market as a good example of step-in arrangements.

Seven respondents stated that contingency plans should be robust and that the regulatory procedures should only be there as a backstop. Some of these respondents also noted that heat networks relying on gas and electricity may be able to maintain supply even after insolvency, but some heat sources rely on the import of fuel such as biogas or diesel. In these instances, heat suppliers should have a plan in place to maintain fuel supplier should insolvency procedures take place.

Four stakeholders made the point that the entity which steps in to take on the heat network should be government, industry or regulator led. These respondents argued that the entity which steps in should be both competent and non-profit so the root problem can be addressed.

One industry trade association stated that as part of the requirements of being an authorised operator, heat networks should have an explicit responsibility to identify a step-in process.

Our proposed approach is outlined on page 33.

Government Response – Step-in arrangements

We agree with the majority of respondents that step-in arrangements should be in place as part of the market framework. While we believe the current rate of supplier market exit is low, we consider it important to have measures to protect consumers' heat supply in the event it does happen. We also note the potential co-benefits highlighted by respondents to investor certainty and the incentives it might provide to improve quality of service standards.

Step-in arrangements are a complicated area from a policy and a legal perspective, and we are minded to proceed cautiously to both avoid overburdening the nascent heat networks market and to ensure that our approach is proportionate and cost effective. Further, given the diversity of network types, ownership and commercial set-ups, and different failure scenarios, we recognise multiple step-in approaches may be required.

Since publishing the consultation we have engaged with stakeholders on potential step-in arrangements and will continue to do so. We plan to introduce broad powers in legislation that allow for a range of solutions to be developed through authorisation conditions. We plan to introduce powers that could require commercial contracts to provide accountability, or a process for identifying accountability, for stepping-in in the case of market exit. Authorisation conditions could also require suppliers to maintain supply continuity plans that address short term supply issues and facilitate transfers to new suppliers where necessary. Through authorisation conditions, Ofgem could develop a supplier of last resort regime. Ultimately Ofgem will be able to determine how and where these measures are implemented reflecting market monitoring, stakeholder engagement, and the diversity of the heat network sector.

We are also planning to introduce a special administration regime. We consider this is necessary to protect consumers' heat supply if a supplier enters administration. To recover costs associated with administration and suppliers of last resort taking on new networks, we plan to introduce powers to levy funds.

We will continue to work with stakeholders to develop the detail to be set out in secondary legislation and authorisation conditions. We will harness the stakeholder advisory group and other engagement channels to ensure arrangements are proportionate, flexible, provide assurances to consumers, are coherent with other market framework mechanisms, and fit with protections for consumers.

Consumer Protection

Transparency

Question 22: Do you agree that the provision of minimum information would help consumers in making decisions at pre-contractual stages of property transactions?

Question 22	Response	Percentage
Yes	81	69%
No	3	3%
Comment only	6	5%
Blank	28	24%

Table 19

Most stakeholders agreed that transparency of information is key for heat networks regulation. There was some disagreement over the extent of transparency, and which should be the body responsible for ensuring transparency.

17 respondents agreed that details of costs and billing should be included at pre-contractual stages and 14 respondents stated the information should be easy to understand. 10 stakeholders stated that the responsibility of sharing the information properly to consumers should be with the individual or body responsible for the property transaction, such as the developers, estate agent, landlord or housing association.

Seven respondents who agreed suggested the information should go further and include background on heat networks and wider context on the environmental benefits. Similarly, six others stated that too many customers do not realise they will be served by a heat network or the potential cost implications. Six others who agreed stated that information on the limited ability to switch suppliers and the monopolistic nature of the heat networks market should be provided.

Five respondents recognised the current inconsistencies between estimated costs, provided at pre-contractual stage, and actual costs once the consumer has moved in, and stated this situation should be avoided. However, three stated that the level of transparency varies across the heat networks market.

Four respondents stated that homebuyers probably will not consider the utility supplier when deciding whether to buy a property.

Our proposed approach is outlined on page 44.

Question 23: Do you agree that heat suppliers should be responsible for developing information and guidance for prospective consumers? If yes, what minimum information should be included?

Question 23	Response	Percentage
Yes	85	72%
No	5	4%
Comment only	6	5%
Blank	22	19%

Table 20

57 respondents stated that information on pricing, cost estimates and tariff models should be included in the information and guidance provided by heat suppliers. 26 mentioned that information and guidance should be supplied to consumers regarding the contractual arrangements in place before purchasing and, related to this, 22 mentioned that terms of service information should be included.

As raised in the previous question, 22 respondents stated that information on how the heat network system works and what a heat network is should be included. 19 suggested that the age, type, and performance indicators of the heat network should be disclosed as this would be relevant to the consumers.

22 also stated that the appointed service providers for emergencies, bill queries, metering and billing, and maintenance should be communicated to consumers in the form of guidance. Guidance on the appropriate complaints procedure and information on how to access fuel poverty support was also requested by 20 respondents.

There were also 18 comments to include information relevant to the environmental impact and carbon emissions of heat networks. Five of these respondents stated that the impact that the heat network has on the property's Energy Performance Certificate (EPC) should be emphasised and six stated that energy saving tips should be included.

An industry trade association who disagreed that the heat supplier should be responsible for developing information and guidance for prospective consumers stated that this should fall to the developer of the site or the existing landlord but with input from the heat supplier where possible. This was echoed by a second industry trade association which stated that often, it will not be appropriate for the heat supplier to provide this information to customers, and instead, it should be a responsibility on those selling or renting out the property.

Our proposed approach is outlined on page 44.

Question 24: How can we ensure new consumers receive or have access to information about the heat network before moving into the property?

Many stakeholders focused on the point of sale as key for communicating information, however, others suggested a more centralised educational campaign would be required.

A common suggestion, made by 62 stakeholders, was that information about the heat network should form part of the information provided to the consumer when a property is sold or rented. 24 of these stakeholders stated that the provision of this information at the pre-contractual stage should be made a legal requirement.

11 respondents suggested that this information should be included in the property's Energy Performance Certificate (EPC) given that EPCs are already provided to new consumers.

Nine suggested that providing a link to the heat supplier's website and to other online resources would be another way to ensure access to information.

Some stakeholders suggested that a more centralised approach was required. Six suggested that a national awareness campaign on heat networks and heat decarbonisation would be required to educate consumers effectively. Four suggested that the regulator should require the body providing the information to obtain proof that the consumer has acknowledged that the property is on a heat network. Another four suggested that the government should introduce sanctions for not providing information at the pre-contractual stage.

Four respondents stated that the framework needs to ensure information requirements are just as stringent for tenant-to-tenant transactions.

Our proposed approach is outlined on page 44.

Question 25: Do you agree that the market framework should regulate and enforce the provision of information during residency?

Question 25	Response	Percentage
Yes	79	67%
No	2	2%
Comment only	5	4%
Blank	32	27%

Table 21

There was broad agreement with the regulation and enforcement of information during residency, with some comments stating that existing processes should be followed where possible to reduce burden on business.

21 respondents stated that regulation should set standards for what information should be included within bills and what information should be provided to consumers. Some of these respondents suggested that this should include how the tariffs have been calculated, meter readings, consumption rates and price comparisons to similar schemes.

Eight of the respondents who agreed with the proposal in this question stated that the framework should build upon the existing code of practice used by the Heat Trust as this may already be familiar to a proportion of the market.

Seven others emphasised the importance of including information on the complaints procedure, consumer advocacy bodies such as Citizens Advice, debt advice organisations, and what consumers should do in case of outages.

Four stated that the information should be easy to obtain and understand.

Our proposed approach is outlined on page 44.

Pricing

Question 26: Do you agree that the regulator should have powers to mandate and enforce price transparency? Can you foresee any unintended consequences of this?

Question 26	Response	Percentage
Yes	81	69%
No	2	2%
Comment only	11	9%
Blank	24	20%

Table 22

The response to our proposal on mandating and enforcing price transparency was favourable, however many stakeholders noted that consumers may perceive differences in prices, either between networks or compared with gas and electricity, as unfair. Stakeholders suggested that the regulator should provide guidance to address this.

25 respondents commented that, due to the diversity of the heat networks market, heat suppliers will need to explain the reasons for scheme-by-scheme price variations if price transparency is enforced, and those variations could lead to complaints or a perceived lack of fairness.

10 noted that the regulator must have a counterfactual or benchmark against which it considers fairness of price.

Seven suggested that the framework should make use of the Heat Trust's *Heat Cost Calculator* or have a scheme comparing heat network prices with prices in similar sized properties using gas boilers. Five others stated that any enforcement of price transparency should be accompanied by guidance on setting fair prices.

Six respondents stated that price transparency will help consumers to put pressure on suppliers to reduce prices and that it would help consumers identify unfair prices. They also stated that it would help consumers put pressure on suppliers to switch to low carbon technology. Four others who agreed with the proposal suggested it would incentivise suppliers to improve efficiency and reduce costs.

Five stated that the proposal to mandate and enforce price transparency will help consumers to better manage their heat usage and increase their understanding of whether they are getting a fair price. However, four others suggested that a national awareness campaign or educational resources would be needed to educate customers on different tariff models.

Our proposed approach is outlined on page 44.

Question 27: What are the current barriers to publishing and maintaining accurate information on fixed charges, unit rates and tariffs? What are the main reasons for information on pricing not being available at present?

Many stakeholders highlighted that pricing complexity and lack of consumer understanding were current barriers preventing the publication of information on pricing.

13 respondents stated that current variations in tariff models, the complexity of pricing structures and/or the perception of high costs by customers were all barriers to publishing and maintaining accurate information on charges.

13 others stated that the primary reason was that heat suppliers have no incentive to provide price transparency. Similarly, seven other respondents cited the current lack of regulation requiring price transparency.

Some stakeholders commented on the implications of publishing price information. 10 stated that there are commercial sensitivities with publishing price information. Five others noted that the bills for some heat network consumers such as social housing residents are subsidised, which means that publishing prices could cause confusion and lead to a perception that unsubsidised consumers are receiving an unfair price. Six stated that higher prices on some heat networks could lead to reputational damage to the industry.

11 respondents stated that publishing information on pricing requires administration, investment, and resource, which costs money. Seven others simply stated that heat networks lack the information on costs.

One industry trade association noted a practical barrier where data published, particularly for smaller schemes, would need some form of website to provide full transparency to their consumers and more widely.

Our proposed approach is outlined on page 44.

Question 28: Do you agree that there should be clear, consistent rules on what costs should be recovered through fixed and variable charges?

Question 28	Response	Percentage
Yes	72	61%
No	7	6%
Comment only	9	8%
Blank	30	25%

Table 23

Though most stakeholders agreed with consistent rules on charging, some voiced concern that overly strict rules may be too prohibitive for the nascent heat networks market.

18 stakeholders stated that heat suppliers should have some flexibility on cost recovery and an ability to innovate on tariff models, with some respondents commenting that future innovation should not be inhibited by the proposed framework. Five stakeholders also noted that, as set out in the consultation, rules should include reference to the Landlord and Tenant Act which places restrictions on cost recovery if heating is paid through a variable service charge. 12 respondents suggested there should be further guidance or principles on cost recovery and not strict rules at this stage.

Two industry trade associations disagreed with the proposal. One stated that the proposed approach would add a level of complexity that would be hard to regulate and would not bring the corresponding consumer benefit. The other suggested that at this stage of the market's development, heat networks must be able to make use of varying financing methods.

Our proposed approach is outlined on page 44.

Question 29: Do you agree that the regulator should have powers to undertake investigations on pricing and to enforce directions and remedy actions, where there is sufficient evidence that these could lower prices for consumers?

Question 1	Response	Percentage
Yes	81	69%
No	2	2%
Comment only	27	23%
Blank	8	7%

Table 24

Stakeholders generally agreed but emphasised that the regulator should be proportionate and pragmatic in its approach.

11 stakeholders suggested that the regulator needs to take a flexible approach to undertaking investigations on pricing given the diversity of heat network tariff models. Some of these respondents commented that price investigations must make price comparisons with heat networks with similar technology, carbon intensity, and levels of service. Others stated that an investigation would need to consider all the potential costs which a supplier could face, such as maintenance, major works, repairs and equipment costs.

Three respondents commented that the CMA's 2017 market study did not find evidence of widespread consumer harm relating to pricing and another 3 suggested that investigations could deter investment into the sector.

Our proposed approach is outlined on page 44.

Question 30: Do you agree that price regulation in the form of a price cap or regulation of profits should not be implemented at this point in time? Please explain your answer.

Question 30	Response	Percentage
Yes	55	47%
No	22	19%
Comment only	10	8%
Blank	31	26%

Table 25

Stakeholders provided a variety of views on a price cap, but the majority agreed that it should not be implemented at this time, primarily due to its potential to limit market growth.

12 stakeholders stated that at this stage price caps should be kept under review.

12 stakeholders stated that price caps or profit regulation may limit investment and nine others suggested that greater transparency of costs should prevent the need for a price cap. Two respondents argued that a price cap may favour low cost, high carbon technology which would be counter to decarbonisation goals, with one citing an example of a price cap in the Netherlands.

Nine respondents mentioned the CMA recommendation in their response. The CMA did not recommend a price cap or regulation of profits for heat networks, however, did recommend a flexible and principles-based approach.

Six others who disagreed with a price cap or profit regulation suggested that this would be too complex to implement, and another six suggested that it would be preferable to target individual cases of excessive costs rather than introduce market-wide caps.

Stakeholders who disagreed with the proposal and stated that a price cap was required generally did so from a consumer fairness perspective. Some of these respondents highlighted that heat networks are monopolies and that heat suppliers should be made aware of caps prior to agreeing to supply heat through a heat network. Five of these stakeholders stated that price caps or profit regulation for heat networks should be introduced immediately.

Our proposed approach is outlined on page 44.

Question 31: What might cause price regulation to become an appropriate intervention in future? What evidence would be required to demonstrate this?

21 respondents suggested that price regulation may become an appropriate intervention in future if prices are high or if companies are making excessive profits. Some respondents stated that price regulation would become an appropriate intervention only after investigations by the regulator or when published price guidelines for heat have been exceeded.

Seven respondents stated that price regulation should be introduced once the market has matured.

In a similar point to those mentioned above, five respondents mentioned that price regulation should be introduced if a monopoly develops or if there is an evident lack of competition.

Ten respondents suggested that price regulation may become appropriate if evidence emerges of widespread consumer detriment or an increase in fuel poverty. Similarly, three suggested that price regulation may be appropriate following an increase in customer complaints to the Energy Ombudsman.

Five respondents stated that price regulation should result from any future CMA investigation which concludes that price regulation is needed.

One industry trade association stated that there should not be a need for price regulation in the future if there is sufficient whole-life costing and transparency of charges. This respondent believed that price regulation would add unnecessary complexity to the market and prevent future growth.

Our proposed approach is outlined on page 44.

Quality of Service Standards

Question 32: Do you agree that consumers on heat networks should have comparable levels of service and protection as consumers in other regulated utilities? How do we ensure the associated compliance costs of such protections remain proportionate?

Question 32	Response	Percentage
Yes	88	75%
No	0	0%
Comment only	4	3%
Blank	26	22%

Table 26

Stakeholders strongly agreed that consumers should have comparable levels of service and protection as in other regulated utilities but provided different approaches to ensuring that the cost remains proportionate.

11 stakeholders suggested that the Heat Trust's existing code of practice should serve as an example and template for introducing quality of service standards.

Six respondents suggested the best way to ensure that associated compliance costs remain proportionate would be to introduce regulation which encourages market growth and investment. Four others stated that the regulator must take a value-for-money approach, with the benefits of regulated activity always outweighing the costs and the regulator taking a targeted approach to data reporting.

Three stakeholders questioned the ability of heat networks to achieve the same level of protections as other utilities. They stated that other utilities can spread regulatory costs across a larger number of customers and/or time period than is the case for heat networks.

Three stakeholders suggested costs can be reduced by not regulating all heat networks. For example, there could be exemptions based on size or business model.

Three respondents suggested reducing compliance costs by creating a government fund which supports heat networks in making steps to comply with the regulation.

One industry trade association suggested the most sensible approach for heat networks is to pursue a set of minimum standards which can be practically implemented, and which are outcome based. A second industry trade association stated that the government should pursue a balanced approach to developing robust consumer protection and ensure the resulting obligations are clear and not unduly complex.

Our proposed approach is outlined on page 44.

Question 33: Do you agree that minimum standards should be outcome-based to allow the regulator scope to implement these flexibly and proportionately depending on the size and nature of different schemes? Are there other ways these outcomes could be achieved?

Question 33	Response	Percentage
Yes	71	60%
No	2	2%
Comment only	9	8%
Blank	36	31%

Table 27

Eight respondents agreed that the regulator needs flexibility to ensure that there are targeted interventions for smaller schemes and that interventions are based on size of scheme and/or business model. Four others who agreed with an outcome-based approach for minimum standards stated that such an approach would encourage innovation in the industry.

Although most stakeholders agreed, four stated that performance indicators, such as energy efficiency, costs, and reduction of fuel poverty, would be needed. Seven stakeholders voiced concern that an outcome-based approach would result in low standards on smaller schemes or different standards across the market.

Our proposed approach is outlined on page 44.

Government Response – Consumer protection

Given stakeholders' positive feedback on transparency proposals, we intend to require that consumers be provided with a minimum level of information and guidance on heat networks at the pre-contractual stages of property transactions (sale or letting). Where possible, heat suppliers should be responsible for developing this information and guidance for prospective consumers. The entity or individual engaging with the consumer during the property transaction, such as the developer or landlord, should then be responsible for ensuring consumers receive the information and guidance. This obligation will sit outside of Ofgem's remit as regulator and they will not have enforcement responsibilities in this area, but this obligation will be required by legislation. Consumers will also receive a minimum level of easily accessible information during their residency, including heat supply agreements (or equivalent) and billing information.

With regards to pricing, we still propose for Ofgem to have powers to mandate and enforce price transparency and introduce rules or guidance on cost allocation. Ofgem will have data collection powers and powers to conduct investigations into heat networks where prices for consumers appear to be disproportionately high compared to a range of analysis and benchmarks. Ofgem will also have powers to introduce rules and/or guidance on fair and consistent pricing, powers to take enforcement action against disproportionately high pricing, and the ability to set price comparison and benchmarking methodologies.

In line with our original proposal and stakeholder feedback, we currently do not intend to introduce price caps or direct profit regulation given that the nascent state of the heat networks market will require flexible business and tariff models to encourage investment and growth. However, we intend for the Secretary of State to hold powers to allow the regulator to introduce pricing regulation in future should there be evidence of widespread consumer detriment, or as a mechanism to incentivise innovation to reduce costs and encourage growth in a more mature market.

Respondents mostly agreed that consumers on heat networks should have comparable levels of service and protection to consumers in other regulated utilities and so this proposal remains unchanged. We recognise that there are many small heat networks within the market, and Ofgem will have the scope to ensure that the minimum quality of service standards is outcome-based. This will enable it to implement these standards flexibly and proportionately depending on the size and nature of the scheme requiring intervention, ensuring that the regulatory burden and cost impact on such schemes is proportionate and realistic.

Technical Standards

Question 34: Do you agree that all new schemes should be subject to minimum technical standards (once developed), given the potential impact on system performance and end consumers?

Question 34	Response	Percentage
Yes	87	74%
No	0	0%
Comment only	1	1%
Blank	30	25%

Table 28

As demonstrated in the table above, mandating minimum technical standards received strong support from stakeholders.

Six respondents stated that minimum technical standards should be extended to existing schemes, with some of these respondents suggesting that the operational and consumer protection stages of the existing ADE-CIBSE Code of Practice (CP1) should be applied retrospectively to existing networks. As a minimum, these respondents recommended that any remedial work on existing systems must be subject to minimum technical standards.

Four respondents stated that the latest edition of the ADE-CIBSE CP1 should be mandated as technical standards and that KPIs would be required to monitor the design standard. These stakeholders stated that the existing CP1 standards would be the best place to start for technical standards.

Our proposed approach is outlined on page 48.

Question 35: How could we ensure the impact of minimum technical standards on new small communal networks is proportionate?

There was an equal split in opinion between stakeholders who thought standards should be tiered and those who thought that the same standards should apply at all levels to give the same level of consumer protection. Some respondents stated that, due to COVID-19 and changes in life and work styles, consumer protection at all scales should be driven harder.

Ten stated that some form of minimum technical standards should apply to all networks regardless of size because the impacts of poor design will still be felt by consumers on smaller networks.

Four remarked that technical standards should be outcome-based so that they can be adjusted depending on the size and features of the heat networks. They stated that technical standards should have a minimal effect on the overall build cost of even a small scheme and therefore every new development should comply with the standards.

Three stated that no new standards beyond CP1 should be imposed so that the heat networks industry does not need to learn new systems.

Our proposed approach is outlined on page 48.

Question 36: Do you agree that regulated entities should demonstrate they are compliant through an accredited certification scheme?

Question 36	Response	Percentage
Yes	79	67%
No	4	3%
Comment only	0	0%
Blank	35	30%

Table 29

There was strong and widespread support for an accredited certification scheme. However, there were a range of views on which entity should be the regulated entity.

Five respondents preferred ensuring that the certification bodies are third party accredited for assurance. These stakeholders stated that having the UK Accreditation Service (UKAS) take responsibility for monitoring organisations offering certification would provide the advantage that the regulator would not need to develop the specific technical understanding and resources.

There were also suggestions to apply requirements retrospectively. Two respondents stated that accredited certification should apply to existing networks and a further two stakeholders stated that any certification scheme should consider the track record of companies who have put in place low quality heat networks in the past.

Five respondents suggested a tiering approach for smaller schemes to lower costs.

One industry trade association stated that the general authorisation model should be extended back to the development phase to ensure that the scheme is being developed in a way which meets requirements under general authorisation. This respondent believed that segmenting out the design, build and operational stages would create an unhelpful disconnect.

Our proposed approach is outlined on page 48.

Question 37: What do you consider to be the most appropriate approach to setting the technical standards?

30 stakeholders stated that the most appropriate approach to setting technical standards is to develop and then mandate formal standards or use existing CP1 and British Standards Institute (BSI) standards.

Eight other respondents suggested that the best approach was to use CP1 and an industry-led approach involving experts. These stakeholders were in favour of an entirely industry-led approach and did not advocate formal standards.

An alternative view was that the UK should incorporate either Danish industry standards or Swedish industry standards and build on those to drive quality. This view was expressed by three respondents who argued that setting up a single heat network organisation to develop standards would be the best approach, as this would be similar to the Danish and Swedish models.

Our proposed approach is outlined on page 48.

Question 38: Are there examples of the roll out of technical standards or the introduction of compliance schemes which you consider particularly relevant from other markets or technologies?

Six respondents mentioned that the Microgeneration Certification Scheme (MCS) provided a good example for heat networks. In these instances, respondents cited the MCS as a good example of a scheme built on technical standards developed by industry. One of these respondents noted how the MCS encompassed a broad range of technologies and as such is a good example of a scheme that could inform a heat network compliance scheme due to the range of heat technologies used in heat networks.

Respondents referenced other schemes:

- Four mentioned the roll out of condensing gas boiler regulations.
- Three referenced EPCs or the Standard Assessment Procedure (SAP10) within their responses.
- Two mentioned examples of approaches taken to technical standards in the water sector.
- Two stated that Denmark has well-developed technical standards for district heating.

Our proposed approach is outlined on page 48.

Government Response – Technical standards

Technical standards have a key role to play in promoting good outcomes for consumers in terms of quality, reliability, and cost, and in decarbonising heat in line with our 2050 net zero target.

In the consultation, clear support was expressed for mandating minimum technical standards. We agree technical standards should be mandated. We propose compliance with technical standards shall be required through the authorisation regime. We are proposing that compliance with the standards will be demonstrated by an assurance scheme, for example involving third party certification from an accredited certification body. We propose Ofgem will have powers to take enforcement action against non-compliance.

We want to build on existing work and good practice. The ADE-CIBSE Code of Practice (CP1) for heat network development and operation was developed with significant engagement from across the heat network industry. We propose technical standards required in regulation should build on CP1. We are considering what additions and amendments are required before application of any content in existing codes of practice and guidance documents is required in regulation. We are also considering governance models for technical standards, including the case for alignment with any proposals in the Energy Code Reform project, which is reviewing the governance of detailed rules in gas and electricity systems.[9] As such we propose to introduce powers that mean the Secretary of State or Ofgem can designate bodies to carry out certain functions related to owning, developing, and making available standards and assurance schemes.

In consultation with stakeholders, we will consider how to embed proportionality in relation to meeting and demonstrating compliance with standards. We agree on the need for the development of technical standards that apply to existing heat networks as well as new heat networks, and to heat networks at all scales. We will take into consideration costs and proportionality, including when we plan timescales for compliance.

[9] https://www.gov.uk/government/consultations/energy-code-reform-governance-framework

Rights and Powers

Question 39: Do you agree that a (licensed) heat network entity should be classified as a statutory undertaker?

Question 39	Response	Percentage
Yes	65	55%
No	4	3%
Comment only	2	2%
Blank	47	40%

Table 30

14 stakeholders agreed that classifying licensed heat networks as statutory undertakers would help to bring heat networks in line with other utilities, potentially lower costs, and make them more investable. However, five respondents stated that licensed entities should be subject to more scrutiny on ownership and financial viability.

There were some respondents who argued that there was not a strong enough case for all licensed heat networks to be classified as statutory undertakers.

Our proposed approach is outlined on page 58.

Question 40: Do you agree that the proposed rights and powers should be given to heat network entities which meet the terms of our proposed licensing system?

Question 40	Response	Percentage
Yes	62	53%
No	3	3%
Comment only	5	4%
Blank	48	41%

Table 31

Five respondents agreed that proposed rights and powers should be given to heat network entities that meet the licensing terms because this is in line with the approach in the gas and electricity sectors. Five others provided further reasoning, stating it would allow heat networks to reduce costs for consumers, deliver more cost-effective business models, and invest in low carbon technology.

Four stakeholders qualified their responses by stating that they would need more detail before being able to assess the appropriateness of proposed rights and powers.

Our proposed approach is outlined on page 58.

Question 41: Is it reasonable to assume that the proposed rights and powers would only be relevant to district heat networks (not communal networks)? If not, please explain why.

Question 41	Response	Percentage
Yes	44	37%
No	15	13%
Comment only	2	2%
Blank	57	48%

Table 32

Five stakeholders who disagreed that rights and powers would only be relevant for district heat networks suggested that this may lead to missed opportunities in linking smaller networks to bigger ones. They stated that if district heat networks hold all the rights and powers, this may change the balance of power relative to communal networks. Four other respondents who disagreed commented that communal networks may have an energy centre off site and encounter wayleave issues that require rights and powers.

Two respondents stated that the focus of rights and powers should be on the protection of consumers regardless of the type of network they are connected to. Another two commented that, to allow flexibility and innovation, any heat network should be able to apply for a licence and the decision should be made on a case-by case-basis by the regulator.

Our proposed approach is outlined on page 58.

Question 42: What impacts will the proposed rights and powers have on the development and extensions of heat networks? And what impacts do you think these rights will have on the operator's ability to maintain and repair heat networks?

The most common theme to emerge from responses was that the proposed rights and powers will allow heat networks a greater ability to develop and extend, and they could generate increased investor confidence and growth. Others stated that the proposals would allow repairs and maintenance to be completed at a lower cost and a faster rate. These comments were made in some variation by 30 respondents.

Four stakeholders suggested that the proposed rights and powers would go some way to level the playing field with other more established utilities such as gas and electricity.

One industry trade association stated that the proposal of granting statutory undertaker powers would need further clarification and would need to be explored in more detail. A second industry trade association stated that BEIS should consider rights and powers through the lens of zoning and energy master planning.

Our proposed approach is outlined on page 58.

Access rights

Question 43: Do you agree that licensed heat network entities should be granted statutory access rights?

Question 43	Response	Percentage
Yes	67	57%
No	2	2%
Comment only	2	2%
Blank	47	40%

Table 33

Although the majority who answered this question were favourable to statutory access rights for licensed heat networks, a few comments were given relative to other questions. Five respondents stated that this would be in line with other utilities and therefore agreed with the proposal. Two stated that access rights would be important for improving consumer outcomes, and two others stated that access rights would be important for ensuring effective and timely maintenance.

Our proposed approach is outlined on page 58.

Question 44: Do you agree that the process should be similar to that for electricity and gas companies, in that the licensed heat network entity will have to make an application to the responsible minister for the easement and that any compensation arrangements will be determined by the Tribunal Service?

Question 44	Response	Percentage
Yes	58	49%

No	4	3%
Comment only	2	2%
Blank	54	46%

Table 34

Most stakeholders who answered this question agreed that the process should be similar to the gas and electricity sectors. Three respondents stated that there should be a fast track or preliminary assessment option to provide the certainty needed at the development stage.

Two respondents agreed but stated that overall improvements compared with the gas and electricity process should be considered to ease administrative burden on business. One respondent suggested that private resolution should be the action of first resort before going to the Tribunal Service.

One industry trade association disagreed with the proposed approach and suggested that, due to the development timeline of heat networks and the certainty that may be required at the development stage, such a process would not fit.

Our proposed approach is outlined on page 58.

Question 45: Do you agree that these access rights would primarily be used to install and maintain pipework, or do you anticipate that they would be used for other purposes?

Question 45	Response	Percentage
Yes	56	47%
No	1	1%
Comment only	4	3%
Blank	57	48%

Table 35

Six respondents cited other purposes for access rights including maintenance and access to equipment such as the heat interface unit, meter, and heat exchanger.

Five stated access would be required for communication networks and cables, five for access to boreholes, three for access to the energy centre, and two stated access would be needed for pumping stations.

Six stakeholders suggested that government should consider coordination with other utility works, such as communications or water, to avoid unnecessary and repeated disruption for residents.

Our proposed approach is outlined on page 58.

Street works

Question 46: Would you consider the ability to apply for a street work permit a considerable benefit compared to a Section 50 Street Works licence? If so, in what way?

Question 46	Response	Percentage
Yes	35	30%
No	3	3%
Comment only	7	6%
Blank	73	62%

Table 36

13 stakeholders stated that the ability to apply for a street work permit allows for greater efficiency of work and therefore speeds up the process. Five suggested that the framework should consider crossover with other road excavations to avoid repeating disruption and to allow collaboration with other utilities when excavating roads.

One industry trade association noted that street work permits create more autonomy than Section 50 licences, allowing networks to supersede other planned works where required.

Our proposed approach is outlined on page 58.

Question 47: Do you have any experience of applying for a Section 50 Street Works licence? Did you find this delayed either construction or repair and maintenance work required?

Question 47	Response	Percentage
Yes	6	5%
No	22	19%
Comment only	15	13%
Blank	75	64%

Table 37

Several stakeholders noted past difficulties with applying for a Section 50 Street Works licence, including delays and increased costs.

Nine respondents stated that applying for a Section 50 Street Works licence can cause disruption and/or costs. These respondents mentioned either delays or cost overruns. Six stakeholders stated that they have experience of applying for a Section 50 Street Works licence but did not mention any associated delay or disruption.

An industry trade association stated that its members have informed them that Section 50 licences have resulted in delays, as the typical approval timeframe from a local authority is around 8 weeks. Another industry trade association stated that their members had seen it take as long as 12 weeks for permission to be granted to undertake repair works on a road for a leaking system in London, and up to 8 weeks elsewhere.

Our proposed approach is outlined on page 58.

Rights to lay pipes under the roadway

Question 48: Do you agree that heat networks should be given equivalent powers to other utilities to install and keep heat network pipes underneath roadways? Are you aware of any potential unintended consequences?

Question 48	Response	Percentage
Yes	64	54%
No	4	3%
Comment only	1	1%
Blank	49	42%

Table 38

Most stakeholders agreed with the proposal, with some stressing the need to find ways to minimise disruption caused by laying pipes underneath roadways.

Seven stakeholders commented on the importance of coordination between different statutory undertakers and clear lines of communication between utilities. These respondents noted that a lack of coordination could lead to disruption for residents. Two others suggested that BEIS explore the potential for shared trenches with other utilities to avoid disruption.

Three commented that the location and depth of trenches should be clearly marked. These respondents also stated that it would be useful to have pipes shown on a national database. Two also stated the importance of technical standards regarding the laying of pipes, such as heat loss minimisation and the level of trenches.

Four stated that they agreed that heat networks should be given equivalent powers to other utilities to install and keep heat network pipes underneath roadways, subject to these operators obtaining a licence.

Our proposed approach is outlined on page 58.

Permitted development

Question 49: Do you agree that licensed heat network developers should be granted permitted development powers similar to other statutory undertakers? Are you aware of any potential unintended consequences?

Question 48	Response	Percentage
Yes	43	36%
No	6	5%
Comment only	18	15%
Blank	51	43%

Table 39

Six respondents stated that they were not aware of any unintended consequences associated with installing and keeping heat network pipes underneath roadways.

Four stakeholders voiced mixed approval, suggesting that development powers should be granted for the installation of heat network pipes but that small ancillary buildings should not be permitted. These respondents were generally concerned about noise pollution for residents, with others concerned that works would be carried out without the heat network operator consulting with local residents .

One stakeholder commented on the importance of coordination to ensure that roads are not dug up more than necessary. Another stated that energy centres should still require planning permission. An industry trade association stated that this kind of work should only be permitted if the overall benefit is proven.

Our proposed approach is outlined on page 58.

Question 50: In addition to permitted development rights specified (install or replace pipes or electricity cabling; erect small temporary structures and small ancillary buildings, machinery or apparatus), are there any other activities to which a permitted development right should apply?

Question 50	Response	Percentage
Yes	13	11%

No	14	12%
Comment only	18	15%
Blank	73	62%

Table 40

Of the stakeholders who stated there are other activities to which a permitted development right should apply, 6 stated that the scope of development rights should expand to allow for thermal storage and boreholes below ground. Three others stated that rights should encompass existing energy centres. A further 3 stated that there should be an extension to allow for valve pits, pumps with inspection chambers and access to pipework.

Our proposed approach is outlined on page 58.

Consultation rights

Question 51: Do you agree that the administrative burdens of being statutory consultees would be disproportionate for heat networks?

Question 51	Response	Percentage
Yes	21	18%
No	20	17%
Comment only	23	19%
Blank	54	46%

Table 41

There was a mixed response to the view that the administrative burdens of being statutory consultees would be disproportionate.

Four respondents commented that it could be proportionate for heat networks to be statutory consultees. They argued that statutory consultees are not obliged to respond to consultations not relevant to them and the consultation process would allow them to keep a record of developments in close proximity which may facilitate connections to the network.

Two respondents argued that the burdens of being statutory consultees would be disproportionate and that it would be better if all assets locations were recorded.

Four respondents who agreed that it may be burdensome to be a statutory consultee stated that there should instead be a planning duty imposed by local authorities where a development within a certain proximity to a heat network has a duty to provide information to the heat network.

Our proposed approach is outlined on page 58.

Question 52: Beyond improving the guidance on non-statutory consultees, do you think that there are any other areas of government guidance that could be improved to ensure that heat networks are more routinely consulted on in relation to relevant development in their areas?

Seven stakeholders stated that the best way to ensure that heat networks are more routinely consulted would be to improve planning authorities' understanding of heat networks. Five other respondents stated that consulting heat networks should be a requirement in the planning application stage.

Our proposed approach is outlined on page 58.

Linear obstacle rights

Question 53: Do you believe that licensed heat network developers should be given equivalent rights to cross linear obstacles? Can you provide examples of where such rights would be beneficial to heat network development?

Question 53	Response	Percentage
Yes	45	38%
No	5	4%
Comment only	2	2%
Blank	66	56%

Table 42

Most stakeholders who responded stated that heat network developers should be given equivalent rights to cross linear obstacles, with some identifying various benefits of having these rights.

Eight stakeholders stated that rights to cross linear obstacles would be beneficial to shortening the process of constructing and maintaining heat networks. These respondents noted railways, underground rail infrastructure, canals and rivers as common linear obstacles that are presently a common barrier to heat network development.

Two respondents stated that care should be taken to avoid diminishing other property rights in the process and that clear guidance should be produced for crossing linear obstacles, similar to the guidance produced for the telecommunications industry.

Two industry trade associations stated that without rights to cross linear obstacles, costs would increase, and this could have implications for consumers on heat networks.

Our proposed approach is outlined below.

Government Response – Rights and powers

Feedback on our proposals for rights and powers was mostly very positive. We therefore intend to proceed with the model whereby heat networks must apply for a licence to become statutory undertakers. This will ensure that those networks using the rights and powers have sufficient financial resources to pay compensation to any other entities they may cause damage to in the course of their work.

Ofgem will be responsible for reviewing and granting licence applications. It will have powers to introduce and amend licence conditions.

Heat networks that become ‘statutory undertakers’ will then be able to use access rights, permitted development, linear obstacle rights and street works permits.

The only area where opinion was split was on statutory consultees. Considering the split, we will work with MHCLG to investigate other options which stop short of introducing a full statutory consultee status for heat networks but which ensure that networks are consulted on in relation to important changes to physical infrastructure in areas around their schemes. We intend to consult in further detail before we introduce secondary legislation under the Market Framework.

Decarbonisation

Decarbonisation of heat networks

Question 54: Do you agree that consumers should have access to information on the energy performance and percentage of low-carbon generation of their network?

Question 54	Response	Percentage
Yes	68	58%
No	1	1%
Comment only	22	19%
Blank	27	23%

Table 43

There was a strong positive response to this question. However, 9 stakeholders requested clear guidance on how energy performance will be calculated. Some of these respondents noted that consumers may be misled by stated efficiency of some technologies, such as gas CHP when compared with emerging bridging technologies.

Five respondents stated that this requirement should not be mandatory, or that it should only be mandatory to share this information with the regulator. These respondents stated that the information would be too complicated and inconsistent across different sites and that cost and heat network performance are more important to consumers than carbon content.

Five stakeholders who agreed with the proposal stated that it would attract consumers to the market. Two others raised a similar point, stating that the approach would raise consumer awareness of waste heat recovery.

The stakeholder who disagreed was an industry trade association. They stated that providing access to information on the energy performance and percentage of low-carbon generation of networks would add additional reporting requirements if applied to all networks and would not outweigh the benefits. This stakeholder also stated that more clarity is needed from government on what is meant by “energy performance”.

Our proposed approach is outlined on page 63.

Question 55: (a) Do you agree that regulation is necessary to encourage decarbonisation of heat networks over the period to 2050? (b) Are there alternative means by which government could act to support the decarbonisation of heat networks?

Question 55a	Response	Percentage
Yes	75	52%
No	8	4%
Comment only	11	9%
Blank	24	20%

Table 44

There was strong support for regulation from a wide range of stakeholders. Two noted that the cost of regulation should not be passed on to consumers disproportionately.

Although the support for regulation was strong, 2 respondents also suggested that it should be combined with upskilling and a further 3 stakeholders stated that the regulation of heat networks decarbonisation should be consistent with wider heat regulation.

Question 55b	Response	Percentage
Yes	24	20%
No	11	9%
Comment only	55	47%
Blank	28	24%

Table 45

18 respondents suggested that regulation should be combined with financial support to ensure that heat networks are not undercut by other heating systems. These respondents were not always opposed to regulation but often argued for a “carrot and stick” approach. One of these respondents suggested incentives such as the implementation of heat network zoning, publication of guidance to local authorities under Section 108 of the Housing Act, and taking steps to restrict the use of service charge schemes.

Six stakeholders stated that taxation of fossil fuels would be needed to encourage investment in heat networks and low carbon technology more generally. One of the respondents suggested that without such an approach, the cost of regulation would

be borne entirely by the heat supplier or heat network operator, making the cost of running heat networks unfeasible.

Two respondents argued for the introduction of regulation that places a duty on local authorities to plan for and enable heat networks as an alternative, as opposed to regulating the decarbonisation of heat networks themselves.

One industry trade association which disagreed that regulation is necessary to encourage decarbonisation of heat networks stated that regulation is ineffective and that instead policy drivers and support mechanisms should be put in place which drive decarbonisation.

Another industry trade association agreed in principle but stated that proposed regulations would need to be light-touch, principles-based and outcome-focused, and developed with extensive consultation with industry.

Our proposed approach is outlined on page 63.

Waste-heat sources

Question 56: How could the Environmental Permitting Regulations be amended to ensure that waste-heat sources connect to networks when it is cost-effective and feasible to do so? What do you consider are the main barriers for waste heat sources to be connected to heat networks?

Stakeholders identified a number of barriers to waste heat sources connecting to heat networks, and some proposed changes to the Environmental Permitting Regulations (EPR).

Four stakeholders proposed an amendment to the EPR which would ensure that planning requires waste heat to be used first. Two respondents suggested an amendment to the EPR to provide for mandatory regular assessments of whether waste-heat sources could connect to heat networks.

Other proposed amendments included having the Environment Agency assess waste-heat as part of environmental permitting, increasing the awareness of companies' obligations under the EPR and positioning plants producing waste heat near to heat networks. All the EPR amendments were suggested by one stakeholder.

Regarding barriers to waste heat connection, 15 stakeholders cited a lack of financial incentive. Five others stated that the location of waste-heat sources was also a barrier, pointing out that they are often located in rural areas away from potential heat network consumers.

Other barriers mentioned by stakeholders included companies not sharing details, the cost of excavations necessary to make a connection, the perceived difficulty of extracting heat, the lack of a consistent heat supply, commercial liabilities, the

availability of more cost-effective alternative options and the lack of engagement with the Environment Agency. All these points were suggested by one stakeholder.

One industry trade association provided specific amendments to the EPR, including requiring connection to a heat network if there is one available, requiring installations generating waste-heat to connect to heat networks developed over the next 10 years, and obligating waste-heat sources to enter into negotiations about selling heat. This respondent also highlighted risks including the non-permanence of waste-heat, contractual risks, and issues with distance.

Our proposed approach is outlined on page 63.

Question 57: Which sources of industrial and commercial heat could government bring within the scope of the Environmental Permitting Regulations in addition to the sources already being identified?

Seven stakeholders mentioned technologies such as computer processing, sewage processes, shopping centres, supermarkets, process engineering, manufacturing, and crematoria. These respondents mostly focused on sewage plants as a source of heat which could be brought within the scope of the Environmental Permitting Regulations (EPR). Two other respondents stated that large-scale cooling should be included within the scope of the EPR due to emerging technologies capable of capturing low temperature differentials.

Two respondents stated that hospitals, data centres and underground stations should be brought within the scope of the EPR.

Other sources of heat suggested by stakeholders included greenhouses, waste incinerators, industrial processes, power stations, water courses, electricity substations and tube tunnels. All these suggestions were made by one respondent. Two respondents suggested that thresholds should be defined, above which heat from any source must be captured.

Our proposed approach is outlined below.

Government Response – Decarbonisation

It is clear from responses to the consultation that wider industry supports some form of regulation to reduce the carbon emissions of heat networks over time so that they can contribute towards net-zero. We agree with feedback that these targets for heat networks must be set so that they do not undermine investment in the sector. This can be done by ensuring targets work with the natural replacement cycle of existing assets and by introducing targets in line with wider heat decarbonisation. We believe that regulation should start to impact the technology choices of heat networks in the early 2030s, though we are proposing in our heat network zoning consultation that in some cases, low carbon requirements will come in earlier.[10]

As part of the necessary primary legislation to enact this market framework, we intend to take powers to set maximum carbon emissions limits. Whilst some respondents questioned the value of taking powers so far in advance of their implementation, we believe that by taking powers now we will avoid having to revisit legislation at a later date. In addition, by setting the targets far in advance we will be giving the industry the long-term investment signals it believes are necessary for sustainable growth.

These specific decarbonisation targets will be set for England only and we believe that it will be most appropriate for Ofgem to be responsible for overall compliance with the eventual regulations.

In response to feedback we also intend to work with Defra and the Environment Agency on reforms to the Environmental Permitting Regulations and we will publish more details on our approach as part of consultation in this area.

[10] The heat network zoning consultation also considers the rationale for requiring heat networks in zones to meet a low carbon requirement. It is proposed that the low carbon requirement shall apply for new networks in zones once the zone is implemented, which we envisage in some cases would be prior to 2030. See: https://www.gov.uk/government/consultations/proposals-for-heat-network-zoning.

Next Steps

We will continue our ongoing engagement with stakeholders as we advance our policy and where issues emerge. The creation of an industry-led advisory board will enable stakeholders to work with BEIS, Ofgem, the Energy Ombudsman, and Citizens Advice during the next phase of designing and implementing regulation. We will consult further on our policy proposals for secondary legislation.

We have published our consultation on recovering the costs of heat networks regulation alongside this Government Response. This consultation will run until 16 February 2022. We will then analyse responses to the consultation, which will inform our policy development on cost recovery.

Following our policy development phase, legislation will be introduced when parliamentary time allows. As set out in the consultation document in February 2020, we anticipate that there may be grounds for transition arrangements for some aspects of the Market Framework. We will inform industry of the nature and duration of transition arrangements once we have a proposal ready, and there will be an opportunity for key stakeholders to provide views.

We continue to encourage parties to follow existing good practice, such as that set out by the Heat Trust and the ADE-CIBSE Code of Practice.