



Department for
Energy Security
& Net Zero

Heat Network Zoning

Closing date: 26 February 2024

December 2023



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Any enquiries regarding this publication should be sent to us at: heatnetworks@energysecurity.gov.uk

Foreword

Since Putin's illegal invasion of Ukraine shook the foundations of the energy market, we've been exploring how to make our power supply more robust and resilient, while reducing our reliance on fossil fuels imported via volatile global markets.

Heat networks are the perfect example of the type of technology that helps address these issues. By using heat from a variety of different sources, they can reduce the need for fossil fuels and provide lower-cost heat to local areas. That is good news for both consumers and the climate. Already, heat networks provide about 3% of our total heat. But as they continue to spread, that figure could rise to 20% by 2050.

Heat network zoning will be essential to speeding up the development of these new heat networks. By indicating where heat networks are expected to be the lowest cost low-carbon heating option, we hope to catalyse growth where it's most needed.

We also want to give local areas in England greater certainty and confidence about the best locations for heat networks, so that they can better serve the people that live there. And we want to give developers and investors more certainty about the number of likely connections to networks, to help enable the investment needed to build them. Building confidence in the tangible heat network opportunities will unlock huge investment for the UK.

This consultation sets out how zoning will be implemented, and we want to hear your views on our proposals.

By getting this right we hope to see more outstanding heat networks across the country, whether it is community-led projects like Swaffham Prior in the East of England, or city-wide heat networks like Leeds Pipes.

Executive Summary

Heat network zoning will give local communities the tools to accelerate the development of heat networks in their towns and cities. Zoning will ensure that more homes and businesses can have access to greener, cheaper heat sooner by removing the barriers which currently limit the scale and pace of developing heat networks.

Heat network zoning will create two new zoning bodies: the Heat Network Zoning Authority (the “Central Authority”) and Zone Coordinators. The Central Authority will carry out national level tasks and coordinate zoning across England and the Zone Coordinators will be responsible for local tasks in developing zones. The Central Authority will initially be part of the Department for Energy Security and Net Zero, and Zone Coordinators will be teams within or linked to local authorities. Together, they will ensure that customers, the heat network supply chain, and investors have clarity and confidence in heat network zoning.

The Central Authority will develop a standardised national methodology (the “zoning methodology”) to identify heat network zones across England. This zoning methodology will identify areas where heat networks will provide the lowest cost solution to decarbonising heat. Zone Coordinators will collect local data and review the proposed heat network zone before it is designated. Zone Coordinators may also review zone boundaries post-designation if circumstances change and will hear appeals.

Heat network zoning will also introduce a process for awarding the right to develop all or part of a heat network zone to a heat network developer. The winner of this award will have the right to develop heat networks in that area. The Central Authority and Zone Coordinators will be able to choose from a set of delivery models. The delivery model chosen will, where possible, respect any existing investments in heat networks in the area.

The zoning bodies, generally the local Zone Coordinator but on occasion the Central Authority, will be able to require certain pre-specified building types and low-carbon heat sources to connect to a heat network to help reduce the risks and uncertainty with developing heat networks. This should improve the pace of delivery and connection, and therefore bring down the cost of low-carbon heat to all end users. New national consumer protection rules will also apply to heat networks inside heat network zones from 2025. These rules will include: guaranteed transparency on prices for all customers; the ability for Zone Coordinators to require heat networks charge certain prices to consumers within zones; and controls on the costs buildings must pay to connect to heat networks. Heat networks in zones will also be subject to a specific national emissions limit.

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General information

Why we are consulting

The government consulted on Heat Network Zoning in England in 2021.¹ That consultation considered the main elements of the zoning framework and informed the drafting of measures in the Energy Act 2023, which provides powers for the government to introduce regulations about heat network zoning. The government also consulted on heat network consumer protections in Autumn 2023², the results of which will be published in due course.

This consultation will inform the drafting of zoning regulations, the development of guidance, and the wider implementation of heat network zoning. We have developed the ideas presented in the original zoning consultation in further detail and intend to lay the regulations in Parliament in 2024 or when parliamentary time allows. The results from the consultation will also inform how elements of the consumer protection regime may apply in heat network zones.

Consultation details

Issued: 18 December 2023

Respond by: 26 February 2024

Enquiries to:

Heat Networks Policy Unit
Department for Energy Security and Net Zero
3rd Floor
3 – 8 Whitehall Place
London
SW1A 2AW

Email: heatnetworks@energysecurity.gov.uk

Consultation reference: Heat network zoning secondary consultation

Audiences: This consultation is relevant to those with an interest in the heat network industry in England and stakeholders interested in the net-zero target and the decarbonisation of heat. We are seeking views of, among others, local authorities, electricity and gas distribution network operators, housing developers and associations, owners of large public sector and commercial non-domestic buildings (for example, NHS trusts, universities, hotels, supermarkets, office blocks), owners of potential waste heat sources (energy from waste operations, data centres, industrial operators, sewage utilities) and consumer advocacy groups.

Territorial extent: England only.

¹ See: <https://www.gov.uk/government/consultations/proposals-for-heat-network-zoning>

² See: <https://www.gov.uk/government/consultations/heat-networks-regulation-consumer-protection>

How to respond

Respond online at: energygovuk.citizenspace.com/heat/heat-network-zoning-consultation-2023

or

Email to: heatnetworks@energysecurity.gov.uk

Write to:

Heat Networks Policy Unit
Department for Energy Security and Net Zero
3rd Floor
3 – 8 Whitehall Place
London
SW1A 2AW

A response form is available on the GOV.UK consultation page:

<https://www.gov.uk/government/consultations/proposals-for-heat-network-zoning-2023>

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

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

Confidentiality and data protection

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

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

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

We will summarise all responses and publish this summary on [GOV.UK](#). The summary will include a list of names or organisations that responded, but not people's personal names, addresses or other contact details.

Quality assurance

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

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

Heat Network Zoning: Overview

Navigating the proposals

This consultation seeks views on proposals for design and delivery of heat network zoning in England, which is enabled by powers provided by the Energy Act 2023. Responses to this consultation will help inform secondary legislation (“the zoning regulations”), which we intend to lay in Parliament in 2024 or when parliamentary time allows.

In this document we first set out the wider context for heat network zoning. “**Aims and objectives of heat network zoning**” then describes the problem the government intends to solve using zoning and the mechanisms it proposes will do so.

The three sections of “**Defining heat network zoning**” provide an overview of the policy. “**What is a heat network zone?**” describes the criteria that define a heat network zone, explaining which types of areas will become zones. “**What does a heat network zone do?**” describes the effects of the zone: the rules and duties which apply to zoning bodies and other entities in the zone. Finally, “**The lifecycle of a heat network zone**” describes each stage in the zoning process. This includes how the zoning bodies will identify heat network zones, how they will decide which heat networks can be built in the zone, and how zones will work after this decision has been made.

The rest of the document describes the proposals in more detail. “Appendix 6 – Glossary” includes a glossary of terms for ease of understanding.

The proposals in this document have a wide scope and there is no obligation to answer all questions. The grid below provides a suggestion of the sections where different types of respondents may wish to concentrate their attention. This is a guide only.

Sector	Sections
Energy sector and heat networks industry.	All sections.
Local authorities.	All sections.
Commercial buildings sector.	Defining heat network zoning; requirements in zones; enforcement, penalties and appeals.
Housing developers, including associations and SME developers.	Defining heat network zoning; requirements in zones; enforcement, penalties and appeals.

Schools, universities, NHS & other public sector building owners.	Defining heat network zoning; requirements in zones; enforcement, penalties and appeals.
Leaseholders, renters, owner-occupiers, or other residents.	Defining heat network zoning; requirements in zones – buildings; requirements in zones – consumer protections.
Owners of heat sources capable of selling heat to heat networks	Defining heat network zoning; requirements in zones – heat sources; requirements in zones – carbon emissions; enforcement, penalties and appeals.

Context

In 2019 the UK government set a legally binding target to achieve net-zero greenhouse gas emissions by 2050. As heating is responsible for about 20% of the UK's greenhouse gas emissions, meeting our net zero target will require the decarbonisation of virtually all heat in buildings.

In 2021, the government laid legislation for the UK's sixth carbon budget, proposing a world-leading target which would reduce greenhouse gas emissions by 78% by 2035 compared to 1990 levels.³ This is in line with the level recommended by our expert advisers at the Climate Change Committee (CCC).

Decarbonising heat is an integral part of the government's strategy and underpins the Net Zero Strategy, the Heat and Buildings Strategy and most recently, Powering Up Britain. This was affirmed in the Prime Minister's speech on 20 September 2023 where he set out the government's proportionate and pragmatic approach to net zero.

The role of heat networks in our net zero and energy security objectives

Heat networks are an essential part of our path towards decarbonising heat. In densely populated areas, heat networks are often the lowest cost low-carbon heating option. They can use sources of heat that other technologies cannot – such as heat from industry, rivers and canals, or geothermal energy – so offer a unique opportunity to decarbonise our towns and cities whilst securing the UK's energy independence. Additionally, heat networks offer benefits to the electricity system, such as smoothing demand and reducing peak energy requirements, which will reduce the overall costs expanding our electricity system to meet net zero.

However, they currently provide about 3% of total UK heat. Our analysis shows that heat networks could provide up to 20% of total UK heat by 2050. Heat network zoning is an essential part of our plan to establish and accelerate heat networks as a mainstream solution.

Aims and objectives of heat network zoning

Heat network zoning aims to mitigate existing risks related to the construction and operation of new or expanded heat networks. These risks currently make it harder and more expensive to

³ See: <https://www.gov.uk/government/news/uk-enshrines-new-target-in-law-to-slash-emissions-by-78-by-2035>

invest in heat networks. This results in smaller, less cost-effective heat networks with limited potential for growth. Making it quicker, easier and less risky to build city scale heat networks will enable the sector to grow rapidly and deliver our energy security and net zero commitments affordably.

Problem: It is difficult to make decisions about where to build heat networks.

The government will develop a standardised national methodology – “the zoning methodology” – to help identify areas which can be designated as heat network zones. These will be areas where heat networks are expected to be the lowest cost low-carbon heating solution. This provides local stakeholders, developers, and investors with greater clarity and confidence about where building heat networks are the best choice to decarbonise heating.

Problem: There is uncertainty about the roles and responsibilities of different organisations in developing heat networks.

Heat network zoning will provide clarity on the roles and responsibilities of organisations at the national and local level. It establishes new zoning bodies and clarifies the process for engaging stakeholders, allowing for better long-term planning and coordination, faster roll-out of networks, and lower costs.

We know that lots of areas want to develop heat networks in their towns and cities – or expand existing ones – and follow in the footsteps of cities such as Bristol, Nottingham, or Leeds. Heat network zoning is also a feature of recent devolution deals, including the ‘trailblazer’ devolution deals agreed between the UK government and the Greater Manchester and West Midlands Combined Authorities⁴ and those announced alongside the 2023 Autumn Statement.⁵

Problem: There is uncertainty about whether buildings will connect to heat networks.

The heat demand risk for networks can create uncertainty which hampers investment. Due to this perceived risk, projects need to achieve higher rates of return than similar infrastructure to attract investors. Requiring certain buildings in heat network zones to connect to a heat network – where it is cost effective for them to do so – will help unlock scale, increase the number of viable opportunities, and drive the pace of deployment.

The Energy Act 2023

The Energy Act, which received Royal Assent in October 2023, establishes the regulatory framework for heat networks in Great Britain and grants the Secretary of State the powers to introduce heat network zoning in England through secondary legislation (“zoning regulations”).

Heat Networks Regulation

The Act provides powers in relation to the regulation of the heat networks sector and appoints Ofgem as heat networks regulator in Great Britain with regulation starting from Spring 2025.

The Act gives the government powers to introduce consumer protection rules and carbon emissions limits on all heat networks. It also introduces an authorisation and licensing regime, to be administered by Ofgem, with the latter granting heat network developers the same statutory development powers enjoyed by other utilities. In addition, the measures will ensure

⁴ See: <https://www.gov.uk/government/collections/the-investment-funds-programme#“trailblazer”-deeper-devolution-deals>

⁵ See: <https://www.gov.uk/government/publications/autumn-statement-2023>

that heat network customers pay a fair price for their heat and that heat networks conform to minimum technical standards. Finally, Ofgem regulation will also protect consumers if their supplier goes out of business, and ensure their heat supply is maintained.

The measures will ensure that heat network customers pay a fair price for their heat and that heat networks conform to minimum technical standards finally Ofgem regulation will also protect consumers if their supplier goes out of business and ensure their heat supply is maintained.

Heat Network Zoning

Separate to Great Britain-wide (England, Scotland and Wales) regulation of heat networks the Act also gives the Secretary of State powers to make regulations about heat network zoning in England. Our intention is to bring forward these regulations to Parliament in 2024, or when parliamentary time allows, with this consultation informing their drafting.

The regulations will enable the government to create two new zoning bodies: the heat network zoning authority – shortened to “the Central Authority” – and Zone Coordinators. The regulations will describe the rules these zoning bodies must follow and their roles and responsibilities. The regulations will define how the zoning bodies will identify and designate heat network zones, and specify any requirements about how decisions are to be made regarding what heat networks are built in a zone, where and by whom.

The Act also includes powers to make regulations to set requirements that apply in zones. This includes:

- Which buildings can be required to connect to a heat network, and when and how such buildings may seek an exemption from this requirement.
- Which types of building in zones, such as new buildings, can be required to install communal heat networks.
- Requiring operators/owners of sources of heat to provide information, and/or to connect to a heat network.
- The rules around terms for supplying heat to a heat network, including prices.
- Introducing limits on greenhouse gas emissions from heat networks in zones.
- Specifying what data may be collected by the zoning bodies, and from whom, to support the identification and designation of heat network zones.
- Ongoing monitoring and reporting requirements.
- How the above requirements will be enforced and the appeals process.

Defining heat network zoning

What is a heat network zone?

A “**heat network zone**” will be a defined geographical area where heat networks are expected to provide the lowest cost solution for decarbonising heating.

“**Heat network zoning**” is the entire process of identifying and designating areas as heat network zones and then developing heat networks within them.

Heat network zones will be identified using the zoning methodology. Further detail about the methodology, the National Zoning Model, the lowest cost low-carbon criteria, and the process for designating zones, is described in the section titled “The zoning methodology”.

Heat network zones will be overseen locally by a “Zone Coordinator”, a new body established by legislation to lead on local implementation of the zoning policy.⁶ Another new body called the “Central Authority” will oversee all heat network zones and Zone Coordinators and carry out national-level tasks across England. We describe these new zoning bodies in more detail in the “Zoning bodies” section.

Initial testing of the zoning model indicates that there are several different potential zone scenarios or archetypes that we expect to occur frequently across England; see “Appendix 1 – Heat network zone archetypes” for more detail.

What does a heat network zone do?

The designation of a heat network zone will have three primary effects.

1. Signalling the appropriateness of heat networks for that area. The designation of a heat network zone will provide a strong signal to building owners, businesses, public organisations, and other organisations that heat networks are expected to provide the lowest cost solution to decarbonising heat in that area. This will influence decisions made at the local government, organisational, and individual level.

2. Placing requirements on certain bodies and organisations within the area. The main requirements placed on different bodies are as follows:

- A requirement to provide information for the purposes of heat network zone identification.
- A requirement for some buildings to connect to a heat network.
- Requirements on heat sources which could connect to a heat network in a zone.
- Monitoring and reporting requirements.

We discuss these requirements in more detail in “Requirements in zones” and “Stage 4: Zone ”.

3. Initiating processes to develop the zone to its full potential. The designation of a heat network zone will require the zoning bodies to start the development of one or more heat networks in that zone. Deciding who can construct networks in a heat network zone, and where, is one example. This will include wider work to understand commercial opportunities for networks in a heat network zone. We discuss these proposals in “Stage 3: Zone delivery”.

Policy Interaction: Heat network zoning and the planning system

Heat networks are significant pieces of infrastructure in the built environment. As such, the planning system will be important for facilitating the development of heat networks in heat network zones. While heat network zoning will be a separate regulatory regime to the planning system, we recognise that it will interact with the wider planning system and local government’s planning functions.

⁶ A Zone Coordinator may be responsible for more than one heat network zone.

Planning for heat networks will need to consider proposals in development plans, and especially any large-scale planning decisions. Similarly, when preparing development plans and planning proposals, there will be advantages in heat network developers considering existing and potential heat network zones.

The Department for Levelling Up, Housing and Communities and the Department for Energy Security and Net Zero are working together to ensure a joined-up approach between heat network zoning and local plans.

We are keen to ensure that heat network zoning works alongside the planning system and to avoid an outcome where heat network zoning undermines or cuts across the planning system, or vice versa.

While planning system activities may be a trigger for heat network zones or zone policies at a local level, heat network zones should not be dependent on planning functions and development plans, nor inappropriately burden and delay development planning decisions.

Successful delivery of heat network zoning policy will be dependent on local government having the right resources to deliver their responsibilities effectively. How these additional costs will be met will be an important consideration, and we want to avoid a situation where they are drawn from planning teams' existing budgets.

Respondents to our first consultation provided views on the range of skills and expertise that they consider would be necessary. These spanned technical, project management, commercial, legal and data skills and expertise. We will ensure we engage with relevant parties to inform our policy development going forward.

The lifecycle of a heat network zone

The lifecycle of a heat network zone will have several stages – see Figure 1 below – where different bodies will carry out specific actions and where different requirements apply.

While we represent these stages sequentially, actions in one stage may overlap with another stage in the process. Additionally, some tasks may be carried out by either the Zone Coordinator, the Central Authority or another organisation. This will depend on the circumstances of each heat network zone.

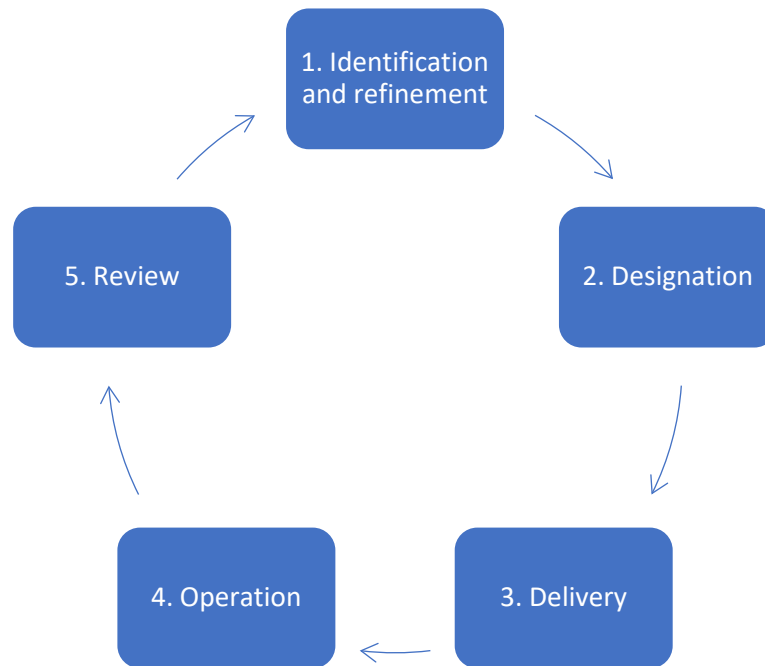


Figure 1 The lifecycle of a heat network zone

1. Heat network zone identification and refinement. Zoning bodies will identify heat network zones using the zoning methodology.

The first part of the zoning methodology will be the identification of indicative heat network zones across England by the Central Authority. They will carry out a national mapping exercise using the National Zoning Model. The indicative heat network zones produced by this exercise will be geographical areas where heat networks are expected to be the lowest cost technology to decarbonising heat used in buildings. The National Zoning Model will produce maps and datasets describing the location and scale of the indicative zones.

The second part of the zoning methodology is the refinement of the indicative heat network zones. Both the Central Authority and the relevant Zone Coordinator will review the outputs of the model to check for accuracy. Where appropriate, they will collect additional data⁷ to ensure that the indicative zones have been identified using the most accurate information.

The Zone Coordinator will work with relevant local stakeholders to review the indicative zone. This will provide an opportunity to include other local factors which are not accounted for in the available data.

We provide further detail on the zoning methodology in the “The zoning methodology” section.

2. Heat network zone designation. The zoning bodies will designate a heat network zone once it has been identified and refined.

Designation will be a short process of consulting on and officially confirming the boundaries of the heat network zone. This will ensure that relevant stakeholders are aware of the potential zone and allow organisations and members of the public to examine and provide views on it.

After consultation, the Zone Coordinator will officially designate the zone by registering it with the Central Authority. Once designated, post-designation zone requirements will come into

⁷ Two examples of additional data are data about specific buildings and heat sources.

force for the area covered by the heat network zone. These requirements are explained in more detail in the sections titled “Zoning bodies” and “Requirements in zones”.

3. Heat network zone delivery. Zone delivery is the process for deciding what heat networks will be built in a designated heat network zone, where and by whom. This will involve identifying any existing heat networks in the designated area and determining whether a heat network zone should be delivered by a single heat network operator, or whether it should be subdivided to allow for multiple operators to deliver heat networks in specific parts of a zone, called “zone development areas”.

The Zone Coordinator or the Central Authority will then bring the heat network zone opportunities to market, outlining the development opportunities in a Zonal Market Prospectus. This Zonal Market Prospectus will include information about the Zone Coordinator’s preferred delivery model and specific conditions that will be attached to delivering heat networks within the zone. Organisations will be invited to participate in a competitive process to win the right to deliver the advertised opportunity within the heat network zone.

4. Heat network zone operation. Appointed heat network developers will then construct, expand, and operate heat networks in the heat network zone. The appointed developers will win the rights to require certain types of buildings to connect. They will negotiate voluntary connections for other buildings. To provide demand certainty to the appointed developers, and to avoid construction duplication, the heat network zone delivery model may limit the activities of other heat network developers in all or parts of the heat network zone.

During zone operation, heat network developers and operators will be subject to the national heat network regulatory requirements for consumer standards as authorised heat network entities⁸. They will also be required to report data to the relevant zoning bodies for monitoring purposes and adhere to carbon emissions limits.

5. Heat network zone review. Zone review will be the process of reassessing the zone boundary following changes in local circumstances. Zone reviews will consider available evidence and data to propose either maintaining the existing boundary or expanding area cover by the heat network zone. The “Stage 5: Zone Review” section describes this process in further detail.

Policy Interaction: Interactions with Local Area Energy Planning

Local Area Energy Planning (LAEP) is the concept of developing a decarbonisation strategy for a specific local area based on an assessment of contrasting pathways, not just limited to decarbonising heating. It is a collaborative process often led by local government working with local stakeholders such as utility network companies, businesses, consumers, and often uses a whole-system approach. It helps identify different pathways for achieving Net Zero in the local area and areas where low regret actions can be prioritised, as well as barriers to developing particular opportunities.

LAEP can support heat network zoning policy by helping to identify where heat networks offer the most cost-effective and appropriate decarbonisation pathway for a given local area. We recognise the potential opportunities of local energy planning, but we need to ensure any approach is deliverable, cost-effective and aligned to wider policy. In considering the role for LAEP we are working with Ofgem following its governance review into local energy

⁸ See the heat network consumer protection consultation for a description of the proposed authorisation regime for heat networks: <https://www.gov.uk/government/consultations/heat-networks-regulation-consumer-protection>

institutions, the Department for Levelling Up, Housing and Communities, UK Research and Innovation and the devolved administrations.

Additionally, the government will continue to ensure that other wider energy network planning initiatives, such as those led by Ofgem or the Future Systems Operator, consider heat network zoning appropriately.

Heat Network Zoning: Proposals in Detail

Zoning bodies

Heat Network Zoning Authority

The national deployment of heat networks through heat network zoning will need to be carefully managed to ensure that customers, building owners, building developers, the supply chain and investors understand what is required and, importantly, when those requirements may apply.

1. Building owners and building developers affected by the requirement to connect should be alerted well in advance of when connection may occur. They will need clarity when making decisions regarding heating plant installation or replacement.
2. Additionally, building developers need to know which types of buildings will be required to connect and where heat network zones are at an early stage of the planning process to avoid disruption to development.
3. The heat network supply chain needs to understand the scale and value of projects that are likely to come to market, with ideally an steady ramp-up of projects across financial years to allow a sustainable expansion of the sector.
4. Investors need to have a clear understanding of the investment potential and the timings of opportunities coming to market as well as a standardised “route to market” for their participation.

The Central Authority will be able to consider the merits of heat network zone opportunities in a national context. They can assess the relative scale, value for money, project deliverability and other such factors of different opportunities. They will establish a pipeline of zone opportunities which looks 10 to 15 years ahead. This will provide clarity to customers, the heat network supply chain, and investors on when and where heat network zones are expected to be delivered across the country. The Central Authority may also, on occasion, undertake the role of a Zone Coordinator to ensure they can bring heat networks opportunities in the pipeline to market at the right time.

Importantly, the Central Authority will resource itself sufficiently to manage the zones identified for coordination in a given financial year. Where local government elects to fulfil the Zone Coordinator role, the Central Authority will allocate resources to them to undertake that role. This may be in the form of financial support, allocation of consultants under call-off agreements, secondments from the Central Authority itself, or other forms of support.

The Central Authority will also develop a standardised approach for awarding zone opportunities to zone developers, in a manner that is understood by market participants. Further information on this is given in the “Stage 3: Zone delivery” section.

Summary of proposed roles and responsibilities of the Heat Network Zoning Authority

The main roles and responsibilities of the Central Authority will be:

1. Identifying, designating and reviewing zones

- a. Developing and reviewing the zoning methodology for identifying heat network zones and publishing any accompanying guidance.
 - b. Carrying out the identification stage of the zoning methodology using the National Zoning Model.
 - c. Quality assurance of refined heat network zones following refinement by a Zone Coordinator.
 - d. Rerunning the zoning model during a zone review process, as required.
2. Zone delivery
 - a. Developing and publishing the national pipeline of projects for a 10-15 year look ahead.
 - b. Annually updating the national pipeline.
 - c. Developing standardised routes to market for heat network zone opportunities.
 - d. Maintaining a list of standardised delivery conditions to apply across all zones.
 3. Data management
 - a. Acting as the data custodian for zoning data.
 - b. Maintaining the zoning digital service as a register of existing zones.
 4. Zone Coordinator oversight
 - a. Overseeing the creation of Zone Coordinators, including funding.
 - b. On occasion, directing a local government entity to appoint a Zone Coordinator.
 - c. Providing advice to Zone Coordinators on the fulfilment of their roles.
 - d. Scrutinising the decisions of Zone Coordinators during zone identification and refinement, designation, delivery, operation and review.
 - e. Intervening to direct or act as the Zone Coordinator if the appointed Zone Coordinator fails to, or cannot, carry out their duties appropriately.
 5. Monitoring and reporting
 - a. Monitoring progress of zoning across England using reports from Zone Coordinators.
 - b. Monitoring the performance of Zone Coordinators against objectives.
 6. Hearing appeals against exemption decisions or enforcement escalated by the Zone Coordinator.

1. **Do you agree with the roles and responsibilities set out for the Central Authority? If not, please set out a) which ones you disagree with and why, and/or b) additional duties you expect them to perform and why.**

Governance of the Central Authority and position within government

In the near-term, we intend for the Central Authority to be a unit within the Department for Energy Security and Net Zero (“the department”). This will allow a rapid and cost-effective set-up of the Central Authority.

Over the longer-term, there is the option to move the Central Authority into a new or existing entity outside of the department. Such a move will only be undertaken if it would result in clear improvements to the functioning of the Central Authority and could be done in a cost-effective manner.

2. **Do you agree with the housing of the Central Authority within the Department for Energy Security and Net Zero, for the initial period? If not, please set out why not, what alternative you would propose, and what benefits this alternative could bring.**

Zone Coordinators

Zone Coordinators – summary of proposed roles and responsibilities

Zone Coordinators will have roles related to zone identification, delivery, operation and review. Including:

1. Identifying, designating and reviewing zones
 - a. Collecting local data and intelligence to assist in identifying zones.
 - b. Refining indicative heat network zones using the zoning methodology.
 - c. Carrying out a formal consultation of the heat network zone boundary before designating the zone.
 - d. Designating heat network zones by registering them with the Central Authority.
 - e. Identifying, assessing and implementing the outcome of zone reviews.
2. Zone delivery
 - a. Develop a Zonal Market Prospectus, including information about the preferred delivery model and a report regarding heat sources in the zone.
 - b. Publishing the Zonal Market Prospectus.
 - c. Running any competition or process for appointing a heat network zone developer or developers.
 - d. Depending on appointment process, reviewing prospective zone developers' Zone Development Plans.
 - e. Choosing the standard conditions which apply in their zone from a standardised list.
 - f. Finalising contractual agreements or otherwise with the zone developers.
3. Zone operation
 - a. Monitoring the performance of zone developers against the contractual conditions.
 - b. Reporting data to the Central Authority.
 - c. Enforcing zone requirements by issuing penalty notices or equivalent.
 - d. Considering appeals against exemption decisions or enforcement actions and escalating to the Central Authority when necessary.

Note that the Central Authority may choose to carry out some Zone Coordinator functions in some or all zones if circumstances require it.

- 3. Do you agree with the roles and responsibilities set out for the Zone Coordinator? If not, please set out a) which ones you disagree with and why, and/or b) any additional duties you expect them to perform and why.**

Designation of a Zone Coordinator

Zone Coordinators will have oversight of one or more zones and perform local functions related to those zones. The Zone Coordinator will also work with local planning authorities to ensure zoning decisions work well with existing planning and building regulations.

We do not propose restricting the borders of heat network zones to existing local government boundaries or defining a level of local government at which Zone Coordinators must be established. The zoning methodology may identify heat network zones in areas with overlapping types of local government, such as a county council which is part of a combined authority. Zones may also cross the boundaries of several neighbouring local governments.

We also envisage – and want to enable – instances where different levels of local authority can fulfil different parts of the Zone Coordinator role. For example, a combined authority may wish to carry out the Zone Coordinator role for the zone identification, refinement and designation stages, with decisions around zone delivery subsequently taken at district council level.

We therefore propose that the Central Authority will oversee a coordination process to ensure the establishment of Zone Coordinators at the most appropriate level of local government. This process will either appoint a “lead authority” within which the Zone Coordinator will operate or lead to the Central Authority acting as Zone Coordinator.

1. Where the Central Authority identifies an indicative heat network zone of sufficient scale or strategic importance to include within the national pipeline, we propose that the Central Authority will notify all relevant local government bodies approximately 12 months in advance of expected zone designation asking them to consider whether they want to act as or establish the Zone Coordinator.
2. When heat network zones cross several local government boundaries, the relevant authorities will be required to choose a lead authority. It will not be permissible for there to be overlapping heat network zones with different Zone Coordinators. The Central Authority will set a time limit on this decision. In cases where they fail to agree, the Central Authority will decide.
3. The relevant authorities can also choose not to take on this role.
4. If they elect not to fulfil the role, or do not respond to the request in a timely manner, then we propose that the Central Authority would fulfil the role of Zone Coordinator instead.

In this way the zone development can be brought to market at pace and in a coordinated manner.

We anticipate the following types of public bodies may come forward as Zone Coordinators: county councils, unitary authorities, combined authorities, metropolitan district councils, borough councils, city councils and district councils. We do not intend to allow parish councils to do so due to their small size and limited resources.

Zone Coordinators will receive resources to help them fulfil their role, as outlined in “Zone Coordinator funding”. The allocation of these resources will align with the Central Authority’s pipeline of projects. Local government may also wish to bring projects to market which are not part of the national pipeline or bring forward projects planned for future years. Our ambition is that they will have access to an additional annual allocation of resources for this purpose. The Central Authority will allocate these ad-hoc resources on a competed basis, similar to the current approach used for Heat Network Delivery Unit (HNDU)⁹ funding today.

We propose that the Central Authority will have to assess any potential Zone Coordinator against a set of minimum criteria before appointment. This assessment will be called a Fitness to Operate Assessment (FTOA). Prospective Zone Coordinators will have to pass this assessment by proving they can meet minimum standards as a condition of their establishment as Zone Coordinators. Table 1 outlines the proposed tests.

In addition to FTOAs, Zone Coordinators will be subject to ongoing baseline requirements set out in the regulations and explained further in guidance. These are expected to conform to the roles and responsibilities section set out above.

⁹ See: <https://www.gov.uk/guidance/heat-networks-delivery-unit>

Table 1 Proposed Zone Coordinator Fitness to Operate Assessment criteria

Zone Coordinator assessment criteria	Description
Accountability	<p>Checks to ensure there are named officers in place who hold ultimate responsibility for actions of the Zone Coordinator and accountability is set at the right level.</p> <p>Checks to ensure there are effective processes for communicating with Ofgem, the Central Authority and other relevant entities.</p>
Long-term strategy	Review of how the Zone Coordinator plans to approach: making zone delivery decisions, implementing delivery decisions, monitoring and enforcement in zones, and conducting zone reviews.
Finance	Review that it has appropriate plans for resourcing the role.
Governance	That the Zone Coordinator fulfils governance requirements, including around minimising the risk of conflicts of interest and having sufficient expertise. See “Zone Coordinator Governance Requirements” for further detail.
Data management	A review of planned process for handling, sharing and publishing data.

4. Do you agree with the suggested approach for designating Zone Coordinators? If not, please set out which aspects you disagree with and how to address them.

5. Do you agree with the proposed list of Fitness to Operate Assessment criteria set out in Table 1? If not, please explain why.

Zone Coordinator Structure

We intend for there to be two structures of governance that Zone Coordinators may choose between:

1. Principal Structure: the Zone Coordinator will be a team within local government that will operate impartially and with a degree of independence from the rest of the local government. We envisage that this will be the most popular route as existing structures are used for set-up and ongoing operation.

2. Optional Structure: alternatively, a local authority may choose to establish the Zone Coordinator as a separate legal entity but still controlled by local government. This allows for current heat network projects who use joint venture companies, or similar, to continue using their existing governance structures.

Whichever system of governance the Zone Coordinator selects, it will need to meet certain governance requirements. Governance systems should avoid adding unnecessary additional administrative pressure on other functions. We expect local authorities will be best placed to judge which of the two structures achieves this for their zone, alongside meeting governance requirements, which are explored in the following section.

Zone Coordinator Governance Requirements

The Zone Coordinators will have to comply with governance requirements as a condition of establishment.

The zoning regulations will specify the most important requirements that all Zone Coordinators must follow. The Central Authority will set out additional “best practice” in guidance. This guidance will also include advice for the Zone Coordinators on how to meet their statutory governance obligations.

Category 1: Independence to ensure optimal decision-making

The Zone Coordinator should have sufficient independence from the Central Authority to act and take decisions on its own. Therefore, the regulations will prohibit Zone Coordinator members from also being members of central government.¹⁰

The regulations will specify checks and balances to allow the Central Authority to monitor the Zone Coordinator’s decisions and challenge them when necessary. This will include a mechanism enabling developers, consumers or interest groups to contact the Central Authority to challenge a Zone Coordinator decision.

It may be appropriate for the Zone Coordinator to seek Central Authority approval before taking certain significant development decisions, or before taking a decision that is outside the ordinary course of its operations. The regulations will set out these “significant decisions” and could include a scenario where a decision taken by one Zone Coordinator could create a precedent that has an impact on a different zone.

Category 2: Local, democratic accountability

We propose that the Zone Coordinator should report **to local councillors quarterly** to ensure accountability to local citizens. If the Zone Coordinator is a separate legal entity structure under the Optional Structure, its board should include multiple councillors.

The guidance under this section could include social responsibility guidelines, such as encouraging Zone Coordinators to regularly engage with local residents by undertaking activities such as holding public events or distributing information about the zone.

Category 3: Input from consumer, business and other stakeholder groups

The Zone Coordinator should always incorporate a representative or expertise from each of the following: a consumer group, a local business group, heat network expertise, building developers, and any other relevant groups.

¹⁰ This excludes the circumstances where the Central Authority is fulfilling the Zone Coordinator role. Separately, central government may hold a ‘bank’ of staff to be deployed to work within Zone Coordinators. This bank would sit separately from the Central Authority’s monitoring work of Zone Coordinators.

Category 4: Conflicts of interest

Whilst it is important that a Zone Coordinator can draw on expertise from industry (see Category 3 above) ¹¹, it is vital that the Zone Coordinator continues to (i) take decisions independently and free from undue influence of the zone developers, and (ii) avoid a situation which could give rise to a conflict of interest.

We will therefore introduce firm conflicts of interest measures to ensure that having developers within the governance structure does not allow them to avoid enforcement or accountability.

For example, the regulations should prevent developers from having oversight of the day-to-day management of the Zone Coordinator. If they are members of the Zone Coordinator board, their voting rights should be restricted. They should not be in the majority and none of them should have a casting vote.

However, in the interests of practicality, the regulations should grant the Zone Coordinator the ability to authorise a conflict. For example, the Zone Coordinator could consider that despite the potential conflict of interest, the decision is in the best interests of the zone overall, and therefore decides to proceed with it and authorise the conflict. It should keep a record of any such authorisations.

Category 5: Transparency

The regulations will require the Zone Coordinator to produce a formal public report every 12 months. The report will follow a standardised template and include:

- Progress made on existing projects since last report.
- Assessment of opportunities and risks.
- Details of any new appointments to the Zone Coordinator board.

The Zone Coordinator's remuneration and budget arrangements should also be clear, mirroring those set out in the Local Government Transparency Code 2015 ¹².

Category 6: Risk Management

The regulations should require the Zone Coordinator to have in place effective procedures to manage risk, and to determine the nature and extent of the principal risks it is willing to take to achieve long-term zone objectives. The Central Authority could issue guidance as to what these procedures could look like.

- 6. Do you agree with the Zone Coordinator governance requirements set out above? If not, please set out a) which ones you disagree with and why, and/or b) which additional requirements you consider are necessary.**

Delegation of Zone Coordinator roles and responsibilities

There may be circumstances where a Zone Coordinator prefers to delegate some of their duties. For example, the Zone Coordinator for only a single zone may not want to establish a full team of individuals within their organisation – in these circumstances they may wish to

¹¹ This may include the heat network developer awarded rights in the zone. The expertise may be either be a permanent part of the Zone Coordinator or be regularly consulted through contractual arrangements.

¹²See: <https://www.gov.uk/government/publications/local-government-transparency-code-2015>

delegate their work to third parties while retaining a smaller number of staff. This will be permissible under our proposals, and the Zone Coordinator will hold ultimate responsibility.

Zone Coordinator funding

As detailed in the Impact Assessment accompanying this consultation, we expect the annual costs of Zone Coordinator teams in local government to be in the millions of pounds. Local government bodies have a range of funding options open to them but national government recognises that to operate effectively as Zone Coordinators they will require extra funding.

This funding may come from a range of sources, including:

1. Central government exchequer funding.
2. Using the heat network cost recovery mechanism within the Energy Act 2023 to recover costs from gas and electricity licensed companies¹³.
3. From Zone Coordinator consent fees, charged specifically to heat network operators and developers who operate, or apply to operate, in the related zone.
4. Some mix of the above.

A funding source, or sources, should:

- Be sustainable.
- Be proportionate, in that the cost burden is manageable and, as far as possible, shared by those benefiting from the Zone Coordinators' work.
- Be accessible for the initial set-up of Zone Coordinators and their work from 2025.
- Avoid actual or perceived conflicts of interest.

All these funding options ultimately place costs on consumers, either through energy bills or taxes. Therefore, we will continue to test each option in full, in terms of practicalities and affordability. This involves working with Ofgem, HM Treasury (HMT) and other partners. The extent to which central government can provide exchequer funding to establish Zone Coordinator teams will be dependent on the next Spending Review.

In considering the feasibility of charging the costs of Zone Coordinator activity to licensed electricity and gas companies we have considered several issues. Firstly, the government is focused on reducing the costs of energy and is mindful that any increase in bills will add a burden to households and businesses. Secondly, there are complexities from a devolution perspective. The costs of Zone Coordinator activity will only be incurred in England but there is currently no mechanism to ensure gas and electricity levy payments are paid only on gas and electricity consumed in England. Bearing these challenges in mind, the government will explore this option with Ofgem with a view to implementing it as soon as possible if feasible and appropriate. This option would require changes to the licence conditions and therefore would require further consultation.

Over the longer-term, we may seek to recover a greater proportion of the costs of individual Zone Coordinators from heat network developers and operators who are active in a specific zone. Any fees charged could be calculated based on the developer's size and activity in that

¹³ We previously consulted on the cost recovery mechanism here <https://www.gov.uk/government/consultations/recovering-the-costs-of-heat-networks-regulation>

zone, such as on how much generation capacity they have installed. We will consult further on any system of Zone Coordinator consent fees before they are introduced. To avoid conflicts of interest we propose that funding from developers and operators could not be used to staff compliance or enforcement functions within the Zone Coordinator.

- 7. Do you agree that, longer-term, heat network developers should pay a greater proportion of the costs of Zone Coordinators related to zones they are formally engaged with? What challenges and opportunities do you see with this approach?**

Requirements in zones

This section describes our proposals for the requirements which will apply to different organisations in heat network zones.

Requiring buildings to connect to heat networks

One of the most significant barriers to investing in heat networks is uncertainty about which buildings will connect to them. This uncertainty discourages the development of larger, strategic heat networks as developers prefer to design and build smaller, self-contained networks where they have greater control over which customers will connect.

The act of designating a zone in an area will offset some of this uncertainty. It will signal to building owners and managers that connecting to a heat network is expected to be the lowest cost option to the consumer for decarbonising heat in their area and make it more likely that they seek out a connection without any further intervention.

We believe these signalling benefits will give heat network developers the confidence to proactively negotiate voluntary connections with many more building owners.

However, the economic case for connecting to a heat network, the strategic benefits, and the incentives to begin early negotiations may not be enough to ensure a commitment from a building owner to connect. Alternatively, building owners may agree to connect, but at an inappropriate time for the development of the heat network.

Given this, we are proposing a requirement on certain buildings to connect to a heat network. The types of building subject to this requirement will be:

- New buildings,
- Existing communally heated buildings,
- Some existing non-domestic, non-communally heated buildings.

These categories may change if analysis for the final impact assessment indicates that there may be an undue impact on housing supply or SME developers. If so, we will work with the Department for Levelling up Housing and Communities (DLUHC) to revise the proposals to mitigate this impact.

The person responsible for the duties placed on “buildings” – such as the timely agreement of a connection date or application for an exemption – will be the building developer for new buildings, and the building owner for existing buildings. Note that any proposals set out in this consultation which require changes to the Building Regulations or its associated guidance will require further consultation. This includes any amendments to regulations and technical guidance.

Buildings in scope of the requirement to connect

New buildings

As we proposed in the first zoning consultation, the Zone Coordinator may require new buildings in a heat network zone to connect before completion of construction where a heat network connection represents the lowest cost low-carbon heating option.

A “new building” refers to any development which receives planning permission following the designation of a zone¹⁴.

New buildings in zones which do not connect before completion will need to be “heat network ready”, meaning designed in such a way that they can connect to a heat network in the future. These “heat network ready” buildings may only be required to connect in future if they fit into the categories described in the following sections.

We are seeking views on the definition of “heat network ready”. We believe the following could be included:

- Designing buildings containing multiple premises with communal heating systems instead of individual heating systems.
- Installing appropriate internal measures which differ from standard building regulations for heat pumps.
- Designing space within buildings for heat network pipes and other connection equipment.
- Requirements on new buildings to have appropriate levels of insulation for pipework. Proposals for this are part of the draft Approved Documents, published as part of the Future Homes and Building Standard consultation¹⁵.

While we envisage that legislation will set out the circumstances under which buildings must be “heat network ready”, guidance will provide detailed information about how to meet that requirement for different building types.

- 8. Please suggest the features a building must have to be considered “heat network ready”, meaning the characteristics required to enable a future connection to a district heat network.**
- 9. Do you agree that new buildings within a zone should be required to be “heat network ready” if they cannot connect immediately on completion of construction? If not, please provide further detail, including any factors related to cost-effectiveness.**

Existing communally heated buildings

All buildings with existing communal heating systems will be within scope of the requirement to connect, meaning all communally-heated¹⁶ residential and non-domestic buildings. This also applies to mixed-use buildings, and buildings which are partly communally heated. We also

¹⁴ See “Zone Review” section for proposals on developments outside zones proposed after the original zone designation.

¹⁵ See <https://www.gov.uk/government/consultations/the-future-homes-and-buildings-standards-2023-consultation>

¹⁶ See glossary for the definition of a communal heat network.

intend for this category to include other residential buildings, such as nursing homes, which do not include distinct, separate dwellings.

Existing residential buildings with individual heating technologies, such as single-family houses or blocks of flats with individual gas boilers, will not be within scope of the requirement.

10. Do you agree that all existing buildings with communal heating systems should be within the scope of the requirement to connect?

11. What impacts, if any, may this have on building owners, tenants, residents and other communally heated building users? Please provide any mitigations.

12. Please describe any implications for local authorities from the requirement to connect existing publicly owned, communally heated buildings to district heat networks.

Residential buildings undergoing significant refurbishment

In the first heat network zoning consultation, we proposed that existing large residential buildings undergoing significant refurbishment would be required to connect. Connecting a building during a refurbishment would minimise disruption and save on costs.

However, the proposed approach for activating the requirement to connect described in the following sections makes it redundant to **explicitly** require this category of building to connect:

- Buildings undergoing significant refurbishment which **will not** be within connection distance of a heat network during the refurbishment will have no heat network to connect to, so the benefits cannot be realised.
- For buildings undergoing significant refurbishment which **are** within connection distance of an existing or future heat network main, either:
 - the heat network developer has already activated the requirement to connect because the building is within scope and already has an agreed final connection date;
 - the relevant heat network developer has chosen not to activate the requirement to connect for that particular building;
 - or the building is individually heated and therefore not in scope of the requirement.

We are considering whether to instead require some multi-unit residential buildings with individual heating systems to be made “heat network ready” if they undergo significant refurbishment if they are not already and where it is cost effective. Primarily, this will mean installing a communal heat network which will bring the building into scope of the requirement to connect by converting them into communally heated buildings.

A building changing its use type from any non-domestic to multi-unit residential will be included in the definition of “significant refurbishment”, except in cases where the existing heating system can already supply the proposed number of dwellings.

13. Which types of multi-unit residential buildings, if any, should be “heat network ready” following significant refurbishment? Please describe any impacts of this on owners or other users of these buildings and any appropriate mitigations.

14. Please suggest how to assess the cost-effectiveness of making buildings “heat network ready” during significant refurbishment, including which costs should be considered.

15. Please suggest a suitable definition of “significant refurbishment”. If possible, the definition should be unambiguous, enforceable, and definitive.

Existing non-communally heated non-domestic buildings

For the remaining non-domestic buildings without a communal system, a threshold test will determine if they are in scope of the requirement to connect. In the first heat network zoning consultation, we proposed a threshold of an annual average heat demand greater than 100 MWh. The responses to this proposal were mixed.

The main challenges related to setting a threshold for non-domestic buildings include:

1. **Ensuring that the chosen metric is independently verifiable.** For example, using annual average heat demand would rely on either a building self-reporting their heating demand or using modelled estimates which could be inaccurate. An external data source is necessary to accurately determine the building’s heat demand.
2. **Simplicity.** Any metric will need to be easy to understand and measure and should be stable in the medium to long term.
3. The metric needs to **select buildings that are appropriate for connection.** For example, a threshold of buildings with an internal floor area of over 1,000 square metres could select buildings which are spatially large but have low heat demand, like warehouses.

We are now seeking a wider range of views on what metrics and thresholds might be appropriate for determining whether a non-communally heated building is within scope of the requirement to connect. Table 2 provides five example metrics we have considered.

Table 2 Examples of potential metrics for determining which non-domestic, non-communally heated buildings in zones can be required to connect

	Metric	Independently verifiable	Simple to understand	Selects appropriate buildings
1	Reported annual average heat demand (MWh per year)	Maybe	Yes	High
2	Total installed heat capacity (kW)	Maybe	No	Medium
3	Gross/net internal floor area (m2)	Yes	Yes	Low to medium

4	A combination of floor area and use-type (commercial m ² , warehouse m ²)	Yes	Yes	Medium
5	Annual heat demand based on standard use-type energy density benchmark (MWh/m ² /year * m ²)	Yes	Somewhat	Medium to high

16. Among the metrics listed in Table 2, which, if any, do you think should determine whether a non-communally heated, non-domestic building is within scope of a requirement to connect? Please provide alternative metrics if you disagree with those listed.

17. For any additional metrics you have suggested, please describe how they are, or could be: (i) independently verifiable; (ii) made easy/simple to understand; (iii) effective in selecting relevant buildings.

18. For each of the metrics you have proposed in the previous questions, please describe a suitable threshold.

Activation of the requirement for existing buildings

Our initial proposals in the 2021 zoning consultation indicated that all buildings in a zone within scope of the requirement would have to connect before a zone-wide deadline or “backstop”. In the period between designation and the backstop, all buildings subject to the requirement would have either connected following a predefined “trigger”¹⁷ event, at a mutually agreed time prior to a trigger occurring, or received an exemption.

We recognise that the requirement to connect must take effect within a specified timeframe to be effective, but we no longer believe that the previous “trigger” based approach is proportionate or practical. Instead, the Zone Coordinator will “activate” the requirement for buildings following a request from a relevant heat network developer, which we describe in further detail below.

The main driver for this change in approach is that we expect most connections in heat network zones to occur between **existing buildings and new heat networks**. Existing buildings can only connect to a heat network once a heat network developer builds a pipe - a heat main¹⁸ - close enough to the building.

This event would supersede all other triggers proposed in the first zoning consultation which apply to existing buildings. For example, a building could choose to replace its heating system at the end of its life. If that building were not located near a heat main, it would not be able to

¹⁷ These triggers were: delivery date of heat from the network; construction or completion of new developments; major refurbishments of existing buildings; replacement of existing heating systems; other changes to regulatory requirements.

¹⁸ A “heat main” is the flow and return pipes which distribute the heated medium past all buildings which might connect. Connections to individual buildings will branch off the heat main at junction points.

connect, and would have had to seek an exemption. If it were already within connection distance of a heat main, then the “delivery date of heat” trigger would have already applied, and so the building would have either connected or received an exemption (see “Exemptions” section below).

Additionally, the system of triggers and timescales would require the Zone Coordinator to monitor every building in the zone which falls into the required categories, even if a heat main would not reach them for many years. This would be costly and inefficient.

However, heat network developers still need certainty about which buildings will connect. Therefore, we propose that the heat network developer will “activate” the requirement for specific buildings, or groups of buildings if appropriate.

Under these new proposals, the heat network developer will inform the Zone Coordinator that they want to activate the requirement for one or more buildings. The heat network developer may only activate this requirement when they have achieved a suitable delivery milestone for a heat main capable of serving the connection to the building.

The Zone Coordinator will then issue a notice to the relevant building owner which formally “activates” the requirement to connect. Zone Coordinators will only have an administrative role – they have no decision-making powers at this point – and will have to notify relevant buildings promptly.

The notice will describe the steps the building owner must take to enable the connection. This includes the window of time within which they must connect, and how long they will have to agree an exact connection date with the relevant heat network developer. Buildings will not have to connect immediately following receipt of the notice.

We expect heat network developers to engage with building owners, management companies, or other appropriate persons to negotiate connections to their heat network as early as they can. We believe that both building owners and heat network developers will prefer a positive and proactive approach to agreeing connections, rather than relying on the requirement to connect. Tools like publicity campaigns, local advocates for heat networks and creative and innovative financial offers can all encourage these connections within the local area.

It is worth noting that the regulations will require buildings to connect, but they will not compel buildings to use the heat provided via the connection. The heat network developer will be responsible for setting or negotiating the commercial terms of a heat supply contract with building owners.

We are also aware that there are risks associated with placing this requirement on buildings. Building owners or developers may find the requirement to connect off-putting, even if they are enthusiastic about decarbonising their buildings. This makes an active approach to agreeing connections by developers vital for building trust in heat networks and heat network zoning.

As such, we are also seeking views on the potential role for incentives in encouraging connections. Incentives could prompt building owners to seek connections proactively because they provide additional benefits to the building and its occupants. This will reduce reliance on the requirement to connect. Incentives would also offset the perception that the requirement to connect impinges on individual choice. Any future incentive design would be subject to further consultation.

19. Do you agree with the proposed mechanism for activating the requirement to connect? If not, please provide alternative suggestions.

20. What, if any, unintended consequences for building developers, owners, and residents, may result from requiring existing buildings to connect at a time determined by heat network developers? Describe any mitigations.

21. What types of incentives could encourage connections to heat networks? For each suggestion, describe how the incentive will encourage connection, for instance by specifying which barrier to connecting.

Minimum connection timing requirements for existing buildings

Because the requirement to connect places additional duties on building owners and requires them to take actions they may not otherwise have done, we propose that minimum time requirements should apply to the process of requiring a building to connect. We outline this process in Figure 2.

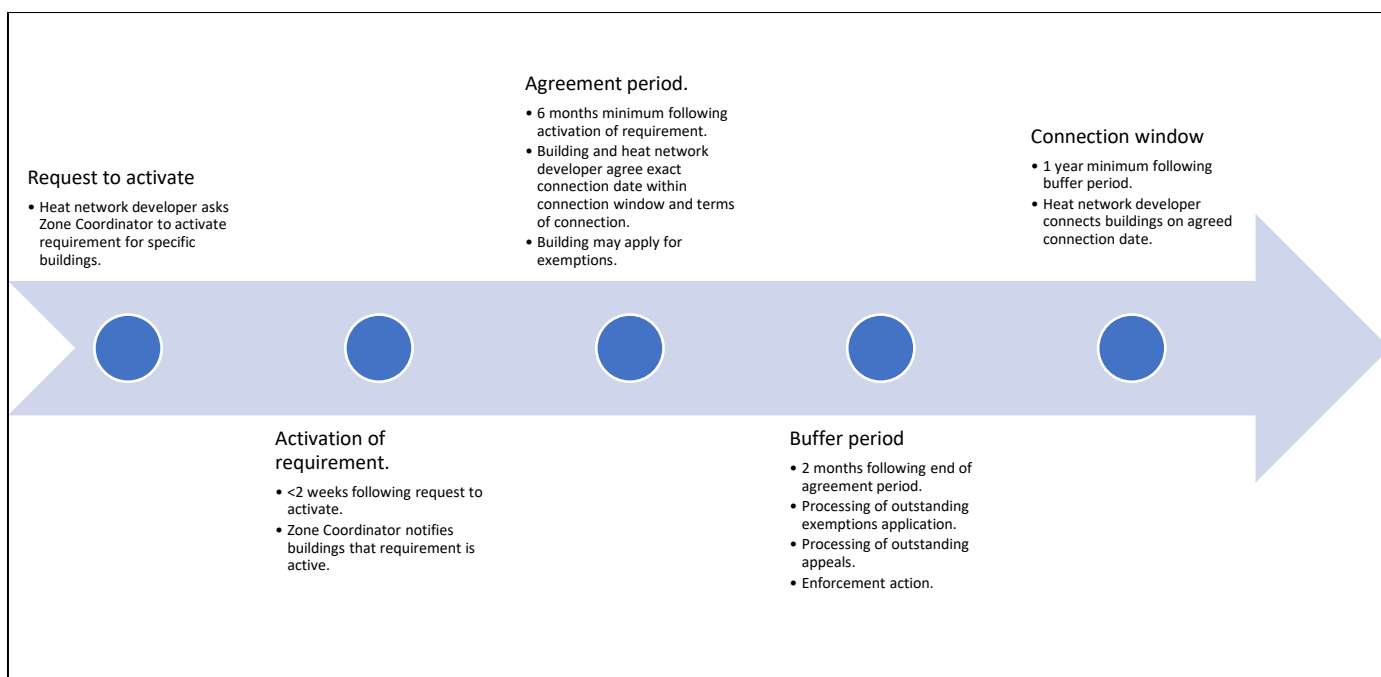


Figure 2 Indicative timelines for the process of requiring buildings to connect

We propose that heat network developers must provide the Zone Coordinator with a “connection window” when they ask them to activate the requirement to connect for specific buildings.

The “connection window” will be a period with a minimum statutory length of **1 year**.

Between the activation of the requirement and the start of the connection window, the heat network developer and the building owner (or their representative) must agree an exact connection date within the connection window. This approach means that the notified building can connect at a time that is appropriate to both them and the developer. This period – referred to as the “agreement period” - will also have a minimum statutory length of **6 months**.

Finally, a short “buffer period” will follow the agreement period. The buffer period will allow the Zone Coordinator to process any outstanding exemptions received before the end of the agreement period, resolve or escalate any appeals made against the requirement to connect, and carry out any enforcement actions where building owners have not complied with their duties under the requirement. The buffer period will be **2 months** long.

These proposals describe **minimum requirements**. Developers may propose a connection window longer than the statutory minimum, or plan for a longer agreement period by notifying the Zone Coordinator earlier. Decisions on the **maximum timelines** will be for the Zone Coordinator.

We are not proposing a single national statutory maximum time for the agreement phase. The heat network developer will define the start of the connection window when they request activation of the requirement to connect, which consequently defines the maximum length of the agreement period. For example, if a heat network main already runs past a building, the developer could immediately activate the requirement to connect, requesting a connection window beginning in two years. The agreement period would therefore last 14 months, plus a 2 month long buffer period. If the developer wanted the shortest allowable agreement period, they would have to request a connection window starting in eight months to provide an agreement period of 6 months - the statutory minimum.

If a building owner and network developer agree to connect outside the connection window, then they are free to do so. This is equivalent to connecting voluntarily. The minimum requirements are intended to protect those building owners who wish to consider the options available to them, or who wish to apply for an exemption.

Zone developers may be subject to growth conditions as part of the award of zoning rights by the Zone Coordinator. This will determine the latest point at which they can activate the requirement to connect for specific buildings without incurring penalties.

22. Do you agree with the following timings for connecting existing buildings? If not, please provide alternatives.

- a. 1 year for the connection window**
- b. 6 months for the agreement period**
- c. 2 months for the buffer period.**

23. Please describe any administrative burdens or other impacts on any entity which could be caused by the use of agreement and buffer periods, and describe any mitigations.

Activation of the requirement to connect for new buildings

For new developments, the requirement to connect must work with the planning process and allow for more flexibility in connection timing so as not to limit the supply of new housing. Successful connections will rely on both the heat network being able to offer a feasible connection date and construction timings of the new building.

Local planning authorities will notify Zone Coordinators of new planning applications. We propose that the Zone Coordinator, prompted by the heat network developer, may activate the requirement to connect and start the agreement period as soon as they are notified of a planning application. As is the case for existing buildings, the Zone Coordinator will do so by notifying the building developer. They will also inform the planning authority as a matter of course.

The Zone Coordinator will only activate the requirement if they are sufficiently satisfied that the heat network developer can connect to, or provide sufficient heating through temporary solutions (e.g portable gas boilers) for, the new development before the end of construction,

and that the network developer can provide sufficient technical detail to allow a fair assessment of any exemption applications. If neither of these are true, the Zone Coordinator will not require those buildings to connect.

Note that, unlike existing buildings, heat network developers may have to accept higher levels of uncertainty about when connection might occur for new developments due to variability in the planning system.

We propose that the agreement period for new buildings will last from the **point of notification** until a point **sometime before** the latest possible opportunity to change the building design, at which stage the “buffer period” will begin. The buffer period will last until **shortly** before the latest possible opportunity to change the building designs. We are seeking views on the exact definition on these stages in the following questions.

The “connection window” for new buildings will be any time between the start and end of construction of the new building.

Within the agreement period, the building developer may apply for an exemption. We will require the Zone Coordinator to confirm exemptions before the start of the buffer period and that internal appeals are finalised before the end of the buffer period.

24. Please indicate when you believe the following stages in the connection process should begin and end for new buildings. Please be specific by, for example, naming the stage in the development process, such as Gateway 1 or Gateway 2.

- a. The agreement period;
- b. The buffer period.

25. Do you foresee the process for connecting new buildings introducing any burden or delays on the building development process? Please suggest any mitigations.

26. Do you foresee any of the proposals in this consultation placing disproportionate burdens on the following? If so, indicate what the impact could be on housing supply.

- a. Housing developers in general,
- b. SME housing developers.

Exemptions

New and existing buildings subject to the requirement will have diverse characteristics which may make a connection to a heat network unsuitable at the time required by the heat network developer. Building owners will therefore be able to apply for an exemption to the requirement to connect to avoid detrimental outcomes caused by inappropriate connections.

Exemptions will be based on two components: type and criteria. The type defines **when** the exemption applies – either ending on a defined date or ending when a specified condition is no longer true. The criteria define **why** the exemption applies – either due to the connection being too expensive or because it occurs at an inappropriate time.

Figure 3 outlines an indicative decision process for determining what exemption type and criteria may be relevant. We will develop this process further in guidance. We explain the types and criteria in more detail in the following subsections.

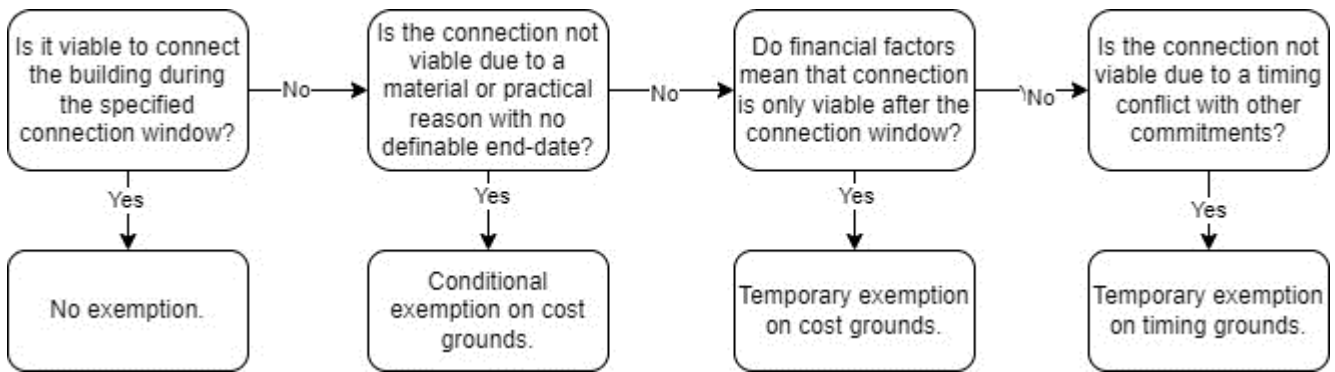


Figure 3 Indicative decision process for a Zone Coordinator considering a building exemption

Building owners will apply to the Zone Coordinator for exemptions during the agreement period as the Zone Coordinator can only fairly assess the viability of a connection once there is sufficient information about that connection.

The building owner will have to provide the Zone Coordinator with the appropriate evidence when they apply for an exemption. Guidance will outline the evidence requirements for each type of exemption and criteria. The Zone Coordinator will assess the evidence, determine if an exemption is appropriate and, if so, issue a standardised exemption agreement to the building owner and the heat network developer which states the terms of the exemption.

27. Do you agree that the agreement phase is an appropriate time for buildings owners to apply for exemptions? If not, please provide an alternative suggestion.

Types of exemptions

Building owners will be able to apply for one of two types of exemptions: temporary or conditional. Both types of exemptions will have exit conditions, which means no building will be permanently exempt from the requirement to connect – the requirement can become active again if circumstances change in a way described in the exemption agreement. Generally, those responsible for carrying out the duties placed on them by the requirement to connect will apply for exemptions. However, we are also interested in views on whether leaseholders should also have a route for applying for exemptions.

In both types of exemption, **the Zone Coordinator will assess the costs**, who they fall on, and any other factors, when deciding on the appropriate type of exemption to award. They will assess these variables using standard assumptions and methodologies.

Type 1: Temporary exemptions.

Building owners may apply for a temporary exemption when they cannot viably connect to the relevant heat network **within the connection window** specified in the Zone Coordinator’s connection notice.

These exemptions will include an end-date in the terms of the exemption agreement. After this date, the building must connect to the specified heat network.

For example, if a building has a contract in place for supply of gas for their communal heat network and the costs of “buying out” the contract early are too high for the heat network developer, then the Zone Coordinator can grant a temporary exemption to that building for the

remaining period of the contract. When the contract ends, the building must connect to the heat network.

Developers of new buildings will also be able to apply for temporary exemptions. For example, a large new development of medium density detached homes in a zone may be under the requirement to connect during the building construction process. However, if the characteristics of that development – such as its low heating density - mean that the cost of a heat network connection would be much higher than a low-carbon alternative, they could apply for an exemption. They would receive a temporary exemption that ends when construction of the building ends, because after this point they will become "existing" single family homes which are not within scope of the requirement to connect and there will therefore be no ongoing requirement to connect.

Examples of connection barriers which may warrant a temporary exemption include:

- Existing contracts for the provision of utilities for the purposes of heating which are too expensive to “buy out”. The temporary exemption ends when the contract ends.
- Recent investment in replacement heating systems. The temporary exemption ends when the building has paid off some or all its outstanding debts, or at a point when the technology has devalued enough for the heat network developer to “buy it out”.
- Ongoing refurbishment, construction, or other works which make connection within the connection window prohibitively expensive or impractical. The temporary exemption ends when the works conclude, or when connection becomes practical.

Type 2: Conditional exemptions.

Building owners may apply for a conditional exemption when they cannot connect to the relevant heat network because material reasons make it unviable. Unlike temporary exemptions, conditional exemptions have no specified end date – they end when the material or practical barrier to connection no longer exists. This is the “exemption condition”. The exemption agreement will include a description of the exemption conditions and under what circumstances the exemption will no longer apply.

For example, heat network zoning will not require existing buildings heated by direct electric heating to convert to a wet heating system. Owners of these buildings, which would otherwise be required to connect, could apply for a conditional exemption on the grounds that it would be prohibitively expensive to convert to a wet system. The conditional exemption would remain in place while the building retains a direct electric heating system. If the building converts to a wet system independently, the condition no longer applies, the exemption ends, and the heat network developer can then reactivate the requirement to connect.

We also propose that buildings which receive a conditional exemption will have to reapply on a regular basis to confirm their status. Any building which fails to do so will be in breach of the requirements to connect and may be issued a penalty by the Zone Coordinator.

Developers of new buildings can also apply for conditional exemptions. For example, if the characteristics of a new, large, communally-heated block of flats mean that the cost of a heat network connection would be much higher than a low-carbon alternative, they need access to an exemption process. They would receive a conditional exemption because, after construction of the building is complete, they will become an “existing” communally-heated residential building and therefore within scope of the requirement to connect.

Examples of scenarios which may warrant a conditional exemption include:

- Physical characteristics of the building which make a connection impractical or impossible, such as grossly incompatible heating systems or specialised (not all) building conservation requirements. The exemption expires if the physical characteristics are resolved.
- Access to a cheaper, highly localised, lower carbon heat source which can service the building but is unsuitable for supplying a heat network. The exemption expires if the heat network becomes cheaper or the heat source is no longer available.
- Demographics of building residents and characteristics of the connection mean a risk of significant increase in fuel poverty and no mitigations are available. The exemption expires if connecting would no longer increase fuel poverty or deprivation, if the available alternatives become more expensive, or the demographics change.

28. Do you agree that exemptions should be either temporary or conditional? If not, please provide further details or suggest alternatives.

29. Should leaseholders be provided with a route for requesting an exemption? Please provide further details, such as when this may be allowed.

30. How frequently should buildings holding a conditional exemption have to reapply? Please suggest a single number of years and any mitigations to reduce the burden of reapplying on building owners.

Exemption criteria

On application for an exemption, building owners will need to prove why they should be exempt. The proposals in the first zoning consultation included a list of potential exemption criteria, but we now believe we can simplify these to two: cost and timing.

Zone Coordinators may grant temporary exemptions on either a cost or timing basis. Conditional exemptions will only be on cost basis, as they inherently cannot have a specified end date, and the exemption application evidence must prove that the heat network connection is not cheaper than a suitable alternative.

Criteria 1: Cost

A building owner may apply for a temporary or conditional exemption if the capital cost of making that connection is too expensive. A connection will be considered “too expensive” if it more expensive than a suitable counterfactual.

While heat network zones will be areas where heat networks are expected to be the lowest cost option to decarbonise heat, this will not always be true for every building in that zone, as buildings have diverse characteristics. The cost exemption ensures buildings are not required to connect if doing so is more expensive than a suitable low-carbon alternative.

A connection may be too expensive due to either network or building side factors. Network costs include any costs incurred up to the property line of the building to be connected which are then passed on to the building owner. Building costs refer to the internal costs required to make a building “connection ready”, such as converting a building from a direct electric heating system to a wet system. Zone coordinators will ensure the applicant has exhausted available funding routes before issuing a cost exemption.

Criteria 2: Timing

Zone Coordinators may grant a temporary exemption on timing grounds when a connection is only feasible after the connection window. This could include, as an example given previously, a building with an existing contractual arrangement for energy supply which would not be cost-effective to continue post-connection, with a clear end date and high costs for early exit.

All exemptions based on timing grounds will be temporary and therefore will require the building to connect once the specified period elapses.

31. Do you agree that building owners or developers should be able to apply for exemptions on grounds of either a) cost or b) timing? If not, please explain why.

32. What costs should the Zone Coordinator consider when assessing a cost-based exemption, and what is a suitable counterfactual?

Buildings with low-carbon heating systems will be eligible for exemptions depending on circumstances. A conditional exemption would exempt the building for the lifetime of the low-carbon technology, on the basis that replacing it with a heat network connection would be more expensive¹⁹. If the low-carbon technology is near the end of its life, or the building and Zone Coordinator can mutually agree an “end of life” date, a temporary exemption would mean that the building could connect to the heat network at the end of the heat source lifespan.

We do not wish to rule out the potential for connecting a building to a heat network even if it has an existing low-carbon technology. For example, a heat network connection could service additional heat demand created by a large extension to the building.

We also want to avoid scenarios where buildings are required to replace their existing heating technology with a technology with a higher carbon intensity. We are seeking views on whether buildings should be able to extend their exemption if the available heat network connection would represent an increase in carbon intensity. The extension would last until the heat network can provide a connection of equal or lower carbon intensity.

If a building’s low-carbon heating system could feasibly supply heat to a heat network, they may be subject to the requirements on heat sources, which we describe in the “Heat sources” section below.

33. Do you agree that an exemption extension may be granted if connecting to the heat network will increase the carbon intensity of a building’s heating systems? Note, this will only apply to exemptions based on having an existing low-carbon heating system. If not, please provide further detail.

Automatic exemptions

The Central Authority may grant automatic exemptions to permanently exclude a named site or building from the requirement to connect.

We expect there to be a small number of automatic exemptions. Most zones will not have any. The Central Authority will only grant an automatic exemption if connecting to a heat network poses an unacceptable risk of breaching another superseding requirement. For example, the Central Authority may grant buildings an automatic exemption if they must have isolated infrastructure for national security reasons.

¹⁹ However, the building could still be required to connect if the heat network is cheaper and can provide heat at the same or lower emissions intensity.

Where possible, the zoning bodies will identify automatic exemptions as early as possible in the zoning process. The Central Authority will grant them directly, using information provided by Zone Coordinators and other bodies.

Misclassifications

During the zoning process, the zoning bodies may mistakenly categorise a building into the “required to connect” category due to incorrect assumptions or incomplete data about the building.

The notices issued to buildings following activation of the requirement to connect will outline the evidence that brings the building into scope of that requirement. Buildings will be able to correct these mistakes during the agreement period. They can inform the Zone Coordinator, who will verify the claim and make the correction.

While they occur at the same time, this process is distinct from an exemption and permanently removes the requirement to connect from a building. Buildings will not have their classifications removed for temporary fluctuations in, for example, heat demand.

34. Do you agree that corrections of misclassified buildings should occur during the agreement period? If not, please provide further detail.

Notifications

The Zone Coordinator will notify a building owner when a heat network developer activates the requirement to connect in relation to their building, and then at specific milestones in the requirement to connect process.

We propose that notifications will follow a standard template. Zone Coordinators will record all notifications issued to building owners, which will form part of the reports sent to the Central Authority.

Table 3 lists the notifications for the requirement to connect we believe are necessary and the information they should include.

Table 3 List of notifications associated with the requirement to connect buildings

Notification	Content
Activation of the requirement	<p>The connection window specified by the heat network developer.</p> <p>The contact information for the relevant heat network developer and the Zone Coordinator.</p> <p>Information about what the building owner must do and when.</p> <p>The evidence used to classify the building as in scope of the requirement to connect.</p> <p>The length of the agreement period.</p> <p>How to apply for an exemption, and the grounds for doing so.</p>

Advance notice of the expiry of the agreement period	Information about what enforcement action they may face if they do not agree a connection date before the end of the agreement period. Information about the buffer period and what will happen during that time.
End of the agreement period (part of or in addition to a formal penalty notice)	This notice, if part of the formal penalty notice, will include information about appeals.

35. Do you think there are any other points in the requirement to connect process where a notification should be issued to a building owner? Please describe the information it should contain.

Requirements associated with voluntary connections

A voluntary connection refers to any connection of a building to a heat network that occurs outside of the requirement to connect. We expect most connections to fall within this category.

We expect that heat network developers will drive the uptake of these connections through marketing, intelligent tariff setting and pro-active engagement with building owners. The Zone Coordinator, local government and other actors may also help to promote voluntary connections using other means, such as publicity campaigns and local programmes to raise awareness and encourage connection.

However, to encourage scale and pace, we have considered potential interventions which will place duties on heat network developers to encourage uptake of voluntary connections, as set out in Table 4 below.

Table 4 Summary of potential interventions to enable voluntary connections²⁰

Intervention	Description
A duty to provide a simple application process and to provide quotes on request.	Heat network developers must make it as simple as possible for building owners to make enquiries about, or applications for, connecting to a heat network. They could do this by, for example, providing an online application portal which is simple and intuitive to use, and which they can easily publicise.

²⁰ We envisage that these approaches would only apply in zones or areas of zones where the delivery model entails the granting of exclusive rights to a heat network developer. Exclusivity is discussed in more detail in the “” section below.

	<p>The second part of this intervention will then require heat network developers to provide quotes²¹ to any building owner who requests one.</p> <p>The combination of these interventions will reduce the “hassle factor” of enquiring about a heat network connection, increasing the number of enquiries, and may indirectly influence the number of buildings connected.</p>
<p>A duty to make a connection offer to all appropriate buildings in a relevant area.</p>	<p>When a heat network developer gains the right to develop a zone or an area of a zone, they must offer connections to all buildings in that area which are not in scope of the requirement to connect. If they choose to connect the developer must connect them.</p> <p>This intervention will increase the number of connections by making the opportunity to connect easier and more readily available.</p> <p>The zoning bodies may tailor this intervention for specific zones to ensure that the heat network developer makes offers at an appropriate point of development. The Zone Coordinator will define any connection timeframes as a condition of the award of zoning rights.</p> <p>Note that, under the upcoming heat network authorisation regime administrated by Ofgem, heat network companies will have to comply with general authorisation conditions. These will likely include a requirement for them to provide an offer of connection to a building when requested by the building’s owner or their representative. The intervention we discuss in this table will extend this condition and require heat network companies to pre-emptively make offers to all buildings which are not in scope of the requirement to connect.</p>
<p>A duty to connect all buildings who request a connection if they pass a fair cost test.</p>	<p>When a heat network developer gains the right to develop a zone or an area of a zone, they will be required to connect any building which requests to be connected.</p> <p>In this case, the connection to the building must pass a fair cost test. This test will determine if the costs borne by the heat network developer or the building owner will be fair and reasonable.</p> <p>As with the previous intervention, the zoning bodies may tailor this intervention for specific zones to ensure that the heat network developer makes offers at an appropriate point of development.</p> <p>See the note in the previous row regarding general authorisation conditions.</p>

²¹ “Quote” here describes any form of bespoke assessment of the costs and benefits of connecting a specific building.

In addition to the potential interventions described in Table 4, we also recognise that incentives may also encourage voluntary connections. We would be grateful for your views on the types of incentives that you consider will be most effective for appealing to those building owners who may seek a voluntary connection.

36. Please provide any comments on the following potential interventions which could increase voluntary connections in zones: a) a duty to provide a simple application process and provide quotes when asked, b) a duty to offer connections to buildings, c) a duty to connect buildings who request it if they pass a fair cost test, d) any other intervention.

Heat sources

Utilising the heat from 'recoverable' heat sources will be a crucial part of building low-carbon heat networks operating across England and providing low heat prices to consumers.

Heat source report

We propose that Zone Coordinators will finance and enable the investigation of the potential for recovering heat from local sources in the local refinement phase. They will subsequently produce a **heat source report** to include in the Zonal Market Prospectus. The Zone Coordinator will publish the Zonal Market Prospectus to attract potential heat network zone developers in the "Stage 3: Zone delivery" process.

The heat source report will include, at a minimum, expected delivery temperatures, delivery profiles (a reliability assessment), likely or confirmed investments costs, operation and maintenance costs, administration costs and the expected lifetime of delivery for each heat source investigated. The Central Authority will provide support to Zone Coordinators to make these assessments, including guidance on the typical costs for many common heat sources that can be used for different costings.

During the heat source investigation, the Zone Coordinator will inform heat sources that they may be required to connect or give access at a later stage.

Developer bids and Zone Development Plans

Heat network companies which then subsequently bid for the rights to develop a heat network zone will base their business case on the heat source report section in the Zonal Market Prospectus.

Developers will prepare a Zone Development Plan to submit as part of their bid. The plan will include how they intend to prioritise heat sources for connection based on the heat source report prepared by the Zone Coordinator.

The Zone Development Plan will set out a timeline for connecting both their own and/or local heat sources in line with the development of the wider network. This can include options for circumstances where negotiations with heat source owners fail, or if better solutions become available during construction and operation.

If the potential heat network developer excludes any of the heat sources identified in the Zonal Market Prospectus heat source report, they must explain why. The Zone Coordinator may decide to favour bids which do not make use of the heat sources specified in the Zonal Market Prospectus.

Heat source negotiations

Zone developers may start negotiations with heat source owners ahead of the Zone Coordinator assessing bids as part of the zone delivery process. The Zone Coordinators may favour evidence of this in their assessment.

Zone Coordinators will set maximum negotiation periods for the chosen and planned heat source negotiations described in the appointed developers Zone Development Plan. The Zone Coordinators will be supported by national guidance and expertise from the Central Authority on the acceptable negotiation periods.

Zone Coordinators may set conditions when awarding zoning rights to a particular developer that will require them or incentivise them to develop connections with relevant heat sources. The Zone Developer and heat source owners will then have the stipulated negotiation period to agree a deal for connection or access. The aim of the negotiations, supported by guidance and expertise from the Central Authority, will be for the heat network developer and the heat source owner to arrive at a mutually beneficial agreement for the sale of heat.

Zone Coordinators will have the powers to ultimately require heat sources to connect or give access if negotiations fail. The Zone Coordinator can do so if, in their view, there is a sufficient case for the heat source to provide heat to the heat network at a price beneficial to both sides and without significant risk to the business interests of the heat source. The Central Authority will publish national guidance on the acceptable price settlements for a variety of different heat sources – we describe this further in the following subsections.

It will be possible for appeals to be made to the Central Authority and ultimately the courts (see further proposals on appeals in "Enforcement, penalties and appeals" section). Figure 4 and "Appendix 2 – Heat sourcing process" provides a visual summary of the heat sourcing process.

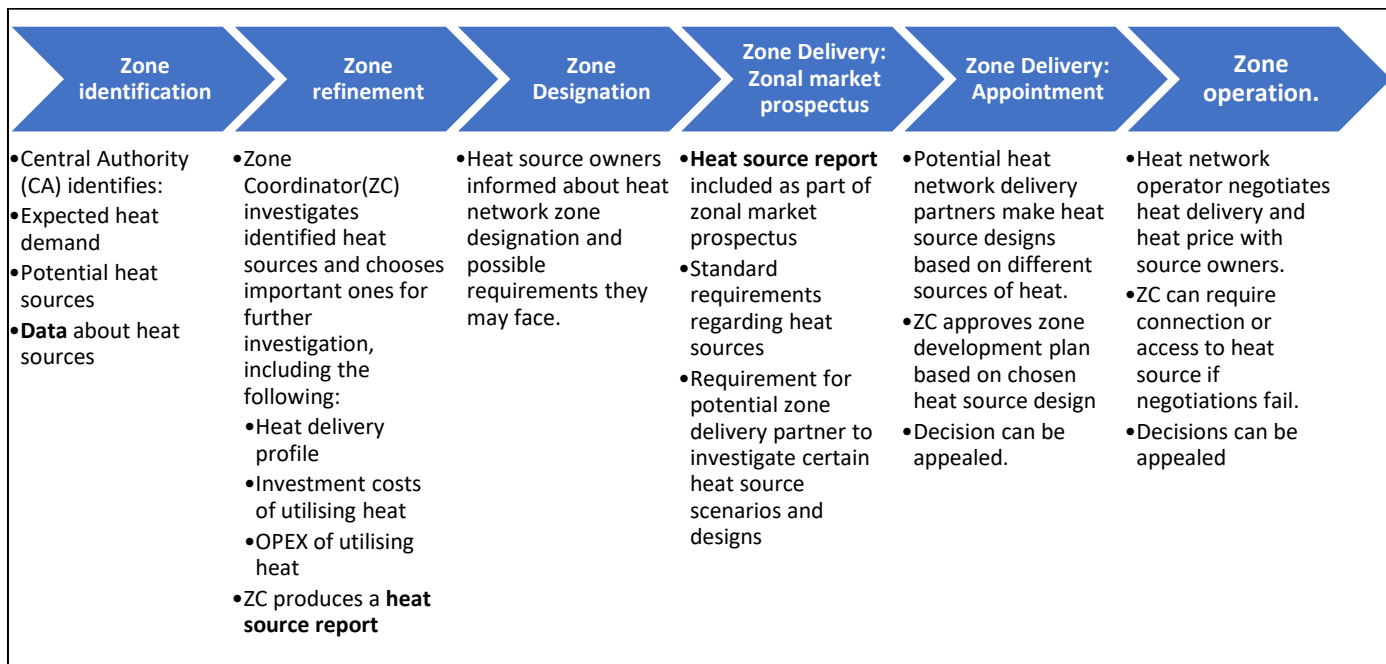


Figure 4 Heat sources in the zoning process

37. Do you agree that the Zone Coordinator should be responsible for heat source investigation and preparation of a heat source report? If not, please provide further detail.

38. Do you agree that heat network developers should be required to include heat source plans in their Zone Development Plans? If not, please provide further detail.

39. Should owners of heat sources be able to appeal a decision requiring them to connect to a heat network or give access to a heat source? If not, please provide further detail.

Categories of heat sources

Heat sources can generally be divided into the following categories:

- High temperature recoverable heat sources such as combined heat and power (CHP), Energy from Waste (EfW), combined heat and cooling as well as high temperature heat resulting from industrial processes.
- Low temperature 'near constant' recoverable heat sources - for example, wastewater treatment, datacentres, electricity transformers, gas compressors, mines, cold stores, underground railways.
- Low temperature 'intermittent' recoverable sources – for example, sugar mills, breweries, foundries, supermarkets.
- Ambient location specific sources – for example, solar, river, sea, canals.
- Ambient location agnostic sources such as air-to-water heat pumps.

High temperature recoverable heat sources will deliver heat at the required temperature to heat networks and low temperature recoverable and ambient sources will need heat pump technology to reach the required forward temperature.

Therefore, we propose that requirements to connect heat sources should apply to only high temperature heat sources, and requirements to give access (to land, for example) to low temperature infrastructure and some ambient heat sources – mainly where an agreement is required with an owner of, for example, water or land.

40. Do you agree that a) the requirement to connect should prioritise high temperature heat sources, and b) the requirement to give access should apply to low temperature infrastructure heat sources and the location specific ambient heat sources? If not, please provide further detail.

Design of heat sources in zones

The heat source design in a district heat network will often be a combination of the heat source categories above, perhaps including a heat storage system, designed to reduce heat prices for consumers while simultaneously delivering flexibility and energy conservation. The design can also reduce the need for investments on other elements of the energy system by optimising fuel and electricity prices which have value for both heat network companies and consumers. Zone Coordinators will be supported by the Central Authority in assessing bids for heat networks that include recovered heat to support them in understanding the trade-offs of different options and selecting the most cost-effective solutions for consumers.

Heat source pricing

As set out in the introduction to this section, we propose that the Central Authority will produce national guidance on the typical costs of connection or access to the heat sources set out above. This will provide heat network zone developers with acceptable or target prices to aim for and which heat source owners should accept. The Zone Coordinator will be directed in legislation to rely on this advice when using its powers to require heat sources to connect to heat networks within zones.

We propose that the negotiations between heat source owners and a heat network developer should be based on whether there is a difference between the ‘marginal heat price’ and the ‘substitution price’.

The marginal heat price is the cost to a heat producer of producing the heat before profit. The substitution price (counterfactual price) is the price at which a district heat network operator can produce the same amount of heat by themselves with whatever technologies the heat network is using.

Where the difference is positive this indicates that both the heat source owner and the heat network could financially gain from the sale of heat. The heat network can pay a price that is more than the cost of the heat source producing the heat but which is lower than the cost of the heat network producing the heat themselves. We propose that if this value is zero or negative heat delivery cannot be required. The Central Authority will support Zone Coordinators to assess these values through the provision of technical expertise and standard national guidance documents.

41. Do you agree that this is the right general approach for the Zone Coordinator to take in assessing whether a heat source should be required to connect? If not, please provide further detail.

Requirements on heat networks in zones

Consumer protection

Protecting consumers is the government’s primary reason for regulating the heat network sector and secondary legislation will enshrine this as Ofgem’s principal objective as regulator. We have recently consulted on proposed consumer protection requirements in Great Britain relating to pricing, quality of service, transparency of information, and consumers in vulnerable circumstances.²²

Table 5 summarises the current regulatory model as proposed in the consumer protection consultation. The following section of this consultation considers and seeks views on whether these protections should be extended to more types of consumers in zones, such as larger non-domestic consumers. As part of this we have also considered whether Ofgem or Zone Coordinators should be responsible for enforcing any requirements.

²² See: <https://www.gov.uk/government/consultations/heat-networks-regulation-consumer-protection>. We are currently considering responses to this consultation, which ran from 4 August to 27 October 2023. We will consult in early 2024 on other elements of heat networks regulation including technical standards, carbon emission limits, step-in and safety net arrangements such as Supplier of Last Resort, Operator of Last Resort, and Special Administration Regime.

Table 5 Proposed regulatory model for heat network regulation subject to ongoing consultation²³

	Domestic	Micro-business	Larger non-domestic
Price of heat benchmarking regulation ²⁴	Yes	Yes	No
Quality of service standards	Yes	Yes	No
Protections for vulnerable consumers	Yes	No	No
Transparency of information (including pricing information)	Yes	Yes	No
Connection cost protection	No	No	No
Guaranteed standards of performance	Yes	Yes	No

Price of heat benchmarking

The previous heat network zoning consultation exercise confirmed that we intend to extend Ofgem’s price protection duties to cover all consumers within zones who are subject to the requirement to connect, including non-domestic consumers.

Having considered the issue further, however, we are now proposing a different approach whereby Zone Coordinators will be permitted, but not required, to set pricing conditions on the award of zoning rights to a heat network developer. Initially, the Central Authority will develop and oversee guidelines concerning these conditions but the ambition is that Ofgem will take this on in future as part of its general pricing regulation role.

As noted in Table 5, domestic and microbusiness consumers are already in scope of the Ofgem framework regarding price of heat benchmarking. We are not proposing to extend the scope of this regulation.

We do not believe it is necessary to expand the scope of regulation as larger non-domestic consumers within zones will have visibility of published benchmarks and unlike domestic consumers and microbusinesses will therefore be in a stronger position to challenge developers where they consider the prices offered are excessive compared to the benchmark. In addition, extending Ofgem’s price protection duties to cover all consumers within zones who are subject to the requirement to connect will increase regulatory costs for the sector. It will also require the expansion of the Energy Ombudsman’s role, which currently only encompasses domestic consumers,²⁵ to hear complaints from larger non-domestic consumers which could increase costs.

Furthermore, allowing Zone Coordinators to introduce price limits for units of heat delivered enables a trialling environment which we expect could enable the identification of the most

²³ “Yes” denotes areas proposed to be subject to Ofgem regulation

²⁴ Price of heat benchmarking can cover connection costs if they have been added to standing charges in a way that causes prices to be disproportionate compared to the benchmark.

²⁵ Smaller non-domestic customers’ inclusion is subject to the outcome of the recent heat networks consumer protection consultation.

effective approach for investors, developers and consumers without introducing further regulatory requirements into the zoning framework.

Quality of service standards

Quality of service standards are crucial components for ensuring the efficient and reliable operation of heat networks. The recent consumer protection consultation made proposals in relation to domestic and microbusiness consumers, which were broadly intended to provide heat network consumers with comparable levels of service and protection as consumers in other regulated utilities such as gas and electricity.

Having considered the issue and responses to the previous zoning consultation, we do not propose extending regulation of quality-of-service standards to larger non-domestic consumers in zones. Instead, we propose to support these consumers through the standardisation of documentation relating to appointment of zone developers which will ensure minimum standards. We feel this approach will encourage non-domestic heat network consumers to demand better deals.

We note that we received mixed views from respondents to the previous zoning consultation as to whether quality of service standards should be extended to larger non-domestic consumers in zones. We have limited evidence that larger non-domestic customers face issues in this area, but we recently sought views on this issue in the heat network consumer protection consultation. We may look to introduce further protections in light of relevant new evidence once heat network zoning is established.

Protections for vulnerable consumers

We do not consider that vulnerability issues of the kind discussed in the recent consumer protection consultation, for example priority services registers or protections related to the installation of prepayment meters, are relevant to non-domestic consumers. We therefore do not propose extending these protections to microbusinesses or larger non-domestic consumers.

Transparency of information

The recent consumer protection consultation acknowledged that there is a lack of transparency on prices within the heat network sector and proposed measures that will address this issue. This is intended to encourage consumers to better understand the prices they are being charged and, if necessary, challenge their bills and tariffs.

Our position in that consultation was that price transparency requirements would not apply to heat networks which provide heating and cooling to large non-domestic consumers only, as we foresee these networks have greater discretion than domestic and microbusiness consumers in negotiating the terms of their larger heat supply agreements.

In the context of zoning, however, we propose that all customers within heat network zones should have access to transparent pricing information. We propose that this greater price transparency should be delivered via a national standard zoning condition that will require heat network developers or operators within heat network zones to be transparent about prices to all types of consumers. We propose that these will be in line with the price transparency requirements Ofgem will be enforcing for domestic consumers but it will not be part of Ofgem regulation. This will be supported by the Central Authority publishing standardised templates setting out how pricing should be presented to heat network customers within zones.

We expect non-domestic customers in zones will be better able to interrogate and negotiate prices compared to domestic and microbusiness consumers. Setting requirements through national conditions will encourage them to use this greater ability as much as possible, and by not extending Ofgem oversight in this area we avoid increased administrative and regulatory costs for the sector.

Connection costs for buildings in scope of the requirement to connect

The government response to the previous zoning consultation signalled that we would consider a standardised methodology for calculating appropriate connection costs for buildings in scope of the requirement to connect, which would be considered as part of wider price regulation work. Work is ongoing with stakeholders to understand current approaches to connection costs and other charges.

We propose that within zones, mandatory national standard conditions will apply to heat network developers regarding the allowable costs of connections for communally heated domestic premises and new developments that will include one or more domestic dwellings. However, we do not propose that these conditions should apply in respect of buildings that are occupied by microbusiness or other non-domestic consumers only, as we consider these consumers to have greater incentives and capability to negotiate on connection costs.

While the proposed approach to domestic price regulation described in the recent consumer protection consultation will enable Ofgem to investigate prices per unit of heat if they are high – for example, because freeholders and/or new build developers have included connection costs within other fees or charges – we consider that by that point it will be too late to easily resolve as consumers will have already incurred (and may have paid) these costs. Our proposed approach attempts to resolve issues at an earlier stage by ensuring that freeholders and/or new build developers cannot accept connection charges above a certain level.

Once heat network zones become established, we expect the scale of connections to reduce these connection costs. We propose that Zone Coordinators will enforce this measure, with support from the Central Authority in terms of national guidance and technical assistance as necessary. We consider this approach to be more cost effective than including it as part of Ofgem’s responsibilities, while also providing opportunities for Zone Coordinators to apply their local knowledge. Furthermore, introducing conditions on a national basis will avoid the risk of different requirements applying in different heat network zones, which could increase complexity for developers, investors and consumers.

In summary, our consumer protection proposals are as follows:

- All consumers within heat network zones, including larger non-domestic consumers, should have access to transparent pricing information. This will be delivered via a national standard condition relating to heat prices that all heat network developers or operators within heat network zones must meet.²⁶
- Zone Coordinators will be permitted, but not required, to set unit of heat pricing conditions on the award of a zone to a heat network developer.
- Mandatory national standard conditions will apply to heat network developers regarding the allowable costs of connections for communally heated domestic premises and new developments that will include one or more domestic dwellings. Zone Coordinators will

²⁶ Further details on price transparency measures were proposed in the Consumer Protections consultation <https://www.gov.uk/government/consultations/heat-networks-regulation-consumer-protection>

be responsible for enforcing these requirements. These conditions will not apply to buildings that are occupied by microbusiness or other non-domestic consumers only, as we expect these consumers have greater incentives and capability to negotiate on connection costs.

- Measures relating to quality-of-service standards are not extended to larger non-domestic consumers in zones, and protection for vulnerable consumers are not extended to microbusinesses or larger non-domestic consumers.

42. Do you agree with the following proposals? If not, please provide further detail.

- a. All consumers will be guaranteed transparency on the prices charged by heat networks.**
- b. Standardised templates will set out how pricing should be presented to heat network customers within zones.**
- c. Zone Coordinators will be permitted, but not required, to set pricing conditions on the award of a zone to a developer.**

Carbon emission requirements of heat networks in zones

As we outlined in our 2021 zoning consultation, we are implementing zoning to deliver scaled-up, low-carbon heat networks. This section describes our proposals for a low-carbon requirement on heat networks in zones, which includes the introduction of an emissions limit based on grams of carbon dioxide-equivalent per kilowatt-hour (gCO_{2e}/kWh) of thermal energy delivered.

In considering our approach to CO_{2e} emission limits in zones, we have also been mindful of the need for standardisation to aid investment. As far as possible, there will be a consistent national approach to CO_{2e} emission limits for heat networks in zones to ensure heat network developers and investors in heat networks can have greater certainty in developing heat networks.

Policy Interaction: Interactions with Building Regulations Part L reforms through the Future Homes Standard and Future Building Standard

As set out in the government's consultation²⁷ on the Future Homes Standard and Future Buildings Standard, new low-carbon communal and district heat networks will likely be the preferred way of providing heating and hot water to new communally heated buildings, including blocks of flats. Heat networks can be highly efficient ways of delivering heat. Heat pumps on the network can be paired with thermal stores allowing the production of heat at times of low-cost, low-carbon electricity; this also reduces peak demand on the local grid.

The Future Homes and Buildings Standard will encourage the connection of new homes and non-domestic buildings to low-carbon heat networks.

In the Future Homes and Building Standard consultation, the government is proposing a 'sleeving' system.

²⁷See here: <https://www.gov.uk/government/consultations/the-future-homes-and-buildings-standards-2023-consultation/the-future-homes-and-buildings-standards-2023-consultation#heat-networks>

Sleeving will permit all heat networks, including those within zones, to continue to connect to new dwellings and buildings if they can demonstrate they have sufficient low-carbon generation capacity necessary to meet the demand of the new buildings. Only the carbon emissions of this spare generation will need to be equal to or lower than the heat network notional standard set out in the Future Homes and Building Standard consultation. The “National Heat Network Zoning CO₂e emissions limit” section provides further information about the wider carbon emission requirement on heat networks in heat network zones.

Policy Interaction: Rebalancing the price of gas and electricity

The government wants to make it easier for consumers to make the switch to green products by ‘rebalancing’ prices between electricity and gas to remove existing price distortions.

The rebalancing of gas and electricity prices is important for heat network zoning, as it will encourage the transition from existing heat-generating technologies, such as gas-powered combined heat and power (gas CHP), to low-carbon technologies. This includes using heat from large rivers, geothermal and waste heat from businesses. Large commercial heat pumps will be used to access heat from these sources, but the current electricity pricing structure means that heat pumps often remain more expensive to run than gas boilers. Rebalancing will generate the clear short-term price signal necessary to shift both households and businesses to lower-carbon, more energy efficient technologies and help accelerate the roll-out of low-carbon heat networks.

National Heat Network Zoning CO₂e emissions limit

We propose that the Central Authority will set maximum gCO₂e/kWh limits for new heat networks in zones and new connections of existing heat networks in zones. These limits will apply from 2030. Zone developers will need to demonstrate compliance with this limit via Ofgem administered authorisation and consequently via emissions reporting on an ongoing basis. Ofgem, as well as the Zone Coordinators, will be able to take enforcement actions and impose penalties against heat networks that do not comply with these limits.

This system of national zoning CO₂e emission limits within heat network zones will operate alongside the Future Homes Standard and Future Buildings Standard. Our proposal is that the national zoning CO₂e limits will apply to the average of the CO₂e/kWh emissions of heat networks. As set out in the Future Homes Standard consultation²⁸, for heat networks that are looking to connect to new buildings once the Standard comes into force, they will have to demonstrate that they have sufficient low-carbon generation capacity equivalent to the heating demand of those buildings and that the low-carbon generation is equivalent to the different low-

²⁸ The Future Homes Standard: changes to Part L and Part F of the Building Regulations for new dwellings - <https://www.gov.uk/government/consultations/the-future-homes-standard-changes-to-part-l-and-part-f-of-the-building-regulations-for-new-dwellings>

carbon heat network notional standard set out in the Future Homes and Building Standard consultation 2025²⁹.

We have considered three options for proposed initial levels for the national zoning CO₂e emissions limits applicable to new heat networks and new connections of existing heat networks in zones in 2030:

- **Option 1 - 44g CO₂e/kWh:** This option is equivalent to the low-carbon threshold required under the Green Heat Network Fund adjusted by the predicted change in the CO₂e of electricity grid intensity by 2030 as per the Green Book projections.
- **Option 2 - 147g CO₂e/kWh:** This option will represent a reduction in CO₂e emissions for some heat networks predominantly using gas-generation.
- **Option 3 – 83g CO₂e/kWh.** This option is a middle option between option 1 and 2. It is based on a fuel mixture that is less carbon intensive than option 2, that assumes the use of less gas and more renewable or waste heat.

The suggested carbon levels of CO₂e/kWh are calculated using the average emissions factors in the Green Book³⁰.

“Appendix 3 – Guidance for calculating emissions and fuel factors for 2030” explains the calculation method for greenhouse gas emissions and provides fuel factors for 2030. This will allow the calculation of the carbon intensity of specific technology mixes in 2030 terms and assess the performance of specific heat networks against the emission limits proposed for 2030.

We envisage that the initial gCO₂e/kWh limit will be set by the Central Authority for multiple years and we are interested in feedback on the appropriate frequency of reviews.

Heat Network zoning is a tool by which we make it easier to decarbonise heating systems across the country as rapidly and cost effectively as possible. We recognise that we need to support the Heat Network sector through a transformation from high to low carbon while enabling rapid growth and we support the Heat Network Industry Council’s ambition for all heat networks operated by companies within the council to be net-zero carbon by 2035.

We intend to decrease the allowable emissions limit in the 2030s so that heat networks meet net-zero emissions by 2050 and so that the proportion of heat network heat generation coming from combustion of natural gas is as low as possible. We will continue to consider the introduction of this broader emissions limit in line with other government policy affecting domestic heating users.

The national emissions limit will not prevent Zone Coordinators from looking more favourably on lower carbon proposals when assessing bids for heat network development within zones.

Finally, solid biomass combustion produces fine particulate matter, which is the pollutant of greatest harm to human health³¹. These impacts are controlled through environmental

²⁹ The Future Homes Standard 2025: dwelling notional buildings for consultation - https://assets.publishing.service.gov.uk/media/657733b8095987001295de11/The_notional_buildings_for_dwelling_2025_consultation_only.pdf

³⁰ Green Book supplementary guidance: valuation of energy use and greenhouse gas emissions for appraisal <https://www.gov.uk/government/publications/valuation-of-energy-use-and-greenhouse-gas-emissions-for-appraisal> and Greenhouse gas reporting: conversion factors 2020 <https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2020> (updated annually throughout the scheme in line with publications)

³¹ [Environmental Improvement Plan \(publishing.service.gov.uk\)](https://www.gov.uk/government/publications/environmental-improvement-plan) - page 77

- Green Heat Network Fund: a capital grant programme that supports the commercialisation and construction of new low and zero carbon heat networks and the retrofitting and expansion of existing heat networks.
- Heat Network Efficiency Scheme: a grant programme that provides funding to support performance improvements to existing district heating or communal heating projects.

In parallel to the publication of the heat network zoning consultation, the government will continue to analyse the potential additional costs implied by the different suggested limits for businesses or households. This research alongside the consultation will help inform the government's approach to make low-carbon heat networks affordable.

47. Please provide comments, if you have any, on the above initiatives to make heat provided by heat networks affordable and any further suggestions if you have them.

Stage 1: Zone identification and refinement

In the “The lifecycle of a heat network zone” section we described the five main stages of the heat network zoning lifecycle. Identifying and refining potential zones is the first stage and is the process for determining which areas of England are best suited to become heat network zones.

Heat network zones will be areas where we expect heat networks to be the **lowest cost low-carbon heating technology**. The lowest cost assessment will mean that connecting a building to a heat network is the option with the lowest expected 40-year present value, compared to a suitable counterfactual for that building. In most cases, this counterfactual will be an air source heat pump.

The Heat Network Zoning Pilot Programme (HNZPP)

We are working with 28 English cities and towns³³ to develop and test the zoning methodology that will identify and designate heat network zones. Some of the findings from this pilot have informed the proposals in this consultation document.

About the pilot

The aims of the pilot programme are:

1. To develop, test and refine an approach to developing heat network zones.
2. To understand how to identify and designate heat network zones.
3. To define the principles of what a heat network zone could look like in practice.
4. To test the zoning methodology to be used for identifying heat network zones.

³³ These are: Barking & Dagenham, Birmingham, Bridlington, Bristol, Canterbury, Carlisle, Cheltenham, Coventry, Darlington, Exeter, Greater Manchester, Hull, Lancaster, Leeds, Leicester, Liverpool, Newcastle, Northallerton, Norwich, Nottingham, Peterborough, Plymouth, Sheffield, Southampton, Southwark, Stoke, Strood, and Sunderland.

The pilot has informed the development of a prototype model which identifies indicative heat network zones.

The model determines where heat networks are expected to be the lowest cost low-carbon solution to decarbonise heating in buildings. It uses a range of different data, including data about the size, type and existing energy use of buildings to do so. It produces a map showing the indicative heat network zone. This model will become the National Zoning Model.

We have tested approaches to zone identification and refinement in the 28 cities and towns. We have collected additional data, where existing data used in the zoning model was incomplete or unavailable. We have worked with the cities and towns to test how to incorporate local conditions that effect the suitability of heat networks in the areas identified by the zoning model. This work has covered the first step in the lifecycle of a heat network zone.

Outcomes

We are now producing indicative heat network zone maps in these 28 towns and cities. This will provide examples of what heat network zones could look like in different areas. Each of the local authorities are providing their feedback about their views on these potential heat network zones. We are also sharing outputs with industry and are gathering their views.

As part of our Advanced Zoning Programme, the department is now also working with a smaller group of towns and cities alongside the work described in the “Heat Network Zoning Pilot Programme” box. The AZP aims to support the construction of new zonal scale heat networks as quickly as possible following the introduction of heat network zoning. This will help to test and inform the later stages in the zoning lifecycle, particularly zone delivery and operation. It will also help to prepare the market and supply chain for national heat network zoning policy coming into force in 2025.

The zoning methodology

The heat network zone identification and refinement stage will involve the zoning bodies applying the zoning methodology, consisting of a national mapping exercise and then a review and amendment of the map outputs where needed. This is illustrated in Figure 5.

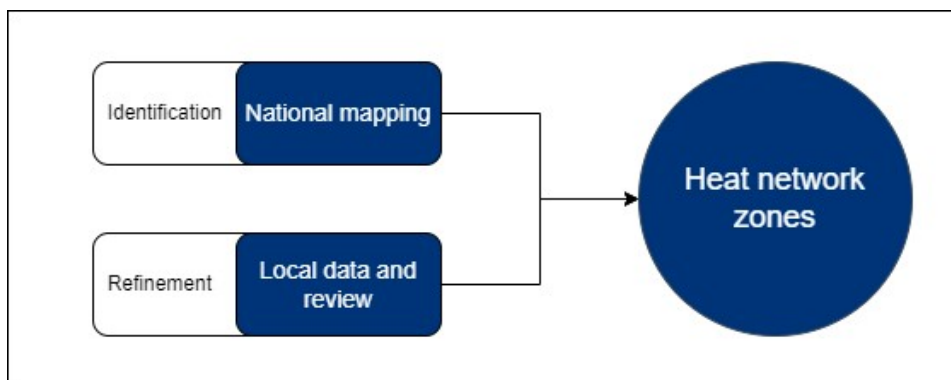


Figure 5 Role of national mapping and local input in identifying heat network zones.

Together, this national and then local process will provide a transparent, efficient, data-driven and consistent approach to identifying heat network zones across England. The zoning methodology will be the only valid method for identifying heat network zones.

Identification: National mapping to produce indicative heat network zones

The Central Authority will lead a data-driven national mapping exercise, using the National Zoning Model, to identify indicative heat network zones – areas in which heat networks are expected to be the lowest cost technology for decarbonising heat.

The National Zoning Model

The National Zoning Model (NZM), or “the model”, is a data-led spatial energy model developed by the Centre for Sustainable Energy for DESNZ to identify indicative heat network zones across England. The NZM provides granular outputs which, when supplemented with local data, will identify areas that may be taken forward for refinement and, subsequently, designation as heat network zones.

The department has developed the NZM as part of the Heat Networks Zoning Pilot Programme, utilising a specialist team with experience in heat networks, software development and energy modelling, along with input from local authorities and the department’s Heat Networks Delivery Unit.

The NZM is undergoing development and testing and will be subject to the appropriate level of quality assurance prior to release for use in the national mapping exercise described in this section.

The model uses of a range of data sources, processing and optimisation to identify potential zones. **Figure 6** shows the steps in the modelling process.

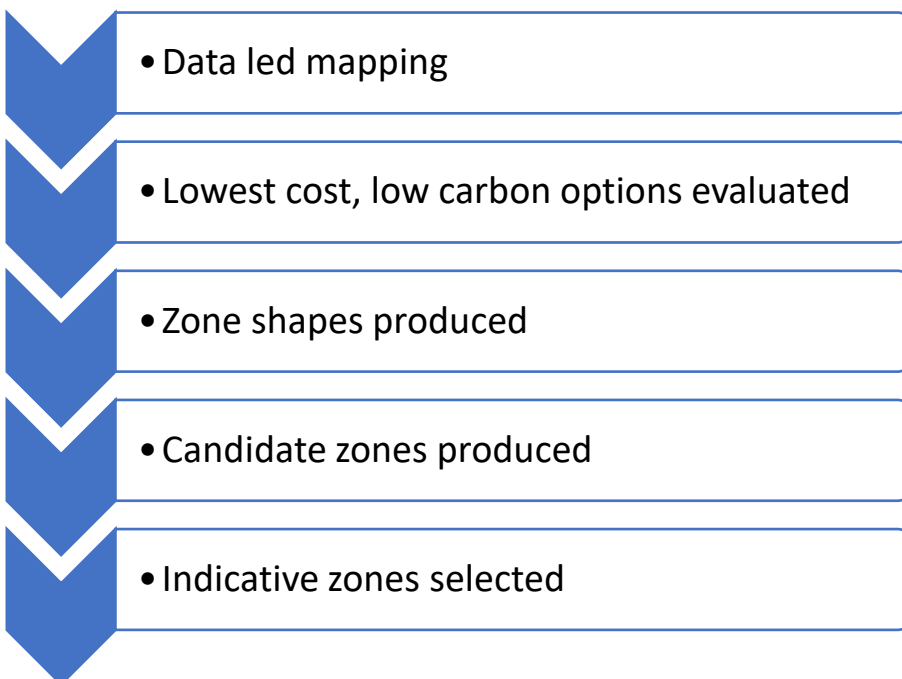


Figure 6 Summary of the National Zoning Model process

Data led mapping. The model uses a range of data sources to construct a data-rich map of individual building heat demand, potential pipe routes, and geographical features that may act as hard boundaries.

Lowest cost low-carbon options evaluated. The model evaluates the low-carbon options for each building – a low-carbon heat network and an individual building air source heat pump – by combining the mapped data with a standard set of assumptions about technology costs and performance.

The model uses an iterative optimisation algorithm to find the lowest cost combination of Air Source Heat Pumps and heat networks in an area, which subsequently identifies a suggested heating solution for each building. The model repeats the optimisation process using a range of scenarios for the price of heat provided to the distribution network – the “heat price scenarios” – and generates a range of solutions for each building. In later stages, the model will match heat demand to available heat sources to identify the largest potential heat network based on the cost of heat.

We know that many stakeholders will be interested in the outputs of the NZM. The model, and its outputs, will therefore need to be clearly communicated to a range of stakeholders, including local government, building developers and owners, to support local refinement and designation. We will continue to refine the model and develop the underlying evidence to achieve this.

Zone shapes produced. The model discards areas that do not contain a network and combines adjoining areas in the same price scenario to create “zone shapes”.

Candidate zones produced. The model connects every zone shape to a heat source provided to the model if the cost of heat from the source is lower than the heat price scenario. This creates many instances which could become zones, called “candidate zones”.

Indicative zone selected. Candidate zones may overlap or compete for a single heat source. The model sorts all candidate zones by size and by economic potential. It selects the top configuration as the first indicative heat network zone and removes any other candidate zones which compete for a heat source or overlap spatially. This process continues for the next largest zone until all candidate zones have been selected or discarded.

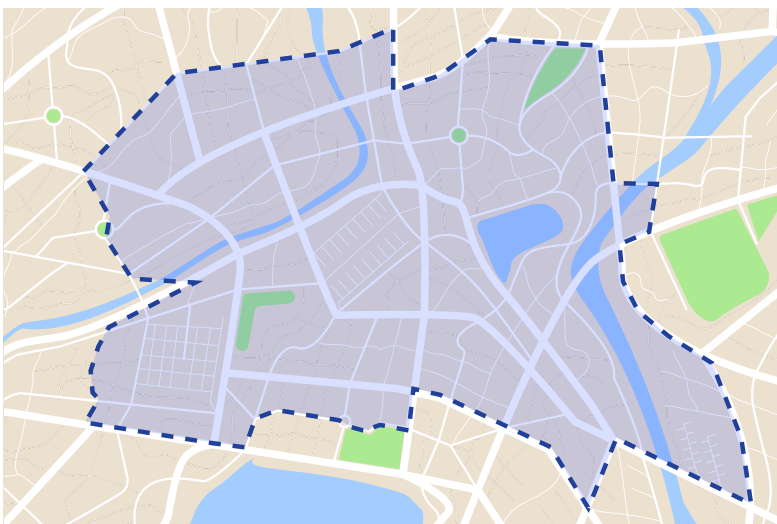


Figure 7 Illustrative heat network zone (note: does not represent actual outputs of NZM)

The final output of the NZM will be a map showing the boundary of the indicative heat network zone and datasets describing the indicative heat network zone. Appendix 4 shows the output from an initial national model run, for information.³⁴

Refinement: Local data and review of indicative heat network zones

The outputs of the national mapping exercise in the identification stage will show all opportunities for heat network zones which could be designated in England. The map and data outputs will be provided to Zone Coordinators to review and refine where needed.

The Zone Coordinator will carry out refinement activities to improve the initial outputs from the model. This will be completed with support from relevant local stakeholders. We describe this process in “The Refinement Procedure” box below.

We do not expect all indicative heat network zones to proceed to the refinement stage at the same time. Instead, we propose that the Central Authority will publish all indicative heat network zones produced during the identification stage as “heat network opportunity areas”. The Central Authority will outline the time for the expected refinement of indicative heat network zones and the subsequent designation in the national zoning pipeline, as described in the “Stage 3: Zone delivery” section.

The Refinement Procedure

The Zone Coordinator will use a standardised approach, with accompanying guidance, to refine the indicative heat network zones. This will help to ensure each heat network zone is logical and reflects genuine local opportunities. Figure 8 outlines this process.

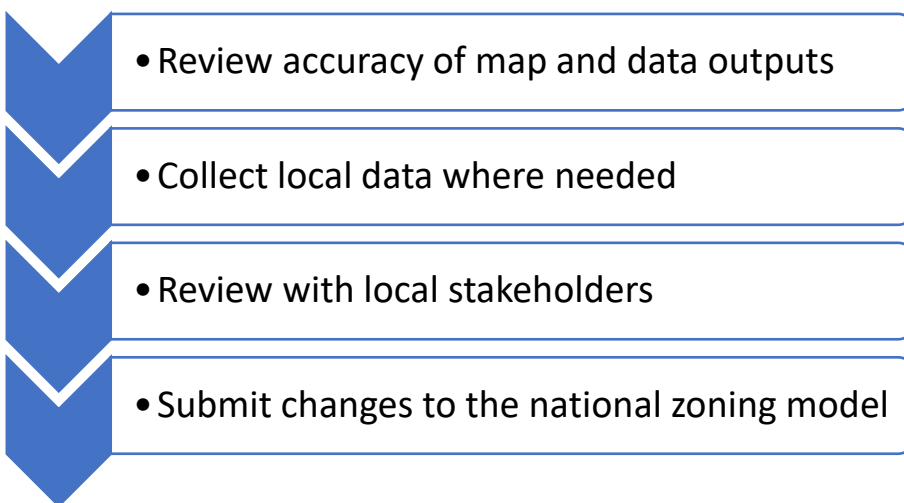


Figure 8 Summary of the refinement process

Review accuracy of map and data outputs. This will consist of a series of pre-defined checks and adjustments to the model outputs. Some of these will be basic checks about

³⁴ We are undertaking further development and quality assurance work on the national zoning model to ensure its outputs are sufficiently robust. The map in Appendix 4 is based on the current version of the model and does not represent the formal output from the national mapping stage.

how the NZM has decided to include or exclude single buildings on the edge of zone, and some checks will identify known modelling artefacts³⁵ produced by the NZM.

Examples of standard checks that may be undertaken:

- A data accuracy check would be verifying the largest heat demands in an area and for important building types. The NZM can also make decisions to include or not include apparently similar building types at the heat network zone edge.
- A standard check will be to inspect the edge of the heat network zone. This is because the map outputs can contain jagged edges. Adjusting the zone boundary where this occurs will help create a more coherent indicative heat network zone.

We expect these standard checks to become less important as the NZM develops and improves over time.

Collect local data where needed. The Zone Coordinator will then gather additional local data and intelligence. This will be organised in the required format to feed into the NZM.

Examples of local data that could be collected:

- Updated data for significant heat demands, where inaccuracies in data are found.
- New data on potential heat sources not used for the national mapping exercise.
- Data on building ownership concentrated in specific areas, if determined to be significant by the Zone Coordinator. The NZM does not consider building ownership in its assessment. However, large-scale concentrated building ownership, such as co-located social housing, can act as a potential anchor load for heat networks.

Review with local stakeholders. The Zone Coordinator may use this stage to review the outputs of the model and the proposed additional changes described above. They can also use this opportunity to consider, with relevant local stakeholders, whether there are other modifications to the indicative heat network zone that have not already been addressed in the previous steps.

Submit changes to the national zoning model. The Zone Coordinator will submit the refined indicative heat network zones for consolidation back into the NZM model. The Central Authority will run the model with the new local data to create an updated set of indicative heat network zones – the “refined zones” – for consultation and designation. The Central Authority will quality assure the refined zones and host them on the digital service.

The refinement procedure allows zoning bodies to make prescribed refinements to the outputs of the National Zoning Model to improve the quality of indicative heat network zones.

We are seeking views on whether the refinement process should allow the Zone Coordinator, with approval from the Central Authority, to make more general refinements to indicative heat network zones. This would allow for the heat network zone designation to account for factors which the NZM cannot easily account for, such as aligning the heat network zone more closely

³⁵ Aspects of the NZM map output which are analytically accurate but impractical, such as zig-zagging boundaries.

with local priorities or strategies. However, allowing these refinements may undermine the economic case for the heat network zone by diverging too far from the outputs of the NZM.

For example, a local authority may have plans to regenerate a low-density industrial area into some high density residential and commercial buildings. Planning permission has not been granted but a local plan is in place. Should the refinement process allow the Zone Coordinator to include this area in the heat network zone?

48. Should the zone refinement stage allow more general refinements? Please provide any specific examples of other factors which could be considered.

Heat network zone size

The output from an initial national model run – included in Appendix 4 – Initial national zoning model run– indicates that some areas identified as indicative heat network zones may have less than 10 GWh of total heat demand. This is because of small groups of public or other non-domestic buildings close to each other but located in an otherwise low-density residential area.

While the NZM indicates that heat networks are expected to provide the lowest cost way to decarbonise heating in these areas, it may not be feasible to deliver them through heat network zoning. For example, the benefits of developing the area as a heat network zone may not be proportional to the cost and effort of undertaking the refinement and subsequent designation procedure. Equally, the market may find developing these smaller opportunities as heat network zones less attractive compared to larger, more strategic heat network zones.

We have therefore considered whether heat network zoning would benefit from either,

1. a de minimis threshold, or;
2. a rule for aggregating smaller zones.

De minimis rules. The Central Authority will create a national pipeline of projects to develop these areas into zones – the pipeline will therefore determine whether and when the indicative zone proceeds to the refinement and designation stages. However, in some cases, local communities may wish to take advantage of a heat network zoning opportunity which is not part of the national pipeline. We do not want to prevent this from happening if it is feasible. We therefore do not propose introducing a de minimis threshold.

Instead, we propose that the Central Authority will publish all indicative heat network zones identified by the NZM as heat network opportunity areas.

Local communities or local government will have access to the published heat network opportunity areas and the national pipeline. If a heat network opportunity area is not included in the national pipeline, there will be a route for them to develop those opportunities themselves.

In this scenario, we envisage the introduction of a light-touch approach refinement procedure to reflect their smaller scale. We describe the approach for funding for heat network zones outside the national pipeline in “Zoning bodies”

Aggregation rules. We are interested in consultees’ views on whether to introduce rules around aggregating indicative heat network zones to maximise the opportunities available. For example, the NZM may include rules to combine two or more indicative heat network zones within 100 metres of each other.

We have also considered whether to introduce a maximum zone size. The initial results from the NZM have identified nine indicative heat network zones with a heat demand larger than 1 TWh. While we recognise that a single Zone Coordinator or heat network developer may not be able to deliver these opportunities, setting a maximum zone size will limit ambition and undermine the premise of interoperability and interconnection of networks in the longer term.

Instead, we propose that the route to market process for a heat network zone should address any constraints related to deliverability and supply chain capacity, including the proposals regarding Heat Network Zone Delivery Areas described in the “Stage 3: Zone delivery” section.

49. Do you agree that we should not introduce any requirements around the minimum or maximum size of a potential heat network zone? If not, please provide further detail.

50. Do you have views on whether and how to introduce rules regarding the aggregation of smaller indicative heat network zones?

Data requests and the requirement to provide information

The identification of zones by the Zone Coordinator and Central Authority will require a large amount of data. Where possible, the zoning bodies will source data from national datasets, or other publicly available sources. However, when there are gaps in the data or more granular information is required than is available in the national datasets, the zoning bodies may request that information directly from organisations.

In these circumstances, zoning bodies will first explore if the organisation is willing to share the data voluntarily, as much of the data required for zone identification will not be commercially sensitive. If the organisation will not share the data voluntarily, the zone bodies will be able to issue a formal notice to them to require them to provide the data. This notice will specify:

- What data they must provide.
- When they must provide it.
- The penalties they may face if they do not comply.
- Information about how to appeal a penalty notice (including for when the requested information is not available).

In all cases, data will be requested using a standard format. Additionally, zoning bodies will limit the number of requests issued to each organisation, and limit repeat requests for the same information to times when there has been a material change in circumstances such as during a zone review that affects that part of the zone. The Zone Coordinator will be required to report the number of information requests they make. This will minimise the effect on homes and small business.

For the purposes of zone identification, the following data may be requested by the Zone Coordinator or Central Authority. This list is not exhaustive.

- Heat demand of buildings.
- Information about heat sources.
- Information about waste heat.
- Carbon emissions associated with heat sources.
- Planning data.

51. Please suggest any additional information which should be included in the formal notice to request information from an organisation.

52. Please provide any views on types of data which could be difficult or costly to provide. Specify the type of data and which organisation would supply it.

Reviewing the zoning methodology

Reviewing and amending the zoning methodology will ensure it remains fit for purpose over time. In the longer term, the Central Authority will need to establish a methodology review process. We propose that, following an initial period during the establishment of heat network zoning across England, the Central Authority will review the zoning methodology every five years.

During a review, the Central Authority will assess the performance of the zoning methodology. This assessment will likely include a review of existing monitoring and reporting data, engagement with the sector and technical or economic assessments of existing heat network zones.

If the review indicates that the underlying zoning methodology needs to change, the Central Authority will consult on the proposed changes before they take effect. They may choose to pilot aspects of the reviewed methodology, but this will not be mandatory.

If the methodology changes, changes will not retroactively apply to existing zones. The revised methodology will only apply to new zones created after the review, or to existing zones which undergo zone review after the amended zoning methodology is in place.

53. Do you agree that the Central Authority should review the zoning methodology every five years? If not, please provide alternative suggestions.

54. What factors should the Central Authority consider when reviewing the zoning methodology?

55. Do you agree that changes to the zoning methodology following a review should not apply retroactively to existing zones?

Stage 2: Zone designation

Once the Central Authority and the Zone Coordinator have identified and refined a zone according to the zoning methodology, they will designate it. Designation will have two parts:

- agreeing the proposed shape of the zone or zones in a formal consultation which includes statutory consultees.
- registering the areas to be designated as zones with the Central Authority.

We propose that the **consultation will last 21 days**. The Zone Coordinator or the Central Authority will run the consultation, potentially using the zoning digital service.

The Zone Coordinator will have to show they have considered the views expressed by stakeholders in the consultation by publishing a response. They will not have to act on those views. We would only expect the Zone Coordinator to reassess the zone identification and refinement process if responses to the consultation indicate that the proposed heat network zone has significant errors or mistakes.

Once the consultation concludes, the Zone Coordinator will register the zone with the Central Authority. The Central Authority will quality assure the results.

Once the zoning bodies complete these steps, designation is complete and the zone and its requirements take effect.

56. Do you agree that a consultation period of 21 days is sufficient for the formal consultation part of heat network zone designation? If not, please provide further detail.

57. Which of the following platforms should host the formal consultation: a) the zoning digital service, b) local authority or Zone Coordinator websites, c) other (please specify).

Publication and notification requirements

It will be important for stakeholders and the wider public to have access to information about heat network zones. The Zone Coordinator and Central Authority will publish or make available certain information for public access.

We expect the following to be published at or soon after zone designation:

- A map showing the boundary of the zone to be designated.
- The intermediate outputs and boundaries of zone identification, refinement and designation stages.
- A record of buildings within scope of the requirement to connect³⁶.
- The list of data sources used in the zone identification stage.

The zoning bodies may also choose to issue more targeted notifications. For example, the Zone Coordinator may notify certain buildings that they may be subject to the requirement to connect immediately following designation.

The Zoning Digital Service

The Zoning Digital Service will be an online portal for information about zoning: both in general, and for information about specific zones.

The department has undertaken detailed user research to ensure that the Zoning Digital Service will be designed to support effective communication of zoning policy, provide up-to-date and easy to understand guidance and include a web-based mapping tool and dashboard to help users see potential zones, their stage in the zoning lifecycle, and understand how they were created. The digital service will also include a data download function for those that want to interrogate the data in greater detail.

We intend to start the beta development of the service in early 2024 during which we will test the build extensively with stakeholders to ensure that it meets the needs of its future users.

³⁶ Subject to appropriate data protection.

The department is currently developing this product to provide information and data to users only. Further development of the service to provide administrative functions may be considered in future development phases.

58. What other information do you consider should be published prior to or during the zone designation stage?

The role of statutory consultees

As described above, the Zone Coordinator will be required to carry out a consultation on the proposed boundary of a heat network zone as part of the zone designation process. We have previously confirmed that the Zone Coordinator must ensure they seek the views of certain specified parties – ‘statutory consultees’ – prior to designating a heat network zone.³⁷

We propose that there will be a two-tier approach to consultees in the consultation process.

- Tier 1 will include bodies expected to have an interest in most heat network zones such as heat network operators and local planning authorities. The Zone Coordinator must provide these bodies with an opportunity to respond to the consultation. These are the **statutory consultees**.
- Tier 2 bodies may have an interest depending on the location and/or nature of a specific zone. This may include organisations such as Historic England, the Coal Authority and Natural England. These will be included in guidance, and Zone Coordinators may wish to seek their views, but there will be no requirement to specifically consult these parties.

The proposed lists of Tier 1 and Tier 2 consultees are detailed in Appendix 5.

The two-tier system will provide the Zone Coordinator with flexibility to decide which bodies are most suitable to participate in the pre-designation consultation process. At the same time, the system will provide important stakeholders with the opportunity to contribute views ahead of the designation of a zone.

Separately, we will work with DLUHC to agree a mechanism for local planning authorities to notify Zone Coordinators of new developments in heat network zones. This will allow Zone Coordinators to use their power to require new buildings to connect to a heat network or be heat network ready.

59. Do you agree with the proposed two-tier approach to classify statutory consultees? If not, please describe an alternative approach.

60. Do you agree with the proposed Tier 1 and Tier 2 consultees set out in Appendix 5? If not, please provide any suggested changes.

³⁷ 87% of respondents to the first zoning consultation agreed that the secondary legislation should set out a list of statutory consultees who must be consulted before a heat network zone is designated.

Stage 3: Zone delivery

Introduction

Zone delivery will be the process by which a Zone Coordinator, or the Central Authority acting as a Zone Coordinator, will be able to confer “zoning rights”, provided by heat network zoning legislation, to specific organisations.

Competitive process for zone award

Under our proposals, rights to develop and operate heat networks within zones will be awarded to specific organisations within specific zones following a short competitive process. This will include rights to require buildings to connect through the Zone Coordinator (see “Requiring buildings to connect to heat networks” section).

Under the Procurement Act 2023, the provision or operation of any fixed network for the provision of a service to the public in connection with the production, transport or distribution of heat and the supply of heat to such a network is considered a “utility activity”.³⁸

Whether an entity that carries out a utility activity is subject to the Procurement Act is determined by the nature of that entity.

- If the entity is a public authority or entity owned or controlled by a public authority, then it will be regulated.
- If it is a private sector entity, then it will be regulated where that activity is undertaken under a “special or exclusive right”³⁹.

This requirement (and the follow-on requirements to run open procurements for the design and build of infrastructure) can be avoided if the special and exclusive rights were awarded through a separate competitive and open process as defined in the Procurement Act 2023, Part 1 s.6(4).

To deliver heat networks at the pace and scale necessary to meet our net-zero targets we want to avoid the complex open procurements for the design and build of heat network infrastructure as required by the Procurement Act. As well as slowing the pace of zoning, it would increase the bid fatigue of design and build contractors unsuccessful in the procurement process.

Instead, we believe it will be better to design a competitive and open process for the award of zoning rights to companies so that, once these rights are awarded, the heat network companies developing infrastructure within zones are not regulated by procurement legislation.

Such an approach will rely on early engagement with zone developers to ensure there is sufficient commercial interest in the opportunities presented and that they submit high-quality bids. The Zone Coordinator or Central Authority will then undertake a competed process designed to confer the special and potentially exclusive rights to the successful zone

³⁸ Under the Utilities Contracts Regulations 2016 these are rights granted by a competent authority by way of any “legislative, regulatory or administrative provision”, the effect of which is to limit the exercise of utility activities to one or more utilities, and “which substantially affects the ability of other entities to carry out such activity” (regulation 5(4)). A similar test applies in the Procurement Act 2023.

³⁹ Procurement Act 2023, Part 1 s. 6(3) and 6(4).

developers. They will engage early with potential bidders and, under this process, bidders will be expected to provide evidence as to:

- Why their organisation is best placed to deliver the zone, their experience of heat network development or equivalent infrastructure delivery.
- Their investment hurdle rate to deliver the zone.
- Their supply chain delivery plan.
- Commitments to the growth of the network in the zone.
- Ambitions for the CO₂e emissions of the network.

As detailed in the consumer protection section the Zone Coordinator may also require conditions on the price for heat charged within zones.

We believe this system is preferable to the award being regulated by the Procurement Act, where under the open procurement system bidders would have to undertake engineering design work to provide a fixed or firm price to deliver heat network infrastructure – we consider this to be a far more complex and time-consuming exercise.

61. Do you agree with the proposal to use a competed process to confer special and potentially exclusive rights to zone developers? If not, please provide further details. Where applicable, refer to compliance with the Procurement Act and propose legally compliant alternatives.

The timing of conferring rights afforded by heat network zone legislation

Under our proposed competed process, the point at which a Zone Coordinator or Central Authority acting as the Zone Coordinators “markets” an opportunity or collection of opportunities will be important. Table 6 provides four theoretical points in a project’s development where the Zone Coordinator could market the opportunity through the Zonal Market Prospectus to attract bids from interested zone developers.

Table 6 6 Four options for the involvement of Zone Coordinator and zone developer at indicative stages of project development for bringing zone opportunities to market.

	Option 1 – Post Model output	Option 2 – Post techno-economic modelling	Option 3 – Post engagement within zone	Option 4 – Post detailed financial design
National zoning model output	Zone Coordinator	Zone Coordinator	Zone Coordinator	Zone Coordinator
Local refinement with techno-economic cash flow modelling	Zone Developer (ZD)	Zone Coordinator	Zone Coordinator	Zone Coordinator
Building owner and heat source engagement	ZD	ZD	Zone Coordinator	Zone Coordinator

Full financial model with RIBA 4 design	ZD	ZD	ZD	Zone Coordinator
Supply agreements signed	ZD	ZD	ZD	ZD

Option 4 in Table 6 requires the Zone Coordinator to have completed a detailed financial design for a potential heat network. The detailed design stage can take many months, sometimes years, of development work. We believe that, generally, this level of work by the Zone Coordinator - or Central Authority acting as the Zone Coordinator - would be unnecessary. While detailed design work might make the Zonal Market Prospectus easier to understand, prospective Zone Developers may reject the designs and want to bid on a different basis.

By contrast, under Option 1 the Zone Coordinator or Central Authority would publish the outputs from the National Zoning Model in the Zonal Market Prospectus without any substantive consideration of local factors. Zone Developers may not see the opportunity as credible which may deter investment.

We propose Option 3 is a middle-ground. The Zone Coordinator will complete local refinement and techno-economic modelling to have a better sense of the technical deliverability of the zone opportunity as well as its economic value (for example, capital expenditure estimate, operational contract values, income from customers). This would be important for describing the scale and extent of the opportunity to prospective bidders.

As part of this refinement process, the Zone Coordinator could engage with buildings likely to be required to connect, to set out the indicative timing of connection, technical assessment of the method of connection, the estimated cost of connection and ongoing charging the zone developer will likely adopt. Such work takes time and ultimately customer supply agreements would be expected to be struck between the zone developer and the customer. As such it may be more appropriate for the Zone Coordinator to notify buildings which may be required to connect and collate relevant contact details to be passed to the successful zone developer.

62. What stage of project development, as shown by Options 1 to 4 in Table 6, do you think that the Zone Coordinator should achieve prior to marketing the opportunity? Please set out your reasons. If you believe a different stage is required, please also set this out.

Principles for commercial models governing heat network zones

To award zoning rights there will need to be a governance structure capable of monitoring the progress of the zone developer in building the networks, and, when the network is operational, the extent to which the zone developer is meeting broader zone outcomes.

These broader zone outcomes will be in areas such as:

- Consumer protections.

- Any specific technical standards or requirements of heat networks that the Zone Coordinator has specified in its awarding of the zone to the developer.
- CO_{2e} emissions of the network (see proposals in the “Carbon emission requirements of heat networks in zones” section).

Several different governance structures could achieve this oversight. Under our proposed competed process, we believe it will be important to establish a principles-based approach for selecting the preferred governance structure. These proposed principles and essential outcomes, described below, underpin our policy positions on zone delivery.

- 1. Fair and transparent award of rights within a zone.** Any exclusive or semi-exclusive rights that confer economic advantage on one or several organisations, to the exclusion of others, must have been awarded following fair and open competition.
- 2. Promote ambition.** The commercial model should incentivise developers to deliver heat networks at scale and pace and hold them to account through contractual commitments if they do not deliver.
- 3. Good customer outcomes.** Developers must ensure that heat network infrastructure in zones will be deliverable against price regulation overseen by Ofgem, as set out in “Consumer protection”. Zone Coordinators will be permitted to require certain heat rates for domestic consumers.
- 4. Avoid ‘sterilisation’ – pockets of delayed or no heat network coverage.** Features which avoid the risk of certain areas of the zone not being connected to the network should be favoured.
- 5. Minimise delay.** The routes to market will be standardised so that bidders will be able to respond to make a bid in a timely way where the form and content requirements are familiar. The procurement should be designed to have a short duration: **achievable within six months or less from the start of the launch of the competition.** The procurement should not entail prohibitively high transaction costs.
- 6. Respect pre-existing investment decisions.** The commercial model should not materially undermine investments made in existing district, non-campus, heat networks – see more details in “Respecting pre-existing investment decisions – incumbents, direct awards and special conditions”.
- 7. A single competitive process.** Where a private sector bidder successfully wins the rights to develop a specific zone via a legally compliant competitive process, the objective should be to enable them to manage their supply chain procurements in line with supply chain approaches set out in their successful bid. The workstream should try to ensure that there would not be subsequent complex procurements for infrastructure delivery.
- 8. Develop and improve delivery confidence over time.** Whilst respecting the need to standardise we will maintain a flexible approach to zone delivery to refine the routes to market over time and to continue to make them more effective and efficient.
- 9. Increasing supply chain and investment levels into the sector.** The routes to market approach should increase heat network supply chain and investment capacity over time.

63. Do you agree with these principles for evaluating commercial delivery models? Please provide your reasoning and any relevant evidence. If you believe any are unnecessary or missing please explain why.

Exclusivity

Heat network zoning needs to overcome the existing market failure concerning building connection risk. Zoning policy must achieve two important objectives for heat network developers to unlock investment ahead of contracted demand:

1. A high level of certainty that sufficient aggregate demand will connect on an acceptable timeframe; and
2. Confidence that the relevant demand will connect to its network and not to another.

The requirement to connect buildings will achieve the first objective, as outlined in “Requiring buildings to connect to heat networks”. The second objective relates to the nature of exclusivity required. Evidence suggests that an entirely open, non-exclusive, system will result in a very limited deployment of heat networks – it is much like the status quo. We therefore propose that some level of exclusivity to an area is essential to stimulate investment.

The boundary of the area designated as a heat network zone, and the boundary of the area for which a Zone Coordinator grants “consent for the construction, operation or maintenance of a heat network” may not be the same. Heat network developers and investors may only require exclusivity in an area with sufficient aggregate demand to justify the corresponding investment.

We therefore propose that within large heat network zones there will be multiple smaller “Heat Network Zone Delivery Areas”. Each Zone Delivery Area can be granted exclusively to a different company. By managing large zones as several smaller areas, the intention is to accelerate overall delivery and enable smaller companies and new entrants into the market. Developers will be able to bid for multiple adjacent areas should they believe they can demonstrate how combining them would improve outcomes for customers, such as lower costs or faster delivery.

Exclusivity could be conditional, for example, on the Heat Network Developer deploying relevant heat network infrastructure within a specified period (with reasonable allowance for programme slippage). If it fails to do so, the Zone Coordinator could be free to award rights to unconnected buildings within the zone delivery area to other competitors in adjacent areas.

64. Do you agree that larger heat network zones could be divided into multiple smaller “Heat Network Zone Delivery Areas”? If not, please provide further detail.

Considering frameworks for zone development

To create and market a national pipeline of large, strategic projects – as described in the “Zoning bodies” section – developed and implemented through a combination of Zone Coordinators and the Central Authority itself, we will need to create a new system of legal frameworks.

Establishing a compliant framework, or equivalently standardised and publicly visible process, to appoint zone developers via a fair and open process for the delivery of national pipeline projects will speed up the marketing of zone opportunities in the pipeline. This is because it will reduce the need for Zone Coordinators to do their own pre-qualification screening.⁴⁰ It could also potentially allow for the packaging-up of regional heat network zoning opportunities that

⁴⁰ This generally take the form of a pre-qualification questionnaire that would identify the organisations best placed to proceed to the actual competition.

competitors could bid for through a single competitive process, thereby further reducing the administrative cost of marketing zoning opportunities.

A separate framework for appointing Zone Developers might also be adopted for smaller scale projects that are not included within a national pipeline, but which the relevant local authority proposes to take forward. This separate framework could encourage the development of different types of developer and supply chain delivery partners who could collaborate and bid for the zone opportunities best suited to the size and skillset of their organisation.

To further aid investment and engagement with opportunities we also intend for there to be standardisation of the competitive process across areas designated as heat network zones, particularly regarding the bid documentation required and the way bids are evaluated (see Principle 5 in the previous section).

65. Do you agree with the option of establishing a framework for conferring zone rights for national pipeline projects as set out above? If not, please provide further detail.

66. Do you agree with the option of establishing a separate framework for conferring zone rights for smaller scale projects? If not, please provide further detail.

Respecting pre-existing investment decisions – incumbents, direct awards and special conditions

While heat networks currently provide only 3% of total UK heat, the sector has grown significantly in the last 30 years across England. There are many heat networks across the country where companies, and national government, have made investments in the expectation of financial returns and/or expansion to areas close to the heat network. In many areas, these heat networks are likely to be best-placed to expand to become city or town-wide networks of the scale we are looking to encourage through heat network zoning. We want to ensure that, where possible, zoning does not undermine these investment decisions. In addition, we are keen to not impede planned investment in the period before the zoning regulations come into force.

There have been two principal areas of concern expressed to us by the heat networks industry:

1. Already engaged investors, suppliers and project developers want certainty about how they will be competing for zone opportunities so they may scale-up their operations and attract further investment ahead of the start of zoning in 2025.
2. Heat networks already operating or developing in an area likely to form part of a heat network zone (“Incumbents”) want certainty about the implications on their business.

Some pre-existing networks are large district level networks where it would be hard to envisage viable new entrants developing credible alternatives to the incumbent network.

Others are small to medium size; whilst they might supply heat to many buildings already, there may be enough unconnected buildings, which could be required to connect to a heat network, to present a credible investment opportunity to new zone developers.

Below we set out several categories of ‘incumbent’ heat networks and proposals for how the zoning policy can respect pre-existing investment decisions and encourage investment ahead of zoning coming into force.

Proposed approach to incumbent networks and investment

Prior to the designation of a heat network zone, Zone Coordinators will work with national government and Ofgem to map existing heat networks in the zone. Incumbent networks, and developers with networks in development in the Zone, will then have an opportunity to provide information about their existing heat networks and planned investments or expansion.

In no circumstances will incumbent heat networks be required to be sold to other heat network companies because of the award of zoning rights. We also want to avoid the awarding of zone rights to another heat network company changing any pre-existing contractual commitments for heat networks to connect to buildings.

There will be occasions when incumbent networks have, before zone designation, made investments in the expansion of their networks, or indeed have already laid pipework in anticipation of connection, but are not then awarded zoning rights to these areas.

We propose the following to address these scenarios.

1. The Zone Coordinator will assess the investments made, or planned, by the incumbent heat network and any 'heat mains' - significant piping infrastructure which has been laid in anticipation of future connections to buildings.
2. Where the Zone Coordinator, supported by the Central Authority where necessary, believes that heat mains already built, or anticipated to be built with committed investment, would mean that any parallel heat network infrastructure built by another party would not be financially viable, then zoning rights to connect buildings along the route of the constructed or planned 'heat main' could be awarded to that incumbent without a competition for that award.
3. The Zone Coordinator and incumbent may agree growth targets as part of such a model, but penalties associated with not meeting targets may be weaker than those negotiated via a competitive process.

With the conferral of zoning rights in a non-competed manner, the undertaking could potentially find itself governed by Utilities Contracts Regulations for all expansion procurements (if it is not already governed by either Concession Contracts Regulations or Public Contracts Regulations).⁴¹

To access zoning rights, heat networks will need to adhere to standards, notably on carbon emission limits. Therefore, existing heat networks with high carbon intensities will be unable to add nearby new connections via the requirement to connect, unless they add low-carbon capacity to their networks. This 'sleeving' requirement is already used for the Green Heat Network Fund (GHNF) and is proposed for the Future Homes Standard.

With networks that are anticipated to be built and will be using high carbon plant to meet non-peak demand, zone rights will only be accessible by replacing this plant with low-carbon alternatives.

Where the planned or already constructed heat main does not cover the remaining areas of a proposed zone then the remaining areas of a designated zone will be awarded following the competitive process.

⁴¹ It is anticipated that each of these three sets of regulations will be superseded by the Procurement Act,

67. Do you agree with the proposed approach to incumbent networks and investment, to be used following zone designation, as set out above? If not, please provide details.

Pre-awarded zoning rights

The process set out above is intended to address incumbency scenarios post-zone designation. Separately, some in the heat network industry have asked the government to clarify whether zoning rights could be awarded pre-designation or even before the zoning regulations come into effect. We are sympathetic to such calls and have considered several scenarios.

1. Advanced Zoning Programme (AZP)

As part of our Advanced Zoning Programme, the department is working with a small group of towns and cities to support the construction of new large heat networks as quickly as possible following the launch of heat network zoning in 2025.

For many of the projects in these towns and cities, the relevant local government body and the Department intend to market the heat network development opportunities in advance of the zoning legislation coming into force and to partner with the private sector in developing these opportunities. We intend to market these opportunities broadly and transparently. Zoning bodies will not be able to designate areas as heat network zones until Parliament passes the zoning regulations which will make provision about identifying, refining and designating heat network zones, and in relation to incumbency and zone delivery.

For the AZP projects,⁴² our ambition is to give bidders confidence that heat mains constructed, or invested in, ahead of zone designation and appointment will then have rights to connect neighbouring buildings, even if the larger zone is awarded via a competed process.

2. Other pre-awarding of zoning rights

We intend to publish the documentation necessary to put in place the above AZP approach in mid-2024. Where other local government bodies want to progress the development of heat networks in areas that are not part of the AZP but are expected to be identified as zones we propose providing central government support for them to do so in-line with the approach given above⁴³.

3. Award of rights similar to zoning rights

Some local government bodies in England have already awarded a form of exclusivity to heat network developers and operators, prior to the introduction of heat network zoning. For example, in 2023, one local council awarded a 20-year concession to a heat network developer to build out a heat network in their city. The concession granted the developer the exclusive right to connect council buildings and use council land, with the expectation that many other buildings would also connect, including those which could be required to connect in a heat network zone.

Following the launch of zoning, we propose that the Zone Coordinator, supported by the Central Authority, will assess whether the original awarding of pre-zoning rights followed an open and competitive process, the extent of the incumbent's network, and its committed

⁴² Subject to the outcome of this consultation.

⁴³ Those interested should contact the Heat Networks Policy Unit using the email address at the start of this document.

investments. They will then assess whether any potential Zone Delivery Areas remain which other heat network companies could feasibly develop. These “remaining” areas will then be subject to the competitive process outlined in the ‘Commercial delivery models’ section below.

For the areas around the incumbent's existing network, or areas where they have committed investment to expand into, the incumbency rules set out in “Proposed approach to incumbent networks and investment” will apply.

68. Do you agree with the proposed approaches to zoning rights awarded prior to zone designation, as outlined above? Please set out your reasoning drawing on relevant examples if appropriate.

Commercial delivery models

As we set out in the Green Finance Strategy, we believe that heat network zoning will deliver a significant increase in private sector investment in heat networks, but zoning delivery should enable deployment of public sector, joint public-private, and wholly private sector led heat networks.

We have appraised the following long-list of commercial delivery models for their ability to deliver our essential outcomes and represent a comprehensive spectrum of approaches - from free market and non-competed to local authority-led zone delivery - and encompass both consenting and contractual methods.

As set out in more detail below we favour **3. Authorisation and Consent (Proactive)**, **5. Local Authority Joint Venture** and **6 and 7 concession models (both ‘Time Limited’ and ‘Evergreen’)** as models that Zone Coordinators could use. Our preference is to limit the number of possible models as much as possible to simplify the process and requirements for both Zone Coordinators and heat network developers.

1. Authorisation only

- The Zone Coordinator decides that any Heat Network developer authorised by Ofgem will (upon application to the zone) be granted the right to design, construct, operate and maintain heat networks within said zone. Applications can be on an ad-hoc basis.
- The Zone Coordinator does not require commitments about how and when heat network developers will deliver heat networks in the relevant zone.
- The zone rights granted to heat network developers in said zone may be time limited but will not be exclusive. This means that multiple heat network developers may have permission to operate within the zone.

2. Authorisation and Consent (Reactive)

- Heat Network Developers authorised by Ofgem can apply to the Zone Coordinator for exclusive rights to design, construct, operate and maintain heat networks within a Zone Delivery Area. The developer sets out the borders of this area in its application.
- The Zone Coordinator grants exclusive rights to a successful applicant, with conditions, regulating the scope and extent of the applicable heat network. The form and content of the documents by which the rights are granted is to be developed.

- Rights may be conditional on satisfactory performance by the Heat Network Developer, related to developer commitments on how and when they deliver heat networks in the zone. The zone rights may be time limited.
- To note, applications and the granting of rights are on ad-hoc basis – a Zone Delivery Area is only developed when an applicant is successful. There is no set period of inviting applications, to assign a developer to all Areas, rather the process is on-going, as Developers apply to Areas.

3. Authorisation and Consent (Proactive)

This model is identical to *Authorisation and Consent (Reactive)* above, save for the following important differences:

- The Zone Coordinator pre-determines the borders of the Zone Delivery Areas, not the Heat Network Developers in their applications.
- Applications are accepted as part of a competed process to assign rights to all Areas, rather than being accepted on an ad-hoc basis.

4. Local Authority Delivered

- A Heat Network Developer, owned wholly by the local authority, is created. The Zone Coordinator grants the exclusive right to design, construct, operate and maintain heat networks to this Developer. Rights may be conditional on satisfactory performance by the Heat Network Developer, on how and when heat networks are delivered in the zone.
- The local authority agrees a Shareholder Agreement with the Heat Network Developer. This allows the local authority to set responsibilities, provide a robust governance structure and establish clear lines of communication. The Shareholder Agreement is indefinite, however the zone rights granted by the Zone Coordinator may be time limited.

5. Local Authority Joint Venture

- Heat Network Developers compete to develop an entire zone. This process is run by the local authority. The winning Developer enters into a corporate joint venture with the local authority.
- The Zone Coordinator then grants an exclusive right, to design, construct, operate and maintain heat networks within the entire zone, to this joint venture. Rights may be conditional on satisfactory performance by the joint venture, on how and when heat networks are delivered in the zone, based on commitments made by the Heat Network Developer in the initial competed process.
- The local authority agrees a Shareholders' Agreement with the Heat Network Developer. This Agreement determines the degree of influence and control the local authority and Developer, respectively, have over the joint venture entity. Influence and control would likely reflect the level of investment each party has made. The Shareholders' Agreement is indefinite, however the zone rights granted by the Zone Coordinator may be time limited.

6. 'Time limited' concession

- This model is identical to *Local Authority Joint Venture* above, except for the difference in agreement form used to govern the collaboration between the local authority and the Heat Network Developer. In this model, the parties enter into a time-limited concession agreement, rather than an indefinite shareholder agreement (joint venture). On conclusion of the concession agreement assets developed transfer to the Zone Coordinator or pass to newly procured zone developer or operator.

7. 'Evergreen' concession

This model is like both the '*Time limited*' concession and *Local Authority Joint Venture*, with the following differences:

- In this model the parties enter into a Corporate Concession Agreement, rather than a time-limited concession agreement or an indefinite shareholder agreement.
- A special purpose vehicle is used, instead of a joint venture. The principal shareholder is the Heat Network Developer, with the local authority holding a special share. This means the Heat Network Developer has day-to-day control. The local authority will only exert influence and control on the special purpose vehicle where it, and therefore the Developer, is failing to deliver. The Corporate Concession Agreement is indefinite, however the zone rights granted by the Zone Coordinator may be time limited.

'Evergreen' refers to the treatment of heat network assets developed and owned by the Zone Developer: such assets under this model would never transfer to the Zone Coordinator.

'Evergreen' does not refer to the relationship between the concession and buildings connected where supply contracts would need to be renewed on an agreed frequency.

Minded to position on commercial delivery models

At this stage, we are minded to take forward the **Authorisation and Consent (Proactive)**, **Local Authority Joint Venture** and both **concession models** ('*Time limited*' and '**Evergreen**') for further analysis.

In circumstances where local government has tried to develop a network through the Local Authority Joint Venture model but failed to find a private sector partner, then we believe it will be appropriate for the Central Authority to permit the local authority to develop a network through the Local Authority Delivered model if it is keen to do so and resourced appropriately.

We have developed this shortlist because the Authorisation only model, while relatively simple to establish and administer, does not establish a governance structure that provides the "levers" necessary to drive delivery of heat network infrastructure in a nationally co-ordinated manner. It runs the risk of developers only targeting areas with high returns and would give the Zone Coordinator limited ability to require them to connect to buildings that may worsen overall returns but still be profitable. This could result in consumers not being offered low-cost heating. Furthermore, as networks that are built are not being co-ordinated either locally or nationally, there is a risk of supply chain overheating or being underused depending on fluctuations in activity.

There is a further issue that under this model we anticipate that the zone developer may be subject to Utilities Contracts Regulations (and its equivalent under the Procurement Act) for the procurement of the design and building contractor. With bidders potentially having to submit costed designs for energy centres, network build-out and building interfacing it would be expected that this may ultimately result in a longer overall process than a model that confers special rights under heat network zoning by competitive means.

The Authorisation and Consent (Reactive) model suffers from similar co-ordination and procurement law issues as the Authorisation only model. It would also present sterilisation risk as the zone developer proposing the area for development may have defined an area that leaves the remaining areas within the zone economically unviable for other investors.

The Local Authority Delivered model would heavily rely on the policy and resources of a local authority but without a competed process it would not be possible to evaluate if the local authority was the best provider of the development. Furthermore, local authorities may be more financially constrained, limiting the build out potential of a zone. As such we propose a model that, where a local authority wishes to invest in a heat network, a Joint Venture model is adopted with competition over the Joint Venture partner designed to introduce greater amounts of capital and sector specific expertise. As above, in circumstances where local government has tried to develop a network through the Local Authority Joint Venture model but failed to find a private sector partner then we believe it will be appropriate for the Central Authority to permit the local authority to develop a network through the Local Authority Delivered model if it is keen to do so and resourced appropriately.

69. Do you agree with the proposed shortlist of models: Authorisation and Consent (Proactive), Local Authority Joint Venture and both concession models ('Time limited' and 'Evergreen')? If not, please provide details and set out which models you believe better meet the principles for 'zone delivery models' (see page 7067).

Stage 4: Zone Operation

Zone operation refers to the stage in the zoning lifecycle following zone delivery. During the operation stage, developers will construct new infrastructure, make new connections, and maintain and operate their heat networks. The Zone Coordinator will also collect data for monitoring and reporting purposes. This will help zoning bodies assess the performance of individual zones, zoning bodies and zoning overall.

Data throughout the zoning process

The heat network zoning process will both use and generate large amounts of data at each stage. This data will need to be collected, stored, managed, shared and protected appropriately and in a way that suits its purpose.

The main uses of data will be:

- For the purposes of identifying, refining and designating zones, as well as for zone review.
- For the purposes of monitoring the progress of zones, individually and at a national level.
- For the purposes of monitoring the performance of zoning bodies.

This section will concentrate on the overall data landscape as well as monitoring and reporting. The earlier section on "Data requests and the requirement to provide information" describes how zoning bodies will collect data for the purposes of zone identification in more detail.

Managing zoning data

We wish to ensure that zoning bodies and other organisations can share and manage data effectively. The core principles that will underpin the approach to managing zoning data are:

- Data needs to be readily available for zone identification and refinement process.
- Data capture should not create overly onerous obligations on the market.
- Data should be sufficiently detailed and of a high quality.
- Data should be easily shareable whilst considering data security, privacy and commercial sensitivity.

One measure we are proposing to ensure continuity and visibility of data throughout the zoning lifecycle, is that the Central Authority will assign a unique identifier (“zone ID”) to each heat network zone. This will be used at all stages of the process where data is collected, such as planning applications, when communicating with Ofgem.

We also intend to enable the sharing of heat network data with the National Underground Asset Register (NUAR). NUAR is a programme led by the Geospatial Commission to build a digital map of underground pipes and cables across England and Wales.⁴⁴ In the long term, this could reduce dig costs by lowering the risk of striking existing pipes and cables, as well as reducing the risk of pipe strikes on heat networks by other utilities.

As our understanding of zone data requirements develops, we will establish a clearer data lifecycle for heat network zones. This will cover the entire zoning lifecycle, including data collected for zone identification, interim outputs of the zoning methodology, published indicative heat network zones, published refined heat network zones, zones amended following a review process, and zone designations which are revoked, should the need arise.

Data collection

Zoning bodies can use several mechanisms to gather data for the purposes of monitoring and reporting.

1. The requirement to provide information
 - a. Zone Coordinators and the Central Authority can directly request information from different organisations relevant to identifying, designating (which includes varying or revoking a zone designation) or reviewing zones.
 - b. Zone Coordinators can request information from organisations who own heat sources which can provide heat to networks in zones.
2. Standard conditions for exclusive development
 - a. Zone Coordinators can require heat network developers to provide information to them as a condition of zone development rights.
3. Functional collection of data
 - a. The Zone Coordinator and Central Authority can collect data related to their own functions - keeping record of the number of exemption applications, for example - and they can be required to provide that information to other zoning bodies or the Regulator.

Additionally, as Regulator, Ofgem will carry out monitoring and reporting across all heat networks in Great Britain, both inside and outside zones. The Central Authority and the department will work with Ofgem to minimise the burden of data collection on homes and businesses in zones. This will include appropriate data sharing between the Regulator and zoning bodies and ensuring that processes are simplified where possible. We propose, for example, ensuring that zoning bodies collect similar data in a similar format to Ofgem to

⁴⁴ See: <https://www.gov.uk/guidance/national-underground-asset-register-nuar>

minimise the time spent restructuring or reformatting datasets, and prevent Zone Coordinators from collecting data that Ofgem has already requested, or vice versa.

70. Please provide suggestions for minimising the burden on organisations of data collection throughout the zoning lifecycle.

Monitoring and reporting

Monitoring and reporting requirements in zones will enable the zoning bodies and the government to intervene when appropriate and necessary, and to change and improve zoning processes.

Our principles are that data collected by zoning bodies for the purposes of monitoring and reporting should:

- Be relevant to zoning only.
- Be collected regularly if an ongoing requirement.
- Be collected only once by one body if an ad-hoc request.
- Be in a consistent and standardised format.
- Be precise, to ensure all parties understand the purpose of the data.
- Be reasonable, to ensure no party is unduly burdened by the data reporting requirements.

Table 7 provides further detail about the intended outcomes of the monitoring and reporting framework.

Table 7 Intended outcomes of the monitoring and reporting framework

Monitoring purpose	Intended outcome	Example measured variables
Performance of zoning bodies	Zone Coordinators appointed promptly.	Stage of Zone Coordinator appointment process reached at a certain date.
	Zone Coordinators conform to ongoing standards of performance. Central Authority intervenes to take on Zone Coordinator function in appropriate circumstances.	Number of exemptions, appeals, penalties processed on time. Number of complaints made by stakeholders. Financial metrics.
	Zone Coordinators appoint appropriate heat network developers.	Performance metrics of zone developers.
Progress of zoning	Sufficient progress through zone identification and refinement, designation and delivery stages.	Stage of process reached.

	Zoning bodies have a thorough understanding of the progress of heat networks in zones.	Number of voluntary connections, required connections, number of exemptions per heat network.
	Heat network developers deliver in line with commitments.	Metrics appropriate for implementation plans.
	Heat network developers in zones adhere to zone specific requirements.	Metrics appropriate for requirements.
	Zone Coordinators can identify relevant changes which may trigger a zone review.	New developments, heat source data.
	Zone Coordinators can determine when zones may become eligible for revocation.	Number of exemptions, number of voluntary connection offers refused, cost of heat.

We also propose that Zone Coordinators will collect information about their own performance, which they must report to the Central Authority. This will include, for example, how quickly they respond to exemption applications. This will enable the Central Authority to monitor the progress of heat network zoning at a national level. It will also indicate if it needs to intervene in a specific zone which may not be progressing as expected.

71. Do you agree with the intended outcomes for the monitoring and reporting regime in Table 7? If not, please provide further detail.

Data sharing, cooperation and publication

Zoning bodies will follow “open by default” data principles. They will make data available for sharing or publication where not otherwise constrained by national security, commercial and personal privacy requirements.

Rights and powers

The wider regulatory framework for the heat network market will introduce licences to grant heat network companies equivalent rights to other utilities. In summary this includes the right:

- To make a compulsory acquisition of an easement or other right over land.
- To keep and re-access equipment installed under streets.
- To install and keep works in/under transport land.
- To permitted development planning rights.

Heat network companies will have to apply to Ofgem for these licences. Ofgem will require payment of a fee and will assess the suitability of the company to hold this heat network licence.

Heat network companies operating in zones will not automatically receive a licence if awarded the right to develop a zone or area of a zone. We propose that Zone Coordinators should be able to require developers to prove they possess a licence when applying for the right to develop in a zone.

Local authorities have separate, and broader, statutory powers than those proposed for licensed heat networks. Local authorities can, in some circumstances, use these powers to develop heat networks within their jurisdiction. This would only apply in delivery models where the local authority plays an active role in the development of heat networks in the zone.

While these licences will be separate from existing permissions under planning and building regulations, we intend to integrate the new licencing process as much as possible with existing planning and building regulations.

72. Do you agree that Zone Coordinators should be able to decide whether they want a heat network developer to hold a licence before applying for the right to develop in a zone?

Ofgem

While they are not a zoning body, Ofgem will regulate heat networks in zones and therefore have an important role in protecting those customers. We briefly discuss interactions between zoning and the wider regulatory regime, and Ofgem's role, in this section.

Ofgem's role in zones

The Energy Act appoints Ofgem as the heat networks regulator for Great Britain. They will have powers to administer the authorisation regime, consider rights and powers licence applications from developers following appropriate checks, introduce consumer protection rules including fair pricing regulation and other consumer protection measures.

As outlined in the "Consumer protection" section, we do not propose that Ofgem will have different duties inside and outside zones. We want to maintain a consistent standard of consumer protections across England through Ofgem regulation.

We intend for Zone Coordinators and the Central Authority can be required to provide Ofgem with data they have collected about heat networks within zones. We will ensure that the monitoring functions of the Zone Coordinators, the Central Authority and Ofgem are streamlined to avoid confusion among stakeholders and reduce administrative burdens.

Stage 5: Zone Review

Zoning bodies will use the best available evidence to identify heat network zones. The methodology considers assumptions over a long period of time, so zones will broadly include areas which fulfil the zoning criteria until at least 2050.

However, changes in local circumstances may require a reassessment of the designation. The process for identifying these changes, assessing their effect on a zone, and redesignating the zone will be called zone review.

Zone review will only allow for the expansion of designated heat network zones. We describe a separate process, zone revocation, for circumstances where the designation of a heat network zone is no longer appropriate.

Process

We propose that only specific types of changes in the local area zone may trigger a zone review, which we call “relevant changes”. A restricted list of relevant changes will limit the number of changes made to the zone boundaries while still allowing the zone to adapt to local changes. Table 8 describes these proposed relevant changes.

Table 8 8 List of relevant changes eligible for triggering zone review

Change	Reason
A new major development adjacent to an existing zone.	May create a new area which fulfils the zone criteria, attached to the original zone.
A new major development near an existing zone.	May create a new area which fulfils the zone criteria, separate from the original zone.
An agreed connection of a new or newly identified heat source to a heat network in a zone.	Could change the underlying economics of heat in the zone, making heat networks low cost for more buildings.

Following identification of the relevant change through their monitoring duties, the Zone Coordinator may collect additional information. They will assess the effect of the change on the zone boundary using a simplified version of the zoning methodology. The methodology will only recommend doing nothing or expanding the zone boundary, compared to the original designation.

The Zone Coordinator will be able to choose to implement the outcome. For example, if the methodology only suggests very minor changes to the zone boundary, the Zone Coordinator can choose not to implement the change if they do not think it provides a proportionate benefit.

If the Zone Coordinator decides to proceed, they will redesignate the zone following the same process as the original designation – a formal consultation and registration of the heat network zone with the Central Authority.

Where the Zone Coordinator does not proceed with redesignation, they may publicise the newly identified indicative zone as a heat network opportunity area.

Zone Coordinators may identify changes in local circumstances which could significantly affect the zone but are not on the list of relevant changes. In such cases, the Zone Coordinator will assess the relevance of the change against criteria in guidance which the Central Authority will publish. If they deem the change as potentially relevant, they will alert the Central Authority who will approve or deny the request to review the zone after weighing up the evidence. The Zone Coordinator will then proceed through the remaining stages of the zone review process.

73. Do you agree with the process for zone review described in this section, including the list of relevant changes and the role of the zoning bodies? If not, please provide further detail.

Revoking zone designations

In most cases, we expect the two mechanisms of zone review and the exemptions process to be sufficient for managing changes to the assumptions underpinning a zone designation. Zone review will allow zones to expand, and exemptions will prevent individual buildings from being required to connect if it turns out to be significantly more expensive than an alternative.

However, it may sometimes be necessary to undo the designation of a zone, or part of a zone – a process called “zone revocation”. Zone revocation will only occur if it becomes evident that the low cost, low-carbon criteria does not apply to all or most of the buildings in the zone, or area of a zone. That means:

- when either;
 - the costs for most heat network customers in a zone or an area of a zone is significantly more than the costs of a suitable counterfactual, **or**,
 - the costs offered to potential customers by heat network companies are significantly higher than a suitable counterfactual **and**,
- when the high prices are fair, in that they are not arising from the heat network developer misusing their market position **and**,
- when the high prices are sustained and there is no expectation of them decreasing to a suitable level.

The following checks and balances will prevent the inappropriate revocation of zones.

1. The criteria above must apply.
2. The zoning bodies must investigate the causes of the failure of the criteria by engaging with relevant stakeholders and potentially using the requirement to provide information to gather further evidence.
3. The zoning bodies must explore alternative solutions with relevant stakeholders before revoking the zone (or parts thereof).
4. The zoning bodies will only move to officially revoke the zone (or parts thereof) if alternative solutions explored in point 3 fail and investigation confirms that revoking the zone is the best course of action.
5. Before finalising any revocation, the Zone Coordinator must carry out a consultation, akin to the zone designation consultation.

The Zone Coordinator will identify any potential cases for zone revocation through the same channels as the zone review process. We propose to retain flexibility as to which zoning body investigates the potential zone revocation following identification – for example in some circumstances the Central Authority may be better placed to assess whether the zone should be revoked.

74. Do you agree that the Zone Coordinator and/or the Central Authority should have the power to revoke a zone?

75. Do you agree with the process for revoking zones? Please provide suggestions for any further checks and balances on the zone revocation process.

Changes affecting heat network zones across England

Changes to policies or other market dynamics might affect the economics of heat networks and therefore the size and shape of heat network zones nationwide. Likewise, amendments to the zoning methodology may lead to similar changes (see “Reviewing the zoning methodology”). Both may affect all heat network zones across England simultaneously.

We do not propose requiring the Central Authority to carry out an automatic national zone review process following these types of changes. Instead, the Central Authority will discharge their existing powers to manage these types of change: zone review, zone revocation, exemptions, and the ability to publish heat network opportunity areas. However, we are seeking views on alternative approaches.

76. Please provide suggestions as to how the zoning bodies should respond to wider changes which may affect all heat network zones simultaneously.

Enforcement, penalties and appeals

The zoning enforcement regime will ensure that relevant people or organisations perform the duties placed on them by the heat network zoning regulations. We envisage that local enforcement will be carried out by the Zone Coordinator. This includes issuing compliance notices, investigating non-compliance, imposing penalties and providing for an appeals process to the Zone Coordinator’s decisions.

The zoning enforcement regime will be in addition to, and separate from, Ofgem’s role as the national heat networks regulator across Great Britain.

Enforcement

Enforcement is the process of issuing compliance notices to organisations setting out that they must fulfil their obligations under the zoning regulations within a specific period, and of imposing and collecting penalties arising from non-compliance with these notices. We describe the enforceable requirements below.

Requirement for buildings to physically connect to a heat network and to remain connected unless they are exempt - This requirement will be imposed via a “connection notice” and may set any of the following obligations:

- To agree a date for connection within an agreed period,
- Not to do anything to stop the physical connection being effective,
- Allow access, installation, repairs and maintenance,
- Pay connection charges,
- Pay standing charges.

Requirement for heat sources to connect (remain connected) and provide heat. This requirement will be imposed via a “connection notice” and may set any of the following obligations:

- Agree a date for connection within an agreed period,
- Not to do anything to stop the physical connection being effective,
- Allow access, installation, repairs and maintenance,

- Enter a contract for heat supply with the heat network operator.

The **requirement to provide information for zoning purposes**. This requirement will be imposed via an “information notice” and will require the subject to provide information within a specific period of time and in a format specified in the notice.

Other **zoning requirements**, including national zoning emission limits or obligations on the zone developer to offer reasonable connections to all the buildings and heat sources required to connect. This can be imposed via a “compliance notice”.

Enforcement process

All enforcement action will follow a similar process. The Zone Coordinator will have the rights to investigate potential breaches and, where it has identified non-compliance, they will issue a “penalty notice” to the relevant person or organisation.

The penalty notice will require the person to pay the penalty on the date specified in the notice and rectify the issue. We envisage that some penalties will be set as a fixed amount plus an additional weekly charge to stimulate timely compliance. Other penalties will be applicable more than once in cases where the non-compliance continues. The person will have the option to appeal the notice on the grounds specified in the penalties section below if they believe the decision is incorrect. Failure to pay the penalty will lead to further enforcement action. If the issue is not rectified, a continuous or a second penalty will be issued.

Penalties

Zoning bodies will consider enforcement and penalties as a last resort once other measures have failed, such as negotiating, grace periods, exemptions and funding support.

In determining the penalty amount, we propose different benchmarks to ensure the penalties are preventative, proportional, and fair for each of the enforceable requirements.

Penalty structure for requirements to connect

To calculate the appropriate level of penalty we are proposing to establish different penalties brackets which consider the size of the party. This will ensure the penalty is proportionate to organisations’ financial situation and their ability to pay. This approach follows the Sentencing Council Guidelines⁴⁵ for calculating environmental offences such as water pollution and release of harmful gasses in the environment. The guidelines intend to provide proportionate civil sanctions as an alternative to criminal prosecution.

In addition to the proposed penalty brackets show in Table 9, when calculating a penalty, we will account for the connection costs to ensure that the penalty has a preventative characteristic. We are conducting research to establish average connection costs and will look to implement this in the penalties calculation process if the relevant option below is adopted.

We are proposing to exclude individuals and small or micro businesses with a turnover below £2 million from the penalties regime whilst ensuring that policy objectives are achieved. We are seeking views on this and we are also undertaking further research in this area. In all cases, we will seek to prevent any disproportionate effect on small and micro businesses.

⁴⁵ See: <https://www.sentencingcouncil.org.uk/wp-content/uploads/Environmental-offences-definitive-guideline-Web.pdf>

Table 9 Proposed penalty brackets for enforcement action of requirements to connect

Organisation size	Annual turnover	Penalty bracket
Small organisation	£2-£10 million	£5,000 – £40,000
Medium organisation	£10-£50 million	£22,000 – £100,000
Large organisation	£50 million or above	£55,000 – £250,000

Methods for calculating penalty amounts

Requirement to connect buildings. The penalty will be calculated based on a fixed amount per square meter (m²) of the premises, considering the turnover, plus an additional weekly charge for each week a person fails to comply from when the date the connection notice is applicable. We propose that:

- For small organisations (turnover of £2-£10 million), the penalty will be £20 per m² and no less than £5,000. An additional penalty of £800 can be applied for each week a person fails to comply from the date the connection notice is applicable, up to a maximum of £40,000.
- For medium organisations (turnover of £10-£50 million), the penalty will be £40 per m², and no less than £22,000. An additional penalty of £2,400 can be applied for each week a person fails to comply from the date the connection notice is applicable, up to a maximum of £100,000.
- For large organisations (turnover of £50 million or above), the penalty will be £100 per m² and no less than £55,000. An additional penalty of £6,000 for each week a person fails to comply from the date the connection notice is applicable, up to a maximum of £250,000.

Requirement to connect heat sources. The penalty is based on a fixed sum plus a weekly charge. We propose that:

- For small organisations (turnover of £2-£10 million) the penalty will be £20,000. An additional penalty of £800 can be applied for each week a person fails to comply from the date the connection notice is applicable, up to a maximum of £40,000.
- For medium organisations (turnover of £10-£50 million) the penalty will be £40,000. An additional penalty of £2,400 can be applied for each week a person fails to comply from the date the connection notice is applicable, up to a maximum of £100,000.
- For large organisation (turnover of £50 million or above) the penalty will be £100,000. An additional penalty of £6,000 for each week a person fails to comply from the date the connection notice is applicable, up to a maximum of £250,000.

For failure to comply with information notices or refusing access to premises. **We propose the penalty regime to be in line with the UK ETS charges, as described in Table 10.**

Table 109 Proposed penalties for failure to comply with information notices or refusing access to premises

Non-compliance	Fixed penalty	Additional daily penalty
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Failure to comply with information notice	£5,000	£500 (up to a maximum of £45,000)
Providing false or misleading information	£50,000	n/a
Refusal to allow access to premises	£50,000	n/a

77. Do you agree with the suggested penalty brackets? If not, please provide further detail.

78. Should penalties apply to individuals and organisations below £2 million turnover? If not, please provide further detail.

79. Do you agree with the proposed methods for calculating penalties? If not, please set out details of alternative methods.

Internal Review and Appeals

Zoning decisions can become subject to an internal review and appeal once a compliance notice has been received. The internal review and the appeal can be initiated by the person to which the compliance notice is addressed to.

Trigger points

Table 11 describes the events which may trigger the internal review and appeal process, and the potential basis for the appeal.

Table 11 10 Summary of events which may trigger an internal review and appeal application

Event	Description	Basis of appeal
Receipt of an information notice where a body has failed to provide required information	An Information Notice will explain what information is required, the reasons why it's required and the timescale within which it must be provided.	The type of information required. The timeline for providing the information.
Receipt of a connection notice ⁴⁶	A Connection Notice is served where a building or a heat source is required to connect and has failed to comply with the requirement to connect.	Refusal to grant exemption to buildings which are required to connect. The length of the exemption period. Length of the agreement period for a contract.

⁴⁶ Receipt of a non-compliance notice will be used for other infringements of zoning requirements.

<p>Receipt of a penalty notice</p>	<p>A Penalty Notice is served where the failure to comply with a requirement which evokes a penalty charge.</p>	<p>The grounds of imposing a penalty. The amount of the penalty (the calculation process not the fixed amounts of the penalty).</p>
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Appeals procedure

We propose a two-stage process:

1. **Internal review stage**, comprising of two reviews;
2. **Appeal stage** with the First Tier Tribunal (FTT).

Figure 9 summarises the full review and appeal process.

Internal Review stage: The person challenging a decision will firstly request a review directly from the zoning body responsible for making the decision. This zoning body will then reassess their decision based on any additional evidence and information provided with the request. If the body reaffirms their decision, and the person wishes to continue with the review process, the request will be escalated to their overseeing body.

In most cases, the public body enforcing a requirement will be the Zone Coordinator. They will escalate the review of a decision to the Central Authority. If the Central Authority is making decisions, then the review will be escalated to a team within the Central Authority separated by an ethical wall.

When the internal review route has been exhausted, the person with affected interests can appeal through the tribunals system.

Appeal stage: If the case remains unresolved following the Internal Review stage the interested person (appellant) can lodge an appeal with First Tier Tribunal (FTT) who reviews the dispute and makes a decision. The FTT decision can be appealed to the Upper Tribunal subject to a permission to appeal from the First Tier Tribunal. The Upper Tribunal will provide the final decision which will be binding for the concerned parties and can only be appealed in front of the relevant appellate court if the decision is wrong in law.

The General Regulatory Chamber rules, which will govern appeals held in the FTT, can be found at: <https://www.gov.uk/government/publications/general-regulatory-chamber-tribunal-procedure-rules>.

80. Do you agree with the proposed internal review and appeals process? If not, please provide further detail.

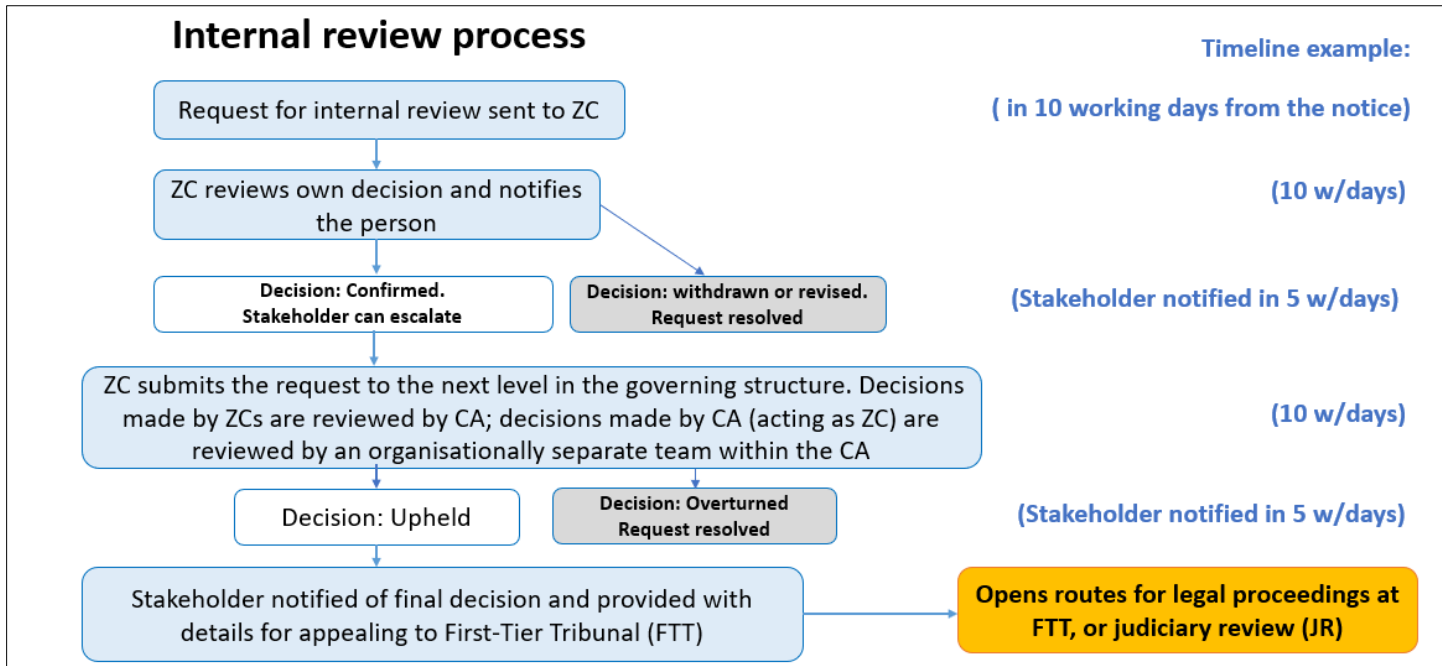


Figure 9 Internal review process for zoning decisions

Consultation questions

- 1. Do you agree with the roles and responsibilities set out for the Central Authority? If not, please set out a) which ones you disagree with and why, and/or b) additional duties you expect them to perform and why.**
- 2. Do you agree with the housing of the Central Authority within the Department for Energy Security and Net Zero, for the initial period? If not, please set out why not, what alternative you would propose, and what benefits this alternative could bring.**
- 3. Do you agree with the roles and responsibilities set out for the Zone Coordinator? If not, please set out a) which ones you disagree with and why, and/or b) any additional duties you expect them to perform and why.**
- 4. Do you agree with the suggested approach for designating Zone Coordinators? If not, please set out which aspects you disagree with and how to address them.**
- 5. Do you agree with the proposed list of Fitness to Operate Assessment criteria set out in Table 1? If not, please explain why.**
- 6. Do you agree with the Zone Coordinator governance requirements set out above? If not, please set out a) which ones you disagree with and why, and/or b) which additional requirements you consider are necessary.**
- 7. Do you agree that, longer-term, heat network developers should pay a greater proportion of the costs of Zone Coordinators related to zones they are formally engaged with? What challenges and opportunities do you see with this approach?**
- 8. Please suggest the features a building must have to be considered “heat network ready”, meaning the characteristics required to enable a future connection to a district heat network.**
- 9. Do you agree that new buildings within a zone should be required to be “heat network ready” if they cannot connect immediately on completion of construction? If not, please provide further detail, including any factors related to cost-effectiveness.**
- 10. Do you agree that all existing buildings with communal heating systems should be within the scope of the requirement to connect?**
- 11. What impacts, if any, may this have on building owners, tenants, residents and other communally heated building users? Please provide any mitigations.**
- 12. Please describe any implications for local authorities from the requirement to connect existing publicly owned, communally heated buildings to district heat networks.**

- 13. Which types of multi-unit residential buildings, if any, should be “heat network ready” following significant refurbishment? Please describe any impacts of this on owners or other users of these buildings and any appropriate mitigations.**
- 14. Please suggest how to assess the cost-effectiveness of making buildings “heat network ready” during significant refurbishment, including which costs should be considered.**
- 15. Please suggest a suitable definition of “significant refurbishment”. If possible, the definition should be unambiguous, enforceable, and definitive.**
- 16. Among the metrics listed in Table 2, which, if any, do you think should determine whether a non-communally heated, non-domestic building is within scope of a requirement to connect? Please provide alternative metrics if you disagree with those listed.**
- 17. For any additional metrics you have suggested, please describe how they are, or could be: (i) independently verifiable; (ii) made easy/simple to understand; (iii) effective in selecting relevant buildings.**
- 18. For each of the metrics you have proposed in the previous questions, please describe a suitable threshold.**
- 19. Do you agree with the proposed mechanism for activating the requirement to connect? If not, please provide alternative suggestions.**
- 20. What, if any, unintended consequences for building developers, owners, and residents, may result from requiring existing buildings to connect at a time determined by heat network developers? Describe any mitigations.**
- 21. What types of incentives could encourage connections to heat networks? For each suggestion, describe how the incentive will encourage connection, for instance by specifying which barrier to connecting.**
- 22. Do you agree with the following timings for connecting existing buildings? If not, please provide alternatives.**
 - a. 1 year for the connection window**
 - b. 6 months for the agreement period**
 - c. 2 months for the buffer period.**
- 23. Please describe any administrative burdens or other impacts on any entity which could be caused by the use of agreement and buffer periods, and describe any mitigations.**
- 24. Please indicate when you believe the following stages in the connection process should begin and end for new buildings. Please be specific by, for example, naming the stage in the development process, such as Gateway 1 or Gateway 2.**
 - a. The agreement period;**
 - b. The buffer period.**

- 25. Do you foresee the process for connecting new buildings introducing any burden or delays on the building development process? Please suggest any mitigations.**
- 26. Do you foresee any of the proposals in this consultation placing disproportionate burdens on the following? If so, indicate what the impact could be on housing supply.**
- a. Housing developers in general,**
 - b. SME housing developers.**
- 27. Do you agree that the agreement phase is an appropriate time for buildings owners to apply for exemptions? If not, please provide an alternative suggestion.**
- 28. Do you agree with that exemptions should be either temporary or conditional? If not, please provide further details or suggest alternatives.**
- 29. Should leaseholders be provided with a route for requesting an exemption? Please provide further details, such as when this may be allowed.**
- 30. How frequently should buildings holding a conditional exemption have to reapply? Please suggest a single number of years and any mitigations to reduce the burden of reapplying on building owners.**
- 31. Do you agree that building owners or developers should be able to apply for exemptions on grounds of either a) cost or b) timing? If not, please explain why.**
- 32. What costs should the Zone Coordinator consider when assessing a cost-based exemption, and what is a suitable counterfactual?**
- 33. Do you agree that an exemption extension may be granted if connecting to the heat network will increase the carbon intensity of a building's heating systems? Note, this will only apply to exemptions based on having an existing low-carbon heating system. If not, please provide further detail.**
- 34. Do you agree that corrections of misclassified buildings should occur during the agreement period? If not, please provide further detail.**
- 35. Do you think there are any other points in the requirement to connect process where a notification should be issued to a building owner? Please describe the information it should contain.**
- 36. Please provide any comments on the following potential interventions which could increase voluntary connections in zones: a) a duty to provide a simple application process and provide quotes when asked, b) a duty to offer connections to buildings, c) a duty to connect buildings who request it if they pass a fair cost test, d) any other intervention.**
- 37. Do you agree that the Zone Coordinator should be responsible for heat source investigation and preparation of a heat source report? If not, please provide further detail.**

- 38. Do you agree that heat network developers should be required to include heat source plans in their Zone Development Plans? If not, please provide further detail.**
- 39. Should owners of heat sources be able to appeal a decision requiring them to connect to a heat network or give access to a heat source? If not, please provide further detail.**
- 40. Do you agree that a) the requirement to connect should prioritise high temperature heat sources, and b) the requirement to give access should apply to low temperature infrastructure heat sources and the location specific ambient heat sources? If not, please provide further detail.**
- 41. Do you agree that this is the right general approach for the Zone Coordinator to take in assessing whether a heat source should be required to connect? If not, please provide further detail.**
- 42. Do you agree with the following proposals? If not, please provide further detail.**
- a. All consumers will be guaranteed transparency on the prices charged by heat networks.**
 - b. Standardised templates will set out how pricing should be presented to heat network customers within zones.**
 - c. Zone Coordinators will be permitted, but not required, to set pricing conditions on the award of a zone to a developer.**
- 43. Which, if any, of the three proposed emissions limits should be set as the initial limit in 2030? If none, please provide an alternative proposal for the initial limit on emissions.**
- 44. Do you agree that introducing the emissions limit from 2030 will give adequate time for heat networks to adapt? If you disagree, what would be an adequate alternative timeline?**
- 45. What would be appropriate intervals for reviewing the national zoning emissions limit?**
- 46. As a heat networks company operating heat networks:**
- a. Do you currently measure greenhouse gas emissions of your heat networks. If so, how is this done?**
 - b. Is this linked to any formal monitoring requirements, for example the UK Emissions Trading Scheme (ETS), Display Energy Certificates?**
- 47. Please provide comments, if you have any, on the above initiatives to make heat provided by heat networks affordable and any further suggestions if you have them.**
- 48. Should the zone refinement stage allow more general refinements? Please provide any specific examples of other factors which could be considered.**

- 49. Do you agree that we should not introduce any requirements around the minimum or maximum size of a potential heat network zone? If not, please provide further detail.**
- 50. Do you have views on whether and how to introduce rules regarding the aggregation of smaller indicative heat network zones?**
- 51. Please suggest any additional information which should be included in the formal notice to request information from an organisation.**
- 52. Please provide any views on types of data which could be difficult or costly to provide. Specify the type of data and which organisation would supply it.**
- 53. Do you agree that the Central Authority should review the zoning methodology every five years? If not, please provide alternative suggestions.**
- 54. What factors should the Central Authority consider when reviewing the zoning methodology?**
- 55. Do you agree that changes to the zoning methodology following a review should not apply retroactively to existing zones?**
- 56. Do you agree that a consultation period of 21 days is sufficient for the formal consultation part of heat network zone designation? If not, please provide further detail.**
- 57. Which of the following platforms should host the formal consultation: a) the zoning digital service, b) local authority or Zone Coordinator websites, c) other (please specify).**
- 58. What other information do you consider should be published prior to or during the zone designation stage?**
- 59. Do you agree with the proposed two-tier approach to classify statutory consultees? If not, please describe an alternative approach.**
- 60. Do you agree with the proposed Tier 1 and Tier 2 consultees set out in Appendix 5? If not, please provide any suggested changes.**
- 61. Do you agree with the proposal to use a competed process to confer special and potentially exclusive rights to zone developers? If not, please provide further details. Where applicable, refer to compliance with the Procurement Act and propose legally compliant alternatives.**
- 62. What stage of project development, as shown by Options 1 to 4 in Table 6, do you think that the Zone Coordinator should achieve prior to marketing the opportunity? Please set out your reasons. If you believe a different stage is required, please also set this out.**
- 63. Do you agree with these principles for evaluating commercial delivery models? Please provide your reasoning and any relevant evidence. If you believe any are unnecessary or missing please explain why.**

- 64. Do you agree that larger heat network zones could be divided into multiple smaller “Heat Network Zone Delivery Areas”? If not, please provide further detail.**
- 65. Do you agree with the option of establishing a framework for conferring zone rights for national pipeline projects as set out above? If not, please provide further detail.**
- 66. Do you agree with the option of establishing a separate framework for conferring zone rights for smaller scale projects? If not, please provide further detail.**
- 67. Do you agree with the proposed approach to incumbent networks and investment, to be used following zone designation, as set out above? If not, please provide details.**
- 68. Do you agree with the proposed approaches to zoning rights awarded prior to zone designation, as outlined above? Please set out your reasoning drawing on relevant examples if appropriate.**
- 69. Do you agree with the proposed shortlist of models: Authorisation and Consent (Proactive), Local Authority Joint Venture and both concession models (‘Time limited’ and ‘Evergreen’)? If not, please provide details and set out which models you believe better meet the principles for ‘zone delivery models’ (see page 70).**
- 70. Please provide suggestions for minimising the burden on organisations of data collection throughout the zoning lifecycle.**
- 71. Do you agree with the intended outcomes for the monitoring and reporting regime in Table 7? If not, please provide further detail.**
- 72. Do you agree that Zone Coordinators should be able to decide whether they want a heat network developer to hold a licence before applying for the right to develop in a zone?**
- 73. Do you agree with the process for zone review described in this section, including the list of relevant changes and the role of the zoning bodies? If not, please provide further detail.**
- 74. Do you agree that the Zone Coordinator and/or the Central Authority should have the power to revoke a zone?**
- 75. Do you agree with the process for revoking zones? Please provide suggestions for any further checks and balances on the zone revocation process.**
- 76. Please provide suggestions as to how the zoning bodies should respond to wider changes which may affect all heat network zones simultaneously.**
- 77. Do you agree with the suggested penalty brackets? If not, please provide further detail.**
- 78. Should penalties apply to individuals and organisations below £2 million turnover? If not, please provide further detail.**
- 79. Do you agree with the proposed methods for calculating penalties? If not, please set out details of alternative methods.**

80. Do you agree with the proposed internal review and appeals process? If not, please provide further detail.

Appendix 1 – Heat network zone archetypes

Outputs from the national zoning model, which has been developed as part of the heat network zoning pilot project, demonstrate a range of potential zone scenarios or archetypes that we expect would occur frequently across England once the model has been deployed on a national basis.

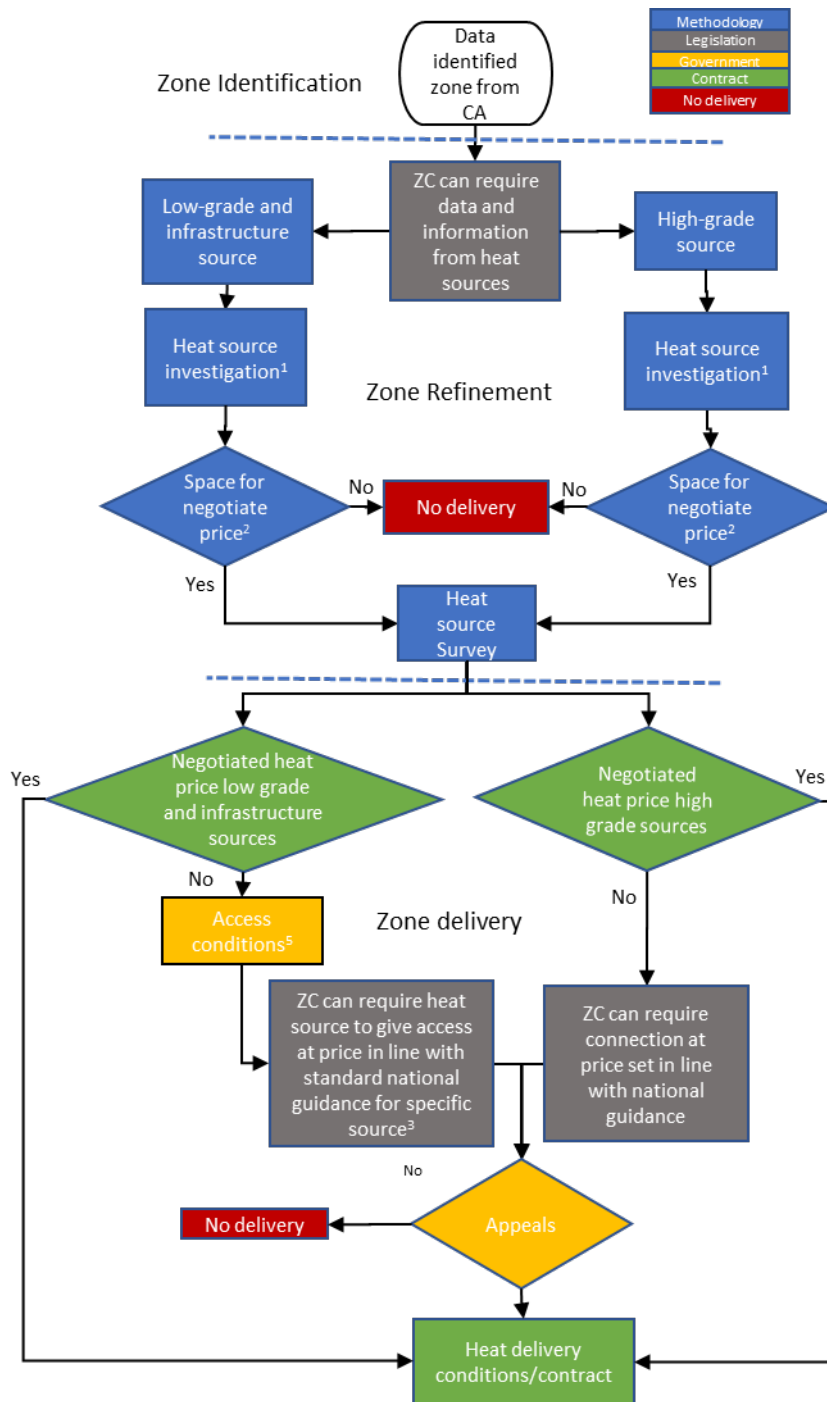
The table below describes these archetypes and potential issues they may give rise to, as well as potential mitigations which have informed policy proposals set out in the main body of this document.

Zone archetype	Description	Potential issues arising	Mitigation	Relevant policy proposal
Single / multiple incumbents	An incumbent/s has an existing network/s in an area identified as a heat network zone. This network could potentially cover the majority of the zone (in terms of numbers of buildings/proportion of heat load it connects to)	Important for the zoning model to consider the location of incumbent networks to permit correct identification of incumbency and to correctly describe the opportunity	National Zoning Model and refinement/data collection process to identify existing network locations	Zoning methodology; zone delivery/ route to market
		If the Central Authority is undertaking the Zone Coordinator role how practically will it consult the single incumbent?	Ensure defined and operational process for a national body to carry out local consultation	Zoning methodology
Large zone without anchor loads	A significant sized heat network zone without any anchor loads is identified.	Time/cost/effort involved in refinement activity is disproportionate to the benefit of	Process and criteria for agreeing that these potential zones aren't taken through zone	Zoning methodology

		the zone being developed.	refinement and designation	
		Low interest from the market, difficult to build a network in this area		
Large anchor campuses	Existing campus-based heat networks (such as at a university, prison or hospital site) in an area identified as a heat network zone	What is the benefit of large, isolated anchor loads being designated as a zone?	Process for determining whether area identified should be subject to zone refinement and designation	Zoning methodology; zoning bodies (Zone Coordinator/Central Authority role)
			Clarity re. Zone Coordinator/Central Authority role and relationship with campus owner/operator	
Cross local authority boundary zones	A potential heat network zone is identified which covers more than one local authority area.	Lack of clarity re. roles/responsibilities of individual LAs within the area	Clear process for determining who fulfils Zone Coordinator role.	Zoning bodies
Interconnection same developer	Potential interconnection of more than one proximal zone by a single developer	Lack of clarity as to whether and how zones should be interconnected (from technical and/or commercial perspective)	Ensure process addressed via zone delivery/Route to Market framework	Zone delivery
Interconnection multiple developers	Potential interconnection of more than one proximal zone by more than one developer			
Size of zone	Ensuring methodology caters	Time/cost/effort involved in	Process and criteria for agreeing	

	for different size/scale zones identified by the model	refinement activity is disproportionate to the benefit of the zone being developed.	that certain potential zones are not taken through zone refinement and designation.	Zoning methodology
		Low interest from the market, difficult to build a network in this area	De minimis threshold	

Appendix 2 – Heat sourcing process



- 1) Evaluation: Lifetime production, product durability, possible to use heat in-house, seasonal deviations, access, distance, temperature, supplier solidity, etc
- 2) Cost of producing heat < substitution price. Total investments and O&M costs for collecting the heat and transporting it to network must be below present/alternative heat price (Feasibility)
- 3) If negotiations for some reason fails, the ZC can require heat source to give access according to standard requirements for each source made by government. Only if standard requirements are available.
- 4) If heat networks expands then restarts the process.
- 5) If for the specific source there is "standard access" requirements/agreement it can be used to give heat network access to heat source

Appendix 3 – Guidance for calculating emissions and fuel factors for 2030

Greenhouse gas emissions reporting workbook for Heat Networks

1. Energy requirements – Heat networks

Fraction of heat from CHP	<i>These can be any heat generating technology e.g. gas boilers, heat pumps etc. (fractions obtained from operational records or design specification; omit line if not applicable)</i>	<input type="text"/>	(1a)
Fraction of heat from heat source 2		<input type="text"/>	(1b)
Fraction of heat from heat source 3		<input type="text"/>	(1c)
Fraction of heat from heat source 4		<input type="text"/>	(1d)
Fraction of heat from heat source 5		<input type="text"/>	(1e)

If operational measured data or network-specific estimates for 'Heat generated from heat network' is available⁽¹⁾, disregard cell (2) and input the value directly within cell (4) in kWh/year. It is therefore assumed that the value input in (4) will include Primary Distribution Losses⁽²⁾.

Distribution loss factor for heat network (from Table B) (2)

Heating
Annual heating demand (excluding primary distribution losses - this should be obtained from operational records or design specification) kWh/year (3)

Heat generated from heat network (3) × (2) = (4)

Heat from CHP	(1a) × (4) =	<input type="text"/>	(4a)
Heat from heat source 2	(1b) × (4) =	<input type="text"/>	(4b)
Heat from heat source 3	(1c) × (4) =	<input type="text"/>	(4c)
Heat from heat source 4	(1d) × (4) =	<input type="text"/>	(4d)
Heat from heat source 5	(1e) × (4) =	<input type="text"/>	(4e)

If operational measured data or network-specific estimates for 'Electricity used for heat distribution, monitoring and controls' is available, disregard cell (5a) and input the value directly within cell (5) in kWh/year.

Electrical pumping energy, system monitoring and controls as proportion of heat supplied⁽³⁾: 0.02 (5a)
Electricity used for heat distribution, monitoring and controls (5a) × (4) = (5)

2. CO₂e Emissions⁽⁴⁾ – Heat networks

CO₂e from CHP (heating): Omit (6) to (9) if no CHP

Power efficiency of CHP unit (e.g. 0.38) from operational records or design specification (6)
Heat efficiency of CHP unit (e.g. 0.40) from operational records or design specification (7)

	Energy used kWh/year	Emission factor from Table A	CO ₂ emission kgCO ₂ e/year
Heating from CHP	(4a) ÷ (7) = <input type="text"/>	× <input type="text"/> Note A	= <input type="text"/> (8)
less credit emissions for electricity	-(4a) × (6) ÷ (7) = <input type="text"/>	× <input type="text"/> Note B	= <input type="text"/> (9) ^(x)

Note A: factor for CHP fuel. Note B: factor for electricity generated by CHP.

^(x) Credit emissions for electricity (9) are to be considered as a negative value and discounted from the total CO₂e associated with the heat network

CO₂e from other sources of heating (not CHP):

Efficiency of heat source 2 (%)	<i>If there is CHP using two fuels repeat (6) to (9) for the second fuel</i>	<input type="text"/>	(10b)
Efficiency of heat source 3 (%)		<input type="text"/>	(10c)
Efficiency of heat source 4 (%)		<input type="text"/>	(10d)
Efficiency of heat source 5 (%)		<input type="text"/>	(10e)
CO ₂ e associated with heat source 2		(4b) ÷ (10b)	× <input type="text"/>
CO ₂ e associated with heat source 3	(4c) ÷ (10c)	× <input type="text"/>	= <input type="text"/> (12)
CO ₂ e associated with heat source 4	(4d) ÷ (10d)	× <input type="text"/>	= <input type="text"/> (13)
CO ₂ e associated with heat source 5	(4e) ÷ (10e)	× <input type="text"/>	= <input type="text"/> (14)

	Energy used kWh/year	Emission factor from Table A	CO ₂ emission kgCO ₂ e/year
Electrical energy for heat distribution, monitoring and controls	(5)	× <input type="text"/>	= <input type="text"/> (15)
Total CO ₂ e associated with heat networks	(8) + (9) + (11) + (12) + (13) + (14) + (15) =		<input type="text"/> (16)
Heat Network Carbon Factor	(16) ÷ (5)		<input type="text"/>

Table A: 2030 Fuel emission factors

Fuel	2030 Fuel emissions factor kgCO ₂ e/kWh	Source
Gas fuels:		
Butane	0.222	UK Government GHG Conversion Factors for Company Reporting ⁽⁵⁾
CNG	0.183	UK Government GHG Conversion Factors for Company Reporting ⁽⁵⁾
LNG	0.184	UK Government GHG Conversion Factors for Company Reporting ⁽⁵⁾
LPG	0.214	UK Government GHG Conversion Factors for Company Reporting ⁽⁵⁾
Natural gas (mains) ⁽⁶⁾	0.183	UK Government GHG Conversion Factors for Company Reporting ⁽⁵⁾
Natural gas (100% mineral blend)	0.184	UK Government GHG Conversion Factors for Company Reporting ⁽⁵⁾
Other petroleum gas	0.183	UK Government GHG Conversion Factors for Company Reporting ⁽⁵⁾
Propane	0.214	UK Government GHG Conversion Factors for Company Reporting ⁽⁵⁾
Liquid fuels:		
Burning oil	0.247	UK Government GHG Conversion Factors for Company Reporting ⁽⁵⁾
Diesel (average biofuel blend)	0.239	UK Government GHG Conversion Factors for Company Reporting ⁽⁵⁾
Diesel (100% mineral diesel)	0.252	UK Government GHG Conversion Factors for Company Reporting ⁽⁵⁾
Fuel oil	0.268	UK Government GHG Conversion Factors for Company Reporting ⁽⁵⁾
Gas oil	0.256	UK Government GHG Conversion Factors for Company Reporting ⁽⁵⁾
Petrol (average biofuel blend)	0.222	UK Government GHG Conversion Factors for Company Reporting ⁽⁵⁾
Petrol (100% mineral petrol)	0.242	UK Government GHG Conversion Factors for Company Reporting ⁽⁵⁾
Processed fuel oils - residual oil	0.268	UK Government GHG Conversion Factors for Company Reporting ⁽⁵⁾
Processed fuel oils - distillate oil	0.256	UK Government GHG Conversion Factors for Company Reporting ⁽⁵⁾
Refinery miscellaneous	0.247	UK Government GHG Conversion Factors for Company Reporting ⁽⁵⁾
Waste oils	0.256	UK Government GHG Conversion Factors for Company Reporting ⁽⁵⁾
Solid fuels:		
Coal (industrial)	0.323	UK Government GHG Conversion Factors for Company Reporting ⁽⁵⁾
Coal (electricity generation)	0.317	UK Government GHG Conversion Factors for Company Reporting ⁽⁵⁾
Coking coal	0.358	UK Government GHG Conversion Factors for Company Reporting ⁽⁵⁾
Petroleum coke	0.341	UK Government GHG Conversion Factors for Company Reporting ⁽⁵⁾
Electricity:		
Grid average consumption-based for Commercial/Public sector	0.049	Treasury Green Book - Nov 2023 - Table 1 ⁽⁷⁾
Displaced electricity generation for CHPs	0.304	Bespoke natural gas CHP analysis (<i>in line with 2021 Impact Assessment analysis and SAP 10.2 methodology, p189</i>) ⁽⁸⁾

Table B: Distribution loss factor for heat networks

Table B provides default Primary Distribution Loss Factors.

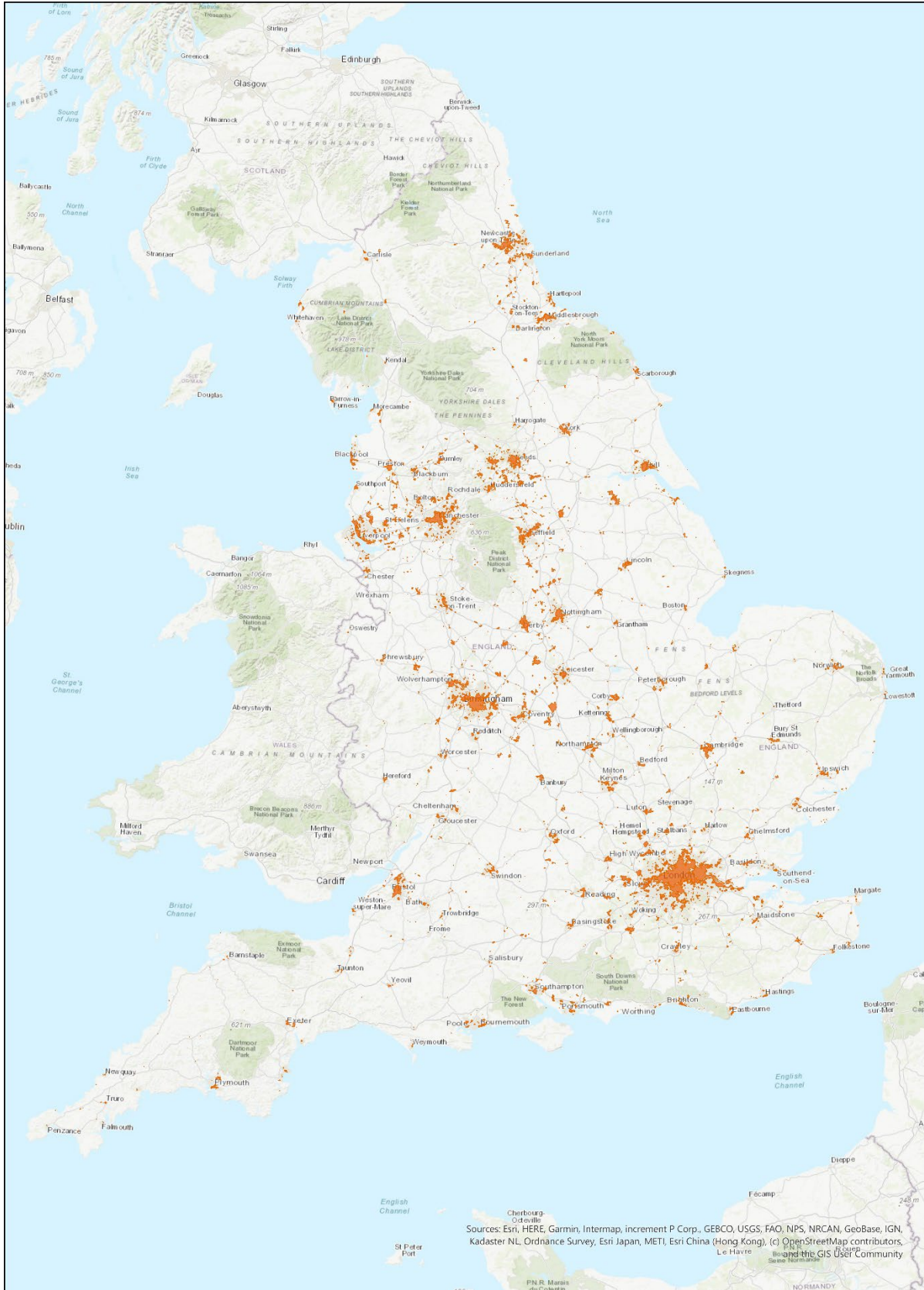
Heat network design	Primary Distribution Loss Factor
Heat network not designed and commissioned in accordance with “ <i>Heat Networks: Code of Practice for the UK</i> ” (assumed 25% primary distribution losses)	1.33
Heat network designed and commissioned in accordance with “ <i>Heat Networks: Code of Practice for the UK</i> ” (assumed 16.5% primary distribution losses)	1.20
Heat network existing or designed with 20% primary distribution losses	1.25

Note: Primary Distribution Loss Factor refers to primary distribution losses only and is based on the CP1 “Heat Networks: Code of Practice for the UK”, under the assumption that primary and secondary losses are equally split. Additionally, an option to use primary heat losses at 20% aligning with the 2021 Impact Assessment analysis assumption is provided.

Footnotes

<p>⁽¹⁾ Benchmark or default values have been provided and are to be used in cases where measured data is not currently available. Future reporting of greenhouse gas emissions (beyond this consultation) will be expected to be based on metered data specific to the network.</p>
<p>⁽²⁾ The proposed methodology for Distribution Heat Losses calculation accounts for Primary Distribution Losses only which include all heat losses associated with the primary distribution pipework from the energy centre to the building heat exchanger. Under this assumption, Secondary Heat Losses associated with secondary distribution pipework within the building are not accounted for. Feedback on this and the proposed methodology is encouraged.</p>
<p>⁽³⁾ SAP version 10.2 (11-04-2023) accounts for electrical pumping energy as a 1% proportion of heat supplied. Within this methodology electrical parasitic loads accounting for pumping energy, system monitoring and controls have been accounted together as a 2% proportion of heat supplied – aligning with the <i>2021 Impact Assessment analysis</i></p>
<p>⁽⁴⁾ Emissions factors are CO₂ equivalent, including contribution of CO₂ and other GHG gases.</p>
<p>⁽⁵⁾ Emissions factors are in line with ‘UK Government GHG Conversion Factors for Company Reporting’ and the ‘Treasury Green Book’ (Nov 2023). Values represents the kgCO₂ equivalent per kWh of fuel’s gross calorific value.</p>
<p>⁽⁶⁾ The Emission factor for standard natural gas received through the gas mains grid network in the UK. Note - contains limited biogas content.</p>
<p>⁽⁷⁾ Electricity grid average emission factor to be used for GHG (Greenhouse gases) emissions reporting and carbon foot printing. Emissions factors are per unit of electricity consumed, taking account of transmission and distribution losses post-production.</p>
<p>⁽⁸⁾ Displaced electricity generation factor for CHPs are as per ‘Modelling the impacts of additional Gas CHP capacity in the GB electricity market’ report, 2030 projection. The study models the carbon intensity of the generation displaced by additional gas CHP capacity within the UK market. As this analysis estimates a change in the UK electricity sector emissions associated with sustained marginal changes in the generation of electricity, marginal factors are utilised. The Marginal Emission Factor (MEF) represents the equivalent CO₂ intensity of the marginal unit of generation displaced by additional gas CHP generation. Separate MEFs were calculated for both CHP generation meeting onsite demand and that exported to the grid. When calculating the displaced electricity generation factor, the methodology is in line with <i>2021 Impact Assessment analysis</i> – splitting the generation to 41% meeting onsite demand and 59% exported.</p>

Appendix 4 – Initial national zoning model run



Appendix 5 – Proposed statutory consultees

Tier 1 consultees – statutory.	Tier 2 consultees – optional.
<ul style="list-style-type: none"> • Electricity distribution network operators • The Environment Agency • Existing heat network operators within a proposed zone. • Gas distribution network operators • Highways England • Homes England • Local authorities within or adjoining a potential heat network zone. • Local planning authorities, covering areas within or adjoining a potential heat network zone. 	<ul style="list-style-type: none"> • Canal & River Trust • Citizens Advice • The Coal Authority • English Heritage • Forestry Commission • The Gardens Trust • Heat Trust • Historic England • Marine Management Organisation • Natural England • Network Rail • Owners of anchor loads • Owners of heat sources • Transport for London (TfL)

Appendix 6 – Glossary

Term	Definition
Anchor load	Buildings with such significant and consistent heat demands that they are among the first to be connected to heat networks projects.
Automatic exemption	A permanent exemption granted by the Central Authority to a building that would otherwise be required to connect.
Campus heat network	A series of buildings connected to a district heat network where the building owner and heating plant owner are either the same or are related parties, for example a university, prison or hospital site.
Central Authority	A new national body that will perform zoning tasks requiring a standardised approach across England, for example the national mapping exercise. The Central Authority will also support Zone Coordinators in undertaking their functions.
Communal heat network	A type of heat network in which heating, cooling or hot water is supplied only to a single building divided into separate premises or persons in those premises.
Conditional exemption	A building that would otherwise be required to connect to a heat network may be granted a conditional exemption by the Zone Coordinator for the period during which the conditions stated in the exemption agreement remain true.
Connection window	A period of time during which a building subject to the requirement to connect must connect to the relevant heat network.
Data landscape	The totality of data generated or collected throughout the zoning process.
Department for Energy Security and Net Zero	Central government department responsible for heat network policy and delivery. See: https://www.gov.uk/government/organisations/department-for-energy-security-and-net-zero
Department for Levelling-Up, Housing and Communities (DLUHC)	Central government department responsible for local government, planning and building safety policy. See: https://www.gov.uk/government/organisations/department-for-levelling-up-housing-and-communities
Heat Network Development Partner	A heat network operator (or prospective heat network operator) that would work alongside a local authority to deliver heat networks in that zone.
District heat network	A type of heat network in which heating, cooling or hot water is supplied to two or more buildings or persons in those buildings.
Energy Act 2023	Primary legislation that provides powers for the Secretary of State to introduce heat network zoning in England, via zones regulations.

Term	Definition
Exemption (from the requirement to connect)	Zone Coordinators will issue exemptions to buildings (following successful application from a building owner) which temporarily or conditionally exempt that building from the requirement to connect to a heat network, excusing it from any duties under that requirement.
Exemption agreement	The document issued by the Zone Coordinator to the relevant heat network developer and building owner which formalises the exemption status of that building.
Exemption condition	Included in the exemption agreement for conditional exemptions. Describes the circumstances under which the building is exempt, and when the exemption no longer applies.
Fitness to operate assessment (FTOA) (for Zone Coordinators)	the process whereby the Central Authority will assess a prospective Zone Coordinator against a minimum standard before designating them as Zone Coordinator.
Green Heat Network Fund (GHNF)	A capital grant fund that supports new and existing heat networks in England to adopt low-carbon technologies such as heat pumps, geothermal, recovered heat and energy from waste. See: https://www.gov.uk/government/publications/green-heat-network-fund-ghnf
Heat main	The flow and return pipes which distribute the heated medium past all buildings which might connect to a heat network.
Heat network	A network that, by distributing a liquid or a gas, enables the transfer of thermal energy for the purpose of supplying heating, cooling or hot water to a building or persons in that building (and includes any appliance the main purpose of which is to heat or cool the liquid or gas). See also: campus heat network, communal heat network, district heat network.
Heat network investment project (HNIP)	A £320 million government funding programme that is now closed for applications. It aims to increase the number of heat networks being built, deliver carbon savings and help create the conditions necessary for a sustainable heat network market to develop. See: https://www.gov.uk/government/publications/evaluation-of-the-heat-networks-investment-project-hnip-scheme
Heat network operator	An organisation that is responsible for the day-to-day operation and maintenance of a heat network and its infrastructure
Heat network opportunity area	An area, identified by the National Zoning Model, which fulfils zone criteria and may present an attractive commercial opportunity for heat network developers but is not currently designated as a heat network zone and therefore does not confer or provide access to any zoning.

Term	Definition
Heat network supplier	An organisation that is responsible for the supply of heating, cooling or hot water through a heat network often via contractual terms to end consumers.
Heat network zone	Also referred to as a “zone”, this is an area in England that is designated as such under zones regulations by virtue of being appropriate for the construction and operation of one or more district heat networks.
Heat Network Zone Delivery Area	Smaller areas within a zone which can be granted exclusively to different companies.
Heat network zone pilot project (HNZPP)	DESNZ is working with 28 English cities and towns to develop and test the zoning methodology that will identify and designate heat network zones, using a prototype heat network zoning model to identify potential heat network zones.
Heat network zoning transition project (HNZTP)	The programme of work being undertaken in the Department for Energy Security and Net Zero to prepare for the introduction of heat network zoning. The project consists of several strands, each focussing on a different aspect of the zoning framework.
Heat networks delivery unit (HNDU)	Team within DESNZ which provides support to local authorities and others in England and Wales through the early stages of heat network development, including heat mapping, energy master planning, techno-economic feasibility and detailed project development.
Heat source report	Produced following a heat source investigation by the Zone Coordinator. The report will be included in the Zonal Market Prospectus and will include delivery temperature, delivery profile (reliability evaluation), investments costs, operation and maintenance costs, administration costs and the expected lifetime of delivery for each heat source investigated.
Incumbent	A heat network that is already operating or developing in a Zone, prior to the introduction of zoning.
Indicative heat network zone	The map and data produced by the National Zoning Model (NZM) which have yet to undergo refinement.
Local Area Energy Planning (LAEP)	a new, technical evidence-based process designed to deliver effective local action to contribute to the UK’s net zero 2050 emissions target.
Local Plans	Local Plans, prepared by a local planning authority in consultation with its community, set out a vision and a framework for the future development of an area.
National zoning model (NZM)	A data-led spatial energy model developed by the Centre for Sustainable Energy for DESNZ to support the identification of indicative heat network zones across England.

Term	Definition
Ofgem	Office of Gas and Electricity Markets. Independent regulator governed by the Gas and Electricity Markets Authority (GEMA).
Optional Structure	A model of Zone Coordinator governance whereby the Zone Coordinator develops a bespoke standalone system and exists as a separate legal entity to local government.
Principal Structure	A model of Zone Coordinator governance whereby the Zone Coordinator of a zone sits within local government structures whilst operating independently.
Refined heat network zone	The map and data produced following the refinement stage of the zoning methodology which will proceed to zone designation.
Relevant changes	Zone reviews may only occur following a pre-defined relevant change in local conditions. The list of relevant changes will be included in the zoning methodology.
Requirement to connect buildings	The Zoning Regulations will include a power to require certain buildings in zones to connect to a heat network subject to certain criteria.
RIBA 4 design	A design stage after which all design information required to manufacture the project is completed.
Statutory consultee	Individuals or entities that the Zone Coordinator must consult during the consultation part of the zone designation process.
Suitable delivery milestone	A stage in the delivery of a heat network project where there is reasonable confidence of connecting a specific building.
Techno-economic modelling	The process of estimating the technical and economic performance of a proposed or envisioned project.
Temporary exemption	A Zone Coordinator may grant a building a temporary exemption from the requirement to connect if that building cannot viably connect to the heat network within the specified connection window.
Voluntary connection	Any connection of a building to a heat network within a zone that occurs outside of the requirement to connect.
Wet heating system	A heating system which distributes heat using water, rather than forced air or by directly heating the air by electricity.
Zonal market prospectus	A report prepared by the Zone Coordinator of a zone which outlines the development opportunities available and provides information about that Zone Coordinator's preferred delivery model.
Zone Coordinator	New bodies established to lead on local implementation of zoning policy within a zone. They will perform functions such as zone refinement, consultation with buildings and organisations within a zone, and managing procurement processes.
Zone delivery	The process for deciding what heat networks will be built in a designated heat network zone, where and by whom.

Term	Definition
Zone Delivery Area	See: Heat Network Zone Delivery Area
Zone designation	The process, conducted by the Zoning Bodies, of consulting on and officially confirming the boundaries of a Heat Network Zone.
Zone Developer	A heat network operator that is awarded the rights to develop a specific Zone by the Zone Coordinator.
Zone development plan	Plans prepared by prospective Zone Developers setting out how they intend to develop a Heat Network Zone or parts thereof.
Zone identification	The process by which the Zoning Bodies will identify Heat Network Zones using the National Zoning Model.
Zone lifecycle	The whole process of heat network zoning, starting at zone identification and refinement, and ending at zone review.
Zone operation	The stage in the zoning lifecycle following zone delivery. During this phase, Zone Developers will construct new infrastructure, make new connections, and maintain and operate the heat networks on an ongoing basis.
Zone refinement	A process to refine the borders of an indicative Heat Network Zone produced by the National Zoning Model. Zone refinement produces a refined heat network zone, which may then proceed to zone designation.
Zone review	The process, conducted by a Zone Coordinator, of reassessing the boundary of an existing zone in the event of changes in local circumstances.
Zone revocation	The decision by the Central Authority, followed by an investigation involving both Zoning Bodies, to remove the designation of a zone or part of a zone.
Zone rights	A Zone Coordinator's consent to design, construct, operate and/or maintain heat networks within a heat network zone as required by the Energy Act 2023
Zoning Bodies	The Central Authority and the Zone Coordinators.
Zoning digital service	An online portal for information about zoning, both in general, and for information about specific zones.
Zoning enforcement regime	A regime carried out by the Zone Coordinator to ensure that relevant zoning participants perform the duties placed on them by the heat network zone regulations.
Zoning methodology	The standardised national methodology for to identifying areas which may be designated as heat network zones.
Zoning regulations	Secondary legislation that provides the legal basis for the heat network zoning policy framework. We intend to introduce zoning regulations to Parliament in 2024, or when parliamentary time allows.

This consultation is available from: www.gov.uk/government/consultations/proposals-for-heat-network-zoning-2023

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