

# Draft Heat Networks Delivery Plan

November 2021



Scottish Government  
Riaghaltas na h-Alba  
gov.scot



# Content

<b>Executive Summary</b>	<b>1</b>
Part 1 – Draft heat networks delivery plan	1
Part 2 – Heat network regulatory policy options	5
<b>Introduction to Consultation Document</b>	<b>7</b>
Part 1 – Draft Heat Networks Delivery Plan	7
Part 2 – Heat Network Policy Proposals	7
Next Steps	7
<b>Part 1: Draft Heat Networks Delivery Plan</b>	<b>8</b>
<b>Chapter 1: Introduction</b>	<b>9</b>
Impact assessments	10
<b>Chapter 2: Ambition &amp; targets</b>	<b>12</b>
Ambition	12
Targets to 2027 and 2030	12
Future target setting	12
Contribution to emission reduction targets	13
Contribution to eradicating fuel poverty	14
<b>Chapter 3: Regulatory regime: Heat Networks (Scotland) Act 2021</b>	<b>15</b>
Driving growth	16
Implementing the 2021 Act	16
Building assessment & zoning	16
Licensing, consenting and permitting	18
Transfer schemes	19
Local authority cost strategy	20
Decarbonising existing heat networks	20
Consumer protection and alignment with UK legislation	21
<b>Chapter 4: Guiding development</b>	<b>23</b>
Identifying areas suitable for heat networks	23
Building Connection Hierarchy	24
Draft National Planning Framework 4	25
Demand assurance	25
<b>Chapter 5: Wider policy framework</b>	<b>27</b>

Waste and surplus heat	27
Skills and supply chain	28
Non-domestic rates	29
<b>Chapter 6: Capital programmes and delivery mechanisms</b>	<b>30</b>
Project development	30
Capital support	30
Green growth accelerator	31
Building level support	31
National Public Energy Agency	32
<b>Chapter 7: Monitoring and reporting</b>	<b>33</b>
Review of the Delivery Plan and reporting progress against targets	33
Monitoring the wider heat networks sector	33
Data for reporting and monitoring	34
<b>Part 2: Heat Network Regulatory Policy Options</b>	<b>35</b>
Heat network regulation: initial policy options	36
Building assessment reports	36
Heat network licensing	37
Licensing authority	38
Heat network consent	38
Consent authority	38
Heat network zone permits	41
Length of a heat network zone permit	42
Heat network permitting process	42
Large scale thermal storage	43
<b>Annex A: Summary of Consultation Questions</b>	<b>45</b>
Part 1: Draft Heat Networks Delivery Plan	45
Part 2: Heat Network Regulatory Policy Options	46
<b>Annex B: Responding to this Consultation</b>	<b>48</b>
<b>Annex C – Glossary of Terms and Acronyms</b>	<b>52</b>

# **Executive Summary**

## **Background and consultation**

The Heat Networks (Scotland) Act 2021 (the 2021 Act) commits the Scottish Government to publishing a heat networks delivery plan (HNDP) by 1 April 2022, and to consulting with necessary persons before doing so. This consultation document first outlines a draft HNDP, setting out how the provisions of the 2021 Act will contribute to increasing heat networks in Scotland. Following this, a range of proposals relating to a heat networks regulatory framework, to become operational by 2024, are set out. Feedback is sought on these to support the development of more detailed proposals for further consultation.

## **Part 1 – Draft heat networks delivery plan**

### **Ambition and targets**

The 2021 Act sets targets for the amount of heat to be supplied by heat networks, requiring this reaches 2.6 Terawatt hours (TWh) (3% of current heat demand) by 2027, and 6 TWh (8% of current heat demand) by 2030. Beyond this, Scottish Ministers are required to set a target for 2035. This target will be consulted on in early 2023, and confirmed by 1 October 2023. We are currently seeking views on what should be considered when setting this target.

Heat networks will form an important part of Scotland's overall heat decarbonisation programme, and to better understand how their development may contribute to our greenhouse gas targets, we will develop different scenarios around types of buildings and processes.

We are committed to ensuring that heat in buildings programmes align with our fuel poverty targets. As such, we will work with the Scottish Fuel Poverty Advisory Panel to ensure that the HNDP supports efforts to eradicate fuel poverty and does not adversely impact those in or at risk of fuel poverty.

### **Regulatory regime**

Building assessment reports (BARs) will be required for public-sector non-domestic buildings, to assess their suitability for heat network connection. This will feed into the review and designation of heat network zones – which are areas particularly suitable for heat network development and operation.

The introduction of heat network licensing could potentially help to build trust in the market, and heat network consents will be introduced to ensure that heat networks meet local and national objectives. Additionally, the 2021 Act introduces heat network permits, building on the designation of heat network zones by providing the permit authority with the power to issue permits within these zones. We are proposing permits be awarded via competition to a single, winning bidder thereby providing exclusivity for a specified number of years.

The 2021 Act also introduces transfer schemes, ensuring continuity of supply for consumers and enabling a smooth transition between operators in the event that an operator ceases to trade. Development of transfer schemes will be dependent on consents and heat network permits, so we are proposing that detailed provisions be developed once other systems are operational.

We will publish a Local Authority Cost Strategy prior to the regulatory system becoming operational in 2024, and will work with local authorities and stakeholders to ensure the provision of relevant resources in order for local authorities to meet their duties under the 2021 Act.

From the time that the legislative framework is in place, new heat networks, and additional plants for extensions, will need to be powered using low and zero emissions heat sources. We are proposing that licence holders will have to prepare and implement a Heat Network Decarbonisation Plan between 1 and 3 years of a licence being granted. We will commission work to test and develop an approach to these plans in 2022.

Consumer protection remains reserved to the UK Government, who will appoint Ofgem as heat networks regulator under the Great Britain-wide Heat Network Market Framework. We continue to engage closely in discussions with the UK Government to identify the optimum legal mechanism to allow Scottish Ministers to appoint Ofgem as the regulator within Scotland, allowing consumer standards to be incorporated into the Scottish regulatory system seamlessly.

## **Guiding development**

We are currently undertaking a First Nationwide Assessment to identify potential heat network zones across Scotland, where heat networks can be considered a suitable long-term solution. Outputs from this assessment will be published in early 2022. To guide the development of heat networks within

zones, we are proposing a Building Hierarchy which prioritises the connection of existing buildings based on their size, heat demand and ownership.

Recognising that sufficient levels of demand assurance are a gap within the overall picture of heat networks, we are proposing several measures to support confidence in future revenues for investors. Specifically, we will introduce a new Build Heat Standard requiring new buildings consented from 2024 to install only zero direct emission heat sources, and, subject to devolved competence, bring forward regulatory proposals to require the installation of zero or very near zero emissions heating systems in existing buildings. In addition, we will consult in 2022 on a series of phased targets and new funding to support all publicly owned buildings meeting net zero heating requirements by 2038. We remain committed to consulting on proposals, subject to legal competence, to address the issue of demand assurance. In doing so, we will consider the UK Government's proposals to mandate connection to heat networks in England and Wales.

### **Wider policy framework**

Recognising that surplus or waste heat is not fully utilised in Scotland, by Winter 2022/23 we will make available to local authorities further information on the availability of surplus or waste heat, to support the identification of heat network zones and development of Local Heat and Energy Efficiency Strategies (LHEES). Additionally, in 2021-22 we will engage with stakeholders, consulting where relevant, on whether further measures are needed to increase the utilisation of surplus or waste heat via heat networks.

Unlocking investment in the supply chain must start with clear demand for its products and services. Heat networks will create new demands on supply chains in Scotland, and to better understand this challenge we commissioned research by the Energy Saving Trust to identify Scottish skills gaps and training needs. We have also partnered with Scottish Renewables and Skills Development Scotland to undertake an assessment of workforce growth and transitions.

The Non-Domestic Rates (District Heating Relief and Renewable Energy Generation Relief) (Scotland) Amendment Regulations 2021 introduced a 90% relief from non-domestic rates until 31 March 2024 for new networks run from renewable sources, helping to support the business case for new networks by reducing their operational costs. This is additional to the existing 50% relief for all heat networks, which is guaranteed to remain in place until 2032.

## **Capital programmes and delivery mechanisms**

It is essential that we invest in the development of a project pipeline in order to accelerate the development and growth of heat networks in Scotland. We will publish a Heat Networks Investment Prospectus during the next financial year to demonstrate the size and location of heat network opportunities, along with information on decarbonisation of existing networks. We will also announce next steps to establish a Heat Network Pre-Capital Support Unit this year, initially building on our partners expertise to drive project development building to a new unit during 2022, expanding on the previous role of the Heat Network Partnership.

Over this parliamentary session, we will invest £400 million to support the development of large-scale heat infrastructure, such as heat networks, through the successor to the Low Carbon Infrastructure Transition Programme. We are seeking feedback on how financial mechanisms can help support the development of low and zero carbon heat networks.

The Green Growth Accelerator programme is a revenue financial model designed to encourage local authorities to drive transformation, which was launched in June 2021. It aims to unlock £200 million of low carbon capital investment to support the transition to net zero.

We are committed to establishing a National Public Energy Agency to accelerate the transformational change in how we heat and use energy in homes and buildings. To achieve this, the Agency will have a remit to raise public understanding and awareness, coordinate delivery of investment, and coordinate national, regional and local government delivery of heat decarbonisation and energy efficiency rollout. We will establish the Agency first as a virtual agency and transition to a dedicated body by September 2025. We will set out the role of the Agency in delivering support for heat networks in the coming months.

## **Monitoring and reporting**

As required by the 2021 Act, the HNBP will be reviewed every 2 years, and we will report on the heat output of heat networks as well as emissions savings. To support this, data reporting requirements for heat networks will be developed as part of work on the regulatory regime. These will be consulted on in due course. We are also proposing that several other key parameters are monitored to further our understanding of the heat network sector as it develops.

## **Part 2 – Heat network regulatory policy options**

### **Building assessment reports**

We are proposing that the requirement to undertake building assessment reports is extended to other non-public sector non-domestic building owners, in order to assist in the identification of suitable anchor buildings. We also recognise, however, that not all non-domestic buildings will be suitable to act as anchor buildings, and are seeking views on exemptions for certain buildings and a phased requirement for others.

### **Licensing**

Recognising the varied nature of the heat networks market across Scotland, we are asking for views on how we might ensure proportionality within a licensing system. We are proposing that this could be achieved through fees, exemptions, or conditions attached to licences.

### **Heat network consent**

The 2021 Act creates the role of consent authority, responsible for awarding and enforcing heat network consents. Scottish Ministers automatically take on this role, however local authorities can request to become the consent authority for their own area. We are proposing that the Scottish Government's Energy Consents Unit take on the role in the first instance, and that once established it may be appropriate for local authorities to take over.

The 2021 Act provides flexibility to enable the consents system to account for varied operations, allowing Ministers to determine the form and manner in which relevant applications are to be made. In this vein, we are seeking views on whether certain heat network projects should be exempt from the requirement to hold a consent, or only be required to provide limited information in the consent application.

### **Heat network zone permits**

We would welcome views on which national body may be suitable for the role of permit authority, which could be undertaken by Scottish Ministers directly or by a third party. We are also seeking views on the duration of permits, which we anticipate could be between 25 and 40 years. Finally, we are considering how the permitting process will operate, and consulting on how best to balance the interests of the customer and network operator.

## **Large scale thermal storage**

We understand that thermal storage could potentially constitute an important part of our heat decarbonisation programmes, and are undertaking research into the role of energy storage in the electrification of heat, looking specifically at buildings and heat networks. We are seeking views on whether measures should be introduced as part of regulatory or support systems to encourage inter-seasonal thermal storage.

## **Introduction to Consultation Document**

This consultation seeks views on the Draft Heat Networks Delivery Plan (HNDP), as required by the Heat Networks (Scotland) Act 2021, as well as on policy proposals relating to aspects of the emerging regulatory regime. It is divided into two parts.

### **Part 1 – Draft Heat Networks Delivery Plan**

Part 1 of this consultation sets out a draft HNDP as required by Section 93 of the Heat Networks (Scotland) Act 2021.

It outlines in draft how the provisions of the 2021 Act, and any other supporting policies, will contribute to increasing the use of heat networks in Scotland and sets out the proposed approach that the Scottish Ministers intend to take to increase the use of heat networks in Scotland; how the statutory targets will be met; as well as how progress will be measured and the contribution that heat networks will make toward meeting the emission reduction targets.

### **Part 2 – Heat Network Policy Proposals**

Part 2 seeks views on a range of issues and aspects of the regulatory framework, including on the licensing, consenting and heat network zone permits as well as large scale thermal storage. Feedback will support the development of more detailed proposals for consultation in due course.

### **Next Steps**

You will find consultation questions at key points throughout this document requesting feedback on different elements of the draft plan (Part 1) and policy proposals (Part 2). The consultation is open until 13 December 2021. Information on how to respond to this consultation is provided in Annex B. We will use the consultation responses we receive to further develop the delivery plan and associated regulations and policy. The final version of the plan will be published by 1 April 2022.

## **Part 1: Draft Heat Networks Delivery Plan**

## Chapter 1: Introduction

Early this year the Scottish Parliament passed the Heat Networks (Scotland) Act 2021 (hereafter referred to as the “2021 Act”) creating for the first time in Scotland, and the United Kingdom, legislation intended to support and encourage the development of communal and district heat networks.

Heat networks are an established technology and are common in the Nordic countries and across much of Northern Europe. In Scotland they are currently less common and at present<sup>1</sup> there are an estimated 1,080 heat networks supplying heat to domestic and non-domestic properties. Around 30,000 homes and 3,000 non-domestic properties are connected to heat networks. The latest figures suggest that heat networks in Scotland supply upwards of 1.18 TWh of heat<sup>i</sup>.

### **What is a heat network?**

Heat networks, as defined under the 2021 Act, include both district and communal heating:

- a district heat network is defined as a network by which thermal energy is distributed from one or more sources of production to more than one building
- a communal heating system is a system by which thermal energy is distributed from one or more sources of production to one building comprising more than one building unit

A heat network, despite its name, can provide both heating and cooling. Heat networks operate at a range of temperatures: third and fourth generation systems generally provide hot water at between 60 and 100 degrees Celsius and fifth generation systems generally operate at temperatures of up to 45 degrees Celsius. They can also provide steam for industrial processes.

Heat networks, depending on their fuel source, can help reduce greenhouse gas emissions. They can also, in certain circumstances, reduce energy bills helping to tackle fuel poverty. As such heat networks have an important role to play in meeting the targets set out in the Heat in Buildings Strategy<sup>ii</sup>, including contributing to ensuring that at least 1 million homes, and the equivalent of 50,000 non-domestic buildings are connected to zero emission heating systems by 2030.

---

<sup>1</sup> The latest available figures are based on 2018 data.

How big a role, beyond the 2030 target of the 2021 Act, will depend on a number of factors including location and viability relative to other zero emission solutions. However, the recent report Opportunity Areas for District Heating in the UK<sup>iii</sup> estimated that by 2050 heat networks may be suitable for providing up to 28% of heat demand in Scotland.

Heat networks are a heat supply technology and can be powered by a range of different technologies. For example, they can use heat generated from gas or biomass fired combined heat and power (CHP) engines, electrically driven heat pumps or utilise surplus or waste heat such as from industrial processes, data centres or from Energy from Waste facilities. The design of heat networks enables new heat sources to be added in the future. As such, heat networks are a low or no regret technology and compatible with both electrification and hydrogen scenarios for heat supply in the future. Heat networks can also have an important role in balancing wider energy networks, helping to store energy and make use of constrained renewable electricity generation.

Section 93 of the 2021 Act requires Scottish Ministers to prepare a heat networks delivery plan, setting out how the provisions of the 2021 Act, and any other supporting policies, will contribute to increasing the use of heat networks in Scotland. Specifically, a heat networks delivery plan must set out:

- the approach the Scottish Ministers intend to take to increase the use of heat networks in Scotland
- how the Scottish Ministers propose to meet the targets specified
- how output from heat networks will be measured
- how the deployment of heat networks will contribute to meeting emission reduction targets

## **Impact assessments**

Alongside consultation on the draft Heat in Buildings Strategy we have been working with stakeholders to develop a series of impact assessments, which have been published recently:

- equality impact assessment (EQIA)<sup>iv</sup>
- islands communities impact assessment (ICIA)<sup>v</sup>
- fairer Scotland duty (FSD)<sup>vi</sup>
- child rights and wellbeing impact assessment (CRWIA)<sup>vii</sup>
- business and regulatory impact assessment (BRIA)<sup>viii</sup>

We will take them into account as we continue to develop the HNBP.

For the Heat in Building Strategy we also conducted a Strategic Environmental Assessment to identify the likelihood of significant environmental impacts – positive or negative – that could arise from the policies and programmes covered by the Strategy. This included the production of an Environmental Report which was published during the consultation phase. We will publish a Post Adoption Statement, setting out how the findings of the Environmental Report and consultees' views on both the Environmental Report and draft Strategy, have been taken into account in the finalisation process. This will be published as soon as possible, and made available through the SEA Database.

An Island Communities Impact Assessment<sup>x</sup> and an Equalities Impact Assessment<sup>x</sup> were also published during the passage of the Heat Networks (Scotland) Bill.

We will assess whether there is need for additional impact assessments beyond those carried out for the Heat in Buildings Strategy and the Heat Networks (Scotland) Bill during the consultation phase of this work.

As we deliver the policies set out in the draft HNBP, we will give due regard to equalities, and shall not unfairly discriminate based on any protected characteristics, or particular challenges faced as a result of geography or connectivity (such as on islands).

Q1: In your opinion, could any of the proposals set out in this plan unfairly discriminate against any person in Scotland due to a protected characteristic? (Protected characteristics are age, disability, sex, gender reassignment, marriage and civil partnership, pregnancy and maternity, race, religion or belief.)

Q2: In your opinion could any of the proposals set out in this plan have an adverse impact on children's rights and wellbeing?

## Chapter 2: Ambition & targets

### Ambition

Our ambition is for a heat networks sector that:

- delivers affordable clean heat supporting delivery of emission reduction and fuel poverty targets
- develops local supply chains and attracts new public and private investment
- contributes to the development, and operation, of an integrated and resilient energy system

### Targets to 2027 and 2030

The 2021 Act sets statutory targets for the amount of heat to be supplied by heat networks, requiring the combined supply of thermal energy by heat networks to reach 2.6 TWh of output by 2027 and 6 TWh of output by 2030. This is 3% and 8% respectively of current heat demand<sup>2 3</sup>. As heat networks can provide heat to homes, workplaces, and industry the targets could be met with a range of outcomes in terms of the numbers of these types of buildings and processes that are connected.

The targets are broadly equivalent to 120,000 and 400,000 average gas using homes being connected to heat networks for 2027 and 2030 respectively. As multi-building heat networks are generally anchored around large non-domestic buildings, which account for a significant portion of the heat supplied, these figures should only be considered illustrative. It is likely that the number of domestic connections will be lower, with early network development focused on connections to non-domestic properties to secure anchor buildings. More detailed scenarios including non-domestic supply will be developed in due course.

### Future target setting

The 2021 Act requires Scottish Ministers to set a target for 2035, in addition to the 2027 and 2030 targets.

---

<sup>2</sup> Total domestic, industrial and commercial non-electrical heat demand.

<sup>3</sup> The Climate Change Committee estimated in 2015 that with government support, heat networks could provide 18% of UK heat demand by 2050 in a least-cost pathway to meeting UK carbon targets.

We will consult on a proposed 2035 target in early 2023, which will be informed by the Potential Heat Network Zones: First National Assessment (see Chapter 4) and work carried out to develop Local Heat and Energy Efficiency Strategies (LHEES). We will set the 2035 target by 1 October 2023. Chapter 7 sets out how we intend to measure the targets set and to begin to improve monitoring of these.

Q3: In your view, what should be considered in setting the 2035 heat network supply target?

**Box 1: What is an anchor load?**

Buildings with a large, reliable and long-term demand for heat, often with a stable and constant use profile, can act as anchors for a developing district heating network. Examples include hospitals, swimming pools and high-density housing. These anchor loads allow such district heat networks to operate efficiently and provide the potential to extend the network to smaller existing heat users in the area.

## Contribution to emission reduction targets

Emissions reductions as a result of expansion and development of heat networks will vary depending on:

- the buildings they supply, including whether they are existing or new, and whether the heat network is replacing existing fossil fuel heating systems and
- the heat source(s) of the heat network the building connects to.

Research to inform the Heat Networks (Scotland) Bill found that a CHP heat network powered by natural gas with gas backup boilers could result in emission saving of up to 23%, depending on a number of factors including what it is replacing. However, as set out in the Heat in Buildings Strategy and Chapter 3 below, from the point that the heat network legislative framework is in place new heat networks, and any additional heat plant for extensions of heat networks will need to be powered using low and zero emissions sources of heat. Therefore we would expect them to generate significant emissions savings, beyond those from gas fired CHP networks. To provide an example of this, assuming that heat pump powered heat networks replaced 6 TWh of heat from individual gas boilers the savings are broadly estimated to be 1.1 MtCO<sub>2</sub>e per year in 2030<sup>4</sup>.

---

<sup>4</sup> Source: Scottish Government estimate using BEIS' 2018 energy and emissions projections for grid emissions intensity, 8% distribution losses and a co-efficient of performance of 2.7.

Developing scenarios around types of buildings and processes that might connect to heat network targets (as above), will provide data to allow us to better identify how targets might contribute to greenhouse gas emissions targets, and ensure that secondary legislation is developed appropriately.

## **Contribution to eradicating fuel poverty**

Heat networks can, under certain conditions, help to reduce expenditure on heating. The Competition and Markets Authority found that up to 90% of heat network customers enjoy similar, or lower, bills than those with standard gas boilers<sup>xi</sup> and heat networks can cut both emissions and bills.

The cost of operating a heat network, and so the costs passed onto consumers, in part relate to the wholesale cost of any energy input for the heat source. As such the operating costs can fluctuate along with gas and electricity prices, where they are used. There are examples<sup>5</sup> of heat networks in Scotland and further afield which use a mix of heat sources and large scale storage to reduce customers heat costs.

The Heat in Buildings Strategy<sup>xii</sup> has set out guiding principles to ensure alignment of heat in buildings programmes with fuel poverty objectives<sup>6</sup>. We will use these principles in developing regulation and to guide the operation of our capital programmes.

We will work with the Scottish Fuel Poverty Advisory Panel as we bring forward regulation under the 2021 Act so that it supports efforts to eradicate fuel poverty and to ensure it does not adversely impact those in or at risk of fuel poverty. Furthermore, we will work with the Advisory Panel to identify where heat networks could help to reduce the depth and rate of fuel poverty, contributing to meeting our ambitious targets.

We will set out our approach to eradicating fuel poverty in the Fuel Poverty Strategy by the end of 2021. This will consider all four drivers of fuel poverty – low household income, high household energy prices, poor energy efficiency of the home, and how energy is used in the home.

Q4: Are there particular approaches or measures that could be taken through our proposals in this plan to reduce the depth and rate of fuel poverty? This could for example consider the approach of the heat network licensing authority or measures through our funding programmes?

---

<sup>5</sup> Examples include heat networks in Lerwick, Skagen, 8 others in Denmark associated with solar thermal and large scale storage including in Silkeborg.

<sup>6</sup> See Chapter 2, Contribution to eradicating fuel poverty section.

## Chapter 3: Regulatory regime: Heat Networks (Scotland) Act 2021

In February 2021, the Scottish Parliament unanimously passed the 2021 Act which is a first of its kind in the United Kingdom and aims to accelerate the deployment of heat networks in Scotland through the introduction of a regulatory system aimed at boosting confidence in the sector and providing greater certainty for investors.

The 2021 Act introduces:

- **building assessment reports (BAR):** a requirement relating to non-domestic buildings to assess the suitability to connect to heat networks. This applies to the public sector and may, with secondary legislation, extend to other non-domestic buildings
- **heat network zones:** requiring the review and designation of areas particularly suitable for heat network development and operation across Scotland
- **heat network licences:** regulating the market so that homes and businesses are supplied by solvent, fit and proper operators, while requiring networks to be developed and maintained to high standards
- **heat network consents** to build or operate heat networks: including creating a bespoke system of scrutiny for new networks, to ensure that they can contribute to climate change and fuel poverty targets, before they are consented for development
- **heat network permits:** attracting new, and lower cost investment in the sector by awarding these long-term permits to develop and operate in the most opportune areas. This will help provide some longer term assurance about the customer base available
- **powers for licence holders:** granting new rights for heat network operators – such as wayleaves, compulsory purchase, road works and surveying rights – to reduce the costs and time involved in construction and maintenance
- **a heat networks assets schedule and transfer scheme:** require heat networks to have a scheme in place to transfer operational rights to a third party to ensure sustained supply, if and when needed

The 2021 Act also includes a number of wider aspects, such as targets and reporting covered in other chapters.

We will work with the heat networks sector and local government as we develop detailed regulations and aim to put in place a functioning regulatory system, subject to public consultation, by 2024.

## Driving growth

Overall the 2021 Act provides a clear signal to the heat networks market, property developers and the wider heat supply industry that heat networks are set to become a core component of the nation's heat supply. It acts as a central point of focus.

Beyond that, each of the 2021 Act's provisions is a building block for growth. Licensing could help better govern and de-risk the sector as well as provide rights similar to other utilities helping to reduce costs; zoning and consenting will guide development to the most strategically viable locations; and permits will provide long-term certainty to operators. Table 1 over the page provides a summary of how each provision will support growth of the sector.

## Implementing the 2021 Act

The 2021 Act is comprehensive in coverage and is intended to provide a flexible framework which can grow in line with the sector, being adapted over time as required. As such, on day one we do not envisage needing to switch on all provisions and expect the full regulatory regime to take time to fully establish as the sector grows.

We propose that there are three stages in setting up a functioning regulatory regime:

1. building assessment & zoning
2. licensing, consenting & permitting
3. transfer schemes

Consenting and permitting provision will also result in the need to provide information about heat networks including key asset information as part of consenting. There are licensing powers within the 2021 Act for licence holders (such as statutory undertaker rights).

More detail on each of these aspects is set out in the chapter below.

Q5: Do you agree or disagree with the order of the three stages identified above for setting up the regulatory regime? Please explain.

## Building assessment & zoning

To be efficient, economically viable and deliver value for money, heat networks need to be well located. This means being in areas with sufficient

**Table 1: How does the act support growth of the heat networks?**

Building assessment reports	<ul style="list-style-type: none"> <li>✓ Support growth by providing vital data for heat network zoning and initiate consideration for connection to a heat network by non-domestic buildings</li> </ul>
Heat network zones	<ul style="list-style-type: none"> <li>✓ Identify the opportunity areas to parties interested in developing a heat network</li> <li>✓ Ensure that heat networks are developed in most appropriate areas to maximise benefit for investors but more importantly to drive the prices down for its users</li> </ul>
Heat network licences	<ul style="list-style-type: none"> <li>✓ Improve users' trust in heat networks</li> <li>✓ Ensure that existing heat networks move to zero carbon heat generation in a gradual and managed way so that they are part of our net zero future</li> <li>✓ Provide certainty to investors that only fit and proper companies operate heat networks in Scotland</li> </ul>
Heat network consents	<ul style="list-style-type: none"> <li>✓ Through community engagement reports ensure local communities are aware of and influence any plans for heat network development which can support securing future users for heat networks</li> <li>✓ With scrutiny of proposed projects ensure that they are in line with local and national objectives therefore flagging up any challenges in the process and supporting them to rectify any problems in the application process which should minimise costs of new developments in later stages</li> </ul>
Heat network zone permits	<ul style="list-style-type: none"> <li>✓ Support growth by providing an exclusive access to consumer base within a heat network zone which will help with securing sufficient heat demand to use economies of scale and drive down the cost of investment</li> <li>✓ Help in driving investment to high opportunity areas and increasing the speed of heat network deployment in Scotland</li> </ul>
Powers for licence holders	<ul style="list-style-type: none"> <li>✓ Level the playing field with other utilities, by ensuring heat networks have the same powers as other regulated entities</li> </ul>
Assets schedule and transfer scheme	<ul style="list-style-type: none"> <li>✓ Ensure transparency of responsibilities in an event of heat network ceasing to operate which should provide certainty to the potential customers who rely on security of heat supply</li> </ul>

heat demand and density to enable optimal performance. It also means securing appropriate connections to “anchor” the network and provide a degree of demand certainty.

In order to identify appropriate anchor buildings (see Chapter 2) and inform heat network zoning, Part 5 of the 2021 Act places a requirement on persons either owning or with interest in a non-domestic building to prepare a building assessment report, to consider the viability of connecting the building to a heat network and then assess the period for which any system providing thermal energy to the non-domestic building is expected to continue to operate effectively and efficiently.

Part 3 of the 2021 Act requires the review and designation of areas particularly suitable for heat network development and operation across Scotland.

Together Parts 3 and 5 of the 2021 Act are a key first step in developing a long term project pipeline for heat network development in Scotland and as such we believe they should be introduced prior to other elements of the regulatory package in the 2021 Act.

We are currently seeking views on extending building assessment reports to non-public sector non-domestic buildings in Part 2 of this consultation document.

We will bring forward detailed proposals for consultation on building assessment reports and zoning, including draft regulations if appropriate, by Summer 2022, for introduction during Winter 2022/23. We will also develop Guidance for building assessment reports and consult on this in 2022.

In addition, we will shortly publish our draft methodology for developing LHEES, which will include the first step in reviewing areas that may be suitable for heat network development. During 2022 we will develop and consult on further guidance for the designation of heat network zones, building on the LHEES Methodology.

### **Licensing, consenting and permitting**

Licensing and consenting will be the mainstay of the regulatory system for heat networks in Scotland, helping to ensure a high quality and efficient service as well as ensuring that networks are well sighted and aligned with the delivery of both national and local objectives.

Licences will be required by companies wishing to develop and operate heat networks in Scotland and consents will be needed for individual heat networks. It is anticipated that both licences and consents will be required by both new and existing networks, with exemptions and abeyances in place to ensure the system is proportionate.

Through the introduction of a heat network licensing system, the Scottish Government will introduce requirements in relation to quality of service, transparency of information and minimum technical standards, as well as establishing a mechanism to identify, monitor and enforce any requirements.

We are currently working with the UK Government to develop a set of common technical standards for development and operation of heat networks across Great Britain.

Heat network permits are intended to help de-risk investment by providing a degree of certainty with regards to the likely customer base. It is envisaged that permits would be awarded, following a competition, to a single, winning bidder providing exclusivity for a specified number of years.

We are currently seeking views on aspects of licensing, consenting and permitting in Part 2 of this consultation. Responses will contribute to the development of more detailed proposals.

We will bring forward detailed proposals for consultation on licensing, consenting and permitting and associated provisions such as powers for licence holders by Winter 2022/23, with the aim to have established these processes including a licensing authority by early 2024.

### **Transfer schemes**

As heat networks grow, more customers will be reliant on them for their heat and, as such, an appropriate framework to ensure continuous service for users needs to be put in place.

The 2021 Act introduces a power for the Scottish Ministers to make a transfer scheme under certain circumstances. The transfer scheme would allow the specified third party (such as a local authority or person appointed by the Scottish Ministers) to operate a heat network following the former operator ceasing to do so. Transfer schemes will be crucial both in terms of ensuring continued supply in the event an operator ceases to operate but also to enable the smooth transition of networks between operators where the network is subject to a heat network zone permit.

Transfer scheme provisions can sometimes be referred to as “supplier of last resort” provisions. However, the 2021 Act would only cover certain circumstances and, therefore, is not comparable to powers available in other regulated sectors.

The development of a transfer scheme will be dependent on the scope and extent of both licensing and heat network zone permits. Furthermore, it will interact with any provisions for supplier of last resort provided for in UK legislation. Given the dependency on licensing and heat zone permits as well as the interaction with UK legislation it is proposed that development of detailed provisions for transfer schemes takes place once these other systems are operational.

### **Local authority cost strategy**

We will prepare a strategy setting out the costs to local authorities in relation to their duties under the 2021 Act. The final strategy will depend on the full detail of the regulatory system. As such, we will publish a final Local Authority Cost Strategy in line with our timetable set out above and before the regulatory system commences operation in early 2024.

We will work with local authorities and relevant stakeholders to ensure that appropriate resource is provided in order to deliver the ambitious provisions of this 2021 Act, such as heat network zoning.

### **Decarbonising existing heat networks**

As set out in the Heat in Buildings Strategy, from the point that the heat network legislative framework is in place, new heat networks, and any additional heat plant for extensions of heat networks, will need to be powered using low and zero emissions sources of heat.

However, many existing heat networks will continue to use fossil fuels as their main source of heat. These systems will need to decarbonise over time in order for us to live within our emission limits.

Pathways and timescales for decarbonising systems will vary between systems, but planning and advanced preparation will be important. As such, we propose that licence holders who operate existing networks in Scotland will be required to prepare and then implement a Heat Network Decarbonisation Plan. The Plan would set out the journey each network will take to reduce greenhouse gas emissions in line with the emission reduction targets – covering both efficiency improvements and replacement of heat

sources where these are not already low and zero emission. These could also potentially be expected to consider the impact of these changes on consumer costs - a factor in the depth and rate of fuel poverty.

We propose that Heat Network Decarbonisation Plans should be produced and approved within an appropriate period of time. This may be anything between 1 and 3 years of a licence being granted depending on the size of the network and key relevant circumstance. Plans will include milestones for making significant reductions in emissions by 2030 and 2035.

To support the development of Heat Network Decarbonisation Plans in 2022 we will commission work to test and develop an approach to developing such plans, with a view to piloting them in due course.

Q6: In your view, what are the key challenges faced when decarbonising existing heat networks (please tackle both improving the efficiency and switching to low and zero emission heat sources)? Please state if your answer relates specifically to one or more heat networks in Scotland.

Q7: What support is required to help existing networks improve their efficiency and switch to low or zero emission heat generation?

## **Consumer protection and alignment with UK legislation**

Robust consumer protection is needed to ensure that Scottish consumers experience an equitable energy system in which all consumers have clear access to redress. Strong consumer standards will be important for heat network consumers who are locked in over the long term to a single supplier and unable to easily switch as is currently the case for gas and electricity.

The 2021 Act does not provide consumer protection powers as these remain reserved to the UK Government. The UK Government consulted during 2020 on a proposed Great Britain-wide Heat Network Market Framework to provide consumer protection for heat network customers, and will appoint Ofgem as heat networks regulator under the Great Britain-wide Heat Network Market Framework.

Both the Scottish and UK governments have agreed that alignment between the two regulatory systems is desirable. Our aim is for consumer standards introduced under the UK's Heat Network Market Framework to be incorporated into the Scottish regulatory system seamlessly. Ofgem seem best placed to act as the regulator under both Scottish and UK legislation. We are continuing to discuss this option with the UK Government.

In the event that it is not possible for Ofgem to be appointed, an alternative is for Scottish Ministers to establish a standalone Scottish licensing authority. This could form part of the proposed Public Energy Agency in future.

In the meantime, we continue to use our capital funding programmes (see Chapter 6) to increase the number of heat networks in Scotland. We will require as a condition of grant funding that schemes, where possible, are registered under the Heat Trust<sup>xiii</sup>. Projects will be required to submit as part of their application that they will meet the expected level of service and quality alongside information on the complaints process. The Heat Trust is a stakeholder-led customer protection scheme which sets a common standard in the quality and level of customer service expected from heat suppliers. It provides an independent process for settling complaints between customers and their heat supplier through the Energy Ombudsman. The standards of service have been designed to be comparable to those required by electricity and gas suppliers.

Throughout this process we will engage with consumer-facing organisations including advice bodies, the Energy Consumers Commission and, following its establishment, Consumer Scotland in order to gain insight on the experience of everyday consumers of heat networks. This will help inform our engagement with the regulator and other key stakeholders and ensure that any issues for consumers are fed in quickly. Additionally, we are working with the UK Government so that the Heat Networks Consumer Survey provides an understanding of consumer concerns and operating experiences for the first time in Scotland.

## Chapter 4: Guiding development

Heat networks are not a suitable solution for all areas. To date the establishment of district heating has been reliant on new buildings, and supplying heat to existing 'anchor loads' (see Chapter 2).

Heat networks are most suited to areas of high heat demand, which are often associated with denser urban settings and/or areas of high industrial use. Newer fifth generation heat networks may be suitable for lower density areas.

### Identifying areas suitable for heat networks

The Opportunity Areas for District Heating Networks in the UK report<sup>xiv</sup> uses geospatial modelling to identify areas where there may be economic potential for heat networks.

This analysis estimates that heat networks could provide around 15 TWh of heat per year in Scotland by 2050. This is likely to be the maximum potential.

To further develop our understanding of the suitability of heat networks in Scotland we are undertaking a First National Assessment of potential heat network zones. This assessment will identify potential heat network zones where it is considered that heat networks are a suitable long-term solution, initially based on linear heat demand and key anchor loads. This First National Assessment follows the LHEES Methodology. We will publish outputs from this first assessment in early 2022. This assessment will build on the Opportunity Areas mapping noted above and use improved non-domestic building data from the Scotland Heat Map to provide a more accurate assessment of heat network potential in Scotland.

We have commissioned a review, and as necessary an update, to the LHEES Methodology to ensure that in following it local authorities can fulfil the requirement to consider whether one or more areas in its area is likely to be particularly suitable for a heat network<sup>7</sup>.

As noted above (Chapter 3) we will supplement the LHEES Methodology and develop a more detailed assessment to determine whether an area is

---

<sup>7</sup> The 2021 Act states "Each local authority must carry out a review to consider whether one or more areas in its area is likely to be particularly suitable for the construction and operation of a heat network." Details of what must be considered in the review for heat network zoning is set out in more detail in Part 3 (Sections 47, 48) of the 2021 Act.

particularly suitable for a heat network to support local authorities in designating heat network zones.

## Building Connection Hierarchy

Within zones it will be important to encourage and prioritise the connection of key anchor buildings, which can enable the efficient operation of a heat network, helping to reduce customer costs and enabling the extension of the network overtime to other nearby buildings.

### **Box 2: Scottish non-domestic buildings.**

These vary significantly in size<sup>8</sup>. Non-domestic buildings with a floor area greater than 1,400m<sup>2</sup> account for over half the stock by floor area and 9% by number of buildings; and buildings over 2,500m<sup>2</sup> account for 26% by floor area and only 3% by number. The average area of non-domestic stock is estimated to be 444m<sup>2</sup>.

To guide the development of heat networks the following Building Hierarchy is proposed, which prioritises the connection of existing buildings based on their size, heat demand and ownership. The Building Hierarchy is being proposed as a tool to help steer delivery on the ground and in certain instances may be useful as part of a prioritised or tiered policy or regulatory approach, though this will not always be appropriate. New buildings within a heat network zone should connect to a heat network where available and appropriate. Views on a minimum “appropriate” heat demand for new buildings within the hierarchy would be welcome.

**Table 2: District heat network development: Building Hierarchy**

Priority 1	New Buildings (with a heat demand)	Existing public sector non-domestic buildings (above a certain size or heat demand)
Priority 2	Existing Commercial / Third Sector non-domestic buildings (above a certain size / heat demand)	Existing public sector non-domestic buildings (below size / heat demand threshold)
Priority 3	Existing Commercial / Third Sector (below size threshold / heat demand)	
Priority 4	All other heat using buildings in heat network zones that are not already served by zero emission heating / for which there is no fuel poverty reduction in doing so.	

<sup>8</sup> Source: Analysis by Scottish Government using Non-Domestic Analytics.

There may be other buildings that should be prioritised for connection. This could include for example:

- multi-owner and multi tenancy buildings
- historic buildings, where there may be few other feasible interventions.

Views on these options, and whether they should include homes within these groupings, is also being sought.

Q8: What are your views on the Building Hierarchy proposed and its use to prioritise delivery on the ground and use in developing heat networks policy and regulation? (Please also include if you have any evidence relating to the inclusion of multi-owner/multi-tenancy buildings and historic buildings.)

## **Draft National Planning Framework 4**

The Draft Fourth National Planning Framework(NPF4)<sup>xv</sup>, which details our long term plan for what Scotland could be in 2045, was laid in Parliament on 10 November 2021. Alongside Parliamentary scrutiny of the draft, we are running a consultation<sup>xvi</sup>, which is open until 31 March 2022. The consultation seeks views on draft policy on heating and cooling.

### **Demand assurance**

We know that one of the key barriers to heat network development is demand assurance, with investors needing a long-term, secure customer base to confidently invest.

As set out in the Heat in Buildings Strategy we will, subject to legal competence, introduce a regulatory framework to require the installation of zero or very near zero emissions heating systems in existing buildings off the gas grid from 2025 and on the gas grid from 2030. This is in addition to proposals to require new buildings consented from 2024 to install only zero direct emissions heat sources.

We will also consult in 2022 on a series of phased targets and new funding to support all publicly owned buildings meeting net zero heating requirements by 2038.

In order to secure the development of heat networks and in order to meet our statutory heat network targets it will be important that these regulatory requirements drive the development of, and connection to, heat networks in designated heat network zones. As we take forward these consultations in

2022 we will consider how best to ensure that the proposed regulatory requirements are compatible with our heat network targets.

In addition, we remain committed to consulting on proposals, as far as is possible within our legal competence, to:

- introduce mandatory connections for large and publicly-owned buildings; and/or
- use new powers under section 15 of the Non-Domestic Rates (Scotland) Act 2020 which could potentially be used to de-risk investment and drive net zero behaviour, including connections to heat networks.

In developing proposals we will consider recent UK Government proposals to mandate connection to heat networks in designated areas in England and Wales to assess their applicability in Scotland and fit with our proposed wider approach to building regulation. Subject to legal competence, we will consult on proposals during 2022.

Q9: What in your view is the right approach to ensuring there is sufficient demand assurance?
---

## Chapter 5: Wider policy framework

### Waste and surplus heat

As we transition to a net-zero economy it will become increasingly important that we use resources efficiently. This includes maximising the use of surplus or waste heat, which at present goes unused. A recent ClimateXChange study<sup>xvii</sup> identified a waste heat potential of about 1,677 GWh across some 932 sites in Scotland, including from distilleries, wastewater treatment facilities, bakeries and many other sectors.

Surplus or waste heat is rarely fully utilised in Scotland, even though heat recovery can significantly increase the overall energy efficiency and energy recovery of facilities.

Energy from Waste (EfW)<sup>9</sup> facilities are among the largest single sources of surplus or waste heat in Scotland. Currently there are 8 EfW facilities under construction or in operation in Scotland, with a further facility in Westfield, Ballingray in Fife expected to begin construction soon. Since 2014 all EfW facilities have been required to prepare detailed heat and power plans in order to identify opportunities for local use of heat from the facility.

There are examples of surplus or waste heat use at Lerwick, Grangemouth, Shawfair in Midlothian and Torry in Aberdeen. However, significant amounts of heat go unused at some of these and other facilities. A key reason that heat is not recovered is that there are insufficient commercial opportunities to incentivise recovery, in particular the lack of potential heat customers and absence of an adjacent heat network. Equally, there are no legal requirements and limited incentives to recover and use surplus or waste heat.

We will make available to local authorities, by Winter 2022/23, further information on the availability of surplus or waste heat to support the identified of heat network zones and the development of LHEES.

In addition, next year we will engage with stakeholders and as relevant consult on whether there is need for further measures to increase the utilisation of surplus or waste heat.

---

<sup>9</sup> EfW is the process of creating energy, in the form of electricity and/or heat, from incinerating waste, specifically residual (non-recyclable) waste – see: [https://www.sepa.org.uk/media/28979/energy-from-waste\\_faqs.pdf](https://www.sepa.org.uk/media/28979/energy-from-waste_faqs.pdf)

## Skills and supply chain

Unlocking investment in the supply chain must start with clear demand for its products and services. Our investment of at least £1.8 billion for heat and energy efficiency projects over the course of this Parliament, as outlined in the Heat in Buildings Strategy, aims to strengthen demand and support an increase in jobs and skilled workers.

We will work with industry to co-produce a new 'Heat in Buildings Supply Chain Delivery Plan' by Summer 2022 specifically focussed on strengthening the broad supply chains needed to deliver at the pace and scale we need.

Around 60 companies in Scotland are active in the heat networks sector, the majority of whom are civil engineering and construction contractors, most of which are large contractors that offer heat network contractor services as part of a range of construction services<sup>10</sup>.

The Climate Emergency Skills Action Plan (CESAP) sets out immediate actions to support the development of skills needed to meet the climate change challenge. Through CESAP we have established a Green Jobs Workforce Academy for existing employees, and those who are facing redundancy, to assess their existing skills and undertake the necessary upskilling and reskilling they need to secure green job opportunities as they emerge.

New skills and supply chains will be needed as we scale up the development of heat networks in Scotland. The Energy Saving Trust (EST) report "Heat Network Skills in Scotland"<sup>11</sup>, published in May 2020, identified skills gaps in the heat network supply chain, notably:

- project management of heat networks, delivery and operation
- heat network design
- installation and optimisation of heat networks
- technical operation and maintenance.

To build on this work, and to better understand potential skills gaps, we have partnered with Scottish Renewables and Skills Development Scotland to undertake a "Heat in Buildings Workforce Assessment Project". This project will help us to better understand the timing of required workforce growth across the heat and energy efficiency sectors, including the heat network industry. This will help us plan how best to support people transitioning into key roles.

---

<sup>10</sup> Source: as yet unpublished research for Scottish Enterprise by Delta EE

<sup>11</sup> [Research to help the supply chain - Energy Saving Trust](#)

It will be important to ensure that the workforce and skills needed to develop, operate and maintain heat networks are available right across Scotland. This will include improving access to the necessary skills and trades in our most remote and island communities, and ensuring local authorities have the necessary skills and expertise to drive development of heat networks.

In addition, in developing technical standards (see Chapter 3), the long-term intention is to develop standards against which certification can take place. This may provide additional opportunities for further qualifications in Scotland.

## **Non-domestic rates**

To help support and encourage investment in green heat networks the Non-Domestic Rates (District Heating Relief and Renewable Energy Generation Relief) (Scotland) Amendment Regulations 2021 introduced a 90% relief from non-domestic rates until 31 March 2024 for new networks run from renewable sources. This is in addition to the existing 50% relief that is in place for all heat networks. This relief is guaranteed to continue until 2032.

These reliefs help to support the business case for new networks by reducing their operational costs.

We will continue to monitor the use of reliefs by heat networks and make adjustments as necessary. We would welcome feedback from individual heat networks on whether they plan to, or currently use, the reliefs for heat networks, or whether alternative reliefs would be welcome.

Concerns about the valuation methodology generally applied to district heat networks has been raised in the past. Valuations are carried out by Scottish assessors who are independent of Scottish Government, based on existing statute and case law. Appeals may be made to independent valuation appeal committees.

## **Chapter 6: Capital programmes and delivery mechanisms**

### **Project development**

Currently there is a weak and undeveloped pipeline of heat network projects. In order to accelerate the development and growth of heat networks in Scotland investing in the development of a project pipeline is essential.

To begin to develop a stronger project pipeline the Scottish Government will publish an initial Heat Network Investment Prospectus during the next financial year that will demonstrate the size and location of heat network opportunities across Scotland, as well as information on the decarbonisation requirements of existing networks in Scotland. This will build on the report “Opportunity Areas for District Heating Networks in the UK” and our First National Assessment of potential heat network zones. The prospectus will be a live document, showing an active pipeline of heat network projects in Scotland.

In addition, we will announce next steps to establish a Heat Network Pre-Capital Support Unit this year, initially building on our partners’ expertise to drive project development, building to a new unit during 2022, expanding on the previous role of the Heat Network Partnership. This new unit will provide enhanced support to the public and private sector, including support undertaking the necessary feasibility studies and working with potential partners to identify and bring forward projects.

Furthermore, the successor to the LCITP will offer enhanced pre-capital support including the provision of:

- options appraisals
- business cases
- financial expertise
- technical expertise
- legal expertise
- project management
- procurement expertise

### **Capital support**

Over this parliament we will invest at least £400 million through the successor to the Low Carbon Infrastructure Transition Programme (LCITP) to support the development of large-scale heat infrastructure, including heat networks. The

successor scheme will launch in phases from the end of this year and will provide capital support for large-scale heat infrastructure projects, including for the:

- development of new heat networks
- extension of existing heat networks
- the decarbonisation of existing networks

We will seek to drive value for money and financial sustainability by using more diverse funding mechanisms including a combination of grant funding, repayable assistance, loan funding and private investment. The new scheme will be flexible to match levels of support required, the maturity and risk of technologies and the commercial needs of projects.

We will continue to offer supplementary financial support to local authorities, social landlords, SMEs and energy service companies (ESCOs) with fewer than 250 employees through the District Heating Loan Fund (DHLF). The DHLF provides low interest unsecured loans with repayment terms up to 15 years. In addition, local authorities will be able to access funding via the Green Growth Accelerator<sup>xviii</sup> model.

## **Green growth accelerator**

The Green Growth Accelerator (GGA) programme, launched in June 2021, provides a catalyst for public and private investment in low carbon infrastructure projects across Scotland. The programme builds on the current Growth Accelerator model and aims to unlock £200 million of low carbon capital investment that supports our transition to net zero. The GGA is a revenue financial model in which a local authority commits to deliver defined, measurable outcomes that are enabled or underpinned by investment in infrastructure and is designed to incentivise local authorities to drive transformative change.

The Scottish Government is working closely with COSLA and local authorities to identify and learn from a group of pathfinder projects and will consider the applicability of the funding for heat networks moving forward.

## **Building level support**

For individual property owners wanting to connect to a nearby heat network, interest free and low cost loans are available from both Home Energy Scotland and the Energy Efficiency Business Support Service, subject to eligibility.

We are supportive of the deployment of zero heat measures such as heat pumps, and at the same time keen that Scottish Government investment in the decarbonisation of heat supports and does not undermine the viability of strategically important heat network zones. In most cases within a zone we expect a connection to a heat network will be the best solution to make homes and non-domestic buildings warm and less expensive to heat in the long term.

We will continue to review the interaction between the different schemes of support available, including our own programmes, to ensure that these enable the best delivery option for communities, as well as individual households and businesses.

## **National Public Energy Agency**

We are committed to establishing a National Public Energy Agency to accelerate the transformational change in how we heat and use energy in homes and buildings. To achieve this, the Agency will have a remit to raise public understanding and awareness, co-ordinate delivery of investment, and coordinate national, regional and local government delivery of heat decarbonisation and energy efficiency rollout. We will establish the Agency first as a virtual agency and transition to a dedicated body by September 2025. We will set out the role of the Agency in delivering support for heat networks in the coming months.

Q10: What role should the Heat Network Pre-Capital Support Unit play in supporting project development?

Q11: What types of capital support would help to support the development of low and zero carbon heat networks and attract private sector finance? Please explain your views and provide evidence if possible.

## **Chapter 7: Monitoring and reporting**

### **Review of the Delivery Plan and reporting progress against targets**

As required by the 2021 Act, we will review the Heat Networks Delivery Plan and report every 2 years on the heat output of heat networks and emissions savings.

In order to underpin this national review and progress towards targets, heat network operators will need to report key information to the licensing authority. Data reporting requirements will be developed as part of work to develop the regulatory system and will be subject to consultation in due course. We will work with the sector to ensure these requirements are proportionate and do not put an undue burden on heat network operators.

### **Monitoring the wider heat networks sector**

As the heat network sector develops in Scotland it will be important that we gather data and insights to better understand wider aspects of the heat network market and opportunities around it. We believe additional to reporting on heat produced and circulated by heat networks, it would be valuable to monitor a number of other key parameters, including:

- heat connected to and available to networks but not used
- distribution losses
- heat being used by heat network customers
- number of connections (customers) – domestic and non-domestic

Furthermore, to ensure heat networks effectively integrate into the wider energy system, and to identify additional opportunities for integration and efficiency we believe it would be valuable to understand:

- linear heat densities of networks: an important feedback loop for assumptions on viable heat networks and identification / review of heat network zones
- storage capacity on heat networks: for understanding the role that heat networks play in providing an integrated low emission energy system, in particular in reducing peak electrical demand (and the associated generation and transmission costs of this)
- pipework (length, geolocation): providing an indication of the overall spread of heat networks, potential maintenance associated with it, etc. It is also important for heat network operators and other

development organisations to be able to accurately locate pipework through appropriate electronic geographic information

- operating temperatures (flow and return): which can have an impact on distribution losses, if and how a heat source can be used, requirements for substations and subnetworks, and the ability to (or amendments in order for) buildings to connect
- the parasitic electricity consumption (electricity consumed to pump water around heat networks) identifying additional (non-heat) energy losses from heat networks.

## **Data for reporting and monitoring**

There are limitations to the data currently available on Heat Networks. There are a number of potential options for improving the data used to report against targets – both heat networks targets and their contribution to greenhouse gas emission reduction targets - as well as wider monitoring of heat networks in Scotland. These include surveys on heat networks and non-domestic buildings and options related to existing and future regulatory systems<sup>12</sup>. The quality of these data may vary and will be available potentially at very different times.

As a starting point we will work with our delivery partners to survey heat network operators to support the provision of key data for some of the largest sites in Scotland, improving centrally held data during 2022.

Where possible we will seek to embed collection of wider networks sector data into the regulatory system provided by the 2021 Act. Where this is not possible, we will work with the UK Government and key stakeholders to develop routes to report on and monitor the market.

As appropriate key heat networks data will be included as part of our ongoing programme to improvement of the Scotland Heat Map.

Q12: What are your views on the proposal to gather data and wider information about heat networks in Scotland? Please also state if you think there anything missing from the proposed list for data collection.

---

<sup>12</sup> This could include the Heat Networks (Metering and Billing) Regulations, the 2021 Act (and secondary legislation to be developed) and any regulations resulting from UK Government proposals on the Heat Networks Market Framework.

## **Part 2: Heat Network Regulatory Policy Options**

## Heat network regulation: initial policy options

The 2021 Act provides an initial, high level framework for regulating the heat networks sector in Scotland. To bring many of the provisions into force detailed regulatory provisions are now needed.

As noted in Part 1, we are committed to working jointly with the sector to establish this new regulatory system. Over the next two years we will publish a series of more detailed consultations seeking views on draft regulatory provisions under the 2021 Act.

Part 2 of this consultation paper is a first scoping consultation to gather initial input on the following key areas:

- building assessment reports
- heat network licensing
- heat networks consents
- heat network zone permits
- large scale thermal storage

Your responses will help us frame and shape proposals in these key areas, which will be subject to more detailed consultations in due course.

### Building assessment reports

As noted in Part 1 of this consultation document, securing appropriate connections from non-domestic buildings is key to a successful project as they form a key customer base upon which a heat network can be “anchored”.

Part 5 of the 2021 Act requires persons either owning or with interest in non-domestic building to prepare a **building assessment report**. The 2021 Act places this requirement on the Scottish public sector, as defined by section 3(1)(a) of the Freedom of Information (Scotland) Act 2002, as publicly owned buildings are often suitable anchor buildings.

However, in some strategic heat network zones – particularly those in city or town centre locations – there may be other non-domestic buildings that would be suitable anchor buildings and may be needed to enable the development of a heat network.

We therefore propose that the requirement to undertake a building assessment report is extended to other non-public sector non-domestic

building owners. We estimate that this will affect the owners of up to an additional 197,000 non-domestic properties<sup>13</sup>.

Not all non-domestic buildings will be suitable to act as anchor buildings, particularly those which have a relatively low heat demand, inconsistent use pattern or are unheated. As such, it may be appropriate to exempt certain buildings as well as introduce a phased requirement for others based on these characteristics. A phased approach would support the development of heat networks over time and could be developed in line with the Building Hierarchy set out in Part 1, Chapter 4. We would welcome views on whether a phased approach should be adopted and whether the proposed hierarchy or other criteria are appropriate for this.

Q13: What are your views on other owners (or persons with interest) of non-domestic buildings - beyond Scottish public bodies - being required to produce a building assessment report for their buildings?

Q14: What are your views on whether there should be prioritisation of building assessment reports based on certain building attributes in order to expedite data on potential anchor loads?

## Heat network licensing

Through the introduction of a heat network licensing system, the Scottish Government will introduce requirements in relation to quality of service, transparency of information and minimum technical standards, as well as establish a mechanism to identify, monitor and enforce any requirements.

The heat networks market in Scotland consists of various types of organisation serving different numbers and types of sites. As such, it is imperative that we develop a licensing system that is fair and proportionate.

Proportionality in the licensing system may be addressed through fees (for applications and maintaining licences), exemptions or the conditions attached to such licences. Some conditions may be:

- common regardless of the licence (for example complying with technical standards)
- attached due to the type of organisation wishing to obtain the licence (such as those operating a large number of heat networks, or as a

---

<sup>13</sup> Figure is a broad estimate, using data from Non-Domestic Buildings Energy Database and ePIMS (ePIMS may include buildings outwith the scope of Part 5, sec. 76 (a) the 2021 Act).

total across their heat networks serving a large number of users or supplying large amounts of heat)

- attached due to the types of benefits they wish to enjoy (such as accessing the road work rights provided for in the 2021 Act)

Q15: How can we ensure proportionality in a licensing system, in particular in the application and determination processes, licence conditions and fees? Please be as specific as possible.

## **Licensing authority**

The licensing authority will act as a regulator for the sector. The Scottish Parliament indicated that Ofgem, would be well placed to take on those functions which is in line with recommendations from the CMA. Ofgem is a body created in statute by the UK Government and as such cannot be appointed by Scottish Ministers without UK legislative change.

Ofgem has been recently confirmed by the UK Government as the body that will take on the role of regulator under the Heat Network Market Framework which includes GB-wide consumer protection standards.

As set out in more detail in Chapter 3 (Consumer protection and alignment with UK legislation), we continue to engage closely in discussions with the UK Government to identify the optimum legal mechanism to allow Scottish Ministers to appoint Ofgem as the regulator within Scotland.

## **Heat network consent**

Part 2 of the 2021 Act introduces a project-specific approval process – heat network consents - to scrutinise how both new and existing heat networks meet local and national objectives, for example on emission reduction or fuel poverty.

### **Consent authority**

The 2021 Act creates a new consent authority responsible for awarding and enforcing heat network consent. Under the 2021 Act the Scottish Ministers automatically become the consent authority. However, local authorities can request to become the consent authority for their own area.

As noted in Part 1, Chapter 3 it is proposed that the Scottish Government's Energy Consents Unit take on this role in the first instance. Creating a central consent authority will maximise economies of scale and reduce the resource

needed to fulfil the consenting function, as well as drawing on already established expertise in relation to consents for renewable energy generation. A more centralised approach also recognises that the growth of the sector is likely to be uneven across Scotland and avoids the need to establish a consenting function in each local authority. Furthermore, it will also allow a consistent approach to be established across Scotland, helping to smooth the process for the heat networks sector.

Once established it may be appropriate for local authorities to take over as consent authority. Local authorities can request at any time to become consent authority.

## **Exemptions**

The consent process is an additional step for the heat network sector in Scotland. As such, it will be important that the burden on heat network projects is proportionate as increasing development costs could adversely affect our ability to deliver the heat networks targets.

We recognise that not all of the heat network projects in Scotland will require the same level of scrutiny. Our intention is that some heat networks:

- may be entirely exempt from the consent process
- would only have to provide more limited information with a consent application<sup>14</sup>
- would have to provide the full information with a consent application

We will work closely with the sector to identify the most appropriate thresholds that would ensure that local and national objectives are still met while limiting the burden, particularly for those who may be getting an appropriate level of scrutiny through other systems such as the planning regime. Exemptions from consent application or limitations on the information to be provided, may take account of different types of operations, including whether it is for operation of an existing network, extension of an existing network or a new network entirely. It should be noted, however, that provision of information on key assets which will be required if a network were to transfer between operators, is provided as part of the consenting process.

---

<sup>14</sup> Part 2 (Section 33) of the 2021 Act allows Scottish Ministers to determine the form and manner in which a relevant application is to be made, and the information (including the information in the form of a document) that is to be included in a relevant application.

Q16: Which heat network projects should be exempt from the requirement to hold heat network consent? Please provide evidence alongside your answer.

Q17: Are there particular types of heat network for which only limited information should be required in the consent application? If so, please set out your views on what types of heat network and why?

## **Community engagement**

Heat networks are local assets and will change the way people heat their homes and buildings. As such, it is imperative that communities are involved in the design and have the ability to inform decision making.

Effective public engagement can lead to better plans, better decisions and more satisfactory outcomes, while also improving confidence and fairness. Engagement needs to be meaningful and to occur from the earliest stages in the process to enable community views to be reflected in plans and project proposals.

Part 2 of the 2021 Act requires community engagement reports to accompany applications for heat network consent. We intend to publish guidance to support community engagement in the heat networks sector. There are a number of existing community engagement models, including the model used in the Planning System, as well as best practice guides such as the Citizens Advice Scotland's "Engaging Heat and Minds"<sup>xix</sup> report.

Community engagement should not just be linked to the consenting process. We believe it has a strong role to play in decisions to designate heat network zones. As set out in the Heat in Buildings Strategy, LHEES will form a basis for local public engagement, awareness raising and involvement in decision making at the local level, and will facilitate extensive engagement with local communities. As noted in Part 1, Chapter 3, the heat networks aspects of LHEES will be the first phase in heat network zoning, as such we propose that we embed community engagement into the heat network zoning process as we develop a more detailed methodology.

We are seeking views on how best to ensure effective and meaningful community engagement and are interested in what models could be adopted for heat networks.

Q18: The Heat Networks (Scotland) Act 2021 makes provision for community engagement, and we intend to publish guidance in relation to this. What, in your view, would constitute effective and meaningful community engagement?

## **Heat network zone permits**

Certainty of demand is a key requirement for heat network development and is needed to de-risk investment. The main measure introduced by the 2021 Act that aims to de-risk heat demand are heat network zone permits. These build on the designation of heat network zones and effectively provide long term certainty to a single operator. Where a heat zone permit is issued it would prohibit anyone other than the permit holder from operating or constructing a heat network in a designated zone.

We will develop the detailed regulation and procedures of heat network zone permits in due course, but we are now seeking views on a range of aspects of the permitting system to help shape future development.

### **Permit authority**

The permit authority would be responsible for issuing heat network zone permits for specified heat network zones. The authority would also be responsible for ensuring:

- the terms and conditions of the permit are adhered to
- heat network opportunities are being realised in line with original proposals
- the needs of consumers are being met, within the limits of its powers

A preferred permitting authority has not yet been identified. As the award of a heat network zone permit creates a monopoly supplier in one it will be imperative that the permitting authority has sufficient latitude to place conditions on heat network permits to ensure that users of such services have sufficient rights. It will also be important that the heat network zone permit system works in tandem with the UK's GB wide Market Framework to ensure consumers are protected.

The role of "permit authority" could be undertaken by Scottish Ministers directly, for example by the Energy Consents Unit. Alternatively a third party, such as the proposed Public Energy Agency could be designated or it may be preferable for role of "permit authority" to be undertaken by the same authority responsible for upholding consumer standards.

We would welcome views on which national body may be appropriate for this role.

### **Length of a heat network zone permit**

Heat network zone permits are intended to provide certainty over the long term to enable the network owner sufficient time to recoup the cost of investment or make a reasonable return. Given that heat networks are long lived assets that have a significant upfront capital cost, it is anticipated that permits will be awarded for between 25 and 40 years.

We would welcome your views on the key factors which should determine the duration of the heat network zone permit.

### **Heat network permitting process**

It is proposed that heat network zone permits are awarded via a competitive process. As a permit confers an effective monopoly, it is clearly a high value market opportunity. As such, and in order to ensure the best possible outcomes, we propose that the process used to award a permit should use similar systems and mechanisms to those typically seen in public procurement<sup>15</sup> such as the Competitive Dialogue Public Procurement Process<sup>16</sup>.

The Competitive Dialogue process is typically used where greater flexibility is needed. For example, there are many types of heat network technologies and ways of funding and delivering them, so we would not want to risk stifling innovation by being too specific or prescriptive. This type of process allows initial bids to be clarified, specified or optimised via dialogue and negotiation. In this way, an optimum solution is arguably more likely to be found and agreed. The stages of the Competitive Dialogue process are:

1. publish minimum requirements, award criteria and their weightings
2. from initial proposals, invite selected candidates to participate
3. negotiations/dialogue
4. conclusion of dialogue
5. deadline for receipt of final tenders
6. contract award.

---

<sup>15</sup> Public Contracts (Scotland) Regulations 2015<sup>[iii]</sup>.

<sup>16</sup> [Competitive Dialogue | Procurement Journey](#)

Given the complexity and uncertainty of developing heat network projects, it will be important that the heat network zone permit process provides a degree of flexibility and is able to encourage innovation – not only technical innovation, but innovation around the commercial and financial elements of bidders' proposals. We consider that the model of a Competitive Dialogue procurement process<sup>[i]</sup> would enable this and would be appropriate due to the likely long duration of the permits awarded.

Additionally, since the award of a permit has some characteristics of the award of a commercial concession, for example involving the transfer of an operating risk of economic nature, it may be appropriate that we draw on the model provided by the Concessions Contracts (Scotland) Regulations 2016<sup>xx</sup>.

We are seeking feedback on whether there are elements of these existing processes that might be particularly valuable or detrimental in the design of heat network zone permits, and whether there are key aspects missing which you may expect.

Q19: What key factors should determine the duration of the heat network zone permit?

Q20: How can the interests of both the customer and the network operator best be balanced in heat network zones with heat network zone permits?

## **Large scale thermal storage**

As highlighted in our Heat in Buildings Strategy, thermal storage, be it in individual properties or larger scale connected to a heat network, can enable the decoupling of heat production and heat use. It may also support a more cost effective decarbonisation of the wider energy system, for example by reducing the need for electricity network upgrades and additional generation capacity. National Grid in its Leading the Way scenario included over 12 GW of load shifting from thermal storage from homes and heat networks in 2050.

We are undertaking research into the role of energy storage in supporting the electrification of heat. In particular we will consider the role of energy storage in buildings and heat networks, with an initial focus on in building storage.

The Heat Networks Code of Practice for the UK<sup>xxi</sup> sets out a number of minimum requirements for thermal storage, including that the economic

benefit and additional emissions savings resulting from thermal storage be assessed. It also highlights inter-seasonal storage for some heat sources such as solar thermal or ground source heat pumps as best practice and recommends planning for additional storage to be added in the future to capture expected future benefits.

There are examples of significant size stores in Scotland, though none as yet that deliver inter-seasonal storage, examples of which are available internationally<sup>17</sup>. Research suggests<sup>xxii</sup> that there are potential opportunities for low temperature inter-seasonal thermal storage within our green spaces and flooded coal mines, including in urban areas of Scotland.

National technical standards, yet to be produced (see Chapter 3) may include requirements for heat storage. However, any minimum requirements that may be included in these standards may focus on the benefits to the heat network customer and may not go as far as would be needed to achieve maximum societal benefit. Wider benefits may include:

- greater society wide resilience against any unexpected fuel import constraints and energy cost increases
- reduced constraint on wider local energy systems, such as by allowing the use of what would otherwise be constrained wind generation.

Q21: What measures, if any, should regulatory or support systems take to encourage inter-seasonal thermal storage to achieve wider societal benefits? Please explain.

Q22: Do you have views you would like to express relating to parts of this consultation which do not have a specific questions? If so, please elaborate.

---

<sup>17</sup> Including examples in Canada and Denmark and the Netherlands. See <https://www.sciencedirect.com/science/article/pii/S1364032121000290>

# **Annex A: Summary of Consultation Questions**

## **Part 1: Draft Heat Networks Delivery Plan**

### **Chapter 1: Introduction**

1. In your opinion, could any of the proposals set out in this plan unfairly discriminate against any person in Scotland due to a protected characteristic? (Protected characteristics are age, disability, sex, gender reassignment, marriage and civil partnership, pregnancy and maternity, race, religion or belief.)
2. In your opinion could any of the proposals set out in this plan have an adverse impact on children's rights and wellbeing?

### **Chapter 2: Ambition & targets**

3. In your view, what should be considered in setting the 2035 heat network supply target?
4. Are there particular approaches or measures that could be taken through our proposals in this plan to reduce the depth and rate of fuel poverty? This could for example consider the approach of the heat network licensing authority or measures through our funding programmes?

### **Chapter 3: Regulatory regime: Heat Networks (Scotland) Act 2021**

5. Do you agree or disagree with the order of the three stages identified above for setting up the regulatory regime? Please explain.
6. In your view, what are the key challenges faced when decarbonising existing heat networks (please tackle both improving the efficiency and switching to low and zero emission heat sources)? Please state if your answer relates specifically to one or more heat networks in Scotland.
7. What support is required to help existing networks improve their efficiency and switch to low or zero emission heat generation?

### **Chapter 4: Guiding development**

8. What are your views on the Building Hierarchy proposed and its use to prioritise delivery on the ground and use in developing heat networks policy and regulation? (Please also include if you have any evidence

relating to the inclusion of multi-owner/multi-tenancy buildings and historic buildings.)

9. What in your view is the right approach to ensuring there is sufficient demand assurance?

## **Chapter 6: Capital programmes and delivery mechanisms**

10. What role should the Heat Network Pre-Capital Support Unit play in supporting project development?
11. What types of capital support would help to support the development of low and zero carbon heat networks and attract private sector finance? Please explain your views and provide evidence if possible.

## **Chapter 7: Monitoring and reporting**

12. What are your views on the proposal to gather data and wider information about heat networks in Scotland? Please also state if you think there anything missing from the proposed list for data collection.

## **Part 2: Heat Network Regulatory Policy Options**

13. What are your views on other owners (or persons with interest) of non-domestic buildings - beyond Scottish public bodies - being required to produce a building assessment report for their buildings?
14. What are your views on whether there should be prioritisation of building assessment reports based on certain building attributes in order to expedite data on potential anchor loads?
15. How can we ensure proportionality in a licensing system, in particular in the application and determination processes, licence conditions and fees? Please be as specific as possible.
16. Which heat network projects should be exempt from the requirement to hold heat network consent? Please provide evidence alongside your answer.
17. Are there particular types of heat network for which only limited information should be required in the consent application? If so, please set out your views on what types of heat network and why?
18. The Heat Networks (Scotland) Act 2021 makes provision for community engagement and we intend to publish guidance in relation to this.

What, in your view, would constitute effective and meaningful community engagement?

19. What key factors should determine the duration of the heat network zone permit?
20. How can the interests of both the customer and the network operator best be balanced in heat network zones with heat network zone permits?
21. What measures, if any, should regulatory or support systems take to encourage inter-seasonal thermal storage to achieve wider societal benefits? Please explain.
22. Do you have views you would like to express relating to parts of this consultation which do not have a specific question? If so, please elaborate.

## **Annex B: Responding to this Consultation**

We are inviting responses to this consultation by 13 December 2021. Please respond to this consultation using the Scottish Government's consultation platform, Citizen Space. You can view and respond to this consultation online at – <https://consult.gov.scot/energy-and-climate-change-directorate/heat-networks-delivery-plan>

You can save and return to your responses while the consultation is still open. Please ensure that consultation responses are submitted before the closing date of 13 December 2021.

If you are unable to respond online, return your response, including the Respondent Information Form (see 'Handling your Response' below) to:

Heat Networks and Investment Unit  
Scottish Government  
5 Atlantic Quay  
Glasgow  
G2 8LU

It would be helpful to have your response by email or using the electronic response form. The electronic response form can be accessed at the following website address: – <https://consult.gov.scot/energy-and-climatechange-directorate/heat-in-buildings-strategy/>

You can also email your response to [heatnetworks@gov.scot](mailto:heatnetworks@gov.scot)

### **Handling your response**

If you respond using Citizen Space – <https://consult.gov.scot/energy-and-climate-change-directorate/heat-networks-delivery-plan> - you will be directed to the Respondent Information Form. Please indicate how you wish your response to be handled and, in particular, whether you are happy for your response to be published.

If you are unable to respond via Citizen Space, please complete and return the Respondent Information Form included in this document. If you ask for your response not to be published, we will regard it as confidential, and we will treat it accordingly.

All respondents should be aware that the Scottish Government is subject to the provisions of the Freedom of Information (Scotland) Act 2002 and would

therefore have to consider any request made to it under the Act for information relating to responses made to this consultation exercise.

### **Next steps in the process**

Where respondents have given permission for their response to be made public, and after we have checked that they contain no potentially defamatory material, responses will be made available to the public at – <https://consult.gov.scot/energy-and-climate-change-directorate/heat-networks-delivery-plan>

If you use Citizen Space to respond, you will receive a copy of your response via email.

Following the closing date, all responses will be analysed and considered along with any other available evidence to help us. Responses will be published where we have been given permission to do so. We will review responses to the consultation and the issues raised during engagement with stakeholders to inform development of the final version of the Heat in Building Strategy.

### **Comments and complaints**

If you have any comments about how this consultation exercise has been conducted, please send them to: [heatnetworks@gov.scot](mailto:heatnetworks@gov.scot)

### **Scottish Government consultation process**

Consultation is an essential part of the policy-making process. It gives us the opportunity to consider your opinion and expertise on a proposed area of work. You can find all our consultations online: <http://consult.scotland.gov.uk>.

Each consultation details the issues under consideration, as well as a way for you to give us your views, either online, by email or by post.

Responses will be analysed and used as part of the decision-making process, along with a range of other available information and evidence. We will publish a report of this analysis for every consultation. Depending on the nature of the consultation exercise, the responses received may:

- indicate the need for policy development or review;
- inform the development of a particular policy;
- help decisions to be made between alternative policy proposals; and
- be used to finalise legislation before it is implemented.

While details of particular circumstances described in a response to a consultation exercise may usefully inform the policy process, consultation exercises cannot address individual concerns and comments, which should be directed to the relevant public body.



## Draft Heat Networks Delivery Plan

### Respondent Information Form

**Please Note** this form **must** be completed and returned with your response.

To find out how we handle your personal data, please see our privacy policy:  
<https://www.gov.scot/privacy/>

Are you responding as an individual or an organisation?

Individual

Organisation

Full name or organisation's name

Phone number

Address

Postcode

Email

The Scottish Government would like your permission to publish your consultation response. Please indicate your publishing preference:

- Publish response with name
- Publish response only (without name)
- Do not publish response

**Information for organisations:**

The option 'Publish response only (without name)' is available for individual respondents only. If this option is selected, the organisation name will still be published.

If you choose the option 'Do not publish response', your organisation name may still be listed as having responded to the consultation in, for example, the analysis report.

We will share your response internally with other Scottish Government policy teams who may be addressing the issues you discuss. They may wish to contact you again in the future, but we require your permission to do so. Are you content for Scottish Government to contact you again in relation to this consultation exercise?

Yes

No

## Annex C – Glossary of Terms and Acronyms

**Third, fourth and fifth generation heat networks** - Third and fourth generation systems generally provide hot water at between 60 and 100 degrees Celsius and fifth generation systems generally operate at temperatures of up to 45 degrees Celsius.

**Anchor load** - Buildings with a large, reliable and long-term demand for heat, often with a stable and constant use profile, can act as anchors for a developing district heating networks. These anchor loads allow district heat networks to operate efficiently and provide the potential to extend the network to smaller existing heat users in the area.

**BAR** - Building assessment report

**CESAP** - Climate Emergency Skills Action Plan

**CHP** - Combined heat and power

**CMA** – The Competition and Markets Authority

**COSLA** - Convention of Scottish Local Authorities

**DHLF** - District Heating Loan Fund

**EfW** - Energy from Waste

**ESCO** - Energy service company

**EST** – The Energy Saving Trust

**GGA** - Green Growth Accelerator

**GW** - A unit of power equal to 1,000,000,000 watts

**GWh** - A unit of energy equal to 1,000,000,000 watt hours

**Heat network** - Heat networks, as defined under the 2021 Act, include both district and communal heating:

- a **district heat network** is defined as a network by which thermal energy is distributed from one or more sources of production to more than one building

- a **communal heating system** is a system by which thermal energy is distributed from one or more sources of production to one building comprising more than one building unit

Heat networks can provide heating, cooling, or steam for industrial processes.

**LCITP** - Low Carbon Infrastructure Transition Programme

**LHEES** - Local Heat and Energy Efficiency Strategies – strategies which aim to establish area-based plans and priorities for systematically improving the energy efficiency of buildings, and decarbonising heat.

**Ofgem** - The Office of Gas and Electricity Markets – a non-ministerial department of the UK Government, which acts as the independent regulator of the UK energy market.

**SME** - Small and medium-sized enterprises

**Terawatt (TW)** - A unit of power equal to 1,000,000,000,000 watts

**Terawatt hour (TWh)** - A unit of energy equal to 1,000,000,000,000 watt hours

**UK** - The United Kingdom

**Watt hour (Wh)** - A unit of energy (or work) equal to the energy of one watt operating for one hour, equivalent to 3600 joules

**Watt (W)** - An international standard unit of power, defined as one joule per second. Being a small unit, it is usually used as a multiple such as kilowatts, megawatts, gigawatts or terawatts

- 
- <sup>i</sup> <https://scotland.shinyapps.io/sg-scottish-energy-statistics/?Section=LocalEnergy&Chart=DistrictHeat>
- <sup>ii</sup> <https://www.gov.scot/publications/heat-buildings-strategy-achieving-net-zero-emissions-scotlands-buildings/>
- <sup>iii</sup> <https://www.gov.uk/government/publications/opportunity-areas-for-district-heating-networks-in-the-uk-second-national-comprehensive-assessment>
- <sup>iv</sup> <https://www.gov.scot/isbn/9781802015522>
- <sup>v</sup> <https://www.gov.scot/isbn/9781802015553>
- <sup>vi</sup> <https://www.gov.scot/isbn/9781802015539>
- <sup>vii</sup> <https://www.gov.scot/isbn/9781802015546>
- <sup>viii</sup> <https://www.gov.scot/isbn/9781802015560>
- <sup>ix</sup> <https://www.gov.scot/publications/heat-networks-scotland-bill-island-communities-impact-assessment/>
- <sup>x</sup> <https://www.gov.scot/publications/heat-networks-bill-equality-impact-assessment/>
- <sup>xi</sup> Competition and Markets Authority. (2018), Heat Networks Market Study: Final Report, (Competition and Markets Authority), URL: [https://assets.publishing.service.gov.uk/media/5b55965740f0b6338218d6a4/heat\\_networks\\_final\\_report.pdf](https://assets.publishing.service.gov.uk/media/5b55965740f0b6338218d6a4/heat_networks_final_report.pdf) (last accessed: 20/01/2021)
- <sup>xii</sup> <https://www.gov.scot/publications/heat-buildings-strategy-achieving-net-zero-emissions-scotlands-buildings/>
- <sup>xiii</sup> <https://heattrust.org/>
- <sup>xiv</sup> <https://www.gov.uk/government/publications/opportunity-areas-for-district-heating-networks-in-the-uk-second-national-comprehensive-assessment>
- <sup>xv</sup> <https://www.transformingplanning.scot/national-planning-framework/>
- <sup>xvi</sup> <https://www.transformingplanning.scot/national-planning-framework/get-involved/>
- <sup>xvii</sup> <https://www.climatechange.org.uk/research/projects/potential-sources-of-waste-heat-for-heat-networks-in-scotland/>
- <sup>xviii</sup> <https://www.gov.scot/news/accelerating-green-growth/>
- <sup>xix</sup> [https://www.cas.org.uk/system/files/publications/engaging\\_hearts\\_and\\_minds\\_jan\\_2020\\_web\\_final\\_0.pdf](https://www.cas.org.uk/system/files/publications/engaging_hearts_and_minds_jan_2020_web_final_0.pdf)
- <sup>[i]</sup> <https://www.procurementjourney.scot/route-3/develop-strategy/procurement-routes/competitive-dialogue>
- <sup>xx</sup> <https://www.legislation.gov.uk/ssi/2016/65/contents/made>
- <sup>xxi</sup> <https://www.cibse.org/knowledge/knowledge-items/detail?id=a0q3Y00000IMrmGQAT>
- <sup>xxii</sup> <https://www.greenspacescotland.org.uk/introducing-ghigs> and <http://nora.nerc.ac.uk/id/eprint/523186/>



Scottish Government  
Riaghaltas na h-Alba  
gov.scot

© Crown copyright 2021

**OGL**

This publication is licensed under the terms of the Open Government Licence v3.0 except where otherwise stated. To view this licence, visit [nationalarchives.gov.uk/doc/open-government-licence/version/3](https://nationalarchives.gov.uk/doc/open-government-licence/version/3) or write to the Information Policy Team, The National Archives, Kew, London TW9 4DU, or email: [psi@nationalarchives.gsi.gov.uk](mailto:psi@nationalarchives.gsi.gov.uk).

Where we have identified any third party copyright information you will need to obtain permission from the copyright holders concerned.

This publication is available at [www.gov.scot](http://www.gov.scot)

Any enquiries regarding this publication should be sent to us at

The Scottish Government  
St Andrew's House  
Edinburgh  
EH1 3DG

ISBN: 978-1-80201-596-6 (web only)

Published by The Scottish Government, November 2021

Produced for The Scottish Government by APS Group Scotland, 21 Tennant Street, Edinburgh EH6 5NA  
PPDAS951946 (11/21)

W W W . g o v . s c o t