

## REPORT TO SUSTAINABILITY COMMITTEE – 23 FEBRUARY 2023

### RESPONSE TO CONSULTATION ON A 2035 HEAT NETWORKS TARGET

#### 1 Executive Summary/Recommendations

1.1 This report details Aberdeenshire Council's draft response to the Scottish Government on the consultation on a proposal to introduce a 2035 target for the supply of thermal energy by heat networks in Scotland.

#### 1.2 The Committee is recommended to:

**1.2.1 Consider and comment on Aberdeenshire Council's draft response to the 2035 Heat Networks Target consultation (Appendix 2) and delegate authority to the Director of Environment and Infrastructure Services, following consultation with the Chair, Vice Chair and Opposition Spokesperson, to submit the finalised response by 11 March 2023.**

#### 2 Decision Making Route

2.1 This consultation was issued by the Scottish Government on 16 December 2022, with a closing date of 11 March 2023. Aberdeenshire Council officers collaborated to draft the proposed response. The full consultation document can be found in **Appendix 1** and the draft response can be found in **Appendix 2**.

#### 3 Discussion

3.1 The Heat Networks (Scotland) Act 2021 (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 is being consulted on in early 2023 and must be confirmed by 1 October 2023.

3.2 The Scottish Government's ambition for the heat networks sector includes, as set out in the Heat Networks Delivery Plan, that the sector delivers affordable clean heat, supporting delivery of emission reduction and fuel poverty targets. In summary, the Scottish Government proposes:

*To set the following target, where the combined supply of thermal energy supplied by heat networks in Scotland reaches at least 7 TWh of output by 2035.*

3.3 The draft consultation includes feedback and views from officers within the following services:

- Environment and Sustainability
- Housing and Building Standards
- Property and Facilities
- Planning and Economy

#### 4 Council Priorities, Implications and Risk

4.1 This report helps deliver all six of the Council's Strategic Priorities.

Pillar	Priority
Our People	Learning for Life Health & Wellbeing
Our Environment	Climate Change Resilient Communities
Our Economy	Economic Growth Infrastructure and public assets

4.2 The table below shows whether risks and implications apply if the recommendation is agreed.

Subject	Yes	No	N/A
Financial			X
Staffing			X
Equalities and Fairer Duty Scotland			X
Children and Young People's Rights and Wellbeing			X
Climate Change and Sustainability			X
Health and Wellbeing			X
Town Centre First			X

4.3 There are no staffing or financial implications from submitting a response to this consultation.

4.4 The screening section as part of Stage One of the Integrated Impact Assessment (IIA) process has not identified the requirement for any further detailed assessments to be undertaken as this report is to seek approval on a response to a Scottish Government consultation document.

4.5 The following [Corporate Risks](#) have been identified as relevant to this matter on a Corporate Level:

- ACORP002 Changes in government policy, legislation and regulation, by providing a response to this consultation we are staying informed with possible changes to regulation.

## **5 Scheme of Governance**

- 5.1 The Head of Finance and Monitoring Officer within Business Services have been consulted in the preparation of this report and their comments are incorporated within the report and are satisfied that the report complies with the Scheme of Governance and relevant legislation.
- 5.2 The Committee is able to consider this item in terms of Section R paragraphs 1.1a and 1.1b of the List of Committee Powers in Part 2A of the Scheme of Governance as it relates to approving, reviewing and monitoring the Council's work in respect of sustainable development and climate change and also to respond to Scottish Government regarding sustainable development and climate change issues.

**Alan Wood**  
**Director of Environment and Infrastructure Services**

Report prepared by Yvonne D'Ambruoso, Sustainable Development Officer - Climate Change  
Date: 8 February 2023

### **List of Appendices:**

- Appendix 1 - Consultation document on proposed 2035 target for the amount of heat to be supplied by heat networks  
Appendix 2 - Draft Officer Consultation response

# **Consultation on a 2035 heat networks target**

**A consultation on a proposal to introduce a 2035 target for the supply of thermal energy by heat networks in Scotland**

**Consultation on a 2035 heat networks target.**

**A consultation on a proposal to introduce a 2035 target for the supply of thermal energy by heat networks in Scotland**

Requirement of the Heat Networks (Scotland) Act 2021.

Date issued –16 December 2022

Closing date – 11 March 2023

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## Introduction – Purpose of this consultation paper

1. Scottish Ministers must in terms of Section 92 of the Heat Networks (Scotland) Act 2021 (“the 2021 Act”), by 1 October 2023, lay a draft of a Scottish statutory instrument containing regulations specifying a 2035 target relating to the combined supply of thermal energy by heat networks in Scotland
2. As set out in the Heat Networks Delivery Plan<sup>1</sup>, we committed to consulting on a proposed 2035 target in early 2023, which would be informed by the First National Assessment (FNA) of Potential Heat Network Zones<sup>2</sup> and work carried out to develop Local Heat and Energy Efficiency Strategies (LHEES). We have brought forward the date of this consultation to ensure appropriate time is provided for stakeholders to be engaged and for Scottish Parliament to scrutinise the target.
3. In the Draft Heat Networks Delivery Plan,<sup>3</sup> we asked for views on what should be considered in setting the future heat network supply targets. Respondents indicated that meeting the existing targets should be the focus of our work, while others believed that more time should be taken to decide a sensible 2035 target.<sup>4</sup> Responses to the consultation also included:
  - that progress toward the 2027 target (in 2023) would be a useful benchmark, as would progress on energy efficiency;
  - reference to LHEES as a good-basis for determining the 2035 target; and
  - indication that a better understanding of the potential of waste heat sources was needed.Much of this information is not currently of sufficiently robust quality or is not yet available.
4. Delaying the setting of a target would not meet the legal requirement of Scottish Ministers under the 2021 Act.
5. Given these views, we will review the 2035 target and, if appropriate, other heat network targets once more evidence is available such as LHEES and depending on what heat network zones are designated by local authorities. If appropriate, Ministers may modify these targets. This would allow us, in due course, to reflect progress with LHEES and heat network regulations work streams such as on building assessment reports (BARs) and zoning. The regulations work streams will be subject to separate consultations and publicised where appropriate on Citizen Space<sup>5</sup>. The BAR and Zoning consultation will be a limited 6-week consultation, targeted at specific sector stakeholders rather than the wider public, and will run from 16 January 2023 to 27 February 2023.

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<sup>1</sup> [Heat Networks Delivery Plan](#)

<sup>2</sup> [Potential heat network zones: First National Assessment](#)

<sup>3</sup> [Draft Heat Networks Delivery Plan - Scottish Government - Citizen Space](#)

<sup>4</sup> [Heat Networks Delivery Plan - Consultation Analysis](#)

<sup>5</sup> [Scottish Government Consultations](#)

6. Through this consultation, the Scottish Government is seeking views on the proposed target relating to the combined supply of thermal energy through heat networks in Scotland in 2035.
7. The consultation is focused on this one topic, and covers Scotland only.
8. We are also taking the opportunity to ask an open question about any other issues relating to heat networks, to inform any future target considerations.

## **Legislative Background and Policy Context**

9. The 2021 Act sets targets for the combined supply of thermal energy by heat networks, requiring this to reach 2.6 Terawatt hours (TWh) of output by 2027, and 6 TWh of output by 2030. These figures equate to approximately 3% and 8% of current non-electrical heat demand respectively.<sup>6</sup>
10. Beyond this, Scottish Ministers must – by 1 October 2023 – lay a draft of the Scottish statutory instrument containing regulations specifying a 2035 target. In order to meet this timetable, public consultation is needed in late 2022.
11. Section 92(2) of the 2021 Act also states that Scottish Ministers may modify any heat network target specified within the 2021 Act.
12. Consulting on the 2035 target was one of the actions set out in the Heat Networks Delivery Plan, which sits in the context of wider heat decarbonisation policy, in particular, the Heat in Buildings Strategy<sup>7</sup>. This Strategy highlighted that over the coming years the Scottish Government proposes a focus on so-called no- and low-regrets strategic technologies. These are the technological solutions where cost uncertainty is low and we already understand the costs of installation and running costs for consumers. Heat networks is one such technology outlined in the strategy. Detail on the other technologies and the approach to those can be found in the Strategy.
13. Our ambition for the heat networks sector includes, as set out in the Heat Networks Delivery Plan, that the sector delivers affordable clean heat, supporting delivery of emission reduction and fuel poverty targets.
14. Our Fuel Poverty Strategy<sup>8</sup> was published in December 2021 and sets out actions to tackle each of the four drivers of fuel poverty: poor energy efficiency of the home; high energy costs; low household income; and how energy is used in the home. We will work with the Scottish Fuel Poverty Advisory Panel, appointed by Ministers in December 2021, 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.

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<sup>6</sup> [Scottish Energy Statistics Hub \(2022\). Data – Non-electrical heat demand by sector \(GWh\)](#)

<sup>7</sup> [Heat in Buildings Strategy](#)

<sup>8</sup> [Tackling fuel poverty in Scotland: A strategic approach](#)



## Options Developed and supporting research

15. Table 1 below provides a sequential context of past, current, and future heat network provision, based on data currently available and targets set, to support consideration of the potential 2035 targets. Additional supporting analysis has been carried out as set out in the table notes.

**Table 1: Heat Network Outlook**

Year (and geography)	Heat supplied (TWh)	Comparator: current non-electrical heat consumption, <sup>E</sup> unless stated otherwise
2018 <sup>A</sup> (Scotland)	1.2	1.5%
2022 estimate <sup>B</sup> (Scotland)	1.4	1.8%
2027 target <sup>C</sup> (Scotland)	2.7	3.0%
2030 target <sup>C</sup> (Scotland)	6	8.0%
2035 target (Scotland)	Options set out below	
2050 CCC advice <sup>D</sup> (UK)	~20% (2050 heat demand)	

Table notes:  
<sup>A</sup> Source: 2018 Heat Networks Metering and Billing Regulations (HNMBR) notifications. Data is classified as experimental.  
<sup>B</sup> Source: 2018 HNMBR notifications and Scottish Government funded schemes. Heat network output has been estimated to be 1.4 TWh/annum (around 1.8% of current non-electrical heat demand), which is a 0.22 TWh/annum uplift from the 2018 figure quoted in the Heat Networks Delivery Plan. The uplift is a broad estimate based on Scottish Government funded heat network projects. This figure may be updated as the latest data from HNMBR notifications is quality assured and analysed.  
<sup>C</sup> Heat Networks (Scotland) Act 2021.  
<sup>D</sup> Climate Change Committee (CCC) advice to UK Government: “The Sixth Carbon Budget: The UK’s pathway to net zero” Dec 2020<sup>9</sup>. Detailed research was commissioned by the CCC on heat networks in 2015<sup>10</sup>.  
<sup>E</sup> Source: Scottish Energy Statistics<sup>11</sup>

16. In order to assist in setting a proposed target, evidence-based options for a potential 2035 target have been developed.

17. The potential targets have been developed principally using data produced as part of the FNA, published in March 2022.

18. The FNA utilises the heat demands and outputs from the Scotland Heat Map, Home Analytics, and Non-Domestic Analytics. The approach and outputs align with the current methodology for the identification of potential zones for heat networks that forms part of the LHEES (Local Heat and Energy Efficiency Strategies) Methodology. The report includes two main scenarios: a higher estimate of potential (Higher Potential – referred to in the FNA as Baseline Criteria) and a lower estimate of potential (Medium Potential – referred to in the FNA as Stringent Criteria). The former (Higher Potential) sets a lower threshold in

<sup>9</sup> [CCC \(2020\). Sixth Carbon Budget](#)

<sup>10</sup> [Research on district heating and local approaches to heat decarbonisation](#)

<sup>11</sup> [Scottish Energy Statistics](#)

terms of heat demand, density and distance, whilst the latter (Medium Potential) sets a higher threshold, resulting in fewer potential areas being identified.

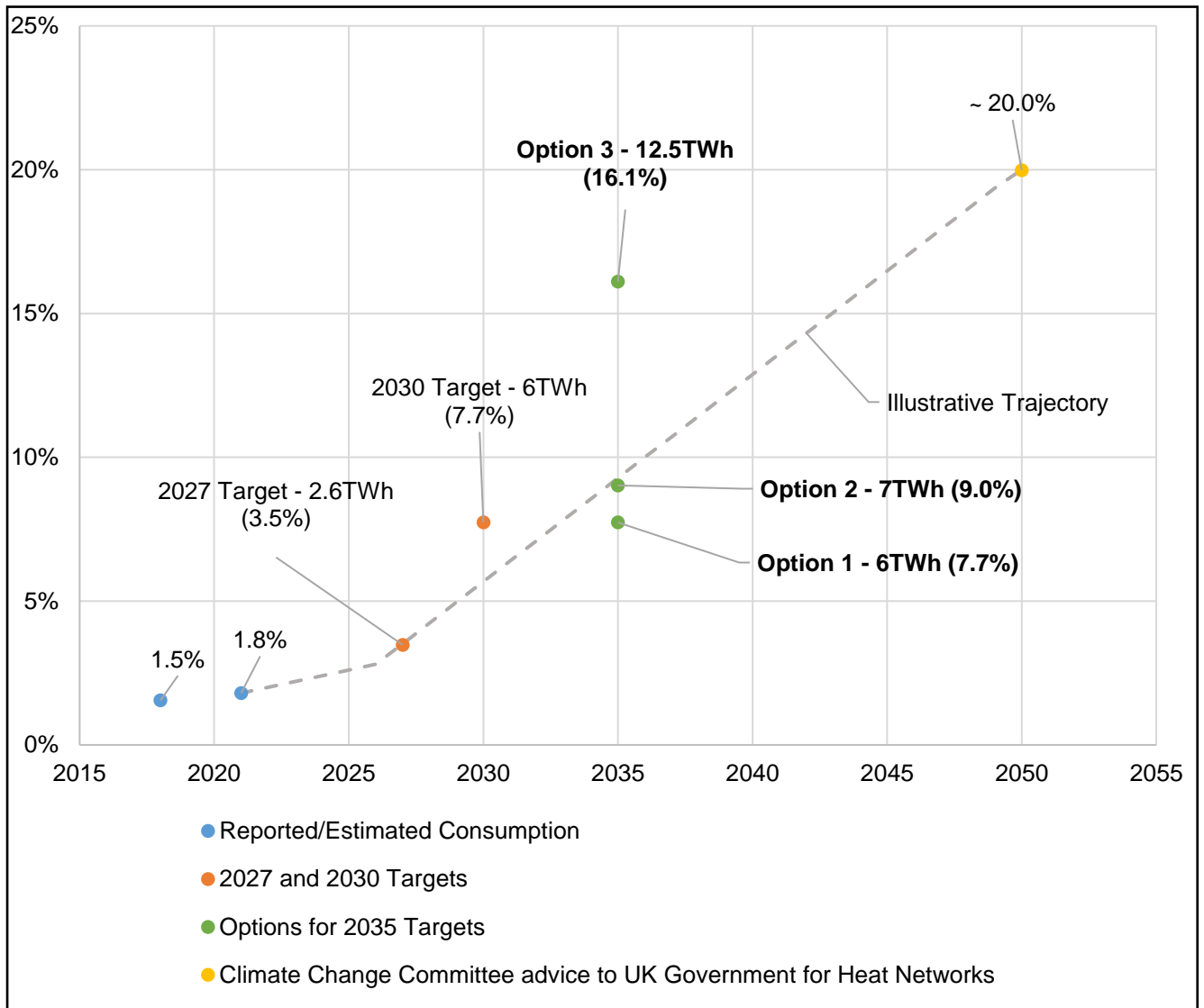
19. Table 2 below sets out a summary of three evidence-based options for a potential 2035 target. The FNA datasets (Higher Potential and Medium Potential) that have been used are shown next to each option. The table provides an indication of how these compare to current non-electrical heat demand.

**Table 2: Summary of Options 1-3 for target(s)**

Option for potential 2035 target (and FNA dataset)	Heat supplied (TWh)	Comparator: current non- electrical heat consumption <sup>A</sup>
Option 1 (FNA Medium Potential)	6	8%
Option 2 (FNA Medium Potential)	7	9%
Option 3 (FNA Higher Potential)	12.5	16 %
Table notes: <sup>A</sup> BEIS: Sub-national total final energy consumption data		

20. To determine these potential 2035 target options, a 50% reduction in the number of domestic and non-domestic connections was applied, as it is unrealistic to expect that all buildings identified within a potential zone will connect to a heat network. In the case of non-domestic buildings, 50% may be near the maximum proportion of heat demand that could be expected to connect due to the high proportion of non-domestic buildings on electric heating systems. Also, the FNA was not able to assess what proportion of the heat demand of buildings in potential heat network zones was already connected to heat networks. Other important limitations of the FNA (set out in the technical annex below) suggest that a conservative approach to the assumed connection rate is appropriate.
21. Figure 1, overleaf, provides a view of Options 1 to 3, alongside the context of existing data, estimates of current supply, existing targets, and advice from the Climate Change Committee (CCC) on future ambition (as set out in Table 1).

**Figure 1: Heat Networks Outlook – a visual aid for comparison of percentages of heat demand or consumption provided by heat networks, using reported data, estimates, targets, advice, and an illustrative trajectory.**



1. See Table 1 notes for further details on sources of data.
2. Figures up to 2035 provide percentage of current non-electrical heat demand supplied by heat networks.
3. 2050 figure is a UK figure based on the percentage of future predicted UK heat consumption supplied by heat networks based on CCC advice.

22. Similar to the Heat Networks Delivery Plan, to demonstrate the number of buildings which may need to connect to heat networks under each of the options, four scenarios for the number of domestic and non-domestic building connections have been developed, based on the outputs of the FNA. Three of the four scenarios (Scenarios A-C) are capable of meeting the options for a potential 2035 target.

23. We have committed to regulating to ensure that all buildings across all tenures achieve a good level of energy efficiency by 2035, as set out in Chapter 8 of the Heat in Buildings Strategy. Our modelling has therefore assumed that energy efficiency improvements made between 2030 and 2035 in properties on heat

networks will then reduce the energy demand of those networks and thus we will require an increased number of connections between 2030 and 2035 to maintain an overall 6 TWh output from heat networks, as per Option 1.

24. The scenarios (A: High domestic, B: Limited anchors, C: Low domestic, and D: Extreme domestic) are intended to be illustrative only and are not a statement of ambition. Additionally, due to limitations of the FNA and the Scotland Heat Map, sensitivity testing using alternative data has also been carried out. This indicates that the FNA scenarios may underestimate the number of connections needed to meet targets. Further details on the scenarios and sensitivity testing can be found in the technical annex.

## Proposed Target

25. Option 2 is our preferred approach as it is the most feasible, yet ambitious, scenario and outlook for the 2035 target.
26. We, therefore, propose to set the following target: the combined supply of thermal energy by heat networks in Scotland reaches at least 7 TWh of output by 2035.
27. Table 3 below shows the modelled number of domestic and non-domestic connections for the four scenarios to meet at least 7 TWh.

**Table 3: Heat Network Deployment Scenarios (Option 2) highlighting a range of connections dependent on proportion of non-domestic buildings connecting.**

Scenario	Heat Demand (TWh/year)	Non-domestic connections	Domestic connections
A: High domestic	7.0	2,300	65,800
B: Limited anchors	7.0	3,400	60,500
C: Low domestic	7.0	5,000	37,900
D: Extreme domestic	3.2 (7)	100	89,200

Table notes:

1. Number of connections rounded to nearest hundred.
2. Scenario D fails to achieve required demand. Figure in brackets for Scenario D is the proposed target.

28. The sensitivity test using Non-Domestic Analytics data and Typical Domestic Consumption Values (TDCVs) - which doesn't take anchor loads into account – suggested that around 112,200 non-domestic and 135,000 domestic properties would need to connect to achieve the proposed target of at least 7 TWh.
29. Additionally, further analysis of the FNA data based on Option 3 was carried out to establish a figure should there be a higher percentage of domestic connections than 50% - used to develop the potential target figure options. Adjusting the number of domestic connections needed increases the heat network output by only a fraction of a percentage using the same dataset. Given that the FNA data is essentially modelled data and sensitivity testing has shown a wide variance in the number of properties that would need to connect to meet this TWh figure, we are proposing that the target is set at, at least 7 TWh.

### **In summary, we propose:**

**To set the following target, where the combined supply of thermal energy supplied by heat networks in Scotland reaches at least 7 TWh of output by 2035.**

**We will review the 2035 heat network target and, if appropriate, other heat network targets once more evidence is available, such as LHEES and heat network zones designated by local authorities.**

## Consultation Questions

**Question 1:** What is your opinion of the proposal to set the 2035 target for the combined supply of thermal energy supplied from heat networks to “at least 7 TWh” of output?

**Question 2:** Are there particular considerations in setting this target that may help to reduce the depth and/or rate of fuel poverty?

**Question 3:** Are there any other issues that you would like to highlight in relation to the 2035 heat network target?

## Responding to this Consultation

30. We are inviting responses to this consultation by 11 March 2023.

31. Please respond to this consultation online using the Scottish Government’s consultation platform, Citizen Space link below:  
<https://consult.gov.scot/energy-and-climate-change-directorate/2035-heat-networks-target/>

32. You can view/respond and also save and return to your responses while the consultation is open. Please ensure that consultation responses are submitted before the **closing date of 11 March 2023**.

33. If you are unable to respond online, please complete the Respondent Information Form (see “Handling your Response” below) to:

Heat Networks Policy Team - Area 3F South  
Victoria Quay  
EDINBURGH  
EH6 6QQ

## Handling your response

34. If you respond using Citizen Space (<http://consult.scotland.gov.uk/>), 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.

35. If you are unable to respond via Citizen Space, please complete and return the Respondent Information Form included in this document (see page 12). If you ask for your response not to be published, we will regard it as confidential, and we will treat it accordingly.

36. 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

37. 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 <http://consult.scotland.gov.uk>. If you use Citizen Space to respond, you will receive a copy of your response via email.
38. Following the closing date, all responses will be analysed and considered along with any other available evidence to help us reach a final position. Subject to stakeholders' views, and the approval of the Scottish Parliament, if we decide to proceed with the proposal, we aim to do so at the earliest opportunity.

## Scottish Government consultation process

39. 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.
40. 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.
41. Consultations may involve seeking views in a number of different ways, such as public meetings, focus groups, or other online methods such as Dialogue (<https://www.ideas.gov.scot>)
42. 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
  - be used to finalise legislation before it is implemented
43. 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.
44. If you have any comments about how this consultation exercise has been conducted, please send them to:

Heat Networks Policy Team -  
Area 3F South  
Victoria Quay  
EDINBURGH  
EH6 6QQ  
Email: [heatnetworks@gov.scot](mailto:heatnetworks@gov.scot)

## Consultation on proposal to introduce a 2035 target for heat networks



Scottish Government  
Riaghaltas na h-Alba  
gov.scot

### 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 the Scottish Government to contact you again in relation to this consultation exercise?

Yes

No



## Annex A – Technical Analysis: Scenario and sensitivity testing on number of building connections

1. As set out in the consultation document (paragraphs 22 to 24 and 27 to 28) building connection scenario were developed for each potential target (for each Option). The scenarios (A: High domestic, B: Limited anchors, C: Low domestic, and D: Extreme domestic) are intended to be illustrative only and are not a statement of ambition. Real-world deployment will be guided by detailed heat network zoning, feasibility studies, and business case development. The scenario results are shown for the potential targets considered in Table A2.
2. Table A1, below, shows the maximum percentage of connections of each building type which occurs under each of the scenarios.

**Table A1: Scenario Criteria**

<b>Building type</b>	<b>Scenario A</b> (High domestic)	<b>Scenario B</b> (Limited anchors)	<b>Scenario C</b> (Low domestic)	<b>Scenario D</b> (Extreme domestic)
<b>Anchor loads</b> (heat demand greater than 500 MWh/year)*	Up to 70%	Up to 50%	Up to 90%	Up to 10%
<b>Other non-domestic buildings</b>	Up to 10%	Up to 20%	Up to 30%	0%
<b>Domestic properties: Flats</b>	Up to 90%	Up to 80%	Up to 70%	Up to 100%
<b>Domestic properties: Other</b>	Up to 90%	Up to 80%	Up to 30%	Up to 100%
Table notes: Domestic flats with existing heat pumps, as well as other forms of properties with existing electric heating systems, have been excluded from potential heat network connection. Domestic flats using direct electric heating systems have been included for potential heat network connection as such conversions can support fuel poverty objectives. * Anchor loads tend to be non-domestic.				

3. For all scenarios, domestic energy efficiency measures are applied between 2030 and 2035. (Proposals for domestic energy efficiency regulations currently have a backstop date of 2033.)
4. Under Scenario A (High domestic), domestic connections are the prominent connections in potential clusters, with a majority anchor load proportion of 70%. This scenario limits the number of non-anchor, non-domestic connections to just 10% of those in the applicable clusters to ensure the 90% domestic potential is realised.
5. Under Scenario B (Limited anchors), the anchor loads are limited to 50%, and there is a bigger scope for non-anchor load non-domestic connections. The

domestic connections are limited to 80% in this scenario to ensure the 20% non-domestic loads are utilised.

6. Scenario C (Low Domestic) takes a more non-domestic led approach with a higher anchor load proportion (90%) and limited number of domestic connections. The anchor loads would principally be non-domestic connections.
7. Under Scenario D (Extreme domestic), within the identified potential clusters under the FNA, all domestic properties (that don't have heat pumps in the case of flats or aren't electrically heated in the case of other homes) connect.
8. As can be seen in Table A2 below, the actual demand figures for Scenario D are shown, with the targets in brackets. It can be seen that there is a shortfall for this scenario across all three options under consideration. In reality this could potentially be made up with more non-domestic connections or with heat networks extending to non-domestic properties outside of the potential clusters identified, if this were feasible.
9. Table A2, below, sets out the results for each of the four scenarios under each of the three Options (or potential targets) considered. For each target option, the analysis was carried out utilising the clusters within the FNA datasets. The dataset used for each option is shown in brackets next to the relevant option.

**Table A2: Scenario Results, by option**

Option and Scenario	2035 Target		
	Heat Demand (TWh/year)	Non-Domestic Connections	Domestic Connections
<b>Option 1 (FNA Medium Potential)</b>			
Scenario A	6.0	1,800	49,700
Scenario B	6.0	2,700	45,500
Scenario C	6.0	3,900	29,900
Scenario D	3.2 (6)	100	89,200
<b>Option 2 (FNA Medium Potential)</b>			
Scenario A	7.0	2,300	65,800
Scenario B	7.0	3,400	60,500
Scenario C	7.0	5,000	37,900
Scenario D	3.2 (7)	100	89,200
<b>Option 3 (FNA Higher Potential)</b>			
Scenario A	12.5	4,600	259,600
Scenario B	12.5	7,200	240,100
Scenario C	12.5	11,200	148,700
Scenario D	8.2 (12.5)	200	327,200
Number of connections rounded to nearest hundred. Figures in brackets for Scenario D are the potential targets.			

10. The actual demand figures from Scenario D are shown, with the targets in brackets indicating that the shortfall is more than a third of the target output in every option.
11. Due to the modelled nature of some of the data underpinning the FNA, an additional analysis was carried out as a sensitivity check using alternative datasets. Non-Domestic Analytics (NDA) and Ofgem's Typical Domestic Consumption Values (TDCV) have been used for this and show a significant discrepancy in numbers of buildings connected. For example, this approach estimated that 156,700 non-domestic and 431,800 domestic building connections would be needed to meet a 12.5 TWh target (Option 3) and 112,200 non-domestic and 135,000 domestic building connections would be need to meet a 7 TWh target.
12. A key driver of this discrepancy is likely to be that the NDA/TDCV approach does not assume anchor loads connecting. While this approach does not capture the variation in heat demands which is possible through the FNA approach, it does identify that the FNA scenarios may underestimate the number of connections needed to meet the potential targets considered.

## Annex B – Glossary of Terms and Acronyms

**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.

**CCC** – Climate Change Committee - independent, statutory body with the purpose of advising the UK and devolved governments on emissions targets and to report on progress made in reducing greenhouse gas emissions and preparing for and adapting to the impacts of climate change.

**FNA** - First National Assessment of Potential Heat Network Zones. The FNA, published on the gov.scot website in April 2022, was prepared by Buro Happold on behalf of Zero Waste Scotland for the Scottish Government. The data has been used to produce evidence-based potential targets for heat output from heat networks in Scotland.

**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.

**HNMBR** - Heat Networks Metering and Billing Regulations 2014

**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.

**NDA** - Non-domestic analytics - a dataset developed by the Energy Saving Trust on behalf of the Scottish Government to provide more detailed address-level information about the non-domestic building stock in Scotland. Like Home Analytics, which brings together various sources of data on domestic buildings, NDA integrates several non-domestic datasets such as Energy Performance Certificates (EPCs) and Scottish Assessors records. NDA uses statistical models to help fill data gaps in the underlying data sources

**TDCV** - typical domestic consumption values

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

**TWh/annum** – Terawatt hours per year

**Thermal Energy** – This term is used loosely in various contexts in physics and engineering. It can refer to several different well-defined physical concepts. The 2021 Act sets out that thermal energy” means heating, cooling or hot water.

**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

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**Aberdeenshire Council - Notes to form consultation response (will be submitted via the portal on the Scottish Government webpage)**

**1. What is your opinion of the proposal to set the 2035 target for the combined supply of thermal energy supplied from heat networks to “at least 7 TWh” of output?**

- 7TWh or 9% is a high target for our area, we wish to state that this target should not translate to a Local Authority target of 9% of thermal demand for each Local Authority Area. Some areas will be better placed to provide a greater share of this target and our area, which is rural in character with a dispersed population, would not be well placed to deliver this target in comparison to large urban areas, where the opportunities for heat networks will be considerably greater. A standard Local Authority target would not be equitable. There are parallels in the approach being taken by Scottish Government in seeking to reduce the level of car trips by 20%. In setting that target it has been recognised that a one size fits all approach is undeliverable.
- Instead, the spread of target liability for each area should be in line with that published in the First National Assessment of Potential Heat Network Zones, with more weight given to the denser populated areas in the North East such as the only City (Aberdeen).
- Should buildings become much more energy efficient and the overall heat demand for Scotland reduce such that the 7Twh becomes more than 9%, then the target should be capped at 9% of thermal requirements for 2035.
- If there was specific funding available to convert geothermal heat into heat networks the target could be more achievable in our area. This point is also relevant to other technologies in other places, without direct assistance there will be no incentive to overcome the deliverability issues associated with new heat networks
- Multiple organisations and partners, such as other social housing providers and public bodies, would need to be committed to these targets in order to achieve them.
- Clarity on exactly what would ‘count’ as heat networks should be further clarified. For example – can sheltered housing complexes be included also sports facilities or schools with annex buildings all supported by one heat source – will this count? This was not clear in the consultation document although does seem clearer in the Act.
- Promotion of heat networks should be specifically with the overall objective of delivering carbon neutral/low carbon system. Otherwise, they will not contribute to reducing carbon impact of heating - this is not clear in the consultation although we appreciate the intention to request carbon reduction plans from heat network operators that are not low carbon systems.



## Appendix 2

- Aberdeenshire Council would support a review of the target once the information in the Local Heat and Energy Efficiency Strategies from the local authorities have been considered by Scottish Government.

### **2. Are there particular considerations in setting this target that may help to reduce the depth and/or rate of fuel poverty?**

- Focus should be on a fabric first approach to reduce the heating requirements of properties along with more signposting to available funding to enable this for those at risk of fuel poverty. This is likely to be more cost effective, deliverable and achieve the National outcomes than any focus on heat networks. Heat networks should be seen as part of a wider solution set.
- Need to ensure the costs of setting up heat networks, which are significant, are not passed on to those at risk of fuel poverty otherwise this negates the potential savings for them

### **3. Are there any other issues that you would like to highlight in relation to the 2035 heat network target?**

- 2045 Net Zero target should be included in any target setting to ensure other targets do not require secondary attention to align with that in the future.
- Emphasis on, and funding for heat networks must not divert funding away from fabric first and other more deliverable approaches.
- The Energy Efficiency Standard for Social Housing 2 (ESSH2) 2032 target was a lesser target than Net Zero 2045 target and this has currently been put on hold as it is under review. Failing to aim at the ultimate target may be short sighted, as it can result in undertaking upgrades and other actions/install costs etc, that subsequently prove to be abortive as they need to be replaced/revisited to achieve the future Net Zero target. Likewise, creating a heat network that is fossil fuel powered but can be made carbon neutral in the future, may prove more costly than focusing on low carbon heat networks on implementation.
- Many town centres are conservation areas and have listed buildings within them, if heat network provision is required to extend to these buildings great care will need to be taken that provision of heat networks will not prejudice the quality of these community assets. There will need to be consultation with the planning profession and Historic Scotland over acceptable methods of introducing this into special buildings. The ability of the road and footway network to absorb the additional infrastructure required by heat networks will also require careful planning and design. There is a clear role for the Scottish Roadworks Commissioner and the Joint Utilities/Roads Authorities groups in this work.
- Due to the increasing energy efficiency of new builds, heat networks could be considered beneficial in new development areas. However, the staged way in which developments tend to emerge can cause issues for linking to a heat

Appendix 2

network due to technical issues relating to the rate of build on individual large sites, many of which may take many years to reach a size for a heat network to become a viable proposition. Due to the need for varying pipeline bore requirements for lower and higher heat demand, it may prove to be unviable to serve parts of yet to be completed developments.