

**Submission by the Energy Policy Group (EPG) of the University of Exeter to the BEIS consultation on 'Heat Networks: Building a market framework'.
Dr Jess Britton and Dr Richard Lowes**

Dear BEIS,

Thank you for the opportunity to respond to the consultation on a market framework for heat networks. We commend BEIS for continuing policy activity in this space during the Covid-19 crisis and are grateful for the extension of the consultation timeline in order to complete our response. This document represents the response of the Energy Policy Group at the University of Exeter and is informed by extensive research over the last 7 years on governance for energy system change, the decarbonisation of heating and heat network business models. Overall we are very encouraged by the emphasis on accelerating market growth whilst formalising protection for consumers. Despite this we believe there are a number of significant omissions from the consultation that require consideration if heat networks are to play a significant role in the rapid decarbonisation of UK heating and cooling. These points are detailed below under 'overarching points'. Responses to the specific consultations questions are detailed below this. Please do get in contact if further detail on any of our responses would be helpful.

Overarching points:

Whilst it is positive that the document sets out a commitment to pilot heat planning in a number of local authority areas it is concerning that there are no questions relating to the potential format and operation of heat network zoning and/or scope to require connection of existing buildings in some heat network zones. There is evidence of such powers being used effectively in Germany where, although there is scope for required connections, experience indicated that it is rarely used and acts more as a method to de-risk investment¹. There is considerable scope to include various provisions relating to cost effectiveness tests before connection is mandated. We have known for some years of the strategic value of heat networks in highly populated areas for a decarbonised energy system. Moving beyond planning towards regulation and enforcement is the natural next step needed to drive heat networks at the scale required by the climate change act.

Similarly there is no discussion of the relationship between heat network planning and wider local decarbonisation planning across heat, power, transport and the built environment. As the consultation sets out heat networks are best developed as local solutions to local circumstances and the development of a statutory duty for local authorities to undertake local energy and decarbonisation planning should be

¹ See Britton, 2019 The role of the city-scale in energy transitions: heat networks in England and Germany, <http://hdl.handle.net/10871/38779>.

established to enable a strategic approach to decarbonisation. This would require DNO/DSOs, local authorities, LEPs and other stakeholders to work together to plan the local decarbonisation and integration of electricity, heat and transport in line with Climate Change Act targets. In relation to heat it would involve local heat mapping and identification of heat network zones as well as coordinating the roll out of heat pumps with DNO planning and activity. This would also support integrated policy approaches, where energy efficiency policy forms part of a package of policies supporting the uptake of low carbon heating technologies (see Q40).

In relation to land use planning, reforms to spatial planning policy in England (i.e. the development of the National Planning Policy Framework) have simplified the planning policy landscape but this also means that planning policy related to low carbon heat relies on individual planning authorities prioritising and developing appropriate local policies. This risks some areas failing to develop robust policies and significant new development being built without appropriate consideration of low carbon heating technologies. Internationally, strong planning policy is a feature of most large-scale heat network development. For example, in Denmark heat network zoning was introduced in conjunction with mandatory connection to heat networks, and the banning of heat pumps in collective supply areas, while subsidisation of heat pumps has been increased outside collective supply areas.

As the consultation states there is a risk that local heat planning creates an additional burden on local governments. However, as the local aspect of smart, integrated energy systems becomes more apparent it is essential that structures are put in place to manage rapid decarbonisation at a more local scale. As set out by the IGov project, there remains a significant mismatch between the level of sub-national activity on energy system change and governance structures to enable and support change. To address this we propose the establishment of a statutory duty on local authorities to prepare Local Transformation Plans (LTPs) aligned with the devolution of national carbon budgets to the local level². While such an approach is, in principle, about setting requirements on local authorities it does not conflict with the devolution agenda as local areas would not be constrained or directed in terms of how they develop or govern their LTP or deliver local carbon budgets. The government's commitment to legislate for zero carbon illustrates that action on climate is required in all areas across the country and we can no longer expect some areas to lead the way while others take minimal action. Clarifying and formalising the local role would provide a forum for bold strategic planning, accelerated delivery, debate with local communities and discussion with central government regarding any further devolution of powers or flexibilities. LTPs would play an essential role in coordinating action³ both within and across governance scales. This would not be about adding another layer to the already crowded local 'strategy' landscape but setting out a clear framework and monitoring approach for decarbonisation, which (1) all other strategies would need to be prepared with regard to, (2) provides a basis for regional coordination and (3) makes clear at a national level the differing opportunities and challenges for decarbonisation across the UK.

Whilst piloting local approaches to heat zoning/planning may provide some useful learning, considerable learning already exists in relation to the Energy Systems Catapult pilots of Local Area Energy Planning⁴ and the piloting on Local Heat and Energy Efficiency Strategies in Scotland⁵. There is therefore a need to take more ambitious action to restructure local-national energy governance arrangements than commissioning another round of pilots. Additionally pilot areas are likely to be self-selecting, to some extent, resulting in an under-representation of less ambitious local authorities or those with less experience on developing heat networks or other low carbon infrastructure.

² More detail on our thinking on the need for Local Transformation Plans can be found here:

<http://projects.exeter.ac.uk/igov/new-thinking-governance-for-local-energy-transformations/>.

³ <https://warwick.ac.uk/fac/soc/pais/research/researchcentres/ipe/laspd/localenergytaskforce-online.pdf>.

⁴ <https://es.catapult.org.uk/wp-content/uploads/2018/12/Local-Area-Energy-Planning-Insights-from-three-pilot-local-areas.pdf>.

⁵ <https://www.gov.scot/publications/local-heat-energy-efficiency-strategies-phase-1-pilots-social-evaluation/>.

There is also a pressing need for a national engagement programme on the decarbonisation of heating and cooling. Communicating and engaging citizens around the fact that natural gas heating will not be a viable heating solution in a net zero world and increasing citizens understanding of heat pumps, heat networks and whole-house retrofit is of utmost importance. Local authorities could play a significant role here but there is a need for coordination at a national level⁶.

Whilst we appreciate that this consultation is focussed specifically on the market framework for heat networks, other areas of omission from the consultation include: work assessing the impact of smart heating controls on heat networks and scope to integrate energy efficiency programmes into heat networks. There is also a lack of linking of this consultation to wider industry reforms, particularly in relation to the increasing importance of service based approaches to heating and the role of heating and cooling flexibility (see question 27).

Responses to consultation questions

Regulatory Framework overview

Q1. Do you agree with the inclusion of micro-businesses within consumer protection requirements?

Yes

Q2. Do you agree that consumer protection requirements should not cover nondomestic consumers (other than micro-businesses)?

We would support the provision of consumer protection requirements for all SMEs (i.e. businesses employing under 250 staff) as the evidence suggests that most SMEs, beyond just micro-businesses, [lack resources and negotiating power to ensure good service from their energy supplier](#). This would also help to create a more attractive framework for SMEs to choose to connect to a network, particularly as most large networks are likely to be in dense urban areas where SMEs will be important connection class (smoothing demand across a 24 hour period). Alternatively, other measures could be taken to ensure standards for SMEs, for example more stringent licensing measures than currently proposed under the assurance framework.

Q3. Do you agree with our proposed approach to a definition of heat network, including that it should cover ambient temperature networks but not ground source heat pumps with a shared ground loop?

Yes

Are there network arrangements you think would not be covered by this and which should, or vice versa?

No response

Proposed regulatory approach

Q4. Do you consider Ofgem to be the appropriate body to take on the role of regulator for heat networks? If not, what would be an alternative preference?

Yes

Regulatory model options

Q5. Do you agree that the proposed regulatory model is appropriate for the regulation of heat networks?

Yes

Q6. Which entity should be responsible and accountable for regulatory compliance, particularly where the heat supplier and heat network operator are not the same entity? Please explain why you think this.

⁶ A summary of IGov's work on Local energy and the changing role of people can be found here: <http://projects.exeter.ac.uk/igov/primer-local-energy-and-the-changing-role-of-people/>

The heat supplier should be accountable for regulatory compliance as they have the end relationship with consumers. While some compliance risks may be most appropriately managed by generation or pipework owner/operators (if different from the supplier) these could be managed by the supplier through contractual arrangements. Placing responsibility and accountability on the heat supplier would incentivise other asset owners/operators to comply as suppliers would not contract with them without evidence of compliance.

Q7. Do you agree that consumer protection requirements during the operation and maintenance project stage should be regulated, such as pricing, transparency and quality of service?

Yes

Q8. Should there be a de minimis threshold below which a) very small domestic schemes and/or b) non-domestic schemes with very few domestic consumers are exempted from any of the regulatory requirements proposed in this framework? Please explain why you think this.

Yes a de-minimis threshold should be set which applies to very small communal schemes (for example 2 or 3 flats with a communal system) or local community schemes where a few households may share a heat generation source. However this should not include large non-domestic networks that only have a small number of residential dwellings connected as this could compromise the protections for micro-businesses and SMEs, as well as complicating any future extensions of such networks to larger residential areas.

Q9. Should there be a size threshold above which larger schemes are subject to more detailed regulation and scrutiny? If so, what type of threshold would you consider most appropriate?

Yes. The identified threshold of suppliers delivering heat and/or cooling to more than 2,000 customers seems appropriate, although this should be calculated based on the supplier's whole undertakings rather than individual networks. This could also help to support a regulatory role in undertaking pricing investigations as discussed in our response to question 29.

Q10. Should an optional licence be available for entities seeking rights and powers? If not, what other approaches could be considered?

Yes.

Q11. Are there any other adjustments that could be made to the proposed model to enable it to work better?

No response

Q12. Are there circumstances in which transitional arrangements should be introduced? If so, in what circumstances might these apply and for what length of period?

No response.

Emerging business models

Q13. Do you consider our proposed approach sufficiently flexible to accommodate emerging business models, including unbundling of different components of a heat network? If not, please suggest ways in which we could ensure alternative business models are not precluded.

Yes. If responsibility for regulatory compliance focussed on the supplier this would support unbundling.

Enforcement powers

Q14. How should government and the regulator ensure that enforcement action is proportionate and targeted? Are there particular considerations for not for profit schemes?

No data is provided in the consultation document regarding the proportion of not-for-profit heat network schemes, so it is difficult to comment on considerations for these schemes. However non-financial penalties are more likely to be appropriate in these cases and the non-financial penalties outlined in the document (ultimately including revocation of authorisation to operate) are likely to be appropriate.

Q15. Do you agree that imposing fines and removing a licence/authorisation are an appropriate and adequate set of enforcement actions for the regulator of the heat network market?

Yes.

Q16. Do you agree that the regulator should have powers to impose penalties at the entity level which are proportionate to its size, in a scenario where there are repeated or systemic failures across multiple schemes owned or operated by the same entity?

Yes. This would incentivise large operators to ensure the highest standards are met across their portfolio.

Q17. Do you agree that the regulator should have powers to revoke an authorisation for single networks owned or operated within a group scenario, so that the entity would still be authorised or licensed to operate those networks within the group that remain in compliance? If not, what alternative approach might the regulator take?

Yes but as stated above financial penalties should be proportionate to the operators whole portfolio.

Q18. If compliance issues are more widespread within the group of networks owned or operated by the same entity, do you agree that the regulator should be able to revoke the authorisation or licence for the entity as a whole covering its entire group of networks? If not, what alternative approach might the regulator take?

Yes but there is a need to identify the circumstances under which revocation across a whole entity would take place (i.e. what constitutes 'widespread' failures in compliance).

Q19. Do you agree that individual domestic consumers should have access to ombudsman services for redress? Do you have any views as to which ombudsman is best placed to provide this function for heat networks?

Yes. Energy Ombudsmen.

Step-in Arrangements

Q20. Do you agree that step-in arrangements are necessary both to cover the risk of stranded consumers and as a deterrent against sustained failure to meet the regulatory requirements? If not, why?

Yes. Regardless of the limited presence of step in arrangements in other European countries the UK should develop arrangements. Developing a comprehensive heat network framework which includes provision for step in arrangements would increase consumer confidence and decrease investor risk.

Q21. Do you have any examples of approaches we should be considering as we develop the step-in arrangements?

Evidence of contingency plans and requirement to hold reserve funds should be included within the authorisation/licensing process. However more exploration is required of the risks and benefits of SoLR-type arrangements and provision to appoint an administrator. Contingency plans should include provision to identify risk of defaulting or supplier failure and trigger the voluntary transfer of customers to a new supplier (a trade sale). However it is not clear if giving Ofgem the authority to appoint a SoLR would be appropriate. The size of the current heat network market and the fact that some individual networks are quite large means that non-voluntary SoLR appointment could undermine the viability of a heat network operator's wider portfolio if they were obligated to take on a failing network. There is also a need to consider how SoLR-type arrangements would be funded.

Protecting consumers

Transparency

Q22. Do you agree that the provision of minimum information would help consumers in making decisions at pre-contractual stages of property transactions?

Yes.

Q23. Do you agree that heat suppliers should be responsible for developing information and guidance for prospective consumers? If yes, what minimum information should be included?

Yes.

Q24. How can we ensure new consumers receive or have access to information about the heat network before moving into the property?

No response.

Q25. Do you agree that the market framework should regulate and enforce the provision of information during residency?

Yes.

Pricing

Q26. Do you agree that the regulator should have powers to mandate and enforce price transparency? Can you foresee any unintended consequences of this?

Yes.

Q27. What are the current barriers to publishing and maintaining accurate information on fixed charges, unit rates and tariffs? What are the main reasons for information on pricing not being available at present?

Requiring heat suppliers to provide information specifically in the form of fixed and unit rates, and tariffs, could dis-incentivise efficient use of heating by householders. Heat networks are likely to have high fixed costs and some suppliers may choose to apportion less than full amount of fixed cost to this element of the bill, and instead increase their unit costs, in order to not undermine incentives on consumers to use heating and ventilation efficiently. This needs to be considered in any requirements on pricing transparency. It is also important to note that increasingly cost comparators will need to adopt other measures than a comparison with gas heating.

As the value of local flexibility in heating/cooling/power demand is increasingly recognised it is likely that a much wider proportion of business models will reward consumers for shifting heating/cooling to periods of low demand. For example households with a heat pump can already benefit from attractively priced low-usage periods via alerts on the Octopus Agile tariff. Heat network operators may seek to increasingly adopt similar tariffs in future and any arrangements adopted now should be flexible enough to address these issues as they arise. There are considerable challenges for heat network consumers in understanding if they have received fair pricing under such arrangements.

Q28. Do you agree that there should be clear, consistent rules on what costs should be recovered through fixed and variable charges?

See response to question 27.

Q29. Do you agree that the regulator should have powers to undertake investigations on pricing and to enforce directions and remedy actions, where there is sufficient evidence that these could lower prices for consumers?

Yes. Evidence from the work of the Cartel Office (Bundeskartellamt) in Germany suggests that their investigations of heat networks in areas of high pricing have effectively addressed these cases. Enquiries are carried out on a random basis or when concerns are raised by consumer or other interested groups. In 2013 a review of a number of networks where there were concerns over pricing led to Stadtwerke Leipzig

GmbH agreeing with the Bundeskartellamt to lower its district heating prices by €8million per year over a period of five years.

Q30. Do you agree that price regulation in the form of a price cap or regulation of profits should not be implemented at this point in time? Please explain your answer.

Yes – for the reasons outlined in the consultation document in terms of the complexities, costs and regulatory burden of applying a price cap or regulating profits due to the significant variation in costs to supply across networks.

Q31. What might cause price regulation to become an appropriate intervention in future? What evidence would be required to demonstrate this?

No response.

Quality of Service Standards

Q32. Do you agree that consumers on heat networks should have comparable levels of service and protection as consumers in other regulated utilities? How do we ensure the associated compliance costs of such protections remain proportionate?

Yes, with a de-minimis threshold as per question 8.

Q33. Do you agree that minimum standards should be outcome-based to allow the regulator scope to implement these flexibly and proportionately depending on the size and nature of different schemes? Are there other ways these outcomes could be achieved?

Yes.

Technical Standards

Q34. Do you agree that all new schemes should be subject to minimum technical standards (once developed), given the potential impact on system performance and end consumers?

Yes

Q35. How could we ensure the impact of minimum technical standards on new small communal networks is proportionate?

No response

Q36. Do you agree that regulated entities should demonstrate they are compliant through an accredited certification scheme?

Yes

Q37. What do you consider to be the most appropriate approach to setting the technical standards?

No response

Q38. Are there examples of the roll out of technical standards or the introduction of compliance schemes which you consider particularly relevant from other markets or technologies?

No response

Rights and powers

Q39. Do you agree that a (licensed) heat network entity should be classified as a statutory undertaker?

Yes

Q40. Do you agree that the proposed rights and powers should be given to heat network entities which meet the terms of our proposed licensing system?

Yes

Q41. Is it reasonable to assume that the proposed rights and powers would only be relevant to district heat networks (not communal networks)? If not, please explain why.

Yes

Q42. What impacts will the proposed rights and powers have on the development and extensions of heat networks? And what impacts do you think these rights will have on the operator's ability to maintain and repair heat networks?

The proposals will reduce risks and costs, and speed up repairs and extensions.

Access rights

Q43. Do you agree that licensed heat network entities should be granted statutory access rights?

Yes

Q44. Do you agree that the process should be similar to that for electricity and gas companies, in that the licensed heat network entity will have to make an application to the responsible minister for the easement and that any compensation arrangements will be determined by the Tribunal Service?

Yes

Q45. Do you agree that these access rights would primarily be used to install and maintain pipework, or do you anticipate that they would be used for other purposes?

No response.

Street works

Q46. Would you consider the ability to apply for a street work permit a considerable benefit compared to a Section 50 Street Works licence? If so, in what way?

No response

Q47. Do you have any experience of applying for a Section 50 Street Works licence? Did you find this delayed either construction or repair and maintenance work required?

No response

Rights to lay pipes under the roadway

Q48. Do you agree that heat networks should be given equivalent powers to other utilities to install and keep heat network pipes underneath roadways? Are you aware of any potential unintended consequences?

Yes.

Permitted development

Q49. Do you agree that licensed heat network developers should be granted permitted development powers similar to other statutory undertakers? Are you aware of any potential unintended consequences?

Yes

Q50. In addition to permitted development rights specified (install or replace pipes or electricity cabling; erect small temporary structures and small ancillary buildings, machinery or apparatus), are there any other activities to which a permitted development right should apply?

No response

Consultation rights

Q51. Do you agree that the administrative burdens of being statutory consultees would be disproportionate for heat networks?

No response.

Q52. Beyond improving the guidance on non-statutory consultees, do you think that there are any other areas of government guidance that could be improved to ensure that heat networks are more routinely consulted on relevant development in their areas?

A requirement for local authorities to conduct local heat planning (as part of Local Transformation Plans – please see our opening comments) would ensure that details of heat network zones/priority areas were publically available and facilitate consultation with heat network operators when new development is proposed. Provision to develop heat network zones and mandatory connections would also support routine consultation.

The Future Homes Standard updating of Part L of the Building Regulations should be brought forward from 2025 to 2022 at the latest.

Linear obstacle rights

Q53. Do you believe that licensed heat network developers should be given equivalent rights to cross linear obstacles? Can you provide examples of where such rights would be beneficial to heat network development?

No response

Decarbonisation of heat networks

Q54. Do you agree that consumers should have access to information on the energy performance and percentage of low-carbon generation of their network?

Yes

Q55. Do you agree that regulation is necessary to encourage decarbonisation of heat networks over the period to 2050? Are there alternative means by which government could act to support the decarbonisation of heat networks?

Yes.

Waste-heat sources

Q56. How could the Environmental Permitting Regulations be amended to ensure that waste-heat sources connect to networks when it is cost-effective and feasible to do so? What do you consider are the main barriers for waste heat sources to be connected to heat networks?

No response

Q57. Which sources of industrial and commercial heat could government bring within the scope of the Environmental Permitting Regulations in addition to the sources already being identified?

No response