

Response to the Competition and Markets Authority's "Heat Networks Market Study – Update Paper"

Author:

- Dr David Hawkey, Research Fellow, School of Social and Political Science, University of Edinburgh ([REDACTED])

I am happy for these comments to be published in full.

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1 Assessment of the issues

1. Do you have views on our approach to analysis and our findings regarding heat network outcomes, misaligned incentives in the supply chain and transparency?

Focus on new development in London

The CMA has based most of its analysis on heat networks in new development, the majority of these are likely to be in London. It is reasonable to seek to address contemporary issues with new heat networks, but it is also important to consider district heating in other cities and retrofit of existing buildings as these are targets for increase in district heating activity. BEIS's scenarios with 18% of households using district heating by 2050 would require much retrofit across UK cities. Given establishment of a new regulatory regime is likely to require primary legislation, opportunities to future proof this should not be missed.

For example, the prevalence of new-build district heating in London is driven by the London Plan, but it is possible because of high land values. Developers have more flexibility to pass upfront costs on through property sales than they do elsewhere. This means that the use of developer contributions (or other mechanisms) to spread CAPEX recovery through time via energy bills is likely to be more significant to heat networks beyond the London new build market. Regulations should not, therefore, assume that because the use of developer contributions are declining in the existing market they will not be significant across the country.

Fragmented heat network development

The UK district heating market is currently fragmented, characterised by uncoordinated patchwork development of limited networks, and London new build is no exception. When developing a regulatory model, mechanisms that overcome this fragmentation will be important to secure the efficiency and carbon benefits of network growth and interconnection mentioned in § 2.5. These challenges and the role of regulation in addressing them are not highly visible in the current UK

market, but they are foreseeable. The need for regulation to be proportionate and not over-burden small networks is important, but should be balanced against the risk that thresholds for compliance create perverse incentives to keep networks small. Where opportunities can be identified for new regulatory models to support network growth and interconnection these should be pursued. I make one such recommendation in response to question 2.

Discount rates

The way the CMA has treated time in its analysis is unclear. This is a critical issue when considering the relationship between capital costs and user bills.

For example, §5.37 notes that ESCOs calculate developer contributions on the basis of discounted future net revenue, and §7.58 argues that because developer contributions are typically less than the full CAPEX residents' charges should not exceed the whole-life costs of the network. But this depends on the ESCO and residents taking the same view on the relationship between costs at different times. This would seem unlikely to be the case, given typical hurdle rates for commercial ESCOs are in the region 10%-20% per year but domestic mortgage rates are in the region of 3-5%. If ESCO charges amortise the developer contribution over 20 years with a 12% interest rate the value of these payments at a 3% discount rate would be roughly double the upfront contribution. It therefore cannot be assumed that because a developer contribution is less than full CAPEX it will be considered *by the user* that their bills reflect the whole life cost of the system. It will therefore be important to ensuring fairness that users (or their representatives) are able to interrogate cost and financial models of the networks they are served by. I expand on this in response to the next question.

2. Do you consider the individual household gas boiler price to be a reasonable benchmark for customers to be confident that their heat supply is value for money?

The inclusion of 'no detriment' criteria in heat networks policy is a reasonable check to ensure the costs of decarbonising heat are not unduly concentrated on particular users. But not being charged more than the prevailing alternative is not the only financial/economic interest heat network customers have. Where our research has encountered organised consumer opposition to district heating in Europe this has focused on excessive returns extracted by operators, even when tariffs are competitive with local alternatives. These can be difficult for consumers and their representatives to estimate from company accounts, particularly where heat provision is accompanied by other services. I therefore recommend the regulation of district heating require per-network accounts to be held in a standardised format to enable inspection of the relationship between user bills, operational costs and historic costs.

One challenge to this proposal is the complexity of district heating schemes and the role of electricity revenues alongside heat revenues noted in the CMA's paper. The challenge with CHP is allocating costs to the generation of its joint products, but this is something that can be handled through regulation. For example, a common formula used in Denmark is to represent the efficiency of heat generation as 120%¹. While allocating production costs to joint products is always arbitrary, and the Danish approach is just one way it can be done, a regulated approach would provide a common framework for users and suppliers to interrogate costs.

Regulating for financial/economic transparency would bring additional benefits where public authorities seek to encourage networks to expand and/or interconnect. For example, economies of scale mean extension of an existing network to an adjacent area tends to have lower whole-life costs than establishing a new system. Where the extension is driven by policy concerns, situations may arise in which the network owner can exploit this difference to extract a form of monopoly rent (e.g. request from public authorities the funding that would be required for a stand-alone network, which in some situations would be more than is necessary). Where information about the network is opaque public authorities will have a disadvantage in negotiating extensions. Similar arguments apply to network interconnection. Scottish Government's proposed system of district heating consents could be a means for public authorities to guide the development of networks irrespective of who owns them, and a high degree of financial transparency would be important to this. A standardised accounting approach would give public authorities important information in judging the costs and benefits of possible network developments, and would help network owners anticipate public authorities' decisions. In the absence of standardised accounting it is likely different parties would frame accounts differently according to their interests, leading to protracted negotiation.

Benchmarking alongside transparency in costs and returns

Alongside transparency on costs and returns, benchmarking 'fair' costs of heating is important, and will become an increasingly visible policy problem as more low carbon heat technologies (not just heat pumps) are deployed, creating different costs and cost profiles for different buildings. Fairness should reflect the costs of a transition to low carbon heat and seek to share these equitably. Thus, where policy (including planning policy) drives heat networks whose whole-life costs are higher than the fairness benchmark, this should not be taken to necessarily imply the policy is misguided, but should drive policy makers to find ways of socialising the excess costs.

¹ I.e. in the accounts the quantity of fuel used to generate heat is set to the quantity of heat generated divided by 1.2, with the remaining fuel allocated to electricity generation.

Choosing a gas boiler as the standard of fairness, however, has a number of drawbacks. In the near term heat networks (particularly retrofit) are most likely to target buildings without gas, meaning situations could arise in which households pay more than the gas-equivalent but less than they would in the absence of a heat network. There is no compelling reason why in these situations the heat network should be required to provide heat below the gas-equivalent. Furthermore, customers on a heat network without gas input (e.g. supplied by an energy-from-waste plant) are unlikely to regard as fair an increase in their bills arising from rising gas prices.

Hidden costs of gas boiler

Fixing the use of gas boilers as the counterfactual, while common practice, ignores the cost of heat decarbonisation for gas-connected buildings. Were these costs specifiable, the same arguments for whole life costing of heat networks would apply to gas, particularly for new build. However, the costs, timing and feasibility of converting the gas network to decarbonised hydrogen are highly uncertain, as would be the timing and costs of alternatives to gas (including retrofit heat networks) should the potential for hydrogen prove to be low. The regulator should draw on BEIS's analytic capacity to set some reasonable parameters around these costs.

3. Have we accurately captured the two broad categories of delivery models in the heat networks market (described in section 5) employed by housing associations and private property developers and their impact on customer outcomes? Do you have any views on potential different categories?

It would be a mistake to establish a statutory regulator for heat networks that only covered networks in new housing. District heating practice is already very fragmented and the achievability of policymakers' visions of large heat networks flexibly making use of a range of otherwise unusable heat sources is uncertain. Fragmentation would be further locked-in if different regulatory regimes applied to neighbouring buildings in a city.

2 Recommendations – Regulation of heat networks

4. Do you have views whether heat networks should be regulated? If you agree that they should be, please provide any views on which body might be best placed to act as the sector regulator.

Heat networks are a natural monopoly and should be regulated. While the regulations should cover small networks, they should also be capable of scaling with policy ambitions to see large heat networks making use of heat sources that otherwise would be unusable.

Regulatory issues for gas and electricity networks can be handled by a single regulator across the UK because these issues are reserved. However, planning policy, building standards and heat generally are devolved to Scottish Government. To the extent that the design of heat network regulations carries implications for these policy areas the regulatory model will need to accommodate variation across devolved administrations. Consumer protection regulations, however, are a reserved matter. This mixture presents a challenge to how heat network regulation is organised across the reserved/devolved divide.

5. If there is sector regulation, should it apply to all communal and district heating networks, all delivery models and existing as well as new networks?

Regulation should extend to all heat networks serving homes and small non-domestic buildings to ensure common minimum standards. Regulations should aim to apply to existing networks as well as new ones. Where this is not possible (for example, upgrading to regulated technical standards is disproportionately expensive) and derogations are given, any extension to an existing heat network should fall within the regulations.

§1.17 expresses a view that the risk of monopoly exploitation is low where networks are operated by local authorities and housing associations because these do not have the same profit motives and incentives as private operators. While it may be the case that public sector owners have not to date exploited their monopolies, it is not inconceivable some in this sector would do so in future, particularly if cash-strapped local authorities come to control large heat networks. Anecdotal evidence from Germany suggests perceptions of excessive returns can arise where heat networks are municipally owned (as well as on privately owned systems), particularly this seems a more attractive route to supporting public budgets than more visible local tax rises. Independent regulation that at the very least enables scrutiny of heat network returns is therefore important across public and private sector networks.

6. Do you have views on whether regulation of heat network prices to end customers is appropriate? If there were a form of price regulation, should it be a cap at a certain level, or a 'principles based' approach with self-reporting against permissible contract terms and a regulator to investigate complaints? What factors should determine the maximum level of prices?

See answer to Q2. A price-based benchmark is important to ensuring the costs of heat decarbonisation are fairly shared, but this should sit alongside transparent accounting specified in regulations.

Specifying a price cap may be challenging for the reasons noted in the document, but also because heat network operators may recover costs by charging other than in proportion to the quantity of energy supplied. Internationally some networks charge on the basis of the volume of water running through the user's meter, as this

incentivises lower return temperatures increasing the efficiency of the system. Alternatively some heat network operators may wish to charge for heat services, internalising incentives to improve end-use efficiency. Further complications arise from differences in what user bills cover, with some including a charge for a replacement fund while other systems accumulate such funds by other means (e.g. social landlord paying into a fund ultimately from rent contributions). While these possibilities are challenging to a price cap, they also make a price-focused 'principles based' approach difficult. Again, this underlines the importance of using regulation to establish financial transparency so users have access to information as to what their bills are paying for and why.

7. Do you consider that any rules and guidance on pricing and quality should apply to all heat networks or, for example, only to those with ESCOs? Do you consider that it would be proportionate to ban 'capital contributions'?

Rules and guidance on pricing and quality should apply to all heat networks. In particular, local authorities who own heat networks should not be left to regulate a monopoly in which they have a financial stake.

Banning capital contributions would erect another barrier to heat networks in new build development outside London. This is because developers have more scope to pass heat network CAPEX on through property sales in the London market. Rather than banning them, developer contributions should be regulated to ensure transparency of the returns they are used to generate.

8. Do you have views on whether heat network customers should have similar consumer protections to customers of regulated gas and electricity utilities?

There is no reason why heat network customers should be less protected than gas and electricity customers.

However, because heat networks are not unbundled in the same way gas and electricity networks are, the protection of having a Supplier of Last Resort (SoLR) will be more complex. A gas or electricity SoLR has limited exposure to the problems suffered by its insolvent predecessor as what it inherits are customer accounts. A heat network SoLR will inherit infrastructure and heat generators as well as customers. To the extent that a heat network operator's insolvency results from underperformance of generation or network assets, there may need to be more extensive regulatory interventions than in the gas and electricity sectors.

9. Do you have views on the recommendations described in section 7 that we are minded not to pursue (eg banning capital contributions from ESCOs to property developers, and mandatory re-tendering of heat network operating and billing contracts)?

See answer to Q7 for comments on capital contributions.

The discussion of mandatory retendering focuses on the risk of monopoly exploitation affecting users of the network. But there is also a broader risk arising from long term concessions. For example, integration of two networks under different concessions may be advantageous from a societal perspective, but not in the interests of one or both concession holders. This is another area in which future-proofed regulation could avoid persistent fragmentation undermining the environmental objectives of government support for district heating. For example, a transparent accounting regime could be the basis for compensating a concession holder in cases where public authorities wish to direct integration of adjacent schemes.

3 Recommendations – Planning and technical standards

10. Do you have views on how to improve technical standards, which cover the design and operation of heat networks, and make them enforceable? Could this be achieved in the absence of a regulatory regime requiring a licence to operate a heat network? For example:

- 1.1.1.1 *a. What is the role of the CIBSE ADE CP1 Code of Practice in this process?*
- 1.1.1.2 *b. Do you have views on how these proposals could be embedded in the planning authorisation process?*
- 1.1.1.3 *c. For potential heat network connections affected by Building Regulations and / or planning, how could appropriate technical standards could be embedded these processes at local, regional and national levels?*
- 1.1.1.4 *d. Could operating technical standards be applied retrospectively to existing heat networks?*
- 1.1.1.5 *e. What is the impact of the current approach to professional indemnity insurance for heat network design and build on the recommendations of design engineers?*

No comment.

11. How could local and development plans and their supplementary guidance be adjusted to take lifetime costs and customer prices into account? What would the impact of this be?

The CMA has approached the question of planning requirements as if the whole life costs of gas are unproblematic. However, as noted above, the provision of gas to new developments (Q2) imposes hidden costs that ideally should also be taken into

account on a whole-life cost basis. These are currently highly uncertain, though BEIS is working to build the evidence base. The present opacity of these costs should not mean they are ignored. But it does mean they do not afford a straightforward way of planning for low carbon heat. Other approaches should be used alongside whole-life costing, including socioeconomic assessment, analysis of low regrets options (i.e. where possible choosing options that are optimal across a range of future energy scenarios) and consideration of the role of new development in local heat strategies, such as the Local Heat and Energy Efficiency Strategies currently being piloted in Scotland. As an example of the latter, supply of district heating to new development can be one way of anchoring a system that extends to retrofit existing buildings. Again, where this leads to heat network users being excessively exposed to the costs of decarbonisation, these costs should be socialised.

These more sophisticated approaches to energy planning clearly have capacity implications for local authorities. Shared regulatory bodies may therefore be important in specifying methodologies and conducting/scrutinising analyses.

12. How should a heat network quality assurance scheme be established and embedded into the regulation of heat networks? Should such a scheme seek to accredit the commercial, financial and contractual aspects of a heat network as well as the technical?

If a standardised approach to transparent heat accounting be established, it will be important that accounts are accredited as early as possible and include costs of development and construction.

4 Recommendations – Transparency Pre-transaction

13. Is further information required to improve consumer understanding of the significance of living in a home with a heat network? If so, what information would be useful?

No comment.

14. Who should be responsible for ensuring that new leasehold agreements include a clear reference to the treatment of heat network assets connected to a leasehold property?

No comment.

15. Should heat supply agreements or contracts which set out key performance indicators, such as guaranteed terms of service, be made compulsory?

Yes. While some social landlords may have established alternative routes to agreement with tenant users (e.g. embedded within a tenancy agreement), these should be extracted as stand-alone documents. This will ensure common standards

across sectors and continuity for customers as and when their heat network expands, joins other systems, etc., and the organisation responsible for delivering their heat changes.

16. How could EPCs be improved in relation to heat networks?

No comment.

5 Recommendations – Transparency During residency

17. Should heat supply bills be improved? Is further information necessary? If so, what information would be helpful?

No comment.

18. Should there be specific requirements regarding the frequency of bills beyond that already required by the Heat Network (Metering and Billing) Regulations?

No comment.

19. Should standard performance metrics for suppliers be produced – for example, in relation to planned and unplanned outages and heat temperatures? Should this information be published?

A minor point: heat networks do not all operate at the same temperatures, and indeed are more efficient and can open opportunities for a wider range of heat sources if they operate at lower temperatures. Presumably reference to ‘heat temperatures’ in the question means to identify times or network locations where flow temperatures fall below those needed to give adequate service for that network’s design.