techUK response to proposals for heat network zoning

Introduction

Leveraging data centre heat for district heating networks in England shows substantial promise, especially from a sustainability standpoint. However, to foster effective collaboration between data centers, heat network developers and other stakeholders, and align with broader net-zero goals, it is vital to address overlooked aspects of the integration process.

We refer to some of the practical challenges below and in the attached report on heat networks supported by data centres. The report includes a section on unaddressed issues for the Government and other stakeholders to consider, which we believe would assist future zoning bodies in making informed decisions and developing effective strategies for the successful implementation of district heating networks that capitalise on data centre heat.

Answers to consultation questions

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

The key factor in determining who should be responsible for investigating and preparing a heat source report is their adequate knowledge of the practicalities related to integrating residual heat from data centres into heat networks. Active involvement of external consultants and industry experts will be an essential component of a successful and well-informed decision-making process.

To avoid a scenario where rules are developed ad-hoc by Zone Coordinators, there is a need for a clear set of realistic guidelines that are consistent for data centres in different zones in England. These guidelines should strike a balance, being specific enough to provide direction but allowing for a degree of flexibility. This flexibility is crucial due to variations in technologies applied and different commercial models employed by data centres.

Additionally, it would be beneficial to clarify the funding mechanism for heat source reports. Our understanding is that Zone Coordinators will finance and facilitate the investigation of potential heat recovery from local sources during the local refinement phase. Inevitably, they will require information from data centres, and it raises the question of who will bear the cost of obtaining data that is not readily available. For example, to determine the heat export potential of existing sites that were not designed to be heat export enabled, it is likely that a feasibility study will be needed to understand the costs and implications on the operational resilience of a retrofitted data centre.

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

Yes, we believe that it would be beneficial for heat network developers to start conversations with potential heat sources as early as possible in the process. Incorporating necessary due diligence in these early conversations is crucial to assess the technical, logistical (gaining insights into the time required by a heat network developer to prepare a data centre for heat export would be especially useful), and regulatory aspects that may impact the integration of data centre heat into the network.

Taking a proactive approach will also help reduce potential disruptions and achieve cost savings. To illustrate, for planned new sites, engaging in early discussions allows for the integration of the appropriate heat export infrastructure during the design stages.

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

Yes, owners of heat sources should have the ability to appeal a decision that mandates them to connect to a heat network or provide access to their premises.

However, to avoid the often costly (especially for SMEs) process of filing an appeal, it is crucial that any decisions mandating a data center to connect to a heat network or provide access to its premises are thoroughly justified. This justification process should encompass various technical, commercial, resilience, and security-related considerations specific to data centres.

Furthermore, in some cases, the owner of the data centre facility does not have operational control of the site or may not be the legal owner of the residual heat, so it is important to ensure that obligations are correctly targeted to the appropriate controlling entity.

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

The consultation paper rightly acknowledges that low temperature recoverable and ambient sources will require heat pumps to reach the required forward temperature. As such, techUK agrees that high temperature, ready-to-connect sources, should be prioritised. However, it is difficult to comment on the proposals in more detail without more precise information on the specific temperature range associated with each heat source category.

In any case, it is crucial to acknowledge that although all data centres generate residual heat as a by-product of their operations, only some have the capacity to connect to a heat network. Considering variations in design and other factors, Zone Coordinators should assess each data centre on a case-by-case basis.

For existing data centres that did not consider the integration of residual heat into a heat network during the design stage, connecting without considerable prior notice and planning poses significant challenges and costs. The majority of data centres currently under

construction or already operational are typically not amenable to Whole House Retrofit (WHR) integration due to the significant risks posed to the mission-critical environment of data centre operators, stemming from the substantial impact on electrical, mechanical, spatial, and structural systems. Such retrofits are commonly associated with outages, making them impractical for existing data centres. The decision to require a data centre to connect should therefore hinge on the Zone Coordinator's confidence that it would not disrupt operations and would be cost-effective.

Conversely, notifying planned new sites about the requirement to connect appears reasonable. Our members are actively ensuring that their future sites are well-prepared for such integration, showcasing a proactive commitment to responsible and strategic planning aligned with their net-zero objectives. This being said, Zone Coordinators will have to consult with the industry and mutually determine the point at which a site is no longer considered to be in development. This is crucial because there comes a point when alterations to the design become impractical or unfeasible.

Zone Coordinators should also be mindful of the fact that it could be more practical for a data centre to explore alternative uses for its residual heat beyond connecting to a heat network, and that such agreements might already be in place. For instance, options such as supplying heat to a nearby swimming pool, greenhouse, or fish farm, or utilising it for internal purposes, might be more viable.

The term 'giving access' lacks clarity and requires clarification. Regulation should steer clear of mandating legal access rights to data centre premises, which are highly secure and often host critical functions. While operators are willing to cooperate and not unreasonably deny access, there should be no legal obligation to grant it. The highest expectation from operators should be to deliver residual heat to a designated point at the site's edge, eliminating the need for third parties to enter data centre compounds or premises. Applying the 'give access' requirement to the edge of the land is more straightforward than permitting full access, including entry into the building housing servers. This is due to the necessity for co-location data centre[1] operators to secure agreement from their clients, whose services rely on the servers housed within the data centre, to allow external parties access to their sites. The Government must acknowledge the appropriate processes data centers must follow, and flexibility in these processes must be granted. While open to conversations, data centers require acknowledgment of the complexities involved in addressing security and operational concerns.

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

The difference between the ‘marginal heat price’ and the ‘substitution price’ is not necessarily a reliable indication of whether the heat source owner and the heat network could financially gain

[1] Co-location data centres provide infrastructure for use by third parties. Hyperscale data centres (e.g. Amazon Web Services, Google, Microsoft) build and operate their own data centres. Enterprise data centres are owned and operated by an organisation (e.g. financial institution) for its own needs.

from the sale of heat. This is because the implementation of heat recovery introduces additional financial risks to a business. An operator's risk appetite should therefore be respected.

To put things into perspective, if a data centre makes an initial investment to enable connection to a heat network but it does not reach the required occupancy levels or experiences a decline in occupancy over time, a reduced heat output will fail to cover that initial investment. In this scenario, participation in the scheme exacerbates financial difficulties. Furthermore, if a decision is taken to close that data centre location, there are typically extra costs associated with leasing the premises and restoring the facility to the original condition.

Heat network infrastructure, which is outside of control of a data centre, may also fail and impact the effectiveness of the cooling system, potentially causing major disruption to services and loss of revenue.

Zone Coordinators will also have to address potential hidden costs associated with contributing to a heat network, specifically apprehensions about being billed for cooling energy.

The extent of the above concerns hinges largely on the contractual arrangements established between data centres and heat network operators. Both parties should maintain the flexibility to shape such contracts according to their preferences, but more guidance over how issues like this can be managed will be important to gain the confidence of the sector. More generally, heat pricing calculations must be robust and the zoning bodies should take on some liability for their accuracy.

Furthermore, DESNZ should acknowledge that some operators may not want to charge for supplying residual heat, treating this as a pro bono activity. It must be stressed that the core function of data centres is to ensure business continuity for customer IT, not to serve as a quasi-utility. Operators would prefer not to be bound by contractual or regulatory obligations to supply residual heat. Charging for heat might also categorise an operator as a utility, potentially subjecting them to regulation. Adherence to the Heat Network Metering and Billing regulation, while well-intentioned, may discourage practical heat reuse. A clarification on whether this will be the case would be appreciated by the industry.

43. Which, if any, of the three proposed emissions limits should be set as the initial limit in 2030? If none, please provide an alternative proposal for the initial limit on emissions.

The data centre industry is committed to reducing carbon emissions and we therefore suggest Option 1 as the maximum gCO2e/kWh limit. A requirement to meet this target will necessitate heat network developers to prioritise heat sources that are greener and motivate the adoption of environmentally-friendly practices across the board.

On the wider sustainability point, we advise the Government to conduct carbon tests to verify that exporting residual heat leads to a net reduction in CO2 emissions. Past policy failures, such as the Renewable Heat Incentive scandal in Northern Ireland, highlight the importance of accurately defining system boundaries to prevent unintended consequences like increased emissions. Some operators have faced pressure to operate boilers on-site to meet guaranteed

heat supply demands, potentially undermining the intended sustainability goals. It is crucial to avoid such counterproductive outcomes through careful policy design and evaluation.