

## Lancaster City Council | Report Cover Sheet

<b>Meeting</b>	Cabinet	<b>Date</b>	26 <sup>th</sup> October 2021		
<b>Title</b>	<b>Heat Networks Feasibility</b>				
<b>Report of</b>	Director for Communities & the Environment				
<b>Purpose of Report</b>					
<p>To outline the role that heat networks can play a route to heat decarbonisation and set out the potential for thermal energy networks in the District.</p> <p>To gain support for a funding bid to BEIS for the delivery of a detailed feasibility study and inform Cabinet that should a Heat Network prove to be feasible, further decisions may need to be made on how such a system is implemented i.e. direct delivery by the Council or through amendments to the Local Plan.</p>					
<b>Key Decision (Y/N)</b>	<b>N</b>	<b>Date of Notice</b>		<b>Exempt (Y/N)</b>	<b>N</b>

<b>Report Summary</b>
<p>The Council declared a Climate Emergency in January 2019 which commits the Council to reaching net zero emissions for its own operation and helping the district to meet the same goal by 2030.</p> <p>In 2019, Business for Energy and Industrial Strategy (BEIS) commissioned a heat mapping study which identified the potential for eight separate heat network clusters across the Lancaster District. Officers wish to commission detailed techno-economic feasibility study to determine in which of these clusters there exists viable heat network solutions. Across all clusters, this has the potential to remove over 100,000 tonnes CO<sub>2</sub>e locally by reducing the dependency on natural gas usage. This could include connections to council buildings, residential and commercial properties.</p> <p>Grant funding from BEIS Heat Network Delivery Unit (HNDU) is available to fund a large proportion of the costs. Officers wish to submit an application to BEIS for funding. Total costs for techno- feasibility is expected to be £120,000. Should the funding application be successful, BEIS would fund £80,000 of the costs, leaving the council with a funding contribution of £40,000, which can be managed from existing budgets. Final acceptance of the grant would be by a Director and subject to S151 officer consent.</p> <p>Feasibility would confirm if heat network clusters were viable, and commercials would be confirmed. If a heat cluster appears viable, the council would need to decide on how to proceed. Officers would prepare a follow up report following completion to provide a range of options.</p> <p>This could include the council funding the capital expenditure, with contributions from BEIS in order to deliver in-house. This could have the potential to generate revenue for the council. Other options include using the evidence provided by the report to make the inclusion of heat networks infrastructure compulsory in new developments.</p> <p>There are six main reasons to pursue Heat Network Feasibility:</p>

1. To ultimately develop and run a thermal energy network scheme/s which could allow the Council to decarbonise its own assets and those across the District to meet its ambitions to be Carbon Zero by 2030.
2. Potentially support households with off-grid low-carbon heating, while also tackling fuel poverty by protecting households from inflationary rises in the utility market
3. Generating a sustainable income for the council through the sale of heat to commercial, properties and potential households.
4. To provide evidence demonstrating areas where the inclusion of heat network infrastructure should be made compulsory to new developments within the Council's Local plan/planning laws.
5. To encourage and demonstrate to developers the potential benefits of developing decarbonised heat networks within the Lancaster District.
6. Through tackling carbon emissions and fuel poverty, the development of heat networks would create investment and new local skilled jobs.

#### **Recommendations of Councillor Frea:**

- (1) To recognise the value in exploring the opportunities for heating networks within the district and support the approach to submit a bid in order to undertake feasibility, whilst recognising that this may lead to future decisions around the instillation of heat networks across the district.

#### **Relationship to Policy Framework**

Climate Emergency: To ensure that in the area of thermal energy delivery, the Council's ambitions around Climate Change are delivered, greater cognisance with the actions of the Council's Climate Emergency Declaration of January 2019 are provided and the Council's Corporate Priorities are supported.

Delivery of a feasibility study will help to strengthen the Council's approach and strategic planning in a range of matters which will assist in it achieving its ambitions, for instance around supporting a green local economy, delivering sustainable energy, and addressing fuel poverty.

#### **Conclusion of Impact Assessment(s) where applicable**

##### **Climate**

A detailed techno-economic feasibility study for the delivery of heat networks will support the adaptation to and mitigation of climate change, assist with the actions and ambitions of the Council's Climate Emergency Declaration of January 2019

##### **Wellbeing & Social Value**

The feasibility study will pave the way for the potential deployment of heat networks in the District which will seek to provide reliable thermal energy delivery at affordable and stable costs to consumers thereby assisting in addressing fuel poverty and helping to ensure homes are a

and support the District in transitioning to low/no carbon heat.	comfortable temperature. This can support greater health outcomes and general wellbeing. It will also help to provide local green jobs and support local supply chains.
<p><b>Digital</b></p> <p>The feasibility study will support the delivery of heat networks which are driven by technological solutions for delivering thermal energy with low or no emissions. Network management is delivered partially through digital platforms. Strategic planning of the networks ensures that the installation of necessary infrastructure within new development as well as strategic installation along with other major projects.</p>	<b>Health &amp; Safety – N/A</b>
<p><b>Equality</b></p> <p>The feasibility study will help to identify areas that could benefit from heat network deployment. The study will support the deployment of heat networks which have the potential to deliver thermal energy to customers at more equitable and affordable rates. This has the potential to provide more equitable access to heat for residents who currently struggle to afford keeping their homes warm. More women than men are likely to suffer from persistent poverty and also older women and women leading single parent households are disproportionately affected. Access to lower cost heating could support more equitable access to thermal energy services.</p>	<b>Community Safety – N/A</b>

<b>Details of Consultation</b>
To date there has been no consultation on the role of heating networks. The application to BEIS for funding will require stakeholder letters of support.
<b>Legal Implications</b>
Legal Services will check the terms of any Grant Agreement with BEIS
<b>Financial Implications with Key Steps</b>
This report is seeking to apply for assisted funding to undertake feasibility work into the role of heat networks within the district. The cost of the work is currently estimated at £120,000 of which two-thirds will be funded by BEIS. The remaining amount can be managed from within existing general fund and housing revenue account budgets and will be delivered over the next six to eight months spanning 2021/22 and 2022/23 with estimated expenditure taking place equally over the financial years.

The feasibility work will be undertaken by external consultants. There will be a residual resource implication in terms of overseeing consultants and managing / reporting on the process within the Council. This can be managed from within existing workloads and will not require any additional staffing resource.

Additional costs for project management for each step of the feasibility study are covered 100% by HNDU funding meaning officer resource time should be minimal.

Upon completion of the feasibility, a further report to Cabinet will be prepared to outline the results plus the discussion of a plan for future delivery of its recommendations. Any subsequent financial impact will be discussed as part of that report.

As detailed in the report, final acceptance of the grant will be by Director and subject to S151 officer consent.

#### **Other Resource or Risk Implications**

The feasibility work will be undertaken by external consultants. There will be a residual resource implication in terms of overseeing consultants and managing / reporting on the process within the Council. This will not require any additional staffing resource.

Additional costs for project management for each step of the feasibility study are covered 100% by HNDU funding meaning officer resource time should be minimal.

#### **Section 151 Officer's Comments**

The s151 Officer has been consulted and has no further comments to add to those outlined in the Financial Implications. Should the bid be unsuccessful it is not currently envisaged that the Council will pursue this work and its interest will cease. This is of course subject to any further sources of external funding being made available

#### **Monitoring Officer's Comments**

Directors have authority to accept funding bids approved by Cabinet, subject to due diligence being completed and with the written consent of the Chief Finance Officer.

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#### **Links to Background Papers**

- 2019 BEIS Lancaster District Heat Map Study
- District Heating Systems – Background and applications

## **1.0 Introduction**

- 1.1 In January 2019, the Council declared a Climate Emergency which commits it to reaching net zero emissions for its own operations and helping the District to meet the same goal by 2030. In 2019, BEIS commissioned a heat mapping study which identified the potential for eight separate heat network 'clusters' across the Lancaster District.

- 1.2 Officers wish to commission detailed techno-economic feasibility study to determine in which of these clusters there exist viable heat network solutions.
- 1.3 At present 37% of the UK's greenhouse gas emissions are generated by heating. Heat networks are comprised of a network of insulated pipes, originating from a central thermal energy source (e.g. heat recovery from industry or water source heat pumps), which deliver thermal energy (e.g. hot water) to customers' radiators and taps. They are seen as a necessary component for the decarbonising of both commercial and domestic properties.
- 1.4 There are six main reasons the council should consider pursuing Heat Network Feasibility:
  1. To ultimately develop and run a thermal energy network scheme/s which could allow the Council to decarbonise its own assets and those across the District to meet its ambitions to be Carbon Zero by 2030.
  2. Potentially support households with off-grid low-carbon heating, while also tackling fuel poverty by protecting households from inflationary rises in the utility market
  3. Generating a sustainable income for the Council through the sale of heat to commercial, properties and potential households.
  4. To provide evidence demonstrating areas where the inclusion of heat network infrastructure should be made compulsory to new developments within the Council's Local plan/planning laws.
  5. To encourage and demonstrate to developers the potential benefits of developing decarbonised heat networks within the Lancaster District.
  6. Through tackling carbon emissions and fuel poverty, the development of heat networks would create investment and new local skilled jobs.
- 1.5 In order for the council to achieve net zero by 2030, innovative approaches towards energy and heat generation (within its own estates and supporting the District) must be considered.
- 1.6 As the Future Homes Standard comes into effect requiring homes to decarbonise their heating as well as the proposed changes to the Local Plan in Lancaster as a result of the Climate Emergency Local Plan Review, new homes will need to be built to be zero CO<sub>2</sub>e emissions starting 2028. Deployment of heat networks will help developments to meet these requirements and deliver on the Council's net zero 2030 commitment.
- 1.7 HNDU provided funding for master planning to be done for Local Authorities who did not have an existing heat network strategy. Lancaster was one of the Local Authorities identified and the study 'Heating Mapping and Master Planning in Lancaster' was undertaken in 2019 by Element Energy. The study identified potential constraints, risks, and opportunities related to the delivery of heat networks in the region.

- 1.8 Based on the data gathered through stakeholder engagement and desk-based research, the study identified a series of clusters to capture potential areas where heat networks could be a viable solution including factors such as the volume of heat delivered, the level of stakeholder engagement, the linear heat density, and the availability of low-carbon heat sources. The clusters were assessed and ranked against key criteria.
- 1.9 The clusters identified as those with most potential were: “South Lancaster” and “City Centre.” It was also recommended to keep a “watching brief” on the “East Lancaster,” “Morecambe” and “Bailrigg” clusters.
- 1.9.1 Since the 2019 study was conducted, the technology and regulatory framework for heat networks has been evolving as well as the potential developments and heat customers in the District have also seen changes. The study also did not include cooling needs and with projected temperature increases due to the climate crisis, this may need to be considered in the District. As such the feasibility study proposed will include a “refresh” of the master planning that was originally conducted.

## 2 Proposal Details

- 2.1.1 To outline the role that heat networks can play a route to heat decarbonisation in the District and support a funding bid to BEIS for the delivery of a detailed feasibility study at a cost of £40,000. Funding can be found from within existing budgets.
- 2.1.2 To inform Cabinet that should a Heat Network prove to be feasible, further decisions may need to be made on how such a system is implemented i.e. direct delivery by the Council or through amendments to the Local Plan. Option appraisal to be developed and referred to Cabinet.

### 3.0 Options and Options Analysis (including risk assessment)

<b>Option 1: To support the approach to undertake feasibility work</b>
<p><b>Advantages:</b></p> <ul style="list-style-type: none"> <li>• It will allow the Council to explore the feasibility for heating networks with potential opportunities for the delivery of heat networks more widely in the District</li> <li>• If feasible, there is potential for wider benefits as set out in this report in relation to addressing the Climate Emergency and fuel poverty.</li> <li>• There is currently funding available from Government to support the feasibility work.</li> <li>• Can provide the groundwork for heat network development which would allow the Council to capitalise on an opportunity to address the Climate Emergency and lead to a potential saving of 100,000 tonnes of domestic CO<sub>2</sub>e emissions.</li> </ul>
<b>Disadvantages:</b> None.
<b>Risks:</b>

<ul style="list-style-type: none"> <li>Financial. £40k 'at risk' if feasibility determines that no realistic or viability opportunities exist</li> </ul>
<b>Option 2:</b> To delay a decision whether to take forward an application to future funding routes in 2022 or beyond.
<b>Advantages:</b> None apparent
<b>Disadvantages:</b> <ul style="list-style-type: none"> <li>Deferring any decision of investigating heating networks delays our understanding over how and where networks could be established.</li> <li>Such delays may result in losing opportunities to implement projects in the future particularly in new developments.</li> </ul>
<b>Risks:</b> <ul style="list-style-type: none"> <li>The level of funding support available to the Council at present is significant. There are no assurances that in delaying such a decision that the same levels of funding support will be available in future years.</li> <li>As a result, a decision to defer may incur greater costs in the future should the Council wish to explore the feasibility of heat networks.</li> </ul>
<b>Option 3:</b> To not carry forward any investigation into heating networks
<b>Advantages:</b> None apparent
<b>Disadvantages:</b> <ul style="list-style-type: none"> <li>Fails to explore the opportunity for district heating networks closes the opportunity to secure more sustainable forms of heating for the district and would be a lost opportunity in seeking to tackle the Climate Emergency.</li> <li>The Council would fail to investigate opportunities to deliver greener, more sustainable forms of energy in the district and fail to capitalise on opportunity to address the Climate Emergency and a potential saving of 100,000 tonnes of domestic CO<sub>2</sub>e emissions.</li> </ul>
<b>Risks:</b> <ul style="list-style-type: none"> <li>Longer-term funding opportunities are unknown.</li> </ul>

#### 4.0 Officer Preferred Option (and comments)

##### Option 1: Carry out detailed techno-economic feasibility

Initial feasibility provides an interesting insight as to what heat network clusters may be viable. Should some of the clusters prove feasible, this could provide opportunities to support the decarbonisation of the council's estate, as well as businesses and residents within the catchment areas.

The study would support officers with strategic decisions around the council's roadmap to 2030 of which heat decarbonisation plays a significant (and challenging) part. Revenue generating opportunities from the sale of low carbon heating may also exist.

The potential funding opportunity from BEIS to explore Heat Networks greatly subsidises the costs of the study and there are no assurances over future levels of funding support available.