Belfast City Council

Subject:	Heat Network Update
Date:	14 March 2024
Reporting Officer:	John Tully, Director Organisational and City Strategy
Contact Officer:	Debbie Caldwell, Belfast Climate Commissioner

Restricted Reports

Is this report restricted? **Yes** ☐ **No** ☒ (X)

Please indicate the description, as listed in Schedule 6, of the exempt information by virtue of which the council has deemed this report restricted.

Insert number ☐

1. Information relating to any individual
2. Information likely to reveal the identity of an individual
3. Information relating to the financial or business affairs of any particular person (including the council holding that information)
4. Information in connection with any labour relations matter
5. Information in relation to which a claim to legal professional privilege could be maintained
6. Information showing that the council proposes to (a) to give a notice imposing restrictions on a person; or (b) to make an order or direction
7. Information on any action in relation to the prevention, investigation or prosecution of crime

If Yes, when will the report become unrestricted?

After Committee Decision	☐
After Council Decision	☐
Sometime in the future	☐
Never	☐

Call-in

Is the decision eligible for Call-in? **Yes** ☐ **No** ☐

1.0	**Purpose of Report/Summary of Main Issues**

1.1	To provide members with an update on the market engagement conducted to date on a potential heat network in Belfast.
2.0	**Recommendation**
2.1	The Committee is asked to note that: I. an internal Heat Network Working Group has been established to inform the development of the Councils approach to incentivising the development of a heat network in Belfast; II. the Group will identify and invite public sector bodies owning buildings in the city centre with a high heat demand to express an interest to engage in further discussions and market engagement as potential heat off-takers; III. the Group will work organise a series of roundtable discussions with potential off-takers, heat developers, investors and other key stakeholders to explore the development of a heat network; IV. the Group will appoint a commercial and legal advisor (subject to SP&R approval) to support the market engagement, advise on legislative and regulatory requirements, potential delivery models and procurement implications; and V. the Group will appoint a technical advisor (subject to SP&R approval) to support the market engagement and advise on technical requirements.
3.0	**Main Report**
3.1	**Background** Belfast has a high dependence on gas and oil for heating buildings across the city and low levels of insulation which is contributing to high emissions of greenhouse gas and high levels of fuel poverty exacerbated by the energy and cost of living crisis. Unlike power and transport, decarbonising heat in buildings can be challenging due to age and quality of the building stock.
3.2	Globally there is a trend towards low carbon district heat networks particularly in dense urban areas like Belfast as a way of tackling fuel poverty and reducing emissions. Belfast's high density of buildings and heat load make it ideal for a heat network – with a potential to supply >2500GWh of heat from low carbon heating. Not surprisingly, heat networks have emerged as a cost-effective measure to decarbonise the city and create employment in the Local Area Energy Plan (due for completion in March 2024).
3.3	A heat network would make a significant contribution to Belfast's emission reduction targets – 66% reduction by 2025; 80% by 2030; 100% by 2050 and also to Northern Ireland's "net-zero" emissions target of 2050. It would also reduce exposure of households and local businesses to price volatility from imported fossil fuels as well as reduce fuel poverty.
3.4	The key components of a heat network include: 1. Energy Centre to produce heat centrally and heat water to ~80°C. 2. Pipework to transport the hot water from the energy centre to the buildings. 3. Customers (buildings) to buy heat from the Heat Network – each building has a Heat Interface Units which extract heat from the Network.
3.5	Various low carbon technology options exist including: geothermal, water source heat pump, air source heat pump etc. Heat networks tend to be marginal investments with high upfront costs. Viability can be increased by using waste heat from industrial processes or a direct wire to a wind or solar facility which reduces the electricity costs of heating the water. Multiple revenue streams can be generated from by producing cooling as well as heat and through grid constraint payments.
3.6	A small BCC Working Group has been established to help support delivery including representatives from the Climate Team, Procurement, Physical Programmes, and Legal

	Services. The purpose of the working group is to inform and lead on the development of the Councils approach to incentivising the development of a heat network in Belfast. The intention is to identify the most cost-effective route to incentivise investment in a heat network whilst also building social value and a wide range of benefits for Belfast to include but not restricted to reducing fuel poverty, reducing emissions, creating a secure, stable and affordable supply of low carbon heat, creating jobs and apprenticeships. An update on the market engagement conducted to date is provided below.
3.7	**Importance of off-takers in incentivising investment** Early market engagement has continued with a range of stakeholders including institutional investors, heat developers, potential heat off-takers, other Councils and legal and commercial firms to understand how a heat network could be developed. This builds on earlier conversations with councils and the UK Infrastructure Bank and a survey of public buildings which could serve as anchor loads for an initial 10km network with 150GWh of heat (estimated to require an investment of approximately £150-200 million).
3.8	Institutional investors have advised that off-taker heat agreements are critical to securing investment. A survey of 27 public sector bodies suggests there is the potential to use large public buildings in the city centre as an initial base load for an initial 10km network with 150GWh of heat (estimated to require an investment of approximately £150-200 million).
3.9	The top 10 of these sites account for 70% of this group's heat consumption. A small group of off-takers with a significant combined heat demand could therefore be sufficient to incentivise private sector investment in a heat network. This would unlock further investment into deprived areas with high levels of fuel poverty.
	Additional factors that make a heat network attractive to investors
3.10	Early market engagement with heat developers suggests strong private sector interest to invest in a heat network with a strong market preference to design, invest, develop and operate a heat network. Engagement suggests the following measures would make a heat network more financially viable and attractive to private sector investment: • provision of land for an energy centre; • provision of grant finance; • source(s) of waste heat which could be added to the network reducing the energy required to raise temperature to 60^{o}C.
3.11	However, there is still no financial support available for heat schemes in Northern Ireland. Nor is there a regulatory system in place at present although DFE have set up a Heat Networks Stakeholder Group to provide input on Heat Networks consultation drafts and issues which is attended by the Climate Commissioner.
	Potential delivery models
3.12	Various delivery models exist for heat networks – usually driven by local authorities. These include: 1. LA raises funds, owns and operates the scheme with delivery partners. 2. LA procures a strategic energy partner to develop energy projects within Belfast eg Bristol. 3. Joint venture between LA and one or more equity partners who co-develop the project eg Coventry. 4. LA and other public sector partners seek a 15 year Heat Supply Agreement from the market for an affordable low carbon low carbon heat supply. Developer invests capex and then develops and operates the scheme eg Bradford.

3.13	Developers and investors are open to JV arrangements with the Council. However, our initial engagement with the Councils above and a number of legal and commercial firms specialising in complex energy projects suggests that no. 4 is the quickest route to market and simplest way to incentivise a heat network.
3.14	Heat network development is complex requiring specialist expertise and Councils in England that are involved in heat network development have tended to appoint both Technical and Commercial consultants to advice in advance of and during procurement.
3.15	**Creating a group of potential off-takers** Recognising that the combined heat demand from buildings owned by the public sector provides significant heat purchasing power, it is proposed to invite public sector bodies with buildings located in the city centre with a significant heat demand, that would seriously consider connecting to a heat network if it were available, to take part in the next phase of market engagement.
3.16	By working together with other public bodies, the Council can: • provide a combined heat load to attract high quality investors and heat developers enabling an off-balance sheet solution • achieve an affordable and sustainable tariff for heat that reduces over time as more buildings connect to the heat network • be part of the governance structures that determine future growth of the network ensuring that the network can reduce fuel poverty and other social goals
3.17	Joining forces would also enable the partners to: • pool expertise from within each organisation (technical, legal, commercial, financial etc.) • define and communicate off-taker needs in a transparent way to the market • develop an understanding of best practice in heat network development • gain exposure to the range of technical solutions available • Identify the optimum commercial and legal arrangements.
3.18	**Update on funding to support project development** Some of the funding (£150K) recently secured from Innovate UK under the Net Zero Living Pathfinders competition will be used to determine the commercial viability and routes to finance for the heat network. This will include business model analysis (value and finance flows) and defining the optimum legal and commercial arrangements for BCC to catalyse investment. More details of the project are provided in a separate paper - the key point is that there is now an additional financial resource available to support the development of a heat network.
3.19	**Next steps** Potential off-takers will be invited to a meeting to: share information and understand the level of interest to engage in further discussions and explore the potential for using the combined heat demand of all interested potential off-takers to incentivise private sector investment in a sustainable, local carbon heat network. The Working group will then: 1. organise a series of roundtable discussions with potential off-takers, heat developers, investors and other key stakeholders to explore the development of a heat network. 2. appoint a commercial and legal advisor to support the market engagement, advise on legislative and regulatory requirements, potential delivery models and procurement implications;

3.20	3. appoint a technical advisor to support the market engagement and advise on technical requirements; and An update to members will be provided in due course summarising the outcomes of the market engagement along with the risks, opportunities and next steps.
3.21	**Financial and Resource Implications** The funding (£150K) secured from Innovate UK includes a budget to appoint a commercial and legal firm to advise BCC on two priority decarbonisation projects, one of which includes a heat network. An additional amount (up to £30K) can be drawn from the Climate Budget (subject to approval) to fund the Technical Advisor and any additional expenses for the roundtable discussions (which are expected to be minimal). **Equality or Good Relations Implications/Rural Needs Assessment**
4.0	**Appendices - Documents Attached**
	None