

CABINET MEETING – 11 JANUARY 2022

EXECUTIVE SUMMARY SHEET – PART I

Title of Report:

Sunderland Heat Network - engagement and appointment of specialist drilling contractors

Author(s):

Executive Director of City Development

Purpose of Report:

To seek Cabinet's approval to procure and appoint a specialist drilling contractor to deliver the boreholes required to progress towards delivery of a strategic heat network.

Description of Decision:

Cabinet is requested to authorise the Executive Director of City Development in consultation with the Deputy Leader to procure and appoint a specialist drilling contractor on appropriate contractual terms to:

- i. Design and drill the required pilot borehole(s) subject to the confirmation of funding from the Department for Business, Energy and Industrial Strategy (BEIS); and
- ii. Drill any subsequent required production borehole(s) as part of the construction phase subject to the outcome of the viability of the pilot borehole(s) and confirmation of further funding from BEIS.

Is the decision consistent with the Budget/Policy Framework? Yes

If not, Council approval is required to change the Budget/Policy Framework

Suggested reason(s) for Decision:

In line with June Cabinet report the Council has sought grant funding to support the cost of the next steps towards delivery of the Sunderland Mine Source Heat Network. An application to the BEIS Green Heat Networks Fund (GHNF) Transition Scheme for commercialisation funding was submitted. Following dialogue with BEIS there is an emerging funding condition relating to the pilot boreholes, which requires a formal quotation from the successful drilling contractor to be obtained and submitted to BEIS prior to end of this financial year.

This will continue progress towards delivery of a City Centre Heat Network, in support of the ambitions set down in the City Plan and Low Carbon Action Plan.

Alternative options to be considered and recommended to be rejected:

- i. Not to procure a drilling contractor. This option is rejected as the Council doesn't have the capacity and expertise to undertake this specialist work, nor would this option satisfy the emerging funding condition.

Impacts analysed;

Equality ☐ **Privacy** ☐ **Sustainability** ☒ **Crime and Disorder** ☐

Is the Decision consistent with the Council's co-operative values? Yes

Is this a "Key Decision" as defined in the Constitution? Yes

Is it included in the 28 day Notice of Decisions? Yes

CABINET – 11 JANUARY 2022

SUNDERLAND HEAT NETWORK - ENGAGEMENT AND APPOINTMENT OF SPECIALIST DRILLING CONTRACTORS

Report of Executive Director of City Development

1. Purpose of the Report

- 1.1 To seek Cabinet's approval to procure and appoint of a specialist drilling contractor to deliver the boreholes required to progress towards delivery of a strategic heat network.

2. Description of Decision (Recommendations)

- 2.1 Cabinet is requested to authorise the Executive Director of City Development in consultation with the Deputy Leader to procure and appoint a specialist drilling contractor on appropriate contractual terms to:
 - i. Design and drill the required pilot borehole(s) subject to the confirmation of funding from the Department for Business, Energy and Industrial Strategy (BEIS); and
 - ii. Drill any subsequent required production borehole(s) as part of the construction phase subject to the outcome of the viability of the pilot borehole(s), and confirmation of further funding from BEIS.

3. Introduction/Background

- 3.1 As detailed in the June 2021 Cabinet Report; the Council, with the support of WSP (technical consultant), Teno Energy (financial consultant), Pinsent Masons (legal consultant) and the Coal Authority (specialist advisor) prepared an Outline Business Case and Techno Economic model for a mine source heat network. The heat network ambitions are featured in the Sunderland "City Plan" and the "Low Carbon Action Plan", recognising that a district energy scheme could deliver multiple benefits, including jobs and employment, a catalyst for regeneration and growth, heat decarbonisation and improving energy security.
- 3.2 The conclusion of the work undertaken was that a mine water source scheme would outperform river source in terms of both capital and operating cost. Mine water should have little to no seasonal temperature variation and so, despite higher abstraction costs, will have a higher and more consistent source temperature, and as a result will enable the heat pumps to operate more efficiently.
- 3.3 While there is a potentially viable heat network utilising mine water heat from the former Wearmouth Colliery, the resource must first be proven by drilling boreholes. The Coal Authority advise that the former roadways at Wearmouth Colliery make an excellent target as their records are relatively recent, the roadways are expected to be structurally sound, and they are almost certainly flooded. There are however risks associated with drilling and the estimated cost of the initial pilot borehole(s) is £1,600,000 which is expected to be fully met from grant funding. Should the project proceed to construction phase, further production boreholes will be required to be drilled and are anticipated to cost in the region of £3,000,000.

- 3.4 In accordance with the June 2021 Cabinet approval, the Council submitted a Heat Network Investment Project (HNIP) funding application. The Council were subsequently advised that the HNIP is coming to an end and will be replaced by Green Heat Networks Fund (GHNF). BEIS have subsequently announced GHNF – Transition Scheme, a commercialisation bridging funding pot between HNIP and GHNF. Following in depth dialogue with BEIS regarding gateway metrics for genuine low carbon schemes, such as the proposed Sunderland Heat Network, it was concluded that the project would be a better fit within GHNF, and a parallel application was submitted to the GHNF – Transition Scheme.
- 3.5 Based upon the Outline Business Case prepared by WSP, Teno Energy and Pinsent Masons on behalf of the Council funding to the value of £2.22m has been sought which will fund both the costs of consultancy support for the Commercialisation phase, and the drilling of the pilot boreholes.
- 3.6 While the Council is technically awaiting a formal decision on its HNIP application, dialogue with BEIS has since focused around the GHNF – Transition Scheme application. This dialogue has progressed and BEIS have advised of a draft GHNF – Transition Scheme condition, requiring the Council to obtain a formal drilling quotation(s) prior to drawing down the grant funding, which would need to be satisfied by the end of this financial year.
- 3.7 Due to the relatively short timeframe in which the Council would need to discharge the prospective condition, as well as the complexities around targeting mine workings and drilling to such depths, the Council intends to engage the further services of the Coal Authority to assist in procuring a drilling contractor.

4. Sustainability

- 4.1 District heating networks have a key role to play in support of the UK's legally binding target to reduce its greenhouse gas emissions by at least 80% from 1990 levels by 2050. The UK Government is currently running an investment programme providing £320m of capital funding to drive the creation and construction of new heat networks. The Council is considering developing strategic heat network infrastructure in the Local Authority area as part of its overall objectives to reduce the City's carbon footprint, helping to lower energy costs and promote energy security.
- 4.2 Development and delivery of what would be the UK's largest geothermal mine source district heat network, would be a major milestone in achieving the Council's ambition to be carbon neutral by 2030, and the City's carbon neutral target of 2040. It is envisaged that the scheme could save upwards of 4,100 tCO₂e per annum, which by comparison equates to over half of Sunderland City Council's carbon emissions from its direct estate.
- 4.3 The proposed heat source typically delivers a 70%+ carbon saving against mains gas, based upon BEIS current carbon factors. It is envisaged that this saving can be increased by limiting use of the gas back-up boilers and making proper use of thermal storage and balancing. The intention would be to replace the back-up boilers with a more sustainable system when technology and finances permit, with the aim of providing net carbon neutral heat.
- 4.4 In terms of carbon payback; despite the high capital cost, the scheme compares favourably with the likes of solar PV which, given heat is considered more difficult to

decarbonise, is a positive factor. With proper maintenance there is no reason the scheme could not deliver well beyond its anticipated 40-year lifecycle.

5. Delivery and Governance

5.1 The Council would be the contracting party and would be responsible for the governance of the drilling project and managing the contract. The Coal Authority's role will be as a specialist advisor with technical knowledge and expertise and also as a Health and Safety advisor.

5.2 Indicative Project Milestones

The table below sets out the indicative project milestones which are subject to further discussion with the Coal Authority.

Description	Date	Note
Seek Cabinet Approval for the procurement and appointment of Drilling Contractor	11 January 2022	Purpose of this report
Market engagement	12 January 2022	
Publish tender	31 January 2022	30 Day tender period
Tender Returns	2 March 2022	
Tender Evaluation complete	11 March 2022	
Submission of quotation to BEIS to meet condition of funding	16 March 2022	
Appoint borehole drilling contractor	May 2022	

5.3 Subject to drilling contractor availability and requisite consents, it is anticipated that drilling could commence Spring/Summer 2022 and take in the region of six months to drill and complete the required water pump tests. Assuming the borehole(s) hit the targeted mine workings, and the contractor successfully completes the pumping test, the Council should be able to demonstrate proof of source to potential customers and BEIS, allowing for development of the Full Business Case and finalisation of proposed customer agreements.

5.4 In line with the City Plan, the wider Heat Network project remains on track to deliver 'heat on' in 2024.

5.5 The findings of the boreholes and any subsequent Business Case will be brought back to Cabinet for decision on whether to proceed with delivery of the proposed Heat Network, or otherwise.

6. Reasons for the Decision

- 6.1 In line with June Cabinet report the Council has sought grant funding to support the cost of the next steps towards delivery of the Sunderland Mine Source Heat Network. An application to the BEIS Green Heat Networks Fund (GHNF) Transition Scheme for commercialisation funding was submitted. Following dialogue with BEIS there is an emerging funding condition relating to the pilot boreholes, which requires a formal quotation from the proposed drilling contractor to be obtained and submitted to BEIS prior to end of this financial year.
- 6.2 This will continue progress towards delivery of a City Centre Heat Network, in support of the ambitions set down in the City Plan and Low Carbon Action Plan.

8. Alternative Options

- 8.1 The alternative options considered and recommended for rejection are:
- i. Not to procure a drilling contractor. This option is rejected as the Council doesn't have the capacity and expertise to undertake this specialist work, nor would this option satisfy the emerging funding condition.

9. Other Relevant Considerations / Consultations

- (i) **Financial Implications** – The costs associated with the Coal Authority undertaking the specialist advisor role are estimated at c. £28,000 and are included within the Commercialisation grant funding application to BEIS. The remainder of the grant funding sought will fund both the costs of consultancy support for the Commercialisation phase, and the drilling of the pilot boreholes. As set out earlier in the report, the design and drilling of the bore holes would only be contracted following confirmation of grant funding from BEIS. The Council match funding requirement, which will be confirmed through the development of the business case for the construction phase, will be the subject of a subsequent Cabinet report.
- (ii) **Legal Implications** – The Assistant Director of Law and Governance has been consulted on the proposals and her comments are included in the report.
- (iii) **The Public / External Bodies** – Stakeholder engagement has been carried out with Sunderland Royal Hospital, University of Sunderland, Gentoo and Sunderland College.
- (iv) **Procurement** – The Corporate Procurement Team has been consulted on this proposal and agree to the procurement approach.