

Report of the Strategic Director, Corporate Services to the meeting of the Regeneration and Environment Overview and Scrutiny Committee to be held on 18 December 2018

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Subject:

Civic Quarter District Heat

Summary statement:

This report sets out the progress made towards achieving the councils ambition to develop a City Centre based District Energy Network supplying low carbon heat and electricity on commercial terms to City Centre civic buildings, other public sector buildings and commercial properties.

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Portfolio: Environment, Sport and Culture
Cllr Sarah Ferriby
Regeneration, Cllr Alex Ross-Shaw

Overview & Scrutiny Area:
Regeneration and Environment

1. SUMMARY

This report sets out the progress made on achieving the councils ambition to develop a City Centre based District Heat Network supplying low carbon heat on commercial terms to City Centre Civic buildings, other public sector buildings and commercial properties. The report summarises the progress made so far, changes to the network from the initial proposals, next steps and likely delivery timelines (A glossary of technical terms is included in Appendix 1).

2. BACKGROUND

District Heat Networks (DHN) offers an opportunity to create significant new long term secure income streams and contribute to corporate cost reductions.

UK government has identified DHN as a significant contributor to reducing UK GHG emissions and as a component in the transition to low carbon energy. The Department for Business, Energy and Industrial Strategy (BEIS, formally DECC) is playing an enabling role and making financial and technical resources available to support project development.

In 2010, Bradford Council agreed to reduce its carbon emissions from its own activities and for the District by 40% by 2020. The Council also agreed a target of 20% for energy for delivery of its own functions to come from renewable sources (Council March 2010).

Executive considered a Renewable Energy report on 3rd May 2013. This presented a discussion of the Link Member Report Bradford Power 2020 and Beyond, Renewables Future for Bradford Council and set out the Councils approach to deploying a range of renewable electricity and heat projects. The Report set out progress to date on a number of renewable technology projects deployed across Council assets and includes the case for use of biomass systems. Executive endorsed this approach.

Funding from the Heat Networks Delivery Unit (Part of BEIS) has allowed the Council to commission consultants to undertake a technical and economic feasibility of a number of DHN scenarios using the Civic Quarter as an anchor estate for the scheme and complete the current level of design work. The Council has also been successful in bidding for some funding that will help us to develop the legal and commercial structure and documentation and the detailed financial case.

In December, 2016 a potential source of capital finance became available. This European Regional Development Fund money was being administered as European Structural and Investment funds (ESIF) and there was £16M available for low carbon projects in the city region. Officers prepared and submitted a bid for 50% of the capital cost requirement of the project.

This outline bid was accepted and the Department for Communities and Local Government (DCLG), which was administering that stage of the application process, gave a deadline of 5th October for the submission of a full application for £6.8M.

The requirements at this time were for a full application to have planning permission in place, the original energy centre location had been planned to be part of the 'city centre pool project'. However, this project did not progress and an alternative project was proposed for this site, being the location for Bradford New College, a new city centre education facility, a 100,000 sq ft facility from which to deliver further education for up to 1,200 16-19 year old students which is now under construction and due to open September 2019.

Officers identified a number of alternative sites in June 2017 and requested that the Estates team look to obtain an alternative location for the energy centre.

In September 2017, officers contacted the Department for Communities and Local Government (DCLG), which was administering the ESIF grant application process to outline the delays CBMDC was encountering and to look for a solution that would allow the authority to remain in the bid process. DCLG confirmed that the authority would be allowed to have an extended deadline of 5th January 2018.

In October 2017, the Estates team successfully identified an alternative potential Energy Centre site, which is not a council owned site however the council does have an option to purchase the site at what is considered an acceptable price. Unfortunately, it has become clear that the amount of work required to develop a plan towards getting planning permission in place and to properly assess the financial impacts on the schemes capital and revenue meant that it was not possible to prepare the full funding application for the ESIF grant that had been planned by the deadline of 5th December 2017, and DCLG were unable to extend the application deadline any further.

Due to the complexity of the project and the cost of obtaining a new energy centre site officers recommended the Council withdrew from the ESIF funding process as the timescales required were unable to be met.

3. OTHER CONSIDERATIONS

The completion of a new RIBA Stage 3 design for the electrical and mechanical elements of the network and a techno-economic model that reflected the viability of this network has been completed. This work package included air quality modelling across the network and a detailed assessment of the pipework routes to ensure the highest possible level of understanding for this stage of the schemes development. An outline design for the energy centre has also been started to allow consultation with the planning department to commence.

Officers have made funding bids to complete the Outline Business Case (OBC) work packages that remain outstanding. The completion of a full OBC would provide all the work that would be required to move the scheme forwards through commercialisation and then make an investment decision. Completing this work would also provide the relevant amount of detail to allow a bid for capital funds under the BEIS Heat Network Investment Project which is designed to provide gap funding should projects fail to meet the required hurdle rate for investment from developers or investors. On completion of the OBC officers would be in a position to bring the scheme before council to obtain a decision on how to proceed. Funding to complete the OBC will be primarily from BEIS with match funding from the Leeds City Region Energy accelerator project. This means that the work can be completed without incurring costs for the council.

The project team have submitted pre planning enquiry to the Councils Planning Department to obtain views of any likely issues that could arise during the planning process. Planners have been broadly positive stating *“This proposal sits well with the objectives of the Spatial Vision and policies SC1, SC2, SC6, SC9, BD1 EC1 and EN6 of the Bradford Core Strategy.”* Officers are working closely with the Air Quality team to ensure that any potential impacts are carefully considered and mitigated against to ensure that the development does not create unacceptable air quality issues.

The network offers an opportunity to utilise energy storage technology at a reduced cost if incorporated into the design before construction. The size of the electrical connection would be unaffected and the technology would be able to exploit the markets for short term energy storage, these include Frequency Response, TRIADS, peak load management, day/night pricing and the utilisation of onsite generation capacity. Part of the OBC would be to incorporate electricity storage into the financial models.

3.2 Next Steps and way forwards

At the time of preparation of this report the next steps are;

- Utilise the in-house architects' team to further develop the design of a high quality building that can proceed through the planning process for the new site.
- Proceed through the BEIS HNDU round 8 funding process
- Proceed through the energy accelerator funding application
- Continue to look at potential connections to refine the business model
- Add the potential returns from energy storage into the business model to improve the financial case.
- Continue to look for sources of finance, both grant funding for commercialisation and investment finance will need to be sourced although Energy accelerator should support this process.
- Procure detailed financial model and add to outline business case
- Procure legal and commercial elements to be included in business case
- Proceed through planning process
- Take business case forwards for approval.

The project has suffered from setbacks over the last year and the difficulty in finding a suitable alternative energy centre location, however, the current proposed site is encouraging with feedback from both the planning team and the air quality team being initially positive.

4. FINANCIAL & RESOURCE APPRAISAL

Work to develop and set out a detailed financial operating model will be commissioned. This will include development of revenue budgets for an operating network including options for Customer relationship Management (CRM).

There are a wide range of finance solutions for a scheme of this type and the final, best, option will necessarily depend on the business structure chosen following the recommendations of the financial commercialisation report. It is possible to finance the scheme completely using a mixture of grant and investment capital, particularly since there are some tax efficient investment vehicles that can support the development of elements of heat networks and that require much lower levels of return than traditional investments.

The current techno-economic model suggests that the network and heat generation

equipment will cost in the area of £11.6M. 30% of this should be met from the BEIS HNIP fund, and the balance of the funding may be obtained entirely from third parties, dependent upon the ultimate delivery model selected. The project would then return 8.6%IRR.

5. RISK MANAGEMENT AND GOVERNANCE ISSUES

The Feasibility Report sets out project risks and mitigation. The continuing development of the CQDHN will follow the council's standard capital project governance structure.

The property implications for the proposals have been presented to the councils Property programme Board in January 2017 and were supported.

6. LEGAL APPRAISAL

A suite of legal documentation appropriate to the development and operation of the network will be commissioned. This will include for example commercial energy contracts. In addition the legal aspects of any regulatory compliance will be undertaken.

7. OTHER IMPLICATIONS

7.1 EQUALITY & DIVERSITY

N/A

7.2 SUSTAINABILITY IMPLICATIONS

The Civic Quarter District Heat Network will contribute to delivering a more sustainable Bradford District by developing a local energy generation supply chain enhancing resilience to global energy market price forces and mitigating some price rise impacts.

The project is consistent with the Councils Climate Change Strategy and contributes to climate change mitigation by reducing greenhouse gas emissions.

7.3 GREENHOUSE GAS EMISSIONS IMPACTS

The Council reported 19000 tonnes of CO₂ emissions for the reporting year 2015/16 under Carbon Reduction Commitment. The expanded network as proposed identifies about 2000 tonnes of CO₂ emissions savings. This contributes an additional reduction in annual corporate emissions for the council of 10% of the 2009/10 baseline year.

7.4 COMMUNITY SAFETY IMPLICATIONS

N/A

7.5 HUMAN RIGHTS ACT

N/A

7.6 TRADE UNION

N/A

7.7 WARD IMPLICATIONS

The Civic Quarter District Heat Network will be delivered in City and Bowling & Barkerend wards. Public sector, commercial and domestic energy consumers may be impacted.

7.8 IMPLICATIONS FOR CORPORATE PARENTING

N/A

7.9 ISSUES ARISING FROM PRIVACY IMPACT ASSESMENT

N/A

8. NOT FOR PUBLICATION DOCUMENTS

N/A

9. OPTIONS

None

10. RECOMMENDATIONS

That members note the progress made on development of the scheme and its technical scope.

11. APPENDICES

Appendix 1 Glossary of terms

12. BACKGROUND DOCUMENTS

None

Appendix 1 Glossary of terms

- DHN – District Heat Network, pipes in the ground that move heat between buildings, central heating for cities
- CHP – Combined Heat and Power, an engine that burns gas to produce electricity and the waste heat is captured and used
- Load – the amount of heat required by the system at any time
- Base Load – the typical load required during periods of light use of the system
- Peak Load – The highest heat requirement at any point of the day, week, month or year
- Heat exchanger – a device that allows heat to be moved in to or out from the DHN without having to mingle the fluid that the heat is being carried in. Allows systems to operate at different temperatures and pressures
- Heat Interface unit – See Heat exchanger
- Heat Meter – measures the flow rate of heat carrying liquid and the temperature difference allowing accurate billing for every unit of heat consumed
- Boiler – burns fuel to provide heat
- Biomass – usually wood fuel, either in chipped form (cheaper) or industrially formed into pellets (more compact and consistent quality). Can also be straw, miscanthus or other fuel crops.
- Energy From Waste (EFW) – a facility that combusts municipal waste and harnesses the heat to generate electricity, heat left after this process can be distributed via a DHN
- Losses – energy lost during distribution through heat leakage or electrical resistance
- Private Wire Network (PWN) – a privately owned and operated electricity distribution network
- O&M – Operation and Maintenance – the team or mechanism that keeps the technical equipment running smoothly
- CRM – Customer Relations Management – the team or mechanism that deals with customers including billing, complaints and new customers
- Frequency response – This is an aspect of energy storage where the operator of an electrical storage facility can be paid to take excess electricity from the grid to help prevent generation capacity being shut down and incurring the losses that that process would cause. The operator can then sell the stored electricity back to the grid when energy is scarce making more money or use the energy on its own site if this is more financially beneficial.

Appendix 2 List of modelled connections

Please note that this list of connections is based on the planned network and stakeholder engagement exercises that were carried out in 2016 which resulted in expressions of interest from the third party owners of buildings outside the corporate estate. As the next stage of work is refined then further stakeholder engagement will be undertaken with a view to agreeing Heads of Terms with the third parties before construction commences. The network itself has capacity for a further 20% heat supply capacity to allow connections where any additional interest is identified.

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Margaret McMillan Tower
Sir Henry Mitchell House
Alhambra Theatre
Britannia House & Argus Chambers
St George's Hall
City Hall
Combined Courts Building
Magistrate's Court
Trafalgar House
Aldermanbury House - WYPF
Public Service Hub Phase 1
Public Service Hub Phase 2
One City Park
Odeon Building
Jury's Inn
Provident Building