

Manchester City Council Report for Information

Report to: Resources and Governance Scrutiny Committee -
8 November 2018

Subject: The Manchester Civic Quarter Heat Network (the "CQHN") –
Update on progress since the March 2018 Executive Meeting

Report of: Strategic Director (Strategic Development)

Summary

The purpose of this report is to provide an update on the progress of the Manchester Civic Quarter Heat Network project (the "CQHN") and the actions required to enable contract closure and commencement of the construction phase.

The Council's Climate Change Action Plan and the Climate Change Strategy documents include the intention to develop and deliver a heat network in the Civic Quarter as a key project to contribute to the decarbonisation of energy provision in the Civic Quarter.

The Civic Quarter Heat Network Project comprises the creation of a new and architecturally acclaimed low carbon energy centre at the Manchester Central Convention Complex. The energy centre will supply low carbon heat and electricity to Council owned buildings – the Town Hall, the Town Hall Extension and Library, Manchester Central Convention Centre, Manchester Art Gallery, the Bridgewater Hall and Heron House. Refer to Appendix 1 for further information

The project has been designed to allow for expansion to supply low carbon energy to other commercial buildings/developments in the Civic Quarter. Subject to contract the project will be designed, built, operated and maintained on behalf of the Council by Vital Energi of Blackburn (Vital). Vital were selected via an OJEU compliant procurement process and will be subject to a performance related contract for both construction and operational phases.

On the 21 March 2018 the Executive:

- 1 Approved the establishment of a Special Purpose Vehicle (SPV), wholly owned by the Council, to promote the delivery of the Project as described in the report to Executive of the same date
- 2 Delegated authority to the Strategic Director Development, the City Treasurer and the City Solicitor, in consultation with the Leader, Executive Member for the Environment and the Executive Member for Finance and Human Resources, to approve the Business Plan and corporate documentation to establish the SPV and to negotiate and finalise the terms of the contractual and property arrangements as set out in the Executive report of 21 March 2018

- 3 Delegated authority to the City Solicitor to enter into and complete all documents or agreements necessary to give effect to the recommendations of the report to Executive of 21 March 2018

Recommendations

The Committee is recommended to:-

1. Note the progress that has been made;
2. Note the delegations agreed at the Executive meeting of 21 March 2018;
3. Note the remaining actions required to enable contract closure and construction and operation to commence as agreed and delegated at the Executive of 21st March 2018 viz:-
 - a. Complete the Business Plan (the Capital Approval Process Business Case)
 - b. Finalise the Project Agreement with Vital Energi
 - c. Finalise the lease agreement facilitating the construction of the Energy Centre
 - d. Finalise the agreement for the power connection
4. Note that the actions above are targeted for completion in November with the aim of entering into contract with Vital Energi in December.

Wards Affected: Deansgate

Alignment to the Our Manchester Strategy Outcomes (if applicable)

Manchester Strategy outcomes	Summary of how this report aligns to the OMS
A thriving and sustainable city: supporting a diverse and distinctive economy that creates jobs and opportunities	Investment into a Heat Network within the City Centre will help to reduce energy costs to the City Council and connected businesses and improve their resilience to climate change.
A highly skilled city: world class and home grown talent sustaining the city's economic success	The delivery of a series of Heat Networks within the City Centre will facilitate the creation of employment opportunities at a range of skill levels.
A progressive and equitable city: making a positive contribution by unlocking the potential of our communities	Work with the community sector to find ways of reaching communities to create a thriving active neighbourhoods
A liveable and low carbon city: a destination of choice to live, visit, work	The delivery of Civic Quarter Heat Network within the City Centre will reduce carbon emissions, help improve the environmental quality and

	attractiveness of the city, reduce energy and resource costs, and help create attractive places that residents and businesses will choose to locate to.
A connected city: world class infrastructure and connectivity to drive growth	Manchester's Civic Quarter already includes established transport links throughout; cycling lanes, metro link, bus corridor. The CQHN will demonstrate state of the art technology housed in an architecturally striking energy centre. It will also include provision for high performance fibre communications to be installed along its route

Contact Officers:

Name: Eddie Smith
Position: Strategic Director (Strategic Development)
Telephone: 0161 234 3030
E-mail: e.smith@manchester.gov.uk

Name: Julian Packer
Position: Civic Quarter Heat Network Project Director (Technical)
Telephone: 07879 625170
E-mail: j.packer@manchester.gov.uk

Name: Rebecca Maddison
Position: Head of Strategic Commercial, Legal Services
Telephone: 0161 274 5200
E-mail: r.maddison@manchester.gov.uk

Name: Paul Hindle
Position: Head of Finance Corporate Core
Telephone: 0161 234 33025
E-mail: p.hindle@manchester.gov.uk

Background documents (available for public inspection):

The following documents disclose important facts on which the report is based and have been relied upon in preparing the report. Copies of the background documents are available up to 4 years after the date of the meeting. If you would like a copy please contact one of the contact officers above.

- Manchester City Council Climate Change Action Plan 2015/16 - 2017/18, Executive, 18 March 2015
- Civic Quarter Heat Network Proposal, Executive, 1 July 2015
- Capital Programme (Budget 2017/18 – 2021/22), Executive, 11 January 2017
- Civic Quarter Heat Network Proposal, Executive, 8 March 2017
- The Manchester Civic Quarter Heat Network, Executive, 10 January 2018
- The Manchester Civic Quarter Heat Network, Executive, 21 March 2018
- “Manchester Climate Change Strategy 2017 to 2050”, and the accompanying
- “Manchester Climate Change Strategy – Implementation Plan 2017 – 2022”

1.0 Introduction

- 1.1 This report provides an update to Members on the progress that has been made to date in respect of the Civic Quarter Heat Network (CQHN) project since March 2018 and provides further detail on the Full Business Case (FBC) and contractual relationships to facilitate the delivery of the project.
- 1.2 The Purpose of this report is to update Scrutiny on the terms of the proposed agreement to be entered into with Vital Energi (VE), outlines the steps to be taken in order to progress through to financial close of the project and seeks the approval of the Executive to delegations to officers and members around finalising the contracts.

2.0 Background

- 2.1 In the UK, unlike much of Northern Europe, the heating of commercial buildings has been by use of boilers installed within individual buildings. This traditional approach has been driven by the ready availability of natural gas supplies in most of the UK – the UK having probably the most extensive gas network in the world. In addition to this electricity supply to buildings has traditionally come from remote power stations transmitting power over significant distances using the national grid transmission system and local distribution networks. This is inefficient in that the waste heat associated with power generation is rejected to the atmosphere or rivers and not used to heat homes and other buildings. In addition there is further energy lost to the atmosphere from electrical transmission. Even with an increasing amount of renewable energy being produced it is probable that a significant amount of fossil fuel generation will still be required until at least 2050.
- 2.2 However there is an alternative and that is to bring the power generation into a building and collect the waste heat for use in heating the building. This is known as Combined Heat and Power (CHP) and is a well proven, highly efficient, highly reliable form of generation and because of its high efficiency will reduce carbon emissions even if operating on natural gas.
- 2.3 In order to achieve economies of scale and an even more effective system a larger CHP plant can be used to supply more than one building (hundreds in the case of a residential project) with both electricity and heat via a district heating network. This is more correctly described as District Energy rather than just District Heat.

The benefits of a District Energy project include:-

- Provision of low carbon energy (compared with traditional systems)
- Provision of lower cost energy (due to high efficiency)
- Provision of highly reliable energy due to the inbuilt duty/standby nature of the equipment installed;
- Improved air quality through installation of new low emission combustion plant which replaces older higher emission equipment;

- Reduced equipment costs for those connecting – no need for boilers/flues/gas connection;
- Reduced operating, maintenance and capital replacement cost – through not having to install individual boilers; and
- Improved safety as no requirement for gas supply in buildings (other than the building in which the CHP/boiler plant is located).

2.4 It is worthwhile noting that the UK Government sees the implementation of district heating/district energy as a key route to decarbonising heat as evidenced by publications including:-

- “The Future of Heating: a strategic framework” (2012);
- “The Future of Heating: meeting the challenge” (2013); and
- “Green Growth Strategy” (2017).

2.5 And through the creation of the Heat Networks Delivery Unit (HNDU), which provides grant funding and technical support for the early development phases of heat network projects, and through the establishment of the Heat Network Investment Project (HNIP) which is offering £320m of capital support to invest in projects.

2.6 In 2009 a plan for collective action on climate change in Manchester was produced – “Manchester – A Certain Future”. This was updated in 2013 and more recently “Manchester Climate Change Strategy 2017 to 2050” and the accompanying “Manchester Climate Change Strategy – Implementation Plan 2017 – 2022” have been produced. All these documents refer to the Manchester Civic Quarter Heat Network (CQHN) as a key project to contribute to the decarbonisation of energy provision in Manchester. Other benefits arising from the project include:-

- Provide reliable supplies of low carbon heat and power over a period of at least 30 years;
- Reduce the impact of energy cost increases to the City Council;
- Provide competitively priced low carbon energy to City Council premises and, potentially, to 3rd party off-takers
- Improve low air quality through a reduction in the emissions of oxides of nitrogen (NOx) over a period of at least 30 years;
- To be financially viable and generate a long term revenue stream for the City Council
- Avoid the cost of replacing ageing plant in individual buildings
- Install high performance broad band fibre along the route of the network
- Be the first modern heat network in Manchester, delivering heat and power to multiple owned sets of buildings and therefore act as the trailblazer for other such similar initiatives; and
- Create valuable long life assets – the Energy Centre, the heat network and the private wire supply which brings new electrical capacity into the centre of the city.

Development of the Manchester Civic Quarter Heat Network (CQHN) Project

- 2.7 At its meeting in July 2015 the Executive considered and approved the use of the OJEU compliant “Carbon and Energy Fund” (CEF) Procurement Framework to procure a delivery partner to deliver the CQHN. The Carbon and Energy Fund (CEF) provide project, procurement and management support together with the necessary technical, commercial and procurement experience within the City Council to deliver such a project.
- 2.8 Using the Carbon and Energy Fund Procurement Framework the Council undertook a mini-competition to select a delivery partner.
- 2.9 At its meeting in March 2017 the Executive considered and approved the appointment of Vital Energi (HQ in Blackburn), who are the country’s leading provider of sustainable and low carbon district energy schemes, as Preferred Bidder to develop the CQHN project within the city. When implemented this will reduce CO₂ emissions and improve air quality whilst generating a revenue stream for the Council to potentially invest in future projects.
- 2.10 The project, includes the creation of a low-carbon Energy Centre at Manchester Central Convention Complex incorporating CHP and boilers connected to a 2km district heating network. It will connect several iconic Manchester buildings, including Manchester Town Hall & Extension, Manchester Central Convention Centre, Central Library, Manchester Art Gallery, The Bridgewater Hall, and Heron House. The design of the Energy Centre (the Tower of Light”) has been the subject of an architectural competition and the chosen design has received widespread acclaim and approval at the planning meeting of 8th March 2018. A schematic plan of the route of the network and an image of the Energy Centre will be found in Appendix 1.
- 2.11 Heat created during electricity generation will be distributed through a highly efficient underground network of insulated pipes whilst the boilers will be used to “top up” the heat supplied by the CHP when required.
- 2.12 The electrical power generated will serve the connected Council buildings via a private wire connection with surplus electricity exported to ENW’s grid and traded via a licensed supplier arrangement
- 2.13 At its meeting in January 2018 the Executive considered and approved the establishment of a wholly owned SPV structure to facilitate the delivery of the project.
- 2.14 The current approved capital programme includes an £26m capital budget for the completion of this project. This includes a £2.87m grant awarded to the project by HNIP (referred to above). The final Capital Approval business plan is being finalised and is due for completion in November 2018. As part of the business plan the full working capital requirement of the SPV and surplus generated from its trading activity will be set out.

- 2.15 As the project is to facilitate delivery of commercial activity, the City Council is to establish a number of Special Purpose Vehicles (Tradeco, Councilco, Holdco) which it will wholly own. As noted in the previous report to Executive, Holdco will be a 'governance' buffer between the operating companies Tradeco and Councilco. Councilco will be the main entity that contract with the City Council and the Tradeco will be the main entity which contracts with third parties.
- 2.16 It is proposed that Tradeco will enter into the Design Build Operate and Maintain Contract (DBOM) with Vital Energi. Vital Energi will design, construct, commission and operate and maintain the network and its plant, equipment and Energy Centre building for 30 years. The Project Agreement with Vital is an energy performance contract which includes comprehensive repair and replacement of equipment and incorporates financial guarantees of operational performance and service quality.
- 2.17 Tradeco will be responsible for all commercial arrangements including:-
- Utility supplies to the Energy Centre (primarily natural gas and electricity to support essential services in the event that the CHP plant is not operational (e.g. at times of maintenance)
 - Power export and import agreements
 - Heat and power agreements with customers within the City Centre, and this will include a number of City Council buildings and potentially some private sector buildings.
- 2.18 The construction phase is anticipated to be 18 months and the contract with Vital includes penalties for late delivery.
- 2.19 The Energy Centre and the distribution network will be designed to accommodate a doubling of demand over time as new developments local to the network become available to connect. Having incurred the initial infrastructure costs the increase in demand at marginal additional cost will further improve the financial performance of the project. These will be looked at on a case by case basis as opportunities arise.
- 2.20 The delivery and long term operation of this network will also stimulate economic growth through the creation of jobs during the construction phase, and also through the revenue generated for the City Council by the project, mainly comprising of:
- Repayment of MCC's project funding - **Income**
 - Payment of Business Rates (estimated at £150k p.a.) and Energy Centre rental (£80k p.a.) - **Income**
 - Reduced cost of energy – **Savings**

3.0 Manchester Civic Quarter Heat Network - Business Case Development

- 3.1 The project objective is to deliver an energy network supplying both power and heat in order to realise a return on the initial investment. For the CQHN the

power generation is supplied by new Combined Heat and Power (CHP) plant installed in a new Energy Centre located at Manchester Central supplemented by the existing CHP equipment installed in the Town Hall Extension.

3.2 The approach taken by the project with regard to power supply is to adopt the “private wire” model. With private wire the project installs new power supply cabling to the customers who are also connecting to the heat network. This cable is installed in the same trenches as the heat pipes. The CHP units connect into the private wire cable which is also connected to the Electricity North West (ENW) local network (which provides resilience and the ability to import/export power).

3.3 The CHP units will be the normal supply of power to the connected customers with the resilience of also being connected to the ENW network which provides:-

- a continuity of supply for the occasions when the CHP is unable to provide sufficient power (e.g. when being maintained), and
- a conduit for the export of power if the CHP is generating more power than the connected customers require, and
- the same resilience of supply as a direct connection to the ENW network

4.0 Progress with the Manchester CQHN Project since March 2018

4.1 Since the March 2018 Executive the following key matters have been progressed, a number of which will be finalised in the coming weeks before Christmas 2018. These are:

- Planning permission for the project was secured in April 2018;
- The development of the business case considered a number of scenarios of which the “Campus” approach described in 2.10 has been now been selected;
- The Project Agreement with Vital is now near finalisation with no issues of significance to resolve. The aim is to reach final agreement in November;
- The lease arrangements to accommodate the construction of the Energy Centre at Manchester Central are well advanced. The aim is to reach final agreement in November;
- The fuel supply for the Energy Centre has been secured. In addition to the initial “Campus” requirements it will have capacity to supply expansion of the scheme;
- The private wire power connection will be made at Circle Square and arrangements are progressing with the aim to reach agreement in November.

5.0 Next Steps

5.1 To complete the following activities by the end of November in order to achieve contract closure in December and commence the construction phase:-

- the Project Agreement with Vital Energi
- the lease agreement facilitating the construction of the Energy Centre
- the agreement for the power connection
- the Capital Approval Process Business Case .This will provide more details on the finalised delivery timetable and cost plan.

5.2 The construction phase is 18 months and based upon a December commencement the scheme will be operational in the summer of 2020.