

Report of	Director for Commercial and Place	Author	Jan Warren
Title	Colchester Northern Gateway Heat Network		282107
Wards affected	Mile End and Highwoods		

This report seeks approval for the recommended proposal to create a Heat Network and supporting infrastructure on a site at the Northern Gateway, to approve the detailed business case for the proposed development project including the capital and revenue assumptions and implications for the Council's budget and to approve the proposed delivery structure for the proposed Heat Network.

1. Decision(s) Required

- 1.1 To approve the recommended proposal to create a Heat Network and supporting infrastructure on sites at Northern Gateway, south of Axial Way subject to the approval of a full business case which is set out in Part B of this Report.
- 1.2 To note the recommendations in Part B being;
 - To approve the detailed business case set out in the for the proposed development project including the capital and revenue assumptions and implications for the Council's budget and Medium Term Financial Forecast.
 - To include the scheme in the capital programme on the assumption of the figures and funding shown within this report, noting that further commercialisation work would be required prior to appointment of a contractor.
 - To approve the proposed set up of a company for the development and management of the network noting that a further report to Revolving Investment Fund Committee with details on the governance arrangements of the company will be brought back prior to the creation of any structure.
 - To approve the use of New Homes Bonus monies for initial start-up of the company.

2. Reasons for Decision(s)

- 2.1 To enable the installation of an "infrastructure first" heat network scheme within the new Colchester Northern Gateway destination to provide a sustainable, affordable district heating system to businesses and homes.

- 2.2 To create a new commercial income stream for the Council and to ensure that the financial costs to the council of delivering the scheme over the programme period are clear and accounted for.
- 2.3 To provide the first phase of delivery in a strategy at the Northern Gateway to deliver the heat network infrastructure alongside proposals to create ultrafast broadband and other areas of environmental sustainability enabling delivery of a “best practice” case-study which can be applied to other new business locations and can be considered as an option for the new Garden Communities.
- 2.4 To create developments with a lower Carbon footprint in line with Council Strategic objectives.

3. Alternative Options

- 3.1 Do nothing. The population of the borough is set to grow from 180,420 to 193,806 residents by 2020. If the Council were to carry on with business as usual, without taking any mitigating action such as implementing low carbon projects such as this, Colchester could see a potential increase in carbon emissions of 11% by 2020 compared to current levels.
- 3.2 Deliver this at a later date – this would mean that the opportunity would have gone to deliver an infrastructure first scheme, as the wider development would have commenced and there would be no lever and incentive to get businesses and developers to sign up to this form of heat network. The ability to secure external match funding may also be less likely as this project is being viewed as a pilot scheme.

4. Supporting Information

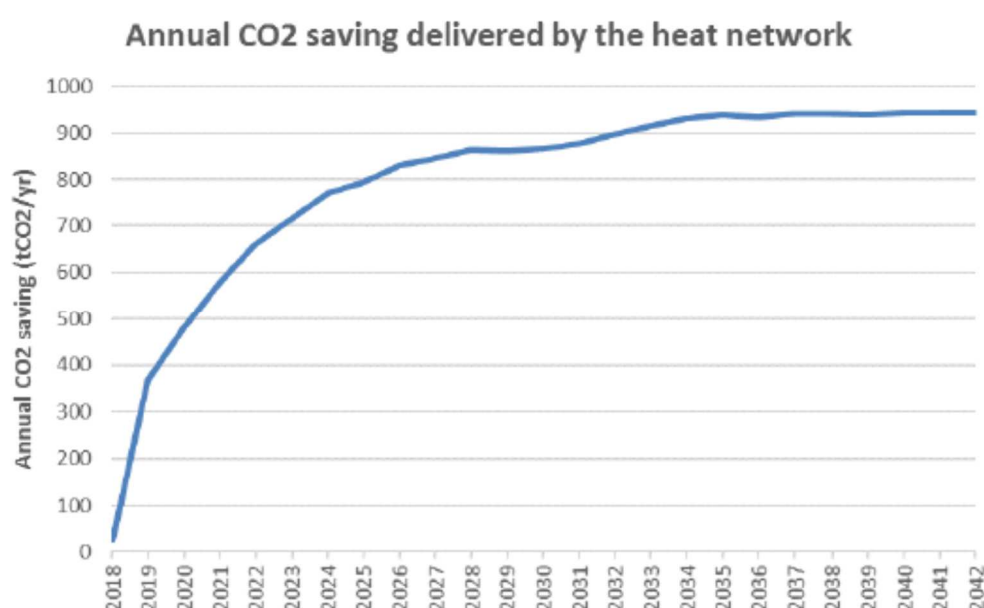
- 4.1 The Council has been working with the Heat Network Delivery Unit which is part of Department for Business Energy and Industrial Strategy (BEIS) for circa 18 months looking at feasibility options for bringing forward an “infrastructure first” model of heat network on land at Northern Gateway. As the Council currently owns the land at Northern Gateway and will be bringing forward development in due course, it is a unique opportunity to consider whether it is possible to deliver new highly sustainable infrastructure package which can be installed in advance of the main build development. This proposal meets with the wider Northern Gateway Masterplan vision which includes an exemplar approach to sustainability.
- 4.2 The feasibility studies have considered; the physical nature of the site, the range of heat plant options, costs of delivery and models of delivery and have led to the creation of a robust financial model which demonstrates that a low carbon scheme is viable on this site.
- 4.2 Please see Appendix 1 which shows a plan of the proposed site area.

5. Proposals

- 5.1 The proposal which is outlined in further detail in the confidential business case on Part B of this Agenda, is for the development of a heat network using a groundwater source heat pump, which will serve a core area and will supply heat to a range of businesses and new homes to be developed on the Northern Gateway site. The groundwater source option utilises innovative technology that has a significantly lower carbon footprint than other forms of heat.

The preferred option of an open loop water source heat pump system makes use of the naturally occurring groundwater (i.e. the aquifer layer) and initial high level investigations show that there should be no reason why the Northern Gateway should not be suitable for this system, but borehole testing will be required as part of the next stage of delivery.

- 5.2 In addition it is planned that the Energy Centre which will house the heat network boiler is also to be used as a visitor centre. This will offer educational opportunities to schools and colleges as well as providing a learning model for heat networks and low carbon practices, allowing excellent dissemination of low carbon practices.
- 5.3 These aims fit with those within the [Colchester Borough Council - Environmental Sustainability Strategy](#) and will enable savings to both domestic and commercial premises, while helping to reduce CO2 within the borough. Estimates show that 14% of UK heat demand could be met by heat networks by 2030, compared to 2% currently, making them a cost effective contributor to the UK's decarbonisation targets. See table below for projected CO2 savings from the heat network;



- 5.4 The scheme has also been developed to be financially sustainable once built. The total capital cost is £5.9m (including inflation costs). It is shown within the financial model that the project seeks to provide a return to the Council for its investment in the project but grant funding has also been applied for to help viability; and the Council through the creation of a wholly owned company for the development and management of the project, will ensure its future sustainability and ongoing benefits to participants in the heat network. The financial model and implications for the Council are outlined in more detail in Part B of this Agenda.
- 5.5 To ensure that the project satisfies state aid requirements with regards to being the only heating solution on offer to residents and businesses which are attached to the scheme, when the scheme is agreed the Council or its wholly owned company will ensure that it meets standards associated with Heat Customer obligations including but not limited too;
- Performance Standards;
 - Heat Customer service,
 - Reporting a fault or emergency, access and repair costs;
 - Joining and leaving procedures;

- Heat Meters and Heat Cost Allocators; Heat Interface Units, Contingency and maintenance plan
- Heat Bill and Heat Charge calculations;
- Paying the Heat Bill and payment difficulties; Registered Participant Complaint handling;
- Monitoring performance; and Privacy policy and data protection of Heat Customer's personal data.

6. Strategic Plan References

This project addresses the following targets from the [Strategic Plan 2015-18](#).

- 6.1 Vibrant – This project creates the right environment for people to develop and flourish
- 6.2 Prosperous - Promoting Colchester to attract further inward investment and additional businesses, providing greater and more diverse employment opportunities.
- 6.3 Prosperous - Supporting people to develop skills, as this enables upskilling of staff.
- 6.4 Business –Become commercially focused and even more business-like in order to be free of government grant by 2017. This scheme creates a new income source and promotes innovative ways of thinking
- 6.5 The aims of this project fit with those within the [Colchester Borough Council - Environmental Sustainability Strategy](#)
- 6.6 District heating networks such as the proposed provide the following direct benefits:

Quantitative benefits

The following benefits indicate the range of economic additionality which the Project will deliver:

- Helping to efficiently manage supply and demand of energy and enable carbon emissions reduction (heat networks can deliver lower emissions than a conventional heating system)
- lowering costs of energy generation, reducing business costs, increasing inward investment and reducing fuel poverty
- dramatically increasing fuel efficiency through use of CHP
- reducing labour and maintenance cost as compared to individual systems
- Improving air quality and providing a means of securing significant reduction in CO2 emissions through the optimisation of heat supply in the Borough
- Creating opportunities for local labour in constructing the network, gaining additional skills

These in turn deliver a range of beneficial outcomes:

Qualitative benefits

- Extending the reach of renewables, by using renewable heat efficiently and providing opportunities for the deployment of renewable technologies that otherwise wouldn't be viable
- Improving security of supply
- Enabling the efficient transportation and use of heat for a wide variety of users

- Allowing a broad range of energy generation technologies to work together to meet demand for heat
- Economic and financial benefits such as
 - reduction in fuel poverty
 - reducing energy costs to customers
 - Reducing Local Authority costs (when the LA is a heat customer or a landlord, a well-designed, efficient heat network can offer lower long term costs than alternative heat supply options)
- Job creation and stimulation of the local economy (the establishment of a local heat network and a municipal energy company can help to retain spend on energy from residents and businesses to stay within the local economy)
- Revenue sources for LA (revenues may be from the heat network or from ancillary activities such as electricity sales)

Technical - such as

- Energy security and resilience (heat networks provide short-term resilience in the form of the heat stored within the system and can provide long-term resilience through the connection of local, multiple heat sources.
- Local renewable heat sources can provide price stability through reduced exposure to wider market changes in gas and electricity markets)
- Innovation opportunities include heat supply technologies. Innovation can also be pursued through procurement, governance structures and tariff policies.
- Enabling fuel flexibility, future-proofing energy generation towards use of renewables
- Local Authority capacity and skills development (e.g. developing a heat network can trigger upskilling of officers because operating of heat networks goes beyond the local authority's narrow statutory remit)
- Providing greater awareness by business, industrial and domestic users of the benefits of district heating schemes, encouraging extension of the network and the formation of additional local networks

However other benefits in the local area are;

Output	Description
Jobs	1.5 FTE To operate the energy centre and maintain the scheme through the Company
Construction jobs supported during development	20

Visitor and education centre	To provide educational support to visitors
Development of truly sustainable new buildings and spaces	Development land provided with early heat network infrastructure

7. Consultation

- 7.1 Whilst detailed consultation on the scheme has not yet be carried out, the Council has been in discussions with BEIS for over 18 months.
- 7.2 The scheme has already been taken to senior management for discussion on several occasions and should it progress to a planning application then it will be subject to the usual consultation process.
- 7.3 The scheme has also been subject to scrutiny at SELEP level as it is on a pipeline of projects across the SELEP area which have been reviewed in terms of deliverability, financial sustainability and economic benefits.

8. Publicity Considerations

- 8.1 A communications plan is to be developed as part of the next stage of the project.
- 8.2 The heat network is an exciting innovative project for Colchester and there are many opportunities to work with communities and businesses to showcase the proposals. The Energy Centre will be open to the public and will host information on the technology and its low carbon credentials.
- 8.3 The Council has bid to BEIS for capital funding for the scheme which, if successful, would be one of a handful of pilot schemes across the country. BEIS are likely to showcase these schemes at a national level which would enable Colchester to gain further publicity.

9. Financial implications

- 9.1 The feasibility work has confirmed that the scheme is viable as set out in the financial model (detailed in the confidential Appendix – Part B) This requires a mix of grant funding and Council investment and has the following assumptions:
- The model assumes the Council is investing in the company for this project as follows:
 - 'Equity Investment'
 - Injection of Prudential Borrowing -
 - Leasing the land that the Energy Centre is being built on to the company.
 - The Council is receiving a return on the project as follows:
 - Any dividends that the project generates
 - Interest received from the borrowing at the rate at which this is lent into the Company to be state aid compliant (this is detailed further in the confidential part of this agenda
 - The lease rental which is being charged on the land to the Company.

10. Equality, Diversity and Human Rights implications

10.1 There are no implications.

10.2 Please see the link to the [North Colchester Equality Impact Assessment \(EIA\)](#)

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11. Community Safety Implications

11.1 As a result of this decision being approved there will be no expected harm to members of the public.

12. Health and Safety

12.1 The design of the scheme and its delivery will comply with all relevant health and safety legislation.

13. Risk management Implications

A full risk register has been appended to the confidential business case however the high level risks in developing the scheme are outlined below;

Risk	Impact	Mitigation
Further technical work means the scheme is unviable	The scheme cannot proceed without a review of the plant options creating delays and potential cost increases	The feasibility work carried out to date suggests the technical proposals are viable but further borehole testing is required as part of the next phase of commercialisation work.
Occupiers do not sign up to the heat network	Would reduce scheme viability	The Council has all land ownership in this area. As it sells land or brings it forward for development, relevant clauses will be added into legal agreements to ensure take up of the heat network.
Construction costs rise	Would reduce viability	A contingency has been added into the financial model for cost rises in the project.
The programme of delivery cannot be met	Would add to delays and cost overruns	The programme will be reviewed at the start of the project and constantly managed to ensure the infrastructure delivery is carried out in accordance with the plans for wider site delivery.

Appendix 1

Map of Northern Gateway Heat Network Area