

CABINET ITEM COVERING SHEET PROFORMA

AGENDA ITEM

REPORT TO CABINET

12 JUNE 2014

**REPORT OF CORPORATE
MANAGEMENT TEAM**

CABINET DECISION

Environment – Lead Cabinet Member – Councillor David Rose

NORTH TEES DISTRICT HEATING SCHEME

1. Summary

The Council has reviewed the long term energy supply for both Council and Borough to develop a route to price stable, sustainable energy sources contributing to reduction in carbon emissions for business, residents and Council. District heating is an important element in the future energy mix to reduce dependency on fossil fuels although it is recognised that efficient burning of natural gas will form a major part of this energy supply for a number of years supplemented by surplus process heat from local chemical industries.

Within the Borough a number of energy intensive process industries share a common inheritance from ICI that has resulted in several unique features including:

1. Existing heat, steam, gas and other chemical distribution infrastructure
2. Close proximity of energy intensive industries to commercial, residential and public sector properties
3. Strong interest from the process industry to increase efficiency by utilising heat currently lost to atmosphere.

Initial scoping work has been carried out in collaboration with GrowHow UK Ltd who manufacture 45% of the UK nitrate fertilizer market and consume 1% of the entire UK natural gas supply at their Billingham site.

This work has established that there is a realistic prospect of developing a district heat network to serve parts of the Borough near the GrowHow site with potential extension to that network in the future. On this basis a programme of work to develop the heat network design, determine the business case, establish an appropriate governance model and generate tender specifications has been included in the Tees Valley City Deal bid resulting in an award of £850,900 over 4 years requiring match funding of £419,100 to cover the estimated total cost of required work of £1,270,000.

2. Recommendations

1. That Cabinet support the work to explore the feasibility of developing a district heating network utilising surplus industrial process heat to benefit businesses, residents and the public sector.

2. That Cabinet support the commitment of City Deal funding to develop the business case, tender specifications and governance of a district heating network.
3. That Cabinet recognise the requirements for 33% match funding to complete the City Deal financial package and that efforts will be made to secure match from private sector partners alongside the £340K agreed in the Medium Term Financial Plan.

3. Reasons for the Recommendations/Decision(s)

1. The development of district heating networks supports improvements to energy efficiency and reduction in carbon emissions in line with the Stockton-on-Tees Borough Council Green Vision.
2. The effective use of surplus industrial heat enhances the efficiency and therefore the sustainability of the commercial enterprises supplying and using the heat thus contributing to security of employment.
3. The use of City Deal financial support enables a thorough programme of work to be undertaken that otherwise would not have been possible.

4. Members' Interests

Members (including co-opted Members) should consider whether they have a personal interest in any item, as defined in **paragraphs 9 and 11** of the Council's code of conduct and, if so, declare the existence and nature of that interest in accordance with and/or taking account of **paragraphs 12 - 17** of the code.

Where a Member regards him/herself as having a personal interest, as described in **paragraph 16** of the code, in any business of the Council he/she must then, **in accordance with paragraph 18** of the code, consider whether that interest is one which a member of the public, with knowledge of the relevant facts, would reasonably regard as so significant that it is likely to prejudice the Member's judgement of the public interest and the business:-

- affects the members financial position or the financial position of a person or body described in **paragraph 17** of the code, or
- relates to the determining of any approval, consent, licence, permission or registration in relation to the member or any person or body described in **paragraph 17** of the code.

A Member with a personal interest, as described in **paragraph 18** of the code, may attend the meeting but must not take part in the consideration and voting upon the relevant item of business. However, a member with such an interest may make representations, answer questions or give evidence relating to that business before the business is considered or voted on, provided the public are also allowed to attend the meeting for the same purpose whether under a statutory right or otherwise (**paragraph 19** of the code)

Members may participate in any discussion and vote on a matter in which they have an interest, as described in **paragraph 18** of the code, where that interest relates to functions of the Council detailed in **paragraph 20** of the code.

Disclosable Pecuniary Interests

It is a criminal offence for a member to participate in any discussion or vote on a matter in which he/she has a disclosable pecuniary interest (and where an appropriate dispensation has not been granted) **paragraph 21** of the code.

Members are required to comply with any procedural rule adopted by the Council which requires a member to leave the meeting room whilst the meeting is discussing a matter in which that member has a disclosable pecuniary interest (**paragraph 22** of the code)

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RECOMMENDATIONS

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DETAIL

Background

1. The Council has reviewed the long term energy supply requirements for the Council and the Borough and agreed the objective of developing a route to price stable, sustainable energy sources that contribute to reductions in carbon emissions for business, residents and the Council.
2. District heating, whereby a central heat source is used to serve a number of premises, is seen as an important element in the future energy supply mix to reduce dependency on fossil fuels although it is recognised that efficient burning of natural gas will form a major part of this energy supply for a number of years.
3. Dialogue with the process industry identified an opportunity to use surplus process heat as a district heating network energy source.
4. A pre-feasibility study carried out by technical partners Arup in 2013 identified the specific opportunity to take surplus heat from the GrowHow UK Limited nitrate plant to serve the Billingham area and possibly Portrack Lane, Holme House Prison and onwards to North Shore and Stockton Centre.
5. GrowHow UK Limited and SITA are enthusiastic partners in taking the district heating project forward. At the Billingham site GrowHow manufacture 45% of the UK nitrate fertilizer market and consumes 1% of the entire UK natural gas supply. Surplus heat is available as steam and hot water and includes that from exothermic chemical reactions.

Project

6. GrowHow have around 200,000MWh of surplus heat available with much of this arising from cooling water for exothermic chemical reactions. GrowHow currently provides steam, chemicals, gases and electricity to a number of local businesses and is therefore well versed in these commercial arrangements.
7. North Bank Growers Ltd operate the nearby glasshouses for tomato crops and as well as receiving carbon dioxide from GrowHow to enrich the atmosphere they are also supplied with 38,000MWh of heat, currently as steam from the GrowHow plant.
8. Additional heat supplies as steam from GrowHow are:

Chemoxy	25,000MWh
Johnson Matthey	12,000MWh
Lucite	60,000MWh
Quorn Foods	54,000MWh
9. As part of the pre-feasibility work the following key heat loads local to the GrowHow plant have been identified:

KP Foods	35,000MWh (potato washing)
Billingham Forum	4,340MWh (leisure centre space & pool heating)
Doncasters Parallooy	3,250MWh (space heating)
Kingsway/Queensway	533MWh (Council office space heating)
Cowpen Depot	308MWh (Council depot space heating & salt store)

10. There would also be potential benefit to Billingham Town Centre, local schools and housing in the area.
11. The pre-feasibility study identified possible district heating network routes from GrowHow that take advantage of existing GrowHow owned infrastructure used for the transmission of a variety of services. The northern exit from the GrowHow site leading to Cowpen Lane industrial estate and onwards to Billingham Town Centre was seen as the most attractive prospect for initial heat network development due to the proximity of significant heat demands.
12. A second route from the south of the site provides a means of accessing the Portrack Lane area, Holme House Prison, North Shore and Stockton Town Centre.
13. Further detailed feasibility, design, business case and governance work is required to reach the point where competitive procurement action may be considered to install a district heat network towards Billingham Town Centre and possibly into the Portrack area.
14. The following work elements have been identified so far:
 - Determination of additional candidate heat loads
 - Details of profiles of all relevant heat loads
 - Thermodynamic design of the heat supply network (temperature gradients, flow rates, pump capacities etc)
 - Engineering design of GrowHow interface plant (heat exchangers, thermal store etc)
 - Detail design of relevant pipe routes
 - Heat metering and supply costs
 - Wayleave assessment, maintenance and access requirements
 - Development of technical procurement specifications
 - Development of the most appropriate district heating governance model
 - Legal and contract development
 - Detailed business plan and financial appraisal
 - Tender action for supply
15. This programme of work will require specialist support from contractors with expertise in the development and delivery of district heating schemes over a four year period..
16. The proposal to develop district heating networks has been included in the successful Tees Valley City Deal bid which has allocated £1.3m in support of two district heating schemes, North and South Tees. The North Tees scheme based on GrowHow surplus heat attracts 67% funding towards the estimated cost of £1,270,000 for the work outlined in paragraph 13.
17. Match funding of £419,100 will be required and it is expected that much of this may be provided by private sector partners with £340K agreed in the budget setting process at Cabinet in February 2014.
18. A more detailed programme of work is in preparation. Since the viability of the scheme is not yet known, requiring as it does much of the work to be funded under City Deal, a number of break points have been identified to curtail the work should the success of the ultimate project be called into question.
19. GrowHow have recognised the need for back up heat supplies to cover plant outages and maintenance. An initial meeting with SITA has confirmed their interest in supplying heat from the new lines 4 and 5 that are 'CHP ready'.
20. The four year timescale for this project is set in part by the GrowHow biennial maintenance programme meaning that the next realistic opportunity of disrupting their plant for completion of connections to the district heating network will take place in spring 2018.

21. This project provides a direct and substantive support to the Stockton-on-Tees Borough Council Green Vision.

FINANCIAL IMPLICATIONS

22. Total project value over four years has been estimated at £1,270,000.
23. City Deal funding over the four years is 67% of this, ie £850,900
24. Match funding totalling £419,100 is required over the four year duration of this project.
25. Provision of £340K has been made in the Medium Term Financial Plan and it is anticipated that the remaining match funding will be secured from the work undertaken by the private sector partners.

LEGAL IMPLICATIONS

26. The City Deal funding is provided from the Heat Network Delivery Unit within the Department for Energy & Climate Change and is subject to a Memorandum of Understanding that has been examined by the Council's legal experts.

RISK ASSESSMENT

27. A key part of this project will be the development of the full business case and risk assessment prior to any commitment for capital expenditure on the installation of a district heat network. Break points identified in the programme of work enable the work to be curtailed should information strongly suggest any non-viability of the resultant scheme.
28. These break points enable financial exposure to be limited throughout the project.
29. There is no claw back clause in the HNDU/DEC MoU.

SUSTAINABLE COMMUNITY STRATEGY IMPLICATIONS

Economic Regeneration and Transport

30. A district heating network has the potential to provide long term low cost heat that would be attractive to new business development.
31. There is no direct impact regarding transport.

Safer Communities

32. Heat supply to domestic properties in the longer term would bring lower cost energy supplies with a consequent improvement in household income that may lead to a reduction in instances of crime.

Children & Young People

33. Reduced energy costs from district heating could contribute to the alleviation of child poverty in the domestic market.

Health & Wellbeing

34. District heating has the potential to reduce heating costs thus enabling warmer homes with a consequent beneficial impact on health.

Environment & Housing

35. Since GrowHow UK Limited are part of the European Emissions Trading Scheme and are actively pursuing carbon capture and storage the heat supply from their site is classed as carbon neutral thus reducing carbon emissions in the Borough.
36. SITA also provides a low carbon heat supply as a part of its energy from waste operation.

EQUALITIES IMPACT ASSESSMENT

37. An equalities impact assessment will be carried out as part of this project.

CONSULTATION INCLUDING WARD COUNCILLORS

38. At least initially the district heating project will apply within Billingham south Ward, Billingham Central Ward and Stockton Town Centre Ward

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Education related

No

Background Papers

None.

Ward(s) and Ward Councillors:

All