

## Appendix 2 – Draft Programme (Greater Lincoln District Heating Network)

Task Name	Duration	Start	Finish	% Complete
<b>Greater Lincoln District Heating Network</b>	<b>594 days</b>	<b>Fri 21/11/14</b>	<b>Wed 06/07/16</b>	<b>6%</b>
<b>HNDU Grant Application</b>	<b>120 days</b>	<b>Fri 21/11/14</b>	<b>Fri 20/03/15</b>	<b>89%</b>
Project Board review and approval of HNDU funding bid	6 days	Fri 21/11/14	Wed 26/11/14	100%
Finalise and submit HNDU grant application	2 days	Wed 26/11/14	Thu 27/11/14	100%
Draft External Advisor I.T.T	19 days	Mon 01/12/14	Fri 19/12/14	100%
HNDU Grant Funding award announcement	0 days	Mon 09/03/15	Mon 09/03/15	100%
HNDU grant conditions satisfied (MOU etc.)	4 days	Mon 09/03/15	Thu 12/03/15	100%
Grant claim process paperwork	4 days	Tue 17/03/15	Fri 20/03/15	0%
<b>External Advisor Procurement (Stages 1&amp;2)</b>	<b>123 days</b>	<b>Thu 19/03/15</b>	<b>Sun 19/07/15</b>	<b>0%</b>
Forward draft ITT (Stage 1&2) to HNDU	0 days	Thu 19/03/15	Thu 19/03/15	0%
HNDU ITT (Stages 1&2) Review Period	32 days	Fri 20/03/15	Mon 20/04/15	0%
Project Board Approve ITT (for Stages 1 & 2)	7 days	Tue 21/04/15	Mon 27/04/15	0%
Issue ITT and Tender Period	29 days	Tue 28/04/15	Tue 26/05/15	0%
Tender Return Date	0 days	Tue 26/05/15	Tue 26/05/15	0%
Tender Evaluation	21 days	Wed 27/05/15	Tue 16/06/15	0%
Announce Preferred Supplier and optional 10 day Alcatel Period	12 days	Wed 17/06/15	Sun 28/06/15	0%
Award Contract (Commencement Date) and Lead in Period	21 days	Mon 29/06/15	Sun 19/07/15	0%
<b>Stage 1 (Area Heat Wide Mapping)</b>	<b>54 days</b>	<b>Mon 20/07/15</b>	<b>Fri 11/09/15</b>	<b>0%</b>
Stage 1 - Area heat wide mapping undertaken by Supplier	33 days	Mon 20/07/15	Fri 21/08/15	0%
Stage 1- Draft deliverables provided to Customer	0 days	Mon 24/08/15	Mon 24/08/15	0%
Customer review period of stage 1 draft deliverables	11 days	Tue 25/08/15	Fri 04/09/15	0%
Project Board Meeting (HNDU Attendance Req'd)- Supplier presents findings on Stage 1	0 days	Tue 08/09/15	Tue 08/09/15	0%
Supplier delivers finalised stage 1 deliverables to Customer	0 days	Fri 11/09/15	Fri 11/09/15	0%

<b>Stage 2 - Energy Masterplanning</b>	<b>65 days</b>	<b>Mon 14/09/15</b>	<b>Tue 17/11/15</b>	<b>0%</b>
Stage 2 - Energy master planning undertaken by supplier	40 days	Mon 14/09/15	Fri 23/10/15	0%
Stage 2- Draft deliverables provided to Customer	0 days	Mon 26/10/15	Mon 26/10/15	0%
Customer review period of stage 2 draft deliverables	11 days	Tue 27/10/15	Fri 06/11/15	0%
Project Board Meeting- Supplier presents findings of stage 2	0 days	Tue 10/11/15	Tue 10/11/15	0%
Supplier delivers finalised stage 2 deliverables to Customer (Planned Completion Date)	4 days	Tue 10/11/15	Fri 13/11/15	0%
Supplier/ Customer Contract Close Meeting	1 day	Tue 17/11/15	Tue 17/11/15	0%
<b>External Advisor Procurement (Stage 3)</b>	<b>139 days</b>	<b>Mon 16/11/15</b>	<b>Sat 02/04/16</b>	<b>0%</b>
Draft ITT for Stage 3 (Feasibility Studies)	26 days	Mon 16/11/15	Fri 11/12/15	0%
Forward draft ITT (Stage 3) to HNDU	0 days	Fri 11/12/15	Fri 11/12/15	0%
HNDU ITT (Stage 3) Review Period	28 days	Mon 14/12/15	Sun 10/01/16	0%
Project Board approve ITT (for Stage 3)	5 days	Mon 11/01/16	Fri 15/01/16	0%
Issue ITT and Tender Period	29 days	Mon 18/01/16	Mon 15/02/16	0%
Tender return Date	0 days	Mon 15/02/16	Mon 15/02/16	0%
Tender evaluation	14 days	Mon 15/02/16	Sun 28/02/16	0%
Announce Preferred Supplier and optional 10 day Alcatel standstill period	13 days	Mon 29/02/16	Sat 12/03/16	0%
Award Contract (Commencement Date) and Lead in Period	21 days	Sun 13/03/16	Sat 02/04/16	0%
<b>Stage 3 - Feasibility Studies</b>	<b>93 days</b>	<b>Mon 04/04/16</b>	<b>Wed 06/07/16</b>	<b>0%</b>
Stage 3 - Feasibility	67 days	Mon 04/04/16	Thu 09/06/16	0%
Stage 3- Draft deliverables provided to Customer	0 days	Fri 10/06/16	Fri 10/06/16	0%
Customer review period of stage 3 draft deliverables	11 days	Mon 13/06/16	Thu 23/06/16	0%
Project Board Meeting- Supplier presents findings of stage 1	0 days	Fri 24/06/16	Fri 24/06/16	0%
Supplier delivers finalised stage 3 deliverables to Customer (Planned Completion Date)	7 days	Fri 24/06/16	Thu 30/06/16	0%
Supplier/ Customer Contract Close Meeting	0 days	Wed 06/07/16	Wed 06/07/16	0%

## Appendix 3 – HNDU Project Development Stages

HNDU Development Stage	Description
1. Heat mapping	<p>Heat mapping will identify a range of heat network opportunities across a local authority’s jurisdiction, or agreed boundary, through exploration of existing and future heat demand (loads) and sources.</p> <p><b>Heat demand mapping:</b> Initial identification of the different types of heat demands, the implications of these various heat loads, heat demands.</p> <p><b>Heat demand assessment:</b> Understanding the implications of the heat demand mapping including heat diversity supply factors, back up and peak load boiler capacity and thermal storage options.</p> <p><b>Heat supply identification:</b> Understanding the nature, quality and value of different grades of heat from both existing and potential heat sources as well as inter-connectibility of heat sources.</p> <p>An understanding of the likely constraining and defining features that limit options in the geographic area to be investigated will also be established.</p>
2. Energy masterplanning	<p>Working from heat mapping results, network opportunities are prioritised through the energy masterplanning process. Heat network opportunities are linked with existing property development masterplans or associated energy masterplans, and these plans updated to reflect the agreed vision for heat, cooling and their potential interaction and impact with electricity demand and supply. The opportunities and gap analysis will identify a number of possible heat network projects for further investigation.</p> <p><b>Master planning:</b> Identifying the strategic opportunities for heat networks and trigger points in other development plans which are likely to affect or change the overall energy/supply options. Understanding, at an area-wide level, the implications of constraints of the Town and Country Planning Acts.</p> <p><b>Planning policy opportunities:</b> Understanding opportunities, and constraints, available through local authority’s application of planning powers including Section 106 and Unilateral Declaration. Energy masterplanning can be supported through the HNDU project leads providing guidance, and grant funding can contribute to external energy masterplanning costs.</p>
3. Feasibility studies	<p>From the feasibility study onwards, a single project would normally be developed in increasing detail. From this point, the technical design, financial model, contractual arrangements and business case are developed through an iterative process as the evolution of each element impacts the other components. As each iteration is developed and evaluated, the local authority will make a decision whether or how to proceed.</p>

	<p><b>Feasibility study:</b> Understanding the heat supply potential, heat demand/consumer issues, constraints to development, potential financial implications and environmental benefits of a specific heat network opportunity.</p> <p><b>Heat network pipeline routing:</b> Exploration of proposed heat network pipeline routes and common approaches utilised by other infrastructure or utility services. Issues for consideration include expansion solutions, over-ground solutions, archaeological issues and heavily trafficked area working arrangements.</p> <p><b>Project cost assessment:</b> Evaluating capital and whole life cost estimates and giving consideration to the factors that are likely to influence the overall costs, such as archaeology, density road type, services and utilities diversion, hard versus soft dig options and access rights.</p> <p>Specialist design and sizing of the proposed heat network, the pumping regime, filtration and water treatment and stand-by/peaking boiler configuration and location and electricity connectivity (where appropriate). Consideration should also be given at this stage to ensure that the consultants engaged have sufficient working knowledge and experience in these very specialised areas of work.</p> <p><b>Licensing and consenting issues:</b> Ensuring the local authority has considered the various licenses and consents that the project is likely to require to operate. This would include timescales and costs as well as the licenses and consents themselves.</p> <p><b>Project compilation:</b> Ensuring all of the above factors are considered in context.</p>
4. Detailed project development	<p>Following the initial feasibility study, the technical design, financial model and contractual arrangements are further developed. A business case for internal approval and an investment grade proposal to take to market (whether this is to secure grant funding, funding from utility obligation programmes, third party balance sheet or borrowing, local authority balance sheet funded or prudential borrowing) will subsequently be developed. Consideration will need to be given to commercial delivery options, finance sources, project economics and project governance.</p> <p><b>Detailed Technical design:</b></p> <p><b>Delivery options:</b> Consideration of the commercial models and delivery vehicles that could design, build and operate the heat network.</p> <p><b>Financial modelling:</b> Working to ensure that the financial model takes into account all of the issues that are likely to have impact.</p> <p><b>Customer negotiations and commercial agreements:</b> High level discussions with heat customers regarding demand, price and terms for customer heat supply agreements that will be fed into any design / build / operation tender document.</p> <p><b>Business planning:</b> Looking at the issues that are likely to require consideration in the business plan and/or the investment proposition. This is likely to include all of the key drivers for the</p>

	<p>financial model, the human and mechanical resources required, the technical factors that are likely to make a project more or less attractive to the funding markets and short, medium and long term issues that are likely to be key business drivers for the project.</p> <p><b>Investment proposition:</b> Developing an investment grade proposal to take to potential funders.</p> <p><b>Delivery procurement:</b> HNDU support does not extend to supporting the construction or operation of heat networks. The HNDU project lead can provide support, however, as the local authority designs procurement strategies, delivery vehicles, tender documentation and commercial agreements.</p>
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## Appendix 4 – Terms of Reference

### Greater Lincoln District Heating Network – Viability Studies

#### Terms of Reference (Project Board & Consultation Group)

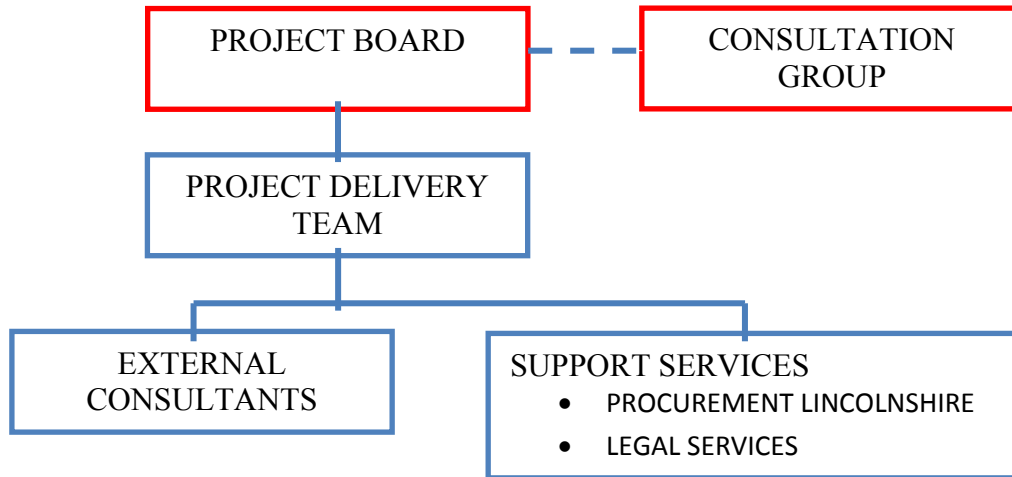


Figure 1: Proposed Governance Structure

#### Introduction

This paper sets out the terms of reference for the 'Project Board' and 'Consultation Group' to be set up for a project looking into the viability of a Greater Lincoln District Heating Network.

#### Background

- Lincolnshire County Council will shortly commission a study into the development of a district heating network in the Greater Lincoln area, powered solely (or largely if other sources of heat are identified) by the new Energy from Waste facility in North Hykeham.
- LCC has applied for grant funding from the Heat Network Development Unit (part of DECC) to cover part of the costs of external advice.
- Initially the project will cover three stages only:
  - Stage 1 – Heat Mapping
  - Stage 2 – Energy Master Planning
  - Stage 3 – Feasibility Studies
- Further stages could be commissioned by LCC should results from stages 1, 2 and 3 show a viable district heating network could be developed
- Refer to appendix 1 for more details on each stage

## **Terms of Reference**

Please refer to Part I and Part II below for the terms of reference for the Project Board and Consultation Group respectively.

### **PART I: PROJECT BOARD**

#### **Purpose / role of the board:**

A project board will be formed which will have the responsibility of directing the project, reviewing progress, co-ordinating work streams, sharing information as well as raising the awareness of the project through all council organisations (LCC/CoLC/NKDC), stakeholders via the Consultation Group and the wider community.

The Project Board will meet at regular intervals including project initiation and dates coinciding with production of project deliverables.

#### **Membership:**

The Project Board will be formed by the following individuals:

- Portfolio Holder (LCC) – Reg Shore (Executive Councillor for Recycling and Waste)
- Portfolio Holder (LCC) – Colin Davie (Executive Councillor for Economic Development, Environment, Planning and Tourism)
- Project Sponsor (LCC) – Steve Willis C.Eng M.I.C.E. (Chief Operating Officer)
- Project Manager (LCC) – Sean Kent C.Eng M.I.C.E. (Group Manager Environmental Services)
- Legal/Procurement/Commercial Expert (LCC) – Sophie Reeve (Chief Commercial Officer)
- Senior Representative of City of Lincoln Council
- Senior Representative of North Kesteven District Council

#### **Accountability**

- Responsibility for directing the project, reviewing progress, co-ordinating work streams and signing off each stage of the project development process.
- The board will provide advice and/or guidance as appropriate to the Project Delivery Team on developing and monitoring a general strategic approach to the development of a district heating network in the Greater Lincoln area.
- Responsibility to review the deliverables produced by the Project Development Team including:
  - Invitation to Tenders (ITT)
  - Advisor Specification

- Results of stage 1 (heat mapping), stage 2 (energy master planning) and stage 3 (feasibility studies)
- The board will liaise with the Consultation Group, and other stakeholders is required, and to take into account any feedback obtained from this
- The board will provide recommendations or direction for the next stages of the project development process.

### **Meetings / Working methods**

- The board will meet a minimum of 4 times:
  - HNDU Project Lead Kick Off Meeting
  - Review of Stage 1 deliverables
  - Review of Stage 2 deliverables
  - Review of Stage 3 deliverables
- Members of the Board will receive papers one week before each meeting.
- Minutes of the meeting will be kept by a minute taker and agreed by all members of the board who attended the meeting.
- Members may be contacted by the Project Delivery Team between meetings for advice should the need arise.
- From time to time sub-groups may be formed to work on specific issues as appropriate.
- From time to time individuals may be co-opted to provide specific advice and expertise as required.
- The board may request members of the Consultation Group and/or Project Delivery Team to speak at its meetings as seems appropriate and reasonable, and may request feedback with regard to the recommendations it makes to the Project Delivery Team.



## Part II: CONSULTATION GROUP

### Purpose / role of the group:

- The Consultation Group is being formed to capture feedback from key stakeholders in the potential development of a Greater Lincoln District Heating Network powered by the recently commissioned Energy from Waste facility in North Hykeham.
- This feedback from the Consultation Group will be used by the Project Board to help them direct the project, co-ordinate work streams, review progress and make recommendations for next stages of development.
- Initially the scope of the project is limited to Heat Mapping (Stage 1), (Energy Master Planning (Stage 2) and Feasibility Studies (Stage 3). The Consultation Group remit could be extended to cover further stages if results obtained from stages 1, 2 and 3 show a viable heat network could be developed.

### Membership:

- The Consultation Group will be made up of representatives from key stakeholders including:
  - City of Lincoln Council Project Officer (Dave Bowskill?)
  - North Kesteven District Council Project Officer
  - Senior planning officer from all three authorities (LCC/NKDC/CoLC)
  - Senior officer from the Waste Disposal Authority (LCC)
  - Senior officer from the Highway Authority (LCC)
  - Sara Kendall – Senior Project Officer (SUSTAIN Lincolnshire)
  - Senior officer from Economic Development from all three authorities (LCC/NKDC/CoLC)

### Review

- It is anticipated the Consultation Group will be called upon to review the three stages of the project development process:
  - Review of the findings of stage 1 (Heat Mapping)
  - Review of the findings of stage 2 (Energy Master Planning)
  - Review of the findings of stage 3 (Feasibility Studies)
- Feedback should include any knowledge of additional opportunities for heat demand or sources, any obstructions/restrictions to the development of a heat network and/or any other information/recommendations relevant to the project.
- If required, each stakeholder organization will nominate a representative to co-ordinate any feedback to the Project Board.
- If the findings of stage 1, 2 and 3 are that a viable heat network could be developed, the Consultation Group may be called upon to review additional stages of the project development process.

## **Working methods**

- Members of the Group will receive papers (including the deliverables) for a one week review period prior to the Project Board meeting.
- The nominated representative must provide feedback, in written format, on the papers/deliverables within the review period (at least 1 day before the Project Board meeting).
- Members may be contacted at any point in the process for advice should the need arise including by our appointed external advisors. Members are asked to arrange for prompt responses to queries or requests for information in good time to avoid unnecessary delays to the timetable.
- From time to time sub-groups may be formed to work on specific issues as appropriate.
- From time to time individuals may be co-opted to provide specific advice and expertise as required.

## **Meetings**

- Each organization is responsible for arranging their own internal review meetings if required.
- The Project Board, or members of, may call for a meeting with some or all of the members of the Consultation Group if needed.