

MUNICIPAL YEAR 2014/2015 REPORT NO. 25

MEETING TITLE AND DATE:

Cabinet
- 23 July 2014

REPORT OF:

Director for Regeneration and
Environment

Contact officer and telephone number:
Jeff Laidler, 0208 379 3410

Agenda - Part: 1	Item: 14
Subject: Lee Valley Heat Network Business Plan	
Key Decision No: 3706 Wards: All	
Cabinet Member consulted: Cllr Alan Sitkin, Lead Member for Economic Development	

1. EXECUTIVE SUMMARY

1.1 What is the Lee Valley Heat Network?

1.1.1 The Lee Valley Heat Network (LVHN) is a capital infrastructure scheme linked to the regeneration of the Lee Valley, which aims to:

- Become the first city-scale heat network in London;
- Provide heating & hot water to thousands of homes & businesses in the Lee Valley, as shown in the Vision Map (Appendix 1);
- Ultimately connect to similar networks serving the rest of London;
- Grow the heat network by drawing on a variety of heat sources, and connecting additional heat demand;
- Be ambitious whilst covering the cost of installing the heat network and charging customers a fair price for heat.

1.1.2 Importantly for customers, LVHN Ltd is being set up as an 'ethical operator' in what is currently an unregulated heat market. This will help protect local consumers by ensuring fair price & customer service terms.

1.1.3 LVHN is set to capture waste heat from the Edmonton energy from waste facility and other dedicated Combined Heat and Power plants, using it to provide heating and hot water to thousands of homes and businesses in the Lee Valley.

1.1.4 With a clear case for public sector investment to de-risk the scheme and bring it to the point of being commercially viable, the Lee Valley Heat Network already enjoys strong interest from industry and early potential for hundreds of new jobs in the Lee Valley.

1.1.5 Over time the network has the potential to deliver heat across a range of sites in the Lee Valley. These sites will initially focus on new developments that are likely to be built in the coming years and where there are higher building densities. In the future,

there is potential to expand the network to include customers in existing buildings.

1.1.6 Cabinet is asked to approve the LVHN Business Plan (circulated as Appendix 2 with the accompanying Part 2 report and appendices) and Summary Programme (Appendix 3). The initial LVHN network comprises:

- 3 local gas-fired Combined Heat and Power satellite schemes at Ladderswood, Alma Road and New Avenue, with the opportunity to use renewable energy in the future (Tranche 1);
- A strategic heat network at Meridian Water, using waste heat from the Edmonton energy from waste facility (Tranche 2).

Both Tranche 1 and 2 are viable in their own right.

1.1.7 LVHN has the opportunity to deliver significant economic, environmental and social benefits for the Lee Valley, which include:

1. Community energy;
2. Fair price;
3. An ambition to provide a lower cost of heat for residential customers, as compared to heat from fossil fuels;
4. Security of supply;
5. The creation of up to 1,700 local jobs over time;
6. Support for regeneration and inward investment;
7. The reduction in the carbon footprint of a home due to heating will be at least 50% compared to conventional fuel;
8. Reducing London's carbon footprint by around 200,000 tonnes of carbon dioxide;
9. A route to market for low carbon and zero carbon suppliers of heat.

1.1.8 As with any large capital infrastructure project, there are some risks to be managed, which for LVHN primarily relate to:

- Certainty of supply (to be secured through a legal contract with the North London Waste Authority for waste heat);
- Demand from Enfield's Meridian Water, Ladderswood, Alma Road and New Avenue developments, each of which are at varying stages of development;
- The possible imbalance between supply and demand, which is common with all types of network.

1.1.9 As the founding member of LVHN Ltd the Council is also exposed to the risk associated with committing resources to establish the company and network, including exposing the Council to liability (under the guarantees) during Phase 1 financial close.

With this in mind, it is recommended that Cabinet give particular consideration to the following:

- Recommendation 2.1 to request capital funding of £1.285m to fund development costs for Tranche 1 and 2 through to financial close in

September 2015;

- Meridian Water (Tranche 2) being key to the viability of the strategic heat network. The Business Plan demonstrates the Council needs to be confident of building between 2,000 to 3,000 homes at Meridian Water to realise viability before it commits capital expenditure. Any increase in that scale would improve viability.

2. RECOMMENDATIONS

That Cabinet:

- 2.1 Approves the Phase 1 Business Plan and Summary Programme for Tranche 1 (Ladderswood, Alma Road and New Avenue Satellite Schemes) and Tranche 2 (Meridian Water Phase, as the first stage of the strategic heat network)
- 2.2 Approves, for recommendation to Full Council an addition to the Capital Programme, capital funding of £1.285m to fund development costs through to financial close in September 2015.

Notes that:

- The Summary Programme shows financial close in September 2015, in order to supply heat to the first phases of homes at Meridian Water;
 - £1.285m is the Council's total 'at risk' investment at this stage;
 - The Council has recently submitted an application for match-funding to the Department of Energy and Climate Change's Heat Network Delivery Unit (HNDU), to recover as much as possible of these development costs. HNDU grant funding could meet up to 67% of the estimated eligible external costs of heat mapping, energy master planning, feasibility studies and detailed project development work such as technical design, financial modelling, exploration of commercial models and contracts. Local authorities are required to secure the remaining proportion of match funding which cannot be provided 'in-kind,' such as staff time, office space and catering. A funding decision is expected around August 2014;
- 2.3 Approves the estimated £85k revenue cost related to borrowing £1.189m, to cover interest payments and repayment of principal, with the remaining investment coming from existing budgets.
 - 2.4 Authorises the Directors of Regeneration & Environment, and Finance, Resources & Customer Services, to procure and appoint legal advisors to support the construction of Tranche 1 and 2 of the network by 2018. [This is estimated to cost up to £300k to September 2015 and with a positive investment decision by Cabinet, an additional £450k to maintain this legal contract to 2018.]
 - 2.5 Agrees an "in principle" commitment to invest approximately £24 million in the strategic network located in Enfield in Tranche 2, including a loan of around £12 million plus £2 million contingency. Exact values will be confirmed at financial close.

Notes that:

- The final investment decision isn't required until summer 2015, since the

capital investment isn't required until demand has been confirmed and the various procurement exercises have been completed. In July 2014 Cabinet is committing to £1.285m development costs, with a further year available to reflect on the full investment;

- The loan is indicatively able to be financed by a range of lenders, including the Public Works Loan Board, the London Energy Efficiency Fund (LEEF), the European Investment Bank (EIB) and the Green Investment Bank (GIB);
- With the provision of £1.285m development costs for Tranche 1 & 2, the 3 satellite schemes require no further upfront CAPEX investment by the Borough. The investment in the energy systems will instead be covered by the appointed development partner under requirements set-out in the Development Agreements for the respective sites. LVHN Ltd is forgoing the connection charges and paying for the assets out of cash flow, according to a formula validated by the GLA and to be agreed with Council (HRA), which calculates their commercial value.

- 2.6 Authorises the Leader of the Council and the Chief Executive to approve the governance arrangements for the LVHN Ltd Board, the borough specific Portfolio Energy Agreement (Appendix A.2.1, LVHN Business Plan) and the Shareholders Agreement for all participating boroughs (Appendix A.1.3, LVHN Business Plan).

Notes that:

- The Council will bring forward a separate Cabinet report to seek authority to enter into the Portfolio Energy Agreement on behalf of the Council (HRA), in due course.

- 2.7 Adopts and includes the following principles within the Shareholders Agreement:

- For other boroughs to realise the benefits of joining an expanded network, and not simply funding the extension to it, a proportionate financial contribution will be required to cover the cost and risk of Enfield developing, building, operating and maintaining the kick-start Lee Valley Heat Network;
- To develop an incentive to encourage other boroughs early and active participation in expanding the heat network, by accepting the associated risks and benefits of joining LVHN Ltd's newly established Board.

- 2.8 Delegates agreement for the staff appointments within LVHN Ltd to the Director for Regeneration and Environment.

- 2.9 Agree to the tender for the legal work being progressed and delegates authority to the Director for Regeneration & Environment to award the final contract.

3. BACKGROUND

3.1 What is the Lee Valley Heat Network?

- 3.1.1 The Lee Valley Heat Network (LVHN) is a capital infrastructure scheme linked to the regeneration of the Lee Valley, which aims to:

- Become the first city-scale heat network in London;

- Provide heating & hot water to thousands of homes & businesses in the Lee Valley, as shown in the Vision Map (Appendix 1);
- Ultimately connect to similar networks serving the rest of London;
- Grow the heat network by drawing on a variety of heat sources, and connecting additional heat demand;
- Be ambitious whilst covering the cost of installing the heat network and charging customers a fair price for heat.

3.1.2 Importantly for customers, LVHN Ltd is being set up as an ‘ethical operator’ in what is currently an unregulated heat market. This will help protect local consumers by ensuring fair price & customer service terms.

3.1.3 Part of the long-term vision for LVHN is to offer residential customers low-carbon, low-cost electricity as well as heat. Integrated energy supply will reinforce the benefits in terms of fuel poverty reduction and should have a sustainable economic advantage.

3.1.4 To date, the practical and regulatory constraints on a district heating network supplying electricity to residential customers over the public grid have not been overcome. Delivery of electricity over private wire works is feasible for large commercial customers, such as shopping centres, but is not permitted for large residential developments. Work is underway elsewhere through Licence Lite to overcome the regulatory constraints on the retailing of electricity by district heating networks. So, while retail electricity sales are not included in the business plan, they do form part of the vision.

3.1.5 LVHN Phase 1 will evolve through 2 initial tranches:

Tranche 1 LVHN adopting energy assets at 3 satellite development schemes in Enfield that create an economy of scale: Ladderswood (around 500 homes, hotel and school), Alma Estate (around 1,000 homes) and New Avenue (around 300 homes);

Tranche 2 The first section of the strategic heat network from the Edmonton EcoPark via Advent Way to Meridian Water (5,000 homes, IKEA retrofit opportunity, Segro hotel development & Eley Industrial Estate), taking waste heat from the existing Edmonton EcoPark Energy from Waste facility (termed the Meridian Water Phase).

3.1.6 There is an opportunity to ultimately link the satellite schemes into the strategic network, although due to distance from the Meridian Water Phase, this is unlikely for Ladderswood and New Avenue. Saying this, there is an opportunity for:

- Ladderswood to become a strategic network in its own right;
- With enough demand along the route, the strategic network could extend northwards to join the Alma Estate in Phase 1, although more likely as part of Phase 2.

3.1.7 LVHN provides the energy infrastructure to complement the transport infrastructure set to catalyse the regeneration of the Lee Valley through the £80 million Stratford-Tottenham-Angel Road third rail track 'Turn Up and Go' train service, the new Meridian Water train station and the £30 million Mini-Holland cycling project.

3.2 What are the benefits?

3.2.1 The Lee Valley Heat Network represents a significant opportunity, delivering significant economic, environmental and social benefits for the Lee Valley and north London, which include:

1. *Community Energy* - for the first time we will provide local communities with low carbon energy from local heat sources.
2. *Fair price* - LVHN Ltd is being set up as an 'ethical operator' in what is currently an unregulated heat market. This will help protect local consumers by ensuring fair price & customer service terms.
3. *Lower Cost of Heat* - ambition to provide lower cost heat for residential customers, as compared to heat from fossil fuels.
4. *Security of Supply* –
 - a. The network is future proofed with a focus on use of waste heat, with the opportunity to switch fuel source(s) at a later stage if required.
 - b. It reduces dependency on imported fuel and international energy markets.
5. *Local jobs* – the creation of an estimated 1,700 local jobs.
6. *Route to Market* – the network provides a commercial outlet for low carbon heat suppliers, such as energy from waste and energy intensive industries.
7. *Supports Regeneration & Inward Investment*:
 - Creates a new energy infrastructure to complement the new rail and cycling facilities, creating a competitive advantage for the Lee Valley.
 - Helps deliver the Greater London Authority's and local authority's heat network planning aspirations.
 - Helps developers meet the Greater London Authority's and local authority environmental requirements, which could make land more attractive to developers and increase land values.
 - The opportunity to provide a steam network for industrial and commercial uses.
8. *Carbon Reduction* –
 - The carbon footprint of a home due to heating will be reduced at least 50% compared to conventional fuel.

- Reducing London's carbon footprint by around 200,000 tonnes of carbon dioxide, helping deliver the Mayor of London's climate change and decentralised energy targets.

3.3 Who is directly involved?

The following parties are directly involved in the LVHN:

- London Borough of Enfield
- Greater London Authority
- North London Waste Authority
- Developers

3.4 Why are we doing it?

3.4.1 The role of a local authority in developing LVHN and de-risking the project for future private-sector investment is justified because:

- Public sector intervention is required to enable future private-sector investment in LVHN;
- The prospective return on investment, whilst it exceeds the cost of capital, is less than would be demanded by a private investor, or an Energy Service Company (ESCo), who generally require an IRR > 12%;
- The local authorities, having accepted the associated investment risk, should be in a position to benefit from the expected returns;
- Local authorities are best able to manage the risks inherent in establishing an open-ended public heat utility focussed on serving their local area, for example through their role as the Local Planning Authority;
- The prospective return on investment, whilst it exceeds the cost of capital, is less than would be demanded by a private investor, or an ESCo;
- It is a suitable structure for engagement by multiple local authorities with a common but varied interest, and can be flexible to allow other public sector partners to join in future;
- The local authorities can direct LVHN to respond appropriately to inward investment opportunities, significant industrial and commercial customers, and to developers;
- The local authorities can access low-cost finance, or provide guarantees for LVHN to do so (subject to EU rules);
- The structure has the flexibility to allow all or part of the business to become a mutual or co-operative if it is so desired at some future date;
- Importantly for customers, LVHN Ltd is being set up as an 'ethical operator' in what is currently an unregulated heat market. This will help protect local consumers by ensuring fair price & customer service terms.

3.4.2 Decentralised energy generation is supported by national, regional and local planning policies. Planning Policy is a key driver for new build developments to connect to LVHN. All of Tranche 1 and 2 of LVHN related to new build

regeneration opportunities, with the exception of IKEA which relates to the planning application for an extended store.

- 3.4.3 There is considerable policy support at the regional and local level for the implementation of the LVHN. Decentralised energy generation is supported by national and regional planning policy as a means of meeting the requirements of the Climate Change Act to reduce carbon emissions by 80% on 1990 levels by 2050. The Mayor of London has set a target that 25% of heat and power used in London is to be generated through the use of localised decentralised energy systems by 2025.
- 3.4.4 Decentralised production and district heating is a central part of the government's Energy Strategy, the Mayor's London Plan (2011) and his Climate Change Mitigation and Energy Strategy (2011). The Council's Local Plan supports proposals for decentralised energy networks and requires that all major new developments should connect to or contribute towards existing or planned networks supplied by low or zero carbon energy (Development Management Policy DMD 52 (2014)).
- 3.4.5 Last year (July 2013) the Mayor published the Upper Lee Valley Opportunity Area Planning Framework recognising the unique opportunity that exists within the area to deliver a sustainable heat network. This would put the Upper Lee Valley at the forefront of sustainable energy supply in London and give it a clear competitive advantage over other areas with the longer term potential for interconnection to a London-wide network.
- 3.4.6 Supported by national, regional & local planning policies, the LVHN project is also part of something bigger - www.enfield.gov.uk/enfield2020. Over £500 million is being invested to improve the sustainability of the Lee Valley, reduce its carbon emissions by 40% by 2020 and deliver significant economic, environmental and social benefits across the borough. The Enfield 2020 Action Plan contains over 50 large-scale sustainability projects, which include:
- The Lee Valley Heat Network
 - The flagship Meridian Water development
 - Estate renewal schemes at Ladderswood, Alma Road and New Avenue
 - The £80 million investment in a 4 train per hour 'turn up and go' train service at Meridian Water, including a new train station
 - The £30 million investment in Cycle Enfield
- 3.4.7 Construction of the strategic heat network will involve a range of apparatus including pipe work, heat exchange equipment and plant, along with the construction of energy centres. It is intended that these will be located on land in a variety of ownerships secured through appropriate agreements with individual landowners.

3.4.14 LVHN has already generated significant interest:

- LVHN is a key element of the Council's Business Plan;
- LVHN is actively supported by the Greater London Authority, as shown by their letter of support in Appendix 5 of this report. To date this support has included funded consultancy support through the GLA's Decentralised Programme Delivery Unit, as well ongoing technical support to the Waste Authority to help reach an agreed position;
- The North London Waste Authority (NLWA) officers are 'in principle' keen to strike a commercial deal, subject to agreeing Heads of Terms. NLWA Members confirmed their support for this process and the LVHN launch event on 26 June 2014;
- Both the London Energy Efficiency Fund (LEEF), European Investment Bank (EIB) and Green Investment Bank (GIB) have all expressed a willingness to lend in principle to LVHN, subject to their own due diligence of the Business Plan;
- IKEA is interested in principle in buying heat from LVHN, with initial discussions underway to progress a commercial deal;
- Other heat sources and heat loads are regularly coming forward to express an interest in joining LVHN, either as a provider of heat or customer.

3.5 When will it happen?

3.5.1 Development of the LVHN Business Plan is the culmination of several years of partnership working with the GLA and the North London Waste Authority (NLWA). Development of this detailed plan to deliver a city-scale decentralised energy network in the Lee Valley is summarised through 5 distinct stages:



1. Heat Mapping - <http://www.londonheatmap.org.uk/Mapping/>
2. Pre-feasibility and energy master planning: a pre-feasibility study for LVHN was undertaken by Parsons Brinckerhoff in July 2011, with a subsequent network feasibility study in April 2012;
3. More detailed feasibility studies – these have been undertaken as part of the LVHN Business Plan for both the strategic heat network; the Meridian water Phase; the Alma Road, Ladderswood and New Avenue satellite schemes; and a potential steam connection from Kedco to Coca-Cola bottlers.

In December 2012 Enfield's Cabinet agreed to establish LVHN Ltd as a local authority controlled not for profit 'shell' company, which is future proofed to enable other boroughs to join the scheme as the network expands.

In June 2013, as an existing Council owned company that was dormant, 'New River Trading Services' Board voted to change its name to 'LVHN Ltd.'

£35k funding was secured from the Housing Revenue Account in 2013/14 for consultancy advice relating to the Alma and New Avenue regeneration projects.

4. Procurement of delivery mechanism – subject to release of additional development costs for 2014/15 and 2015/16 by Cabinet in July 2014, LVHN Ltd will be set up to procure the Design, Build and Operate (DBO) and Operations and Maintenance (O&M) contracts required to deliver heat to customers through LVHN, as well as full technical, commercial and financial due diligence required for financial close.
5. Commercial development – the operational phase of LVHN is scheduled to start in 2015, with the first 'Heat on' at Ladderswood in autumn 2015, Alma Road in autumn 2016 and Meridian Water in autumn 2017.

3.6 How will it happen?

- 3.6.1 LVHN aims to provide the UK's first city-scale decentralised energy network to provide security of energy supply, reduce carbon emissions and provide a route to market for low and zero carbon suppliers (industrial undertakings such as energy from waste, electricity generation plant and energy intensive industry). Connection to the strategic heat network will also enable a use to be found for many types of waste heat. Importantly, LVHN also has an ambition to lower the cost of heat as compared to conventional fossil fuels.
- 3.6.2 This large-scale infrastructure project will capture affordable low carbon heat (hot water and steam) from Energy from Waste facilities and dedicated Combined Heat and Power (CHP) plants, supplying it to buildings and industry across the Lee Valley for use in space heating and hot water production.
- 3.6.4 In parallel, a number of satellite schemes will be developed across the Lee Valley, with their own dedicated CHP plants or biomass generating plants providing low carbon on-site heat.
- 3.6.5 LVHN represents a significant opportunity for the Lee Valley and north London, bringing low cost heat and jobs to Enfield. With an ambition to provide cheaper low-carbon low-cost heat for residents and communities, this will typically beat the commercial offer provided by Energy Service Companies (ESCOs). Part of the long-term aim of LVHN is an ambition to offer residential customers low-carbon, low-cost electricity as well as heat.
- 3.6.6 LVHN is a long-term project. The business strategy is to identify and aggregate demand for heat in the whole of the area that can potentially be served and then gradually to extend the network in all directions at a pace that enables the identified demand to be served with low-carbon heat in a way that

is commercially viable. As Phase 1 is developed, LVHN will provide low-cost heat to an estimated 8,100 homes.

- 3.6.7 While common in Europe, such a strategic heat network has yet to be completed in this country. Those few wide area networks that have been built in the UK – for example in Nottingham and Sheffield – rely on a single main heat source, which is typically owned or controlled by the network.
- 3.6.8 The LVHN Phase 1 Business Plan (circulated as Appendix 2 with the accompanying Part 2 report and appendices pack) describes in detail how LVHN will happen and has now been finalised. The LVHN Business Plan is an extensive document, which includes an Executive Summary, the main report and over 50 appendices. To keep this Cabinet report to a manageable size, the Business Plan appendices are available on request, as Part 2 documents.
- 3.6.9 The Business Plan sets out a vision and strategy for the heat network, demonstrates that the strategy is commercially viable and shows how LVHN will implement the first phase development of the heat network. It is complemented by a Summary Programme (Appendix 3).
- 3.6.10 Key conclusions from the LVHN Business Plan relate to Viability, Demand, Supply, Finance and Governance:

i) Viability & Demand

With funding from LEEF, PWLB, EIB or GIB, the overall cost of capital for Phase 1 of LVHN is not more than 6%. For all scenarios the prospective Investment Rate of Return (IRR) is in excess of the cost of capital, so all are viable:

- Tranche 1 only – the satellites by themselves have an IRR of 12% after taking into account payments to Enfield HRA for the energy assets;
- Tranche 1 & 2 only - the prospective IRR for the satellite schemes plus Meridian Water Phase is 7.6%;
- Tranche 2 only - the IRR for the Meridian Water Phase falls to 7%. This demonstrates the fundamental importance of the satellite schemes to overall scheme viability, as the IRR is only marginally higher than the cost of capital.

Although Tranche 1 has the highest IRR, it's necessary to also invest in Tranche 2 to deliver a strategic heat network and secure long-term project viability.

The Ladderswood, Alma Estate and New Avenue Satellite Schemes in Tranche 1 (all located in Enfield) are strategically important to the development of LVHN's business as well as improving its cash flow in the early years. Satellite schemes are an essential element in delivering the strategic heat network because:

- The strategic heat network, being expensive to build, can only be extended to meet large heat demands. Satellite schemes will usually be the best way of aggregating demand to the point where connection becomes feasible. So, the Alma Estate satellite scheme once built is expected in due course to justify the northward extension of the strategic heat network;
- Satellite schemes - in particular Ladderswood - improve overall project financial viability. For example, Ladderswood has an IRR of 12%, net of the cost of taking over the energy assets, with retained earnings of around £0.5 million during Phase 1. The income stream from Year 2 onwards helps cover LVHN's total project costs;
- Each satellite scheme enables LVHN Ltd's operational costs to be shared, including a single contract with the Housing Revenue Account, unified procurement for operations and maintenance, and a single billing and customer care system for the entire network;
- Satellite schemes enable the business to achieve operational economies of scale more quickly. A critical mass of the equivalent of 4,700 residential customers is an essential business objective;
- Satellite schemes enable LVHN to take strategic advantage of Ladderswood, Alma Road and New Avenue, which are already happening, demonstrating early delivery and giving the overall project credibility at a city-scale;
- In addition, LVHN taking on all viable district heating schemes in the boroughs as an ethical operator will help protect local consumers by ensuring fair price and customer service terms to residential customers. This is not always the case elsewhere, as district heating is an unregulated sector of the energy market.

Construction of the strategic heat network In Enfield (Tranche 2) depends on a significant scale of demand being confirmed before funds are committed:

- The 'Meridian Water Phase' feasibility study confirms that if the developments in Haringey are not confirmed, the strategic heat network at Meridian Water is viable. This is on the basis that the Council is confident of building between 2,000 to 3,000 homes at Meridian Water to realise viability before it commits capital expenditure. Any increase in that scale would improve viability.
- The exact timing of the capital expenditure will depend on confirmation of the development programmes for Meridian Water, with 'heat on' and first occupation currently assumed as autumn 2017;
- If the Meridian Water Phase is pursued without extension, the loan period increases from 10 years to up to 20 years. Since the payback period goes beyond 10 years, the loan period has to extend. A 20 year loan is what's available. It is possible that LVHN could obtain a combination of 10 year and 20 year loans.

The Shareholders Agreement (Appendix A.1.3, LVHN Business Plan) will be further developed to include the principles for other boroughs being able to join and share relevant objectives, costs and benefits;

The Meridian Water Phase has been deliberately designed and future proofed to be able to expand the network, for example going north to the Alma Estate and/or south. The provision of a larger pipe is what makes LVHN a strategic heat network, fitting in with LVHN's vision of anticipating future demand, wherever it may arise. Building a smaller pipe to solely cater for Meridian Water is not considered in the base case, as it does not enable future extension of the network;

The network from the Eco Park to Meridian Water in Tranche 2 is oversized in the base case to allow for Tranche 3 and/or Phase 2. The extra capacity in the pipe allows for extension northwards towards in Phase 2 towards Edmonton Green and Brimsdown, as well as south into neighbouring boroughs if required. Should neighbouring boroughs wish to take advantage of some of this capacity, a proportionate contribution to start-up costs will be required.

The pipe work in the heat network typically lasts for 40 to 50 years, so it makes business sense to only lay pipes in the ground once. It would be false economy to size a network now that only lasts 10 - 20 years in capacity terms. Already additional customers are coming forward, prior to construction even starting. The network is oversized to ensure such future capacity can be accommodated.

Future proofing for Enfield, with the opportunity for neighbouring boroughs to utilise some of this capacity in line with the principles of the Shareholder's Agreement, makes business sense.

Whilst a steam connection from Kedco to Coca-Cola bottlers is currently unviable, steam remains an attractive proposition for inward investment, with LVHN able to respond to demand for steam as it arises.

ii) Supply

It is a key design principle that the strategic heat network can expand its heat sources to keep pace with prospective energy demand.

Although the availability of waste heat from NLWA needs to be confirmed through detailed contract negotiations, NLWA officers are keen to strike a commercial deal. This approach was supported by NLWA Members on 26 June.

Should a commercial deal not be possible, the strategic heat network would have to be re-designed, and the main pipe could not be installed until alternative heat sources with similar capacity had been identified and contracted with;

The practical alternatives to the Eco Park as a source of heat are Kedco and a large CHP at Meridian Water. Nothing else would be ready in time.

Kedco's plant, which may/may not be built, does not offer sufficient heat on its own to be a complete substitute for the Edmonton EcoPark's Energy from Waste plant.

iv) Governance

Following an Enfield Cabinet decision in December 2012, 'LVHN Ltd' was established as the company to lead delivery of the Lee Valley Heat Network. This local authority controlled company will become a reality during 2014/15, with its own Board and staff.

Work is underway to turn the 'LVHN Ltd' shell company into the operational company to deliver the LVHN Business Plan. This work will be prioritised following LVHN Business Plan approval.

LVHN will be set up conventionally as a company limited by shares so that the legal constraints on it are minimised and in order to sustain the confidence of funders, private sector partners and customers. To protect LVHN's ability to evolve towards a city-scale heat network, and simplify its contracting arrangements, LVHN will be an arm's length local authority controlled company.

LVHN's Executive Board of Directors will include elected Members, senior council managers and non-executives with relevant decentralised energy experience. Exact details will be developed prior to the formal formation of LVHN Ltd.

Other Boroughs will be able to join LVHN, based on the following principles in the Shareholder's Agreement:

- For other boroughs to realise the benefits of joining an expanded network, and not simply funding the extension to it, a proportionate financial contribution is required to cover the cost and risk of Enfield developing, building, operating and maintaining the kick-start Lee Valley Heat Network;
- To develop an incentive to encourage other boroughs early and active participation in expanding the heat network, by accepting the associated risks and benefits of joining LVHN Ltd's newly established Board.

LVHN Ltd will focus its activities on the development and finance of heat projects, and on customer services.

To separate the risk of Tranche 2 from Tranche 1, consideration will be given to creating a company solely to cover Tranche 1, with the larger company (LVHN Ltd) the 100% owner of this smaller company. Tranche 1 profits will still be able to be recycled within LVHN Ltd.

With a cost of just a few thousand pounds per year, the advantages of a wholly owned Tranche 1 subsidiary are as follows:

- The survival of the satellite schemes is no longer dependent on the speed with which the strategic network is implemented
- Good accountancy reasons, improving transparency with the Housing revenue Account that they're not being overloaded with additional operating costs
- Clear exit strategy for satellite schemes, which no longer depend on the strategic network

3.6.13 LVHN's Procurement Strategy is key to implementing the Business Plan and is summarised in Table 10 below and set out in detail at Appendix A9.1 of the Business Plan. The contract structure is provided in Appendix 5 of this report.

Table 10, Procurement Strategy

Activity	Form of procurement
Primary Heat Supply – Modifying the incinerator plant at the Edmonton Eco Park to provide a primary heat supply to LVHN's energy centre.	DBO (single tender) NLWA at Edmonton Eco Park will be responsible for the design and construction of the modifications to their facility, including O&M, to provide a heat supply from their plant to the Strategic Heat Network's Energy Centre.
Strategic Heat Network: Design, construction, operation & maintenance (O&M) including network management and connection of developments, and the O&M of secondary networks for connected residential developments only.	DBO (term contract) The services of a principal contractor will be procured as a subcontractor to LVHN.
Satellite Schemes: Operation & maintenance of the Energy Centre and the primary heat network, including network management and customer connections, and the OM of secondary networks for connected residential developments only.	O&M (framework agreement) A Framework Agreement tender to be set up, followed by a mini tender by the successful framework contractors (except Ladderswood).
Customer Services: Providing a complete metering, billing and meter maintenance service, including handling complaints, managing the connection and disconnection of residential customers, and replacing meters at the end of their life or when deemed inaccurate.	Service Provider (term contract) A specialist service provider will be procured as a subcontractor to LVHN to provide a meter & billing and meter maintenance service for a period of five years.

4. ALTERNATIVE OPTIONS CONSIDERED

Two delivery options have been considered for Phase 1 LVHN:

A) Do nothing

B) Meridian Water Phase with GLA and NLWA support

- 4.1 **Do nothing:** this would lose the significant economic, environmental and social benefits forecast to be delivered by LVHN.
- 4.2 **Meridian Water Phase with GLA and NLWA support:** this forms the most pragmatic solution at this stage and forms the basis of this report. As an economically viable solution and a vision to create a much larger city-scale heat network, the Meridian Water Phase can hopefully form the important precursor to network expansion.

Meridian Water forms the “anchor” heat demand. This requires the Council to be confident of building between 2,000 to 3,000 homes at Meridian Water to realise viability before it commits capital expenditure. Any increase in that scale would improve viability.

5. REASONS FOR RECOMMENDATIONS

- 5.1 Enfield and the GLA have already invested significant resource and revenue funding to develop the LVHN Business Plan.
- 5.2 Without Enfield Council’s investment in the strategic network and satellite schemes, it will not be possible to develop the strategic and satellite schemes in Tranches 1 and 2, which are critical to catalysing the heat network and subsequently delivering the significant economic, environmental and social benefits forecast for the city-scale heat network.

6. COMMENTS OF THE DIRECTOR OF FINANCE, RESOURCES AND CUSTOMER SERVICES AND OTHER DEPARTMENTS

6.1 Financial Implications

- 6.1.1 The total funds required to support the project to financial close (the point at which a decision is made to invest in the construction of the Strategic Network) is £1.285m. Of this £96k has already been approved and forms part of the 2014/15 Sustainability Service’s revenue budget. This report seeks approval for the balance of £1.189m. This will fund the cost of developing the project and will include items such as external technical and legal fees, and the staffing costs of LVHN to the point that the investment decision is approved.
- 6.1.2 A separate report will be submitted in the summer of 2015 to obtain the required approval to invest in the construction of the Strategic Network. The project will be considered alongside other schemes in the 2015/16 Medium Term Financial Planning process which will be agreed by the Council in February 2015. A decision to proceed with this project now will mean that it is given priority over other proposals being put forward for consideration as part of that process
- 6.13 It is assumed at this stage that all the development costs will be capitalised from the point of Cabinet approval and therefore be added to the existing

Capital Programme. As there is no existing provision within Capital for this project, the costs would need to be met from borrowing. The revenue cost of borrowing £1.189m and covering associated interest payments, would be circa £85k and would need to be covered by the Council.

- 6.1.4 Should the project not come to fruition, the costs will all be considered as revenue and this will impact on the current 2014/15 revenue outturn. Likewise should any costs not be classified as eligible capital spend, they will present as a pressure to the revenue budget.

6.2 Legal Implications

6.2.1 The Council has power under section 1(1) of the Localism Act 2011 to do anything that individuals generally may do provided it is not prohibited by legislation and subject to Public Law principles. There is no express prohibition, restriction or limitation contained in a statute against use of the power in this way. In addition, section 111 of the Local Government Act 1972 gives a local authority power to do anything which is calculated to facilitate, or is conducive or incidental to, the discharge of any of its functions. In addition to the Localism Act 2011, the Council has power under section 95 of the Local Government Act 2003 to trade in function related activities through the company. Section 1 of the Local Government Act 2003 permits the Council to borrow and to comply with the Prudential Code for Finance in Local Authorities. The recommendations detailed in this report are in accordance with these powers.

6.2.2 The intention is to utilise the current company limited by shares which is initially wholly owned by the Council. It will be an arm's length local authority controlled company, set up in accordance with the Companies Act 2006. The company structure will be similar to that created in current existing trading companies with agreed Articles/Memorandum of Association, Shareholders Agreements, etc., designed so that additional local authorities can join (subject to satisfy themselves with regards procurement) while preserving professional management of operations. It is intended to operate as a commercial entity charging customers a fair price for the retail supply of heat and making a return on investment. It will adopt, maintain and operate various energy assets made available by the Council. It will provide heating & hot water to homes, businesses and public bodies in the Lee Valley sub-region (and ultimately connect to similar networks serving the rest of London).

6.2.9 All legal agreements will need to be in a form approved by the Assistant Director of Legal Services.

6.2.10 Legal Services will continue to advise on State Aid, Tax, Commercial and Procurement legal issues as the company develops and issues arise.

6.3 Property Implications

6.3.1 The LVHN Business Plan will consider land ownerships, negotiating access rights easements and network use rights, which may require internal resource

allocation. The timescale for completing these negotiations is factored into project delivery through the Summary Programme.

6.3.2 Otherwise LVHN will operate mainly on land that is not owned or leased by the Council and therefore there are no consequential liabilities or Corporate Landlord matters to consider.

6.3.3 However, where land has to be acquired, it is suggested that property implications are considered at that time and are site specific.

7. KEY RISKS

7.1 A detailed Risk Register is provided as A-10-2 in the Business Plan, with the top 10 risks identified as:

1. The vision for creation of a truly strategic heat network, including expansion into other boroughs, has not been tested.
2. Demand – insufficient heat demand is contracted for Phase 1 to be viable.
3. Imbalance between heat demand and supply.
4. Connection to the network may be uneconomic for some commercial customers.
5. Preferred pipe route is found to be impractical or it's not possible to negotiate way-leaves and easements, in which case a CPO would provide appropriate mitigation.
6. Capital costs turn out to be higher than expected – Enfield's consultants have worked on dozens of district heating schemes, so have a good grasp of costs and price. While the UK market is small and the number of established players in it is also small, our advisers know the key players well.
7. Supply - the NLWA Members decide not to sign the heat supply agreement.
8. Electricity prices rise, increasing the cost of heat from NLWA.
9. Operating costs are higher than expected.
10. The project loan is unable to be secured.

7.2 If these risks aren't appropriately mitigated, there is a reputational risk for the borough(s). Conversely, if they're appropriately mitigated and the project is successfully delivered, this will deliver significant benefits and provide a high profile example of an Enabling Council.

7.3 For Enfield Council there are also immediate risks around resourcing of the project management team, which will be addressed through approval of the final phase of development costs for Phase 1 of the network. This in turn will mitigate associated risks around delays in design, construction, operation and 'heat on' for contracted customers.

7.4 As the founding member of LVHN Ltd the Council is also exposed to the risk associated with committing resources to establish the company and network, including exposing the Council to liability (under the guarantees) during Phase

1 financial close. The key risks associated with this commitment centre upon the network failing in a way that means:

- a) The resources expended on establishing the Network and Special Purpose Vehicle (SPV) are wasted in that there is no on-going network;
- b) The guarantees offered in respect of the SPV's financial obligations are called upon so that the Councils' have to pay out on their obligations under the guarantees;
- c) Any loans provided by the Councils have to be written off;
- d) All of the SPV forms being considered will offer limited liability meaning that the direct liability of the Council's for the operation of the SPV will be limited to the extent of any guarantees (including the guarantee for the LEEF loan) or contractual obligations. The principal consideration in terms of the form of SPV is therefore ensuring that the form chosen is the most suitable for facilitating a successful network. LVHN Ltd is purposefully set up to:
 - Facilitate buy-in and approval from the respective Councils;
 - Allow for the proposed contractual arrangements between the Councils and the SPV to establish the Network;
 - Be flexible for future transfer out of public sector ownership;
 - Facilitate future inward investment from the private sector;
 - Be in a form well known to the private sector.

8. IMPACT ON COUNCIL PRIORITIES

8.1 Fairness for All

LVHN aims to charge all of its customers a fair price for heat. Importantly for customers, LVHN Ltd is being set up as an 'ethical operator' in what is currently an unregulated heat market. This will help protect local consumers by ensuring fair price & customer service terms.

8.2 Growth and Sustainability

8.2.1 LVHN is one of over 50 key large-scale sustainability projects in the Enfield 2020 Action Plan, helping to deliver the Sustainability programme's 'Managing your Energy' and 'Regenerating the Borough' themes. It will also deliver significant carbon reduction, helping to meet Enfield 2020's 40% carbon reduction target for the Borough by 2020, as compared to a 2005 baseline.

8.2.3 To find out more and how this project is part of something bigger please visit www.enfield.gov.uk/enfield2020

8.3 Strong Communities

Not applicable.

9. EQUALITIES IMPACT IMPLICATIONS

Corporate advice has been sought in regard to equalities and an agreement has been reached that an equalities impact assessment/analysis is required for the approval of this report, which has been prepared.

10. PERFORMANCE MANAGEMENT IMPLICATIONS

The performance of the LVHN project will be managed through the new governance arrangements, utilising a combination of Local Authority Client Group and LVHN Ltd's Executive Board to manage both the Detailed Work Programme and the Risk Matrix.

11. HEALTH AND SAFETY IMPLICATIONS

- 11.1 Section E of the corporate Pre-Qualification Questionnaire addresses issues of Health and Safety management by any contractor being considered for invitation to tender for a qualifying council contract. LVHN Ltd will be required to use this procurement process through its Partnership Agreement with the council.
- 11.2 Originally intended to meet the requirements of Regulation 4 of the Construction (Design and Management) Regulations 2007 (CDM), which requires those appointing contractors to ensure their competence to undertake the works they are being contracted to perform; and Appendix 4 of the accompanying Approved Code of Practice to the CDM Regulations which introduced the Stage 1 Core Criteria for assessing health and safety competence of contractors and consultants working in the construction industry. This section has been extended to cover all tendered contracts.
- 11.3 The section requires the contractor to present relevant information and examples of their health and safety management system, mandatory reporting and notification systems and systems for ensuring competence of staff and any sub-contractors that may be employed.
- 11.4 Exemption from this requirement is given to contractors who can prove accreditation with a Health and Safety Accreditation scheme or organisation which has membership of the Safety Schemes in Procurement scheme.
- 11.5 In recent times the council has made use of the web based London Tenders Procurement Portal to facilitate this process and adhere to the council's policy on the reduction of paper based documentation.
- 11.6 The questionnaire is evaluated by a member of the Corporate Health and Safety Unit.

12. HR IMPLICATIONS

The staffing and recruitment for LVHN Ltd will be fully assessed as part of the governance arrangements, which includes Member engagement and further approval.

13. PUBLIC HEALTH IMPLICATIONS

13.1 LVHN will deliver significant economic, environmental and social benefits

13.2 Climate change is a major threat to public health. The Lee Valley Heat Network will help to reduce its impact:

- The carbon footprint of a home due to heating will be reduced at least 50% compared to conventional fuel
- London's carbon dioxide emissions will be reduced by around 200,000 tonnes

13.3 LVHN will deliver competitively priced heat to new homes, and possibly, at a later stage of development to existing homes. Well heated homes help to promote the general health of the people that live in them.

Background Papers

None

APPENDICES (circulated and available to download via the Council's website as a separate pack to accompany the Part 1 report)

- 1) Vision Map
- 3) Summary Programme
- 4) GLA's letter of support
- 5) LVHN contract structure

LVHN Phase 1 Business Plan (Please note this has been circulated as Appendix 2 with the accompanying Part 2 report and appendices pack)