1 EXECUTIVE SUMMARY

1.1 Aims and Opportunity

1.1.1 The Upper Lee Valley (ULV) is one of London's most exciting areas of change. This report addresses how planning the future of energy provision in the sub-region could help catalyse positive outcomes in terms of economic rejuvenation and environmental improvements.

1.1.2 This pre-feasibility study demonstrates that there is a unique opportunity to deliver a commercially sustainable decentralised energy network (DEN) which would put the Upper Lee Valley at the forefront of energy production in London and give it a clear competitive advantage over other areas. The area combines strategic energy assets, including Edmonton incinerator, major waste resources, significant regeneration activities, and a vibrant industrial corridor that hosts several significant users of energy. This report demonstrates that these assets can be developed to become a source of low-cost, low carbon heat where local waste streams represent a significant renewable fuel resource.

1.1.3 The vision is to deliver cost-competitive, low to zero carbon energy supplies (heating, cooling and power). This will assist with job creation, reduce overall carbon emissions, facilitate the transition to a low carbon economy, and support development in a coherent, unified fashion that prevents the emergence of piecemeal, standalone, sub-optimal energy solutions.

1.1.4 There is also long term potential for inter-connection to a 'London-wide' network including the Olympic Park and the London Thames Gateway Heat Network.

1.2 Benefits

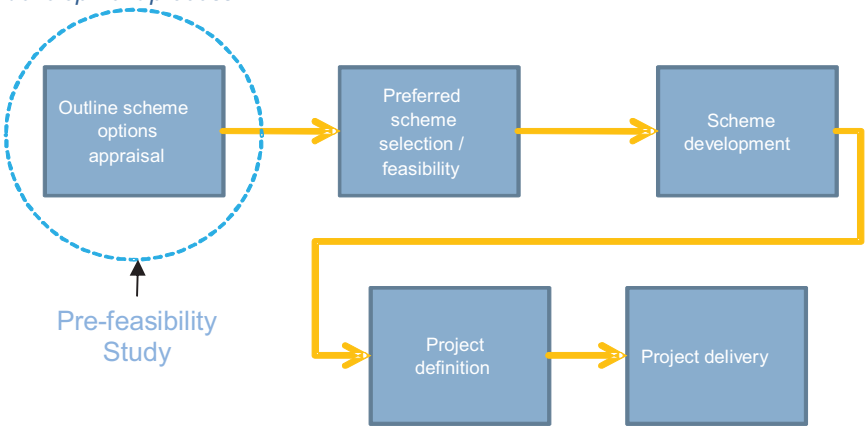
1.2.1 The efficient production of low to zero carbon energy from waste would give the ULV a clear competitive advantage over other areas. A Decentralised Energy Network (DEN) would:

- provide low carbon, low cost energy to 10,000 homes and more than 150 key businesses utilising either the available waste as a fuel or waste heat as an energy source
- help to alleviate fuel poverty in some of London's most deprived areas
- secure at least 1,700 additional jobs for the area for the period to 2026
- provide energy that is increasingly disconnected from fossil fuel price volatility over the coming years, supporting an emerging and strengthening low carbon sector in the ULV
- reduce the cost for developers of compliance with the Code for Sustainable Homes, BREEAM and anticipated revisions of the Building Regulations
- cut carbon dioxide emissions by 41,000 tonnes per annum, the equivalent of 9,750 homes annual CO_2 production. Council property portfolios could see 25% reductions in emissions for those buildings connected
- Provide long life energy infrastructure to allow the sub-region to benefit from future technological improvements cost effectively. This project would act as an incubator / pilot scheme for the low carbon economy.

1.3 Development

1.3.1 This pre-feasibility report addressing the ULV in the London Boroughs of Enfield, Waltham Forest and Haringey is the first step in the project delivery cycle. It identifies options for further development. The wider process is outlined below:

Figure 1-1 DEN development process



1.4 Results

1.4.1 The key conclusions of this study are as follows:

- Strategic heat supply locations identified for further development for a DEN include the Edmonton EcoPark and the Kedco biomass gasifier sites in the Central Leeside / Picketts Lock area

- Two immediate development opportunities can be pursued. Initial development of the DEN could be based on heat from the Kedco gasifier to a 'core scheme' area including Edmonton, Commercial Road / Silver Street, Northumberland Park, Marsh Lane, Central Leeside and Picketts Lock. Alternatively, heat to serve this area could be sourced from the existing Edmonton Incinerator. This approach would meet strategic objectives by kick-starting network growth without the up-front cost of primary plant investment, would deliver a project without reliance on third-party project development, and enhance land values.

- These initial options could be supplemented in the medium term by local gasifier plant installation on the EcoPark site – producing heat and power from local waste streams. The SRF that is currently being procured via the NLWA could be a key fuel source for the medium term gasifier plant.

- Development of Enfield power station as a heat source for the DEN is not recommended, on the basis of both uncertainty in terms of its operation and on the estimated cost of heat available

- Viable local networks that would support development of the strategic network have been identified at Blackhorse Lane, the Tottenham Town Hall area, Waltham Forest Town Hall / Wood Street area, and Walthamstow Town Centre. These schemes are envisaged to be based around local gas-fired CHP plant initially, which would be superseded by the strategic network supply as the DEN expands to these areas. These schemes will complement other existing and emerging communal systems, including the Tottenham Hale Village network supplied by gas-fired CHP and biomass boilers

- A local network has also been identified at Wood Green / Haringey Heartlands. This is unlikely to connect to the strategic network in the short to medium term due to the distance of the connection to the strategic network, but should be developed independently based around gas-fired CHP

- Detailed feasibility studies for two potential strategic network routes for heat distribution should be undertaken:

  - 'Olympic Park' configuration – a network focussed on strategic linkages with the Olympic Park site which could enhance the potential for development of further heat from waste to energy plants

  - 'Tottenham' configuration – a network focussed on delivery to major developments within the ULV sub region

- These networks are presented in the vision maps contained in this study. The scale of these networks is limited by the fuel supply identified under the different heat source options considered. The networks below are based around Option B2 – sourcing heat from Kedco gasifier or Edmonton incinerator in the short to medium term, supplemented by a new gasifier on the EcoPark site in the longer term.

Figure 1-2 Vision Map Network Scenario B2 'Olympic Park' configuration

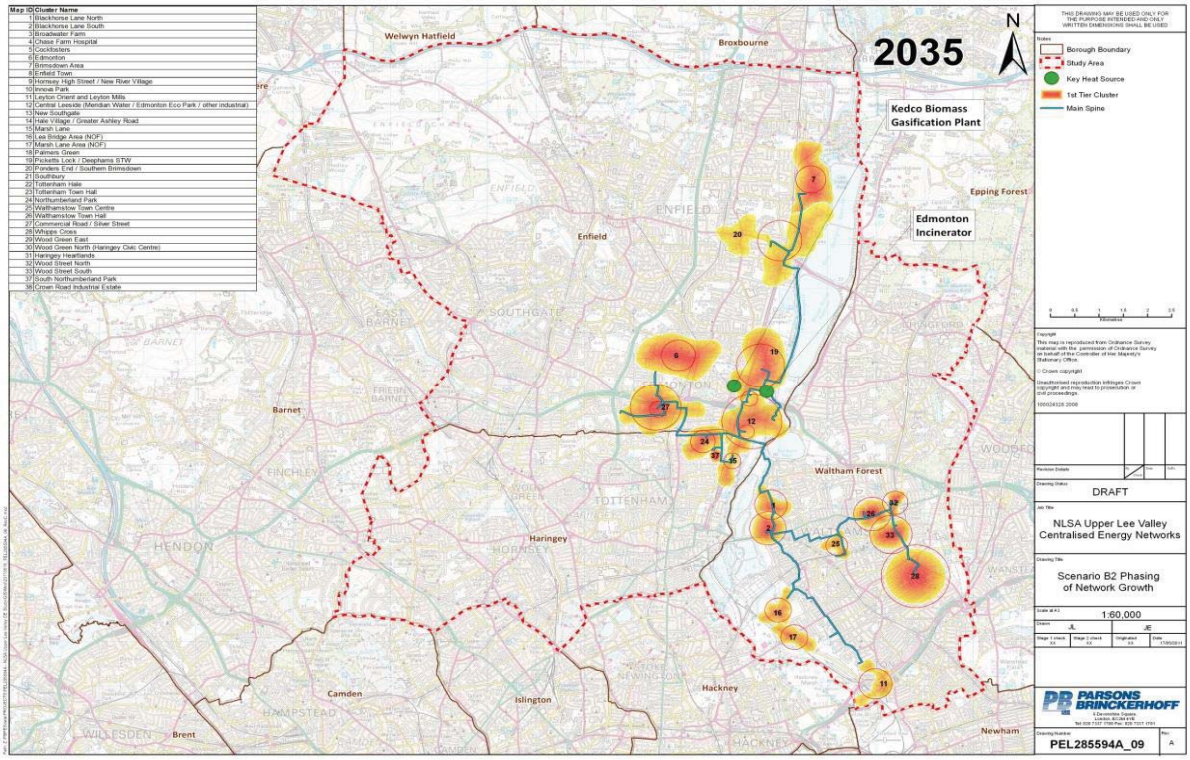
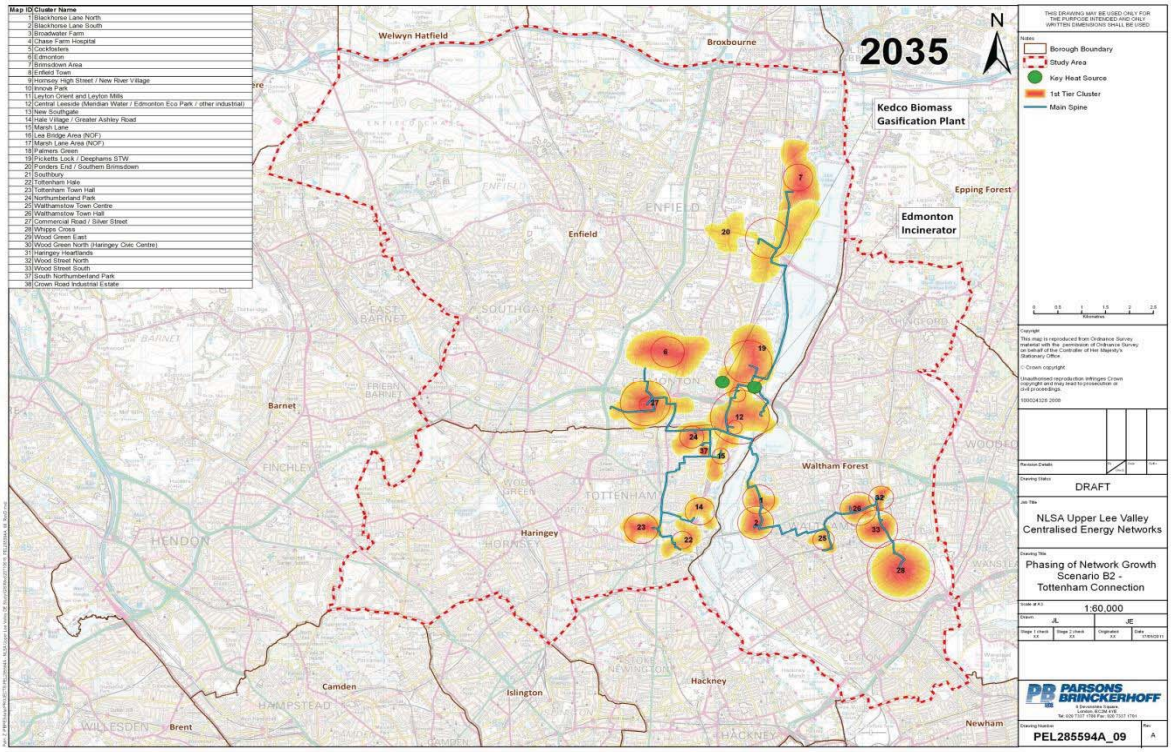


Figure 1-3 Vision Map Network Scenario B2 'Tottenham' configuration



1.5 Recommended Key Actions

1.5.1 Pursue core DEN development around Kedco and/or modifications to Edmonton incinerator. Areas served should include Edmonton, Commercial Road / Silver Street, Northumberland Park, Marsh Lane, Central Leeside and Picketts Lock.

1.5.2 Develop local CHP schemes in Blackhorse Lane, the Tottenham Town Hall area, Waltham Forest Town Hall / Wood Street area, Walthamstow Town Centre, and Wood Green / Haringey Heartlands.

1.5.3 Governance

1.5.4 A single joint public / private delivery vehicle should be established to oversee both cluster level schemes and the growth of the strategic network. This body would be responsible for enforcing the strategic aims of the project and aiding the delivery of local cluster-level schemes to complement the strategic network. The three ULV boroughs will need to work together to ensure that there is a sufficient and effective decision-making framework with key leadership and players, and significant political support to ensure successful implementation of DEN initiatives.

1.5.5 The three boroughs will need to work together to ensure that the leadership level support required for the development of this project is in place.

1.5.6 A rapid assessment of the risks and benefits of attempting to influence the NLWA procurement process, to secure a longer-term supply of MSW-derived SRF to generate heat and power at the Edmonton EcoPark site, is required.

1.5.7 Planning Policy

1.5.8 Enfield power station site should be safeguarded for future development as a CHP plant rather than a power generation-only facility. A general requirement should be imposed that new power generation plant and other major potential sources of waste heat are designed for heat recovery - with the cost of these designs borne as part of the plant development.

1.5.9 There are several planning mechanisms that could be employed to support DEN delivery. Cross-borough partnership working should continue in the development of policy. Key policy vehicles for consideration should include the use of Area Action Plans, Supplementary Planning Documents, the emerging Opportunity Area Planning Framework, Local Development Orders, and the Community Infrastructure Levy.

1.5.10 Technical

1.5.11 Put technical standards in place for Developers to follow to ensure that new-build schemes and local cluster heat networks are designed in a manner compatible with the emerging strategic network.

1.5.12 Engage with the Operators / Developers of Kedco gasifier as soon as possible to ensure compatibility between the NLSA's strategic network project and the Kedco development.

1.5.13 Carry out more detailed feasibility work relating to the following technical aspects of design (particularly focussing on early phase growth zones):

- Loads – obtain commitments in principle from potential heat customers with technical details of temperature / pressure requirements, and load projections into the future
- Routings – develop network route maps for the first phases of network growth, and investigate the constraints and obstacles posed by existing infrastructure such as pipes, tunnels, transport infrastructure already in place
- Easements – identifying where easements are necessary, and obtain early quotations for these areas. Early engagement with TfL and British Waterways is strongly recommended

1.5.14 Engage with operators of premises along the proposed early phase strategic network route to understand plant replacement cycles which could tie in with potential connection to a DEN.