



Report

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Upper Lee Valley Low Carbon Economy

Opportunities, Barriers & Interventions

July 2011



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For and on behalf of GVA Ltd

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1. Introduction

- 1.1 GVA has been commissioned by the North London Strategic Alliance (NLSA) to undertake research into the scale and nature of the low carbon economy within the Upper Lee Valley, identify the spatial distribution and opportunities for activity, and set out the interventions and actions required to grow the sector, building on existing local assets.
- 1.2 The Upper Lee Valley has a strong tradition of attracting and accommodating a range of business activities and sectors which have been market leaders in both London and nationally. The economic make up of the Upper Lee Valley has constantly evolved and changed to attract the latest sectors and technologies and provide a range of employment opportunities for the residents of North London and beyond.
- 1.3 Growth of the Low Carbon and Environmental Goods and Services (LCEGS) sector is a key target for the UK and London in particular and the Upper Lee Valley is enviably placed to lead London's next economic shift towards a 'greener' economy.
- 1.4 It is the purpose of this Study to provide a baseline understanding of the opportunities for growth, rooted in existing strengths of the Upper Lee Valley, and identifying a set of interventions which will enable the sector to grow.
- 1.5 There are a number of factors within the Upper Lee which offer a strong foundation for growth and present a strong proposition for future inward investment. This is based on:
- An existing base of green economy businesses, municipal services and utilities;
 - The identification of the Upper Lea Valley as an Opportunity Area within the London Plan, along with a strong commitment to achieving jobs targets;
 - Prior identification of green economy aspirations for the area through An Economic Vision for the Upper Lea Valley endorsed by the London Boroughs of Enfield, Haringey and Waltham Forest;
 - The recently prepared Upper Lea Valley Investment Framework;
 - Prior investigation of the district heat network potential of the Upper Lea Valley by the LDA;

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- Direct adjacency and spatial and logistical relationships with the East London Green Enterprise District that begins at the Lower Lea Valley;
 - The potential for a focused identity and linked intervention strategy for the Upper Lea Valley that can build on existing cross borough relationships;
 - Existing public sector forums organised around the Upper Lea Valley;
 - The likely continued focus of Borough and London wide government on the Upper Lea Valley as a regeneration area.
- 1.6 This past work provides a rationale for geographic focus, and also a base of information that can lead to a rapid development of a Green Economy strategy for the area. The development of the Low Carbon Economy agenda for the Upper Lee Valley provides an excellent economic platform for future intervention and funding and a key component of the potential for an Enterprise Zone covering the area.
- 1.7 This Report provides a clear definition of the key Upper Lee Valley employment sectors that can underpin Green Economy Growth and the key locations that can accommodate them. This provides the narrative underpinning potential low carbon economy investment in the Upper Lea Valley.
- 1.8 The key outputs of the Report are recommendations for
- Sector development,
 - Geographic cluster development,
 - Strategic infrastructure investments and
 - Potential interventions by Borough's, the NLSA and the city wide agencies.
- 1.9 It is important to note this Study is not intended to provide detailed, new analysis of sectors, clustering or area characteristics. The focus of this Study is to draw upon on information already available, work with the relevant partners and use the consultant's expertise to arrive at an intelligent and informed analysis of the opportunities.

2. Defining the low carbon economy in the Upper Lee Valley

- 2.1 In recent years a great deal of focus has been placed on sectors which act within the 'green economy', i.e. those which produce a good or service which contributes to the reduction of carbon requirements, more efficient waste management processes and addresses issues of pollution and contamination.
- 2.2 The importance of these activities within the economy has increased significantly, fuelled in part by more stringent legislative requirements at an international, national and regional level but also driven by cost pressures on businesses and a recognition that acting more 'sustainably' can enhance their profitability.
- 2.3 As the sector itself has become more important economically so too has its place within growth strategies for local areas, with low carbon activities now seen as a central pillar of future economic prosperity for economies across the UK.
- 2.4 However, whilst policy rhetoric has increased the level of understanding of the sector has not necessarily evolved at a local level to identify what sectors are already present within an area and how these can be supported as a basis for growing the wider sector.
- 2.5 Therefore it is important to translate and interpret strategic research to a relevant local scale in order to identify intervention mechanisms to promote growth.

Low carbon activity – a national perspective

- 2.6 In 2009 Innovas, on behalf of BERR undertook a study which looked in detail at the Low Carbon and Environmental Goods and Services (LCEGS) industries, assessing the scale and nature of economic activity as well as considering future growth potential.
- 2.7 The Innovas study noted that the LCEGS sector UK was worth approximately £107bn in 2007/08, representing 3.5% of the global market. The value of LCEGS activity within the UK places it broadly on a par with the healthcare and construction sectors. It is anticipated that growth of the sector will accelerate, reaching 6.1% per annum by 2014/15.

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- 2.8 Breaking these figures down further Innovas categorise LCEGS activity under three headings, Environmental, Renewable Energy and Emerging Low Carbon. The Environmental sub-group of activities are the more established both within the UK and internationally, however it is the newer activities within Renewable Energy and Emerging Low Carbon which are of higher value, representing almost three quarters of the total value.
- 2.9 Over a third of activity (by value) within the LCEGS sectors was classed as manufacturing this, coupled with the importance of environmental activities such as waste handling, presents important opportunities for the Upper Lee Valley which has a strong heritage and existing base of activities within these areas.
- 2.10 The manufacturing elements are particularly important within the renewables and emerging low carbon activities given these are still maturing markets and products and technologies are still under development. This potentially offers significant opportunities to attract research and development activity to the Upper Lee both through product development but also concept development, utilising local skilled businesses for the manufacturing and testing of components.
- 2.11 This opportunity is reinforced by Innovas' analysis of likely future growth trends which are likely to be strongest in the emerging sectors with environmental activities considered to be relatively mature and therefore only increase in line with wider economic activity and population growth.
- 2.12 The LCEGS sector (as defined by Innovas) is reliant upon a good quality and diverse supply chain, indeed Innovas estimated in 2009 that approximately 48% of the value of the sector came from the wider supply network of specialist 'low carbon' businesses.
- 2.13 Again this is an important consideration for future strategy within the Upper Lee with a need to recognise the importance in supporting activities which link to specialised low carbon activities and the role the presence of a high quality supply chain can play in attracting new businesses to the area.

The role and influence of London

- 2.14 In its research publication "Green Expectations: London's low carbon job prospects" (2010) the LDA seek to interpret research at a national level to understand the position

London currently occupies, its sector strengths and opportunities and skills requirements for embedding the sector successfully into the London economy.

- 2.15 Building on regional data collated by Innovas the LDA estimated that London had been the largest regional beneficiary of the growth in LCEGS sectors with an estimated growth rate of 5.9%, driven primarily by the concentration of carbon trading activities within the City. Indeed it is estimated that carbon finance represents a quarter of the total LCEGS value within London.
- 2.16 London's main sectoral strengths outside of carbon finance lie within the alternative power, alternative fuel and waste management activities, in particular photovoltaic and geothermal technologies are considered key markets. The final sector strength lies within building technologies, although this is seen as a less mature market and is under-represented when compared to the UK as a whole.
- 2.17 The key strengths of the London economy are underpinned by the scale of urbanisation within the region which is, unsurprisingly, much higher than other parts of the UK. This provides core drivers for a number of sectors, in particular the uptake of alternative power generation technologies and the more efficient handling of waste.
- 2.18 The scale of the market within London is driving firms to locate within the area, particularly in areas where there is an existing base of employment land and congruent skills. At present it is estimated over 5,000 businesses within London are engaged within the LCEGS sectors, either directly or through supply chain relationships. With increasing focus on a number of under-developed markets (such as building technologies where the scale of commercial, residential and public buildings offer major opportunities and considerable public incentives are in place) future growth within the LCEGS sector in London is expected to outstrip growth in other economic sectors.

Estimating the scale of activity within North London

- 2.19 There are a number of methods available to identify and estimate the scale of LCEGS activity within North London and in particular the Lee Valley. Data collated by Innovas at borough level sets out an estimate of turnover, business stock and jobs, a summary is set out below for the three boroughs covering the Upper Lee.

Table 1 - Borough level LCEGS performance

Broad Sector	Borough	2008/09 Turnover (£mn)	Businesses	Equivalent Jobs
Environmental	Enfield	60.6	28	613
	Haringey	60.5	1	95
	Waltham Forest	60.8	1	164
	Total	181.9	30	872
Low Carbon	Enfield	60.1	49	884
	Haringey	60.1	14	389
	Waltham Forest	60.2	18	468
	Total	180.3	81	1,741
Renewables	Enfield	142.6	82	1,353
	Haringey	143.1	15	553
	Waltham Forest	142.8	44	872
	Total	428.5	141	2,778
Other	Enfield	3.7	4	52
	Haringey	3.7	0	18
	Waltham Forest	3.7	0	20
	Total	11.1	4	90
Total	Enfield	267	163	2,902
	Haringey	267.4	30	1,055
	Waltham Forest	267.5	63	1,524
	Total	801.9	256	5,481

Source: Innovas, 2009

- 2.20 At a broad sector level the largest area of activity across the three boroughs is the renewable energy sector, having the largest turnover, business stock and employment base. Enfield houses the largest proportion of LCEGS businesses and employees which is unsurprising given the scale of economic base within the borough and the large supply of employment land and floorspace compared to Haringey and Waltham Forest.
- 2.21 The "Other" classification represents technologies, research and development activities and is the least well represented within the three boroughs, these are potentially higher value activities which would provide a significant benefit to the borough.
- 2.22 Considering sub-sector level data collated by Innovas indicates that employment and business stock within the environmental sector is driven by recovery and recycling activity, low carbon sector activity is primarily within alternative fuels and building technologies, and activity in renewables is principally focussed on wind and geothermal sub-sectors.

The Upper Lee Valley low carbon sector

- 2.23 The strategic analysis undertaken by Innovas and the LDA provides a sense of direction for the low carbon economy; however it doesn't fully link the strategic strengths and opportunities to the local level activity and asset base which will drive business in the future.
- 2.24 Having undertaken a high level review of the make up of the Upper Lee Valley economy via existing economic studies and strategies, LDF evidence bases and Annual Business Inquiry (ABI)/Business Register and Employment Survey (BRES) it is possible to identify activities within the strategic Innovas and LDA work which are present within the Upper Lee Valley.

Table 2 - LCEGS sectors present in the Upper Lee Valley

	Broad Sector	Activity	Sub-Sector
Low Carbon Goods & Services	Environmental Sectors	Waste Management Recovery & Recycling Waste & Water Treatment	Construction & operation of waste facilities Equipment for waste treatment Waste collection Automobile recycling Wood stock processing Electronics & related stock processing Construction & demolition debris stock processing Metals recycling stock processing Water treatment & distribution Engineering
	Renewable Energy Sectors	Biomass Photovoltaic	Manufacturing of boilers and related systems Biomass energy systems Systems & equipment Chemicals
	Emerging Low Carbon Sectors	Alternative Vehicle Fuels Alternative Fuels Energy Management Building Technologies Low Carbon Vehicles	Mainstream fuels for vehicles only Mainstream fuels Energy saving equipment Energy supply Windows/doors Insulation Monitoring & control Micro-generation technology Conversion Supply & maintenance Components
Green Economy Demand Drivers	Logistics	Low carbon vehicles Alternative fuels Alternative energy Recovery & recycling Micro-generation technology Photovoltaics	
	Food Production	Low carbon vehicles Recovery & recycling Biomass Anaerobic Disgestion Photovoltaics Micro-generation technology Local sourcing	
	Precision Engineering	Renewable energy Energy management Building technology Low carbon vehicle components	

- 2.25 The upper part of the table shows the potential of the low carbon economy from existing business activity, particularly linked to recycling and reuse, building technologies and low carbon vehicles. Understandably most of these activities have evolved organically within the Upper Lee as existing business have adopted new technologies or developed new products to meet market demand. The lower portion of the table considers the other economic specialisms of the Upper Lee Valley economy and how they relate to the potential and existing low carbon activities. These are important for the future development of the sector as they provide a ‘readymade’ market for products and services and also an opportunity for tandem product or process development. Having established the broad activities and influences for the low carbon economy in the Upper Lee Valley it is important to consider the role they play in driving the sector forward and how each activity interacts with each other.
- 2.26 Within the Upper Lee Valley there are three levels of interaction with the low carbon economy: businesses which directly produce ‘low carbon’ goods and services (i.e. LCEGS); businesses which are embedded within the Upper Lee economy and provide a significant input to the low carbon economy supply chain or are a locally significant major consumer of low carbon products and services (i.e. they provide important demand or supply side contributions); and general businesses whose activities and operations can be ‘greened’. Building on the identified sectors above it is possible to identify locally relevant sub-sectors and activity within each of these categories.

Table 3 - Low carbon economy activity classification

Low Carbon Goods & Services	Green Goods & Services Supply Chain	Sectors that can be Greened
Alternative fuels	Logistics / Distribution	Logistics / Distribution
Green energy	Food manufacturing	General manufacturing / industry
Waste processing	General manufacturing / industry	Food manufacturing
LCV sales and supply	Specialist engineering	Public sector fleet services
LCV maintenance	Fuel processing technology	Waste services
ICT equipment recycling	Lubricants	
Building retrofit		
Commercial waste recycling		
Building waste recycling		
Motorvehicle dismantling		
Scrap metal dealers		

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- 2.27 Of these three categorisations it is the first two columns of the table which should be the focus of effort to grow the Low Carbon economy within the Upper Lee. The identified low carbon goods and services activities draw upon businesses already within the area operating within the field or who are engaged within the broader sector and therefore could turn their expertise to more 'green' products and processes.
- 2.28 These LCEGS opportunity sectors also build on the wider influences of the Upper Lee and the potential these offer as 'markets' for low carbon products and services. For example particular opportunities exist for building retrofit activities given the scale and age of existing residential and commercial property. These technologies are also likely to be demanded within new developments and therefore the significant development proposals for parts of the Upper Lee and North London more widely will provide additional demand incentives to locate in the area.
- 2.29 Whilst the activities in the final column are important in that they provide a market for goods and services they are not likely to directly influence the nature of more focussed low carbon economic activity in the same way that supply businesses would. It is more likely these businesses will utilise existing technology and products rather than having a direct input into new products and services.

The importance of the food sector

- 2.30 To grow the Low Carbon Economy sector within the Upper Lee successfully it is important to develop a strategy which maximises the opportunities presented by existing activity to act as a platform for wider growth. This doesn't necessarily suggest that the Upper Lee's Low Carbon economic activity is only locally focussed, but that it can use what exists locally to justify locating within the Upper Lee (as opposed to any other part of London) in order to exploit local business opportunities.
- 2.31 The production and distribution of food is unique element of the economic profile of the Upper Lee Valley, with activity ranging from the manufacture of market leading branded goods, pre-preparation of meals and the production and sale of niche ethnic foodstuffs.
- 2.32 Whilst the sector is important as an economic engine in its own right it also has the potential to drive the low carbon economy within the Upper Lee beyond simply 'greening' its own production techniques and activities. The sector operates at such a

major scale it provides a critical mass to justify the development of a range of green activities to service the industry and also maximise the potential of the waste it produces.

- 2.33 The waste from food manufacturers is already being harnessed to provide alternative forms of energy whilst the sector is also investing the opportunities for sourcing recycled plastics from local businesses that in turn use locally generated waste plastic to produce plastic bottles (for example). Without the presence of the food industry at this scale it is unlikely these activities would be viable within the Upper Lee.
- 2.34 The nature and scale of activity also makes it a significant user of energy and producer of waste heat. This level of production and demand can provide a key basis for achieving viability for a decentralised energy network within the Upper Lee, providing not only a consistent level of energy usage (and hence income) but also a potentially large input in terms of heat.
- 2.35 There are also more opportunities for general 'greening' of the sector, which will provide an important market for green goods and service providers however it is the opportunity to work more intensely with this large sector which can provide a true catalyst for the development of the low carbon sector.

Quantifying the scale of activity in the Upper Lee Valley

- 2.36 Having identified the broad activities which are embedded within the Upper Lee Valley economy it is important to understand the scale of the opportunity they present in terms of both employment and their relative importance to the Upper Lee Valley economy.
- 2.37 The majority of LCEGS activity forms part of a wider sector or sub-sector and as such cannot be disaggregated from similar activity which would not be considered as 'low carbon'. Therefore estimates of activity have been drawn from data at a 4 digit SIC code level, narrowing the focus as far as possible but still capturing some other activity. This data is collated and analysed at Super Output Area level to (as closely as possible) mirror the area covered by the Upper Lee Valley Opportunity Area.

Table 4 - Scale and specialisation

	Upper Lee Valley Employment	Location Quotient	London Employment
Waste & recycling	1,243	4.50	14,390
Manufacturing & engineering	284	2.00	7,378
Construction	3,361	1.18	147,697
Vehicle repair, sales & servicing	1,866	3.73	26,060
Logistics & distribution	1,725	5.90	15,204
Fuel development & production	101	1.22	4,320
Food manufacture & wholesale	5,888	6.55	46,818
Total	14,468	2.88	261,867

Source: BRES 2009, GVA 2011

- 2.38 In total over 14,000 people are employed within sectors relevant to the production of low carbon goods and services within the Upper Lee Valley, this is clearly influenced by the presence of significant food production activities highlighting the important in harnessing activity in the sector as a driver for wider economic activity.
- 2.39 The location quotient (LQ) provides an indication of the concentration of a particular sector within the Upper Lee Valley when compared to London, if a sector was equally represented its location quotient would be 1, if there is less employment proportionally than London it would be below 1, if there is proportionally more employment the LQ would be greater than 1. Therefore the higher the number the more significant the sector is locally.
- 2.40 Of particular significance to direct low carbon activity within the Upper Lee Valley is waste and recycling representing a significant proportion of employment and having a significant LQ. The Upper Lee has a wide range of waste management facilities and activities (as is discussed in more detail in the next section) a number of which are focussed on 'greener' and more efficient uses for waste.
- 2.41 The waste sector is reasonably mature in terms of embracing the low carbon agenda and seeking to reduce its impact, however there are new opportunities and activities emerging linked to the more productive use of waste collected both through recovery of valuable materials and the re-use of material as an input to other productive activities (either as feed stock or an energy resource for example). The Upper Lee is beginning to see increased activity in these emerging elements of the waste and recycling sector and they present the key growth opportunities for the sector in the future.
- 2.42 The Upper Lee also has relative strengths in other emerging markets and activities, in particular low carbon vehicles and the development/production of alternative fuels.

These sectors are relatively less well established within the UK although London, with the low emissions and congestion charge zones, is considered a key market and area for growth. Therefore having a track record in terms of existing economic activity will provide an important platform for attracting future business activity.

3. Profiling sectors and their requirements

3.1 Having established the key sector activities within the Upper Lee Valley which are directly engaged within the low carbon economy or provide a locally relevant opportunity for driving green growth it is important to understand the characteristics of each sector.

3.2 In this section we consider each of the key sectors, outlining the key characteristics of the sectors, examples of businesses already active within the Upper Lee, their likely future space requirements and any other relevant characteristics.

Domestic and Commercial Waste Recycling

3.3 **Sector description** Collection, sorting and recycling of waste materials produced by business and industry. Waste management and energy recovery. Treating and utilising waste as a resource.

3.4 Recycling is a rapidly growing industry. 37% of household waste was recycled in 2008/09, compared to 14% in 2000/01. Over the same period, the proportion land filled fell from 78% to 50%. The landfill rate for business waste in 2003 was around 40%, though recent regional surveys provide some evidence of improvement since. A new national survey of business waste is currently underway.

3.5 Businesses produce considerably more waste than households. Defra estimates the annual waste by sector (tonne %) as follows: Construction and demolition (32%), mining and quarrying (29%), industrial (13%), commercial (12%), household (9%), dredged materials (5%).

3.6 Recycling processes include:

- **Materials Recovery Facility (MRF)** - dry waste is sorted by passing waste over a number of conveyors and other sorting mechanisms to separate paper, glass, cardboard, plastic.
- **Pyrolysis and gasification** - forms of heat treatment applied to waste that creates gas or liquid that can be used to create electricity.

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- **Energy from waste (EfW)** – combustion of waste to produce electricity and heat.
 - **Anaerobic digestion** – biochemical process applied to organic waste in the absence of oxygen. The by-product, biogas is combusted to produce electricity. The facilities are highly bespoke and suitable for rural locations due to the odour of the waste used.
 - **Composting** is a natural biological process applied to organic waste. Requires high temperatures and excessively moist environments. Outputs are sold to agriculture and landscaping industry.
 - **Solid recovered fuel.** The production of solid recovered fuel from recyclable materials is an under-utilised technology in the UK. SRF is waste that is treated to produce a small fuel pellet, which can be used as a substitute for conventional fossil fuels in industrial applications such as the cement industry.
- 3.7 Businesses recycle their waste for a number of reasons, including complying with increasing new legislation, pressure to comply with standards implemented by customers and maximising the efficient use of materials produced by the business process.
- 3.8 EU and UK legislation is the main driver for recycling. The EU Landfill Directive has targets to reduce municipal waste sent to landfill to 35% of that produced in 1995, by 2020. The tax that local authorities pay for landfill is also increasing over the next few years. The Waste Electrical and Electronic Equipment (WEEE) directive came into force in 2007 and is aimed at reducing the amount of WEEE sent to landfill and increasing reuse and recycling.
- 3.9 **Primary Products:** Collection services, re-use and recycling. There is potential to link to waste from energy plants. Main recyclables include: paper, plastics, cardboard, glass, electrical, garden waste, food waste, glass, metal, textiles, wood.
- 3.10 **Commercial recyclables:** clinical, aggregates, construction, industrial, fluorescent tubes, cooking oil, office waste (furniture, toner cartridges), catering waste, chemicals, hazardous waste.
- 3.11 **Components required:** Access to large industrial/business base which produce recyclable waste.
- 3.12 **Target Market:** Corporate occupiers, estate managers
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3.13 **Typical land & building requirements:**

- Site Size 1 to 5 Ha
- Use Class B2, B8 Other Non-B
- Various use classes depending on the intensity of the operation and the nature of the space occupied – for example most ‘closed’ facility will be considered a B2 activity which, whilst easier to gain permission for, will alter the business rate liability.
- Building Size Medium
- There has been a surge in property requirements for medium sized industrial buildings from waste management companies over the past two or three years, driven by compliance to ever tightening legislation.

3.14 **Transport infrastructure requirements:**

- Major Road Access
- Wharfage

3.15 **Workforce characteristics:**

- Predominantly unskilled albeit with some higher skilled activity and managerial positions. As waste processing becomes more closely linked to re-use of materials (such as waste to energy) higher skills are increasingly required to operate, maintain and manage plant.

3.16 **‘Bad neighbour’ activities:**

- HGV Traffic
- Noise Pollution
- Air Pollution

The hours of operation are also likely to have an impact on neighbouring activities

3.17 **Avoid adjacency to:**

- Residential
- Offices
- Schools

- Environmental Designations

3.18 **Other infrastructure requirements:**

- Proximity to Suppliers

3.19 **Existing activity in the Upper Lee Valley:**

- Domestic & commercial waste management
- Domestic waste & commercial recycling
- Waste to energy
- Electronics recycling

3.20 **Existing businesses:**

- London Waste Ltd
- Greenstar
- Biffa
- PHS Maxitech
- Powerday
- Oakwood Waste

3.21 **Future potential opportunities:**

- Increased presence of activity which uses waste as feed to new production (e.g. Greentech)
- Green energy generation
- Heat network input / user
- Efficient waste management for wider area – providing critical mass of collection to create higher quality inputs to other users.

Precision Manufacturing & Engineering

- 3.22 **Sector Description:** Manufacture of component parts for other sustainable industry technologies.
- 3.23 A sub discipline of electrical engineering, electronics engineering, mechanical engineering and optical engineering, where increased precision and accuracy are the main focus in the design and manufacturing processes. This helps to promote products and processes with greater capabilities, better reliability and higher quality resulting in higher productivity and sales. In the green context, it is concerned with the design and manufacture of hi-tech, bespoke, pioneering component parts used in sustainable industry technologies.
- 3.24 Given that the sustainable industry is still within its infancy, much of the technology is still being developed and as such, precision engineering underlies most of the manufacturing processes within the sustainable industry sector. The global market for low carbon and environmental goods and services (LCEGS) was worth £3 trillion in 2007/08 and is expected to grow to £4.3 trillion by 2015. With the UK LCEGS market worth approx £106 billion and expected to be one of the only growth areas in the UK economy leading up to 2015, precision engineering for green technologies seems like a logical sector in which to promote and nurture investment.
- 3.25 Precision engineering is likely to be involved in the manufacture of component parts for wind turbines, alternative fuel engines, tidal/wave harnessing technologies, solar photovoltaic panels, boiler/water heating systems and low carbon vehicle technology.
- 3.26 **Primary Products:** Wind turbine gearing, tidal/wave energy components (blades, rotors, motors etc) micro CHP and other small scale renewable power technology (micro turbines etc)
- 3.27 **Components Required:** Skilled workforce
- 3.28 **Target Market:** Green energy generation companies, low carbon vehicle sector, green building technologies, alternative power generation, alternative fuel production.

3.29 Land & Building Requirements:

- Site Size <1 Ha
- Use Class B1 & B2
- Building Size Small or Medium

3.30 Transport Infrastructure Requirements:

- Major Road Access
- Public Transport

3.31 Workforce Characteristics:

- Skilled
- Activities Undertaken: Product design/development, manufacture and engineering

3.32 'Bad Neighbour' Activities:

- HGV Traffic

3.33 Avoid Adjacency to:

- Residential

3.34 Other Infrastructure Requirements:

- Proximity to Similar Businesses
- Proximity to Clients

3.35 Existing activity in the Upper Lee Valley:

- Mechanical engineering
- Electrical engineering
- Precision engineering (machining)
- Fabrication
- Manufacture of power distribution equipment

3.36 Existing businesses:

- Turnomatic

- Hydraulic Engineering Ltd
- Vibra Engineering
- Johnson Matthey
- Precision Engineering Plastics
- Rimex Metals

3.37 **Future potential opportunities:**

- Manufacture of components for green power generators
- Bespoke component prototyping
- Servicing of green technology installations
- Potential green energy user

Construction & Retrofit

3.38 **Sector Description:** Green retrofitting is the use of green technologies to improve the energy efficiency of an existing property. The term usually refers to domestic properties however the commercial market in the UK is estimated to be worth more than £10 billion a year. Links to the new construction sector can also be made.

3.39 The five key areas targeted in a green retrofit are:

- **Windows & Doors** - The use of double glazing can halve heat loss through windows, triple glazing will reduce heat loss even further. The majority of triple glazing manufacturers are located in mainland Europe. Draught proofing can prevent 15% of heat loss through ventilation, draughts and badly sealed doors. Key areas would be the manufacturing of double and triple glazing windows and the training of contractors in the importance of using energy efficient methods to reduce heat loss through relatively simple methods such as draught proofing.
- **Roof & Wall Insulation** - Almost 60% of heat is lost through the roof and walls of a property. Extra insulation in lofts and in cavity walls can considerably reduce heat loss from a building whilst being fairly straightforward to install. Key area would be the manufacturing of insulation materials.
- **Heating & Boilers** - Ground source heat pumps are an alternative to traditional central heating systems, they consist of a system of pipes buried in the ground that extract heat from their surroundings and provide it to the property. Solar photovoltaic panels generate electric power by using solar cells to convert solar radiation into direct current electricity. On average, centralised power stations tend to waste two thirds of the energy they generate as dissipated heat, combined heat and power (CHP) plants harness this heat making them up to 95% efficient compared with standard power plants that are approx 38% efficient. This heat can then be supplied to both domestic and non domestic properties at a fraction of the price. For more information on boilers see separate proforma. Key areas would be the manufacturers and installation specialists of ground source heat pumps and photovoltaic panels as well as operators of CHP plants.
- **Lighting** - Replacing standard incandescent light bulbs with Compact Fluorescent Lighting saves approx 70-80% of the required energy as well as having an operational lifetime of up to 45 times longer. Sun pipes focus light through an opening in the roof

down a mirrored tube brightening darker areas such as stairwells even on the darkest day. Key areas would be the manufacturers of sun pipes and compact fluorescent lighting and the training of contractors in the importance of using such methods to reduce the energy used for lighting.

- **Water** – As well as fixing dripping taps and lagging pipes, a range of water efficient products are available to help reduce the volume of water used in both domestic and non-domestic properties. These range from low-flow showerheads, low volume dual flush toilets and waterless urinals to systems that recycle bath and shower water for toilet flushing. Key areas would be the manufacturers of water efficient products and the training of contractors in the importance of using such products.

3.40 The UK green retrofit industry is limited in scale due to the following factors:

- **Lack of knowledge and awareness**
- **The absence of sustainable long term financing (C60+ retrofit costs approx £25-40K per home) until PAYS (Pay as you save) is put in place**
- **Major construction industry skills gap in the low carbon refurbishment field**
- **Breaking market failure to create a demand for these processes.**

3.41 Raising awareness amongst contractors and consumers as well as with policy making bodies will help to address the above issues.

3.42 **Primary Products:** Energy efficient building materials, methods, systems and products that can replace their less efficient counterparts. A framework or learning base culture amongst industry contractors that promotes the use of the above materials, methods, systems and products whilst developing the skills required for their manufacture and installation.

3.43 **Components Required:** Raw materials such as metals, plastics, timber, glass and organic materials as well as electrical parts. Pioneering bodies with the scope to influence the building/construction industry in their choice of materials and products.

3.44 **Target Market:** Manufacturers of products used in green retrofits, domestic and non domestic installation market (contractors), particularly driven by new building regulations and environment regulations, occupiers of domestic and non-domestic properties.

3.45 Land & Building Requirements:

- Site Size <1 Ha
- Use Class B2
- Building Size Medium

1.10 Transport Infrastructure Requirements:

- Major Road Access

1.11 Workforce Characteristics:

- Skilled

1.12 'Bad Neighbour' Activities:

- HGV Traffic

1.13 Avoid Adjacency to:

- None

1.14 Other Infrastructure Requirements:

- Proximity to Similar Businesses

3.46 Existing activity in the Upper Lee Valley:

- Manufacture of construction components
- General and specialised construction
- Civil engineering
- Installation of plumbing/heating

3.47 Existing businesses:

- Ardmore Construction
- Volker Group
- Murphy Ltd
- Embassy Demolition
- Coffey Group

3.48 Future potential opportunities:

- Development of green buildings
- Enhancement of environmental performance of existing stock

Ultra Low Carbon Vehicle Technology

- 3.49 **Sector Description:** Design and manufacture of Ultra Low Carbon Vehicles is being driven by government backed research and development. Significant 'market ready' products have been developed by leading vehicle manufacturers in terms of hybrid and full electric power, with ongoing research into incorporation of alternative fuel technologies (such as hydrogen fuel cells). Companies are predominantly based in the North East and the West Midlands.
- 3.50 In terms of LCV technological development, clusters of automotive manufacturers, technology developers and key players in the supply chain exist in the North East, the West Midlands, the East of England and North-West. In relation to recent investments, the North East has seen by far the greatest levels of funds committed by both the public and private sector (69%), with the majority of the rest being made up by the West Midlands (26%).
- 3.51 Low Carbon Vehicles (LCVs) are comprised of a wide range of core technologies (components). These can be grouped into the following technology areas which are widely recognised across the industry.
- Propulsion or powertrains (micro/mild hybrid, full hybrid, plug-in hybrid and electric motors);
 - Energy storage (batteries, ultracapacitors);
 - Lightweight materials (as part of vehicle efficiency measures);
 - System controls;
 - Energy and fuel supply; and
 - Processes and tools.
- 3.52 The UK market share of the low carbon industry remains critically low and the lack of global original equipment manufacturers (OEMs) headquartered here means there is currently limited R&D by global majors and Tier 1 suppliers.
- 3.53 The UK has several industrially funded automotive centres of excellence which constitute major national strengths in LCV development, mainly in the Midlands and East of England: The Ford Dunton Research and Engineering Centre in Essex - the largest automotive design and engineering facility in the UK, responsible for developing

-
- powertrains for all Ford vehicles in Europe; Jaguar Land Rover centres at Whitley and Gaydon which cover the whole spectrum of automotive R&D; InnovITS (the ITS Centre of Excellence, Nuneaton) which will validate telematics technology for transport infrastructure.
- 3.54 The UK is also developing world-class strengths around hydrogen and fuel cells. The Centre of Excellence for low carbon and fuel cell technologies (Cenex), located in Loughborough. It links to the low carbon innovation hub at Holywell Park, which also hosts the Energy Technologies Institute and CENEX. The Centre for Process Innovation (CPI) in Teesside is also developing hydrogen fuel cells, storage and catalysis technologies and has a leading R&D capability in this area.
- 3.55 Universities involved in LCV research include Birmingham, Coventry, Warwick, Loughborough, Bristol, Cranfield, Manchester, Newcastle, Sunderland and Durham.
- 3.56 Regulation will play a critical role in the transition to low carbon vehicles. The main driver of demand is the EU's New Cars CO₂ Regulation. The target will be increased to 130g/km CO₂ by 2015 and 95g/km by 2020. Emissions from road vehicles account for 19% of the UK's domestic CO₂.
- 3.57 Actors in the sector suggest the London Congestion Charge is the single biggest driver for electric vehicles, with the commercial sector offering greater scope and demand than private vehicles at this point. Given the limited travel range of electric vehicles, the compact urban form of London and the incentive provided by the congestion charge 'last mile' logistics is ideally suited to low carbon commercial vehicles.
- 3.58 Companies such as UPS (Camden depot), Tesco (Bromley-by-Bow) and FedEx (Beckton and Leyton) have a hub and spoke distribution arrangement enabling goods to be brought in to depots on the outskirts of central London then brought into the City using electric vehicles.
- 3.59 A number of operators have considered locating within London to serve this demand which, as adopted, also requires ongoing maintenance and servicing facilities. There is already a network of dealerships and maintenance facilities in Outer London, with one located within the Upper Lee. However, future aspirations will be tempered by the technology itself with electric commercial vehicles likely to require less frequent

maintenance given the lower amount of mechanical engine parts, which is the largest maintenance requirement within a standard diesel/petrol engine.

3.60 **Primary Products:** Clean engine technology or whole hybrid/full electric vehicles

3.61 **Components Required:** Engine components, testing facilities

3.62 **Target Market:** Fleet vehicle management, general public, aerospace manufacturers (e.g. Boeing)

1.15 **Land & Building Requirements:**

- Site Size 1 to 2 Ha
- Use Class B1 & B2
- Building Size Medium

1.16 **Transport Infrastructure Requirements:**

- Major Road Access
- Wharfage

1.17 **Workforce Characteristics:**

- Skilled
- Activities Undertaken: Engineering, design

1.18 **'Bad Neighbour' Activities:**

- HGV Traffic

1.19 **Avoid Adjacency to:**

- Residential
- Schools

1.20 **Other Infrastructure Requirements:**

- Proximity to Suppliers
- Proximity to Clients

3.63 Existing activity in the Upper Lee Valley:

- Electric vehicle sales & servicing
- Vehicle recovery
- Commercial vehicle maintenance
- Logistics operators

3.64 Existing businesses:

- Iveco
- Fed-Ex
- TNT
- Brantwood ELV
- Volvo Trucks
- Hiremech

3.65 Future potential opportunities:

- Existing concentration of vehicle maintenance and repair activity offers skilled workforce and experience of sector demands which can be translated to LCV fleets.
- Large scale logistics sector presents strong local market, especially where these 'bulk break' and ship into Central London, linking these sectors together will significantly boost opportunities for businesses locally.

Alternative Fuel Production

- 3.66 **Sector Description:** Alternative fuels consist of any materials or substances that can be used as fuels, other than conventional fuels such as fossil fuels (oil, coal and propane) and nuclear materials (Uranium). In 2009 the UK market for green goods and services was worth £107 billion of which £31 billion was attributed to alternative fuels and alternative fuel vehicles.
- 3.67 The sector consists of 8 main sub sectors incorporating:
- Biodiesel
 - Bioethanol
 - Liquefied Petroleum Gas (LPG)
 - Renewable Electricity
 - Natural Gas
 - Biogas
 - Pure Plant Oils (PPO)
 - Hydrogen
- 3.68 **PPO** is produced by crushing and filtering oil-based crops such as rapeseed, palm or nuts. The neat oil can then be used in some diesel engines. It is not yet well established in the UK with car manufacturers not providing a warranty for the adapted cars (a heater in the fuel line needs to be installed) and a lack of a refuelling network.
- 3.69 **Hydrogen fuel** is produced from either the breakdown of a hydrocarbon source such as natural gas, fossil fuels or ethanol or by the electrolysis of water. It can also be obtained as a co-product of oil refining or in the production of industrial gases. Hydrogen can be used as an alternative to petrol in a modified conventional petrol fuelled car or as the fuel source in fuel cells which use hydrogen and oxygen to produce electricity. At present, hydrogen fuelled and fuel cell vehicles are limited to a number of demonstration vehicles available in the USA. There is no refuelling network established in the UK.
- 3.70 **LPG** is a blend of propane and butane and is produced as a by product of oil refining or from natural gas fields. LPG has an established refuelling infrastructure, with 60%

produced during extraction of natural gas and oil from the earth and 40% produced during refining of crude oil. However only 8 refineries remain in the UK with the major oil and gas players looking to sell up due to dwindling profitability. Whilst its carbon emissions are lower

- 3.71 **Biodiesel** is a vegetable oil or animal fat based diesel fuel consisting of long chain alkyl esters typically made by chemically reacting lipids with an alcohol. Unlike PPO, biodiesel can be used in a standard diesel engine without modification. The cultivation of oil seed rape for biodiesel production raises ethical questions as the amount of land required to replace current fuel use would be inefficient and damaging to wildlife habitats.
- 3.72 **Bioethanol** is made from the fermentation, distillation and dehydration of starch plants, sugar plants and sometimes cellulose plants and is usually available in a blend of petrol and ethanol. Car manufacturers are beginning to adapt cars for this use and from 2013 it will be a legal requirement for petrol stations to sell 5% bioethanol petrol blends.
- 3.73 **Biogas and Natural Gas** offer the most innovative and truly alternative replacement fuels utilising waste and weather in their production. Natural gas mainly consists of methane and can be extracted from supplies below ground. Biogas also consists of mainly methane and is produced through anaerobic digestion, which is the treatment of biodegradable organic waste in the absence of oxygen utilising microbial activity to break down the waste in a controlled environment. Biogas can be used as a fuel in heat and power generation as well as being upgraded to be used as natural gas in residential heating/cooking and as a vehicle fuel.
- 3.74 **Renewable electricity** is energy produced from natural resources such as sunlight, wind, rain, tides and geothermal heat, all of which are renewable i.e. naturally replenished. The sub-section below directly considers Alternative Energy Generation.
- 3.75 **Primary Products:** Provision of sustainably produced fuel/energy direct to the grid or direct to consumers
- 3.76 **Components Required:** Large volumes of organic matter such as rotting municipal waste, food waste or sewage for the production of methane (biogas/natural gas). Oil based crops, alcohols, starch plants, sugar plants and cellulose plants.

3.77 Land & Building Requirements:

- Site Size 1 to 2 Ha
- Use Class B2
- Building Size Medium or Large
- An AD (anaerobic digestion) Biogas plant requires approx 1 sq m of land per tonne processed. Typical capacity ranges from 5,000-60,000 equating to 0.5-6 Ha of land.
- Natural Gas production requires waste harnessed from a landfill site or an anaerobic digestion plant as above. Landfill is not really appropriate for a location such as this so an existing site would need to be utilised. Landfills can vary in size up to 100 Ha.
- Properties will generally be Use Class B2

3.78 Transport Infrastructure Requirements:

- Major Road Access
- Wharfage
- Public Transport

3.79 Workforce Characteristics:

- Skilled
- Unskilled
- Activities Undertaken: General processing, product design/development, manufacture and engineering

3.80 'Bad Neighbour' Activities:

- HGV Traffic
- Noise Pollution
- Pollution

3.81 Avoid Adjacency to:

- Residential
- Schools
- Environmental Designations

-
- Anaerobic digestion facilities should be located at least 250m from sensitive properties e.g. residential

1.21 **Other Infrastructure Requirements:**

- Proximity to Suppliers
- Proximity to Clients

3.82 **Existing activity in the Upper Lee Valley:**

- 'Green' fuel production
- Vehicle maintenance & conversion
- Waste to energy
- Generation components

3.83 **Existing businesses:**

- Pure Fuels
- Green Miles Fuels
- UOP Honeywell
- Fuchs Lubritech
- London EcoPark waste to energy

3.84 **Future potential opportunities:**

- Green fuel production
- Heat network input / user
- Greening of distribution
- Sustainable power generation

4. Supply and value chain linkages

- 4.1 It has been highlighted throughout this Report that the key strength of the Upper Lee Valley to grow the low carbon sectors from is the potential to horizontally and vertically link activities to increase demand and potentially reduce costs.
- 4.2 Similar activities are likely to cluster together (horizontal integration). These decisions are more likely to be driven by the availability of appropriate property, realistic rents and infrastructure provision not the need/opportunity to share knowledge or expertise.
- 4.3 However, whilst costs and property will still be major factors in location decisions, vertical linkages will also be a key consideration for businesses looking to locate or expand within the Upper Lee Valley. The presence of other activities within the same broad sector will be important to attracting new businesses (and the growth of incumbents) however the ability to co-locate close to suppliers or customers will further strengthen the sector and embed it more deeply into the local economy.
- 4.4 Based on our understanding of the existing nature of economic activity within the Upper Lee the following figure highlights the links between these activities which could be built upon both to assist existing businesses and as a key asset for attracting inward investment.

Figure 1 - Supply and value chain links

Input		Output				
		Waste & Recycling	Construction & demolition waste	Electrical goods	Waste water	Vehicle recovery
Waste & Recycling	General household/commercial Construction & demolition waste Electrical goods Waste water Vehicle recovery					
Manufacturing & Engineering	Precision component engineering Lubricants & oils					
Construction & Retrofit	Component manufacture Installation & distribution Specialised construction & civil engineering					
Low Carbon Vehicles	Conversion Supply & servicing Component production Research & development					
Power & Fuels	Green vehicle fuel Waste to energy Alternative energy generation Renewable energy technology					

Input		Output		Construction & Retrofit		
		Manufacturing & Engineering	Lubricants & oils	Component manufacture	Installation & distribution	Specialised construction & civil engineering
Waste & Recycling	General household/commercial Construction & demolition waste Electrical goods Waste water Vehicle recovery					
Manufacturing & Engineering	Precision component engineering Lubricants & oils					
Construction & Retrofit	Component manufacture Installation & distribution Specialised construction & civil engineering					
Low Carbon Vehicles	Conversion Supply & servicing Component production Research & development					
Power & Fuels	Green vehicle fuel Waste to energy Alternative energy generation Renewable energy technology					

		Output			
		Low Carbon Vehicles			
Input		Conversion	Supply & servicing	Component production	Research & development
Waste & Recycling	General household/commercial Construction & demolition waste Electrical goods Waste water Vehicle recovery				
Manufacturing & Engineering	Precision component engineering Lubricants & oils				
Construction & Retrofit	Component manufacture Installation & distribution Specialised construction & civil engineering				
Low Carbon Vehicles	Conversion				
	Supply & servicing				
	Component production				
	Research & development				
Power & Fuels	Green vehicle fuel				
	Waste to energy				
	Alternative energy generation				
	Renewable energy technology				

		Output			
		Power & Fuels			
Input		Green vehicle fuel	Waste to energy	Alternative energy generation	Renewable energy technology
Waste & Recycling	General household/commercial Construction & demolition waste Electrical goods Waste water Vehicle recovery				
Manufacturing & Engineering	Precision component engineering Lubricants & oils				
Construction & Retrofit	Component manufacture Installation & distribution Specialised construction & civil engineering				
Low Carbon Vehicles	Conversion				
	Supply & servicing				
	Component production				
	Research & development				
Power & Fuels	Green vehicle fuel				
	Waste to energy				
	Alternative energy generation				
	Renewable energy technology				

4.5 The green shading within Figure 1 shows where LCEGS sub-sectors and activities have a supply chain relationship, with activities on the left of the tables providing inputs into the activities across the top. The grey shading merely highlights the inter-section of the same activity and therefore where no supply chain relationship can exist.

4.6 There are particularly strong linkages in the Upper Lee from a number of sub-sectors to the power and fuels range of activities. The strongest correlation is between power and

-
- fuels and the waste and recycling sector, this largely relates to the opportunity to utilise waste materials in the energy and fuel production process.
- 4.7 The availability of large range and quantum of raw materials promotes the Upper Lee not only as a location for production but also for the development of new products and processes. Already Pure Fuels are utilising waste cooking oils to develop vehicle fuels whilst the North London EcoPark turns a range of domestic and commercial waste in to Solid Recovered Fuel (SRF) which can be used as a feedstock for energy plants.
- 4.8 The manner in which power is generated and dispersed within the Upper Lee will increase the inter-dependency between the power and fuels sector and construction and retrofit activities, this relationship is likely to be 'two way'.
- 4.9 The key link will be via the technology incorporated within new built development or deployed through the retrofit and refurbishment of existing buildings. New deployment of district heating systems (for example) will increase the need for buildings to have connections to the network; this will drive both the diversification of existing firms and also attract new businesses to the area to deliver the specialist connections.
- 4.10 Similarly the deployment of alternative micro-generation within the Upper Lee will drive a diversification of existing business services for installation. Given the significant scale of new development and also existing stock in need of refurbishment the size of the market (both within the Upper Lee and across London) also has the potential to attract new manufacturing businesses that produce the micro-generation technology itself.
- 4.11 The precision engineering and manufacturing activities also provide a key element of the LCEGS supply chain. The skills and services provided within these activities benefit a range of other sub-sectors, in particular the production, conversion and servicing of Low Carbon Vehicles and also power and fuels.
- 4.12 Both sectors are reliant on engineering skills in terms of the production and operation of their existing goods and services (such as power generation equipment). However the precision engineering role in particular provides an important service where new technologies or production processes are being developed, enabling firms to source bespoke components or prototypes to test technology prior to reaching production.
- 4.13 The precision engineering sector provides a range of direct inputs to the wider LCEGS sector, even if they are not specifically focussing on green technologies. Many

individual components do not drastically differ from those used in other 'non green' industries. For example the gearing mechanisms or bearings in a wind turbine would not drastically differ from those in any other turbine so could in the future be used by the industry if they are not already.

- 4.14 The inter-relationship between sectors shows that 'green' activity does not occur in isolation and an appreciation of how it interacts with the wider economy is necessary to achieve growth.
- 4.15 Even within the LCEGS sector it can be demonstrated that the approach to support growth cannot, or should not, focus on a single sub-sector or activity. The activities are mutually reinforcing in many cases and therefore many are likely to need to grow together, this will also broaden the opportunities for economic growth and employment within the LCEGS sector.

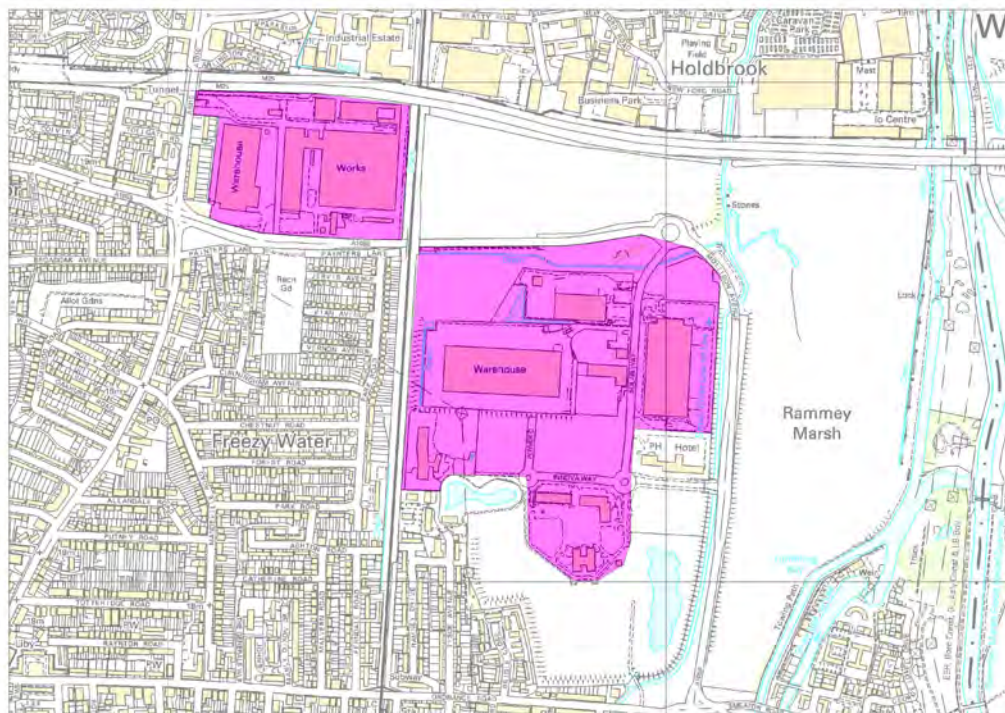
5. Key locations and clusters

- 5.1 Accommodating the sectoral opportunities within the LCEGS sector will require a range of locations, property types and sites across the Upper Lee Valley therefore it is important to understand the current provision and how this may change in the future.
- 5.2 77 existing employment sites were surveyed to identify the characteristics and opportunities within the Upper Lee; these were drawn from Local Authority LDF documents and London Plan Strategic Industrial Land designations.
- Each survey considered the following:
 - Major employers;
 - Predominant use classes;
 - Existing Low Carbon economic activity;
 - Stock quality;
 - Occupational vacancy; and
 - Low Carbon Economy opportunities.
- 5.3 Analysis was then supplemented by desk based research to understand the future development plans/opportunities within each location and also to identify in more detail the nature of existing LCEGS activity.
- 5.4 Once each location had been surveyed a series of seven geographic clusters of sites were established which had similar characteristics and presented offer to businesses. The analysis of each cluster is present in the remainder of this section.
- 5.5 At the end of this section we also analyse how each of these clusters will be affected by regeneration projects in the wider area.

CLUSTER: INNOVA PARK & G PARK

- 5.6 Located at the northernmost part of the Upper Lea Valley, Innova Park is a mixed-use development comprising a major logistics business park, offices, workspace units, residential, Academy, hotel and restaurant with further opportunities for business and leisure uses. This scheme has been supported by HCA Affordable Housing Grant.

Figure 2 – Innova Park and G Park



- 5.7 Location:

- LB Enfield

- 5.8 London Plan Designation:

- Upper Lee Valley Opportunity Area
- Strategic Industrial Land
- Brownfield Land (Partial Coverage - Derelict)

- 5.9 Borough Planning Designation:

- North East Enfield AAP
- Site Intended for Development

5.10 Predominant Existing Use and Property Type:

- Distribution
- Storage
- Small Office Space (BIC park)
- School & Community Uses

5.11 Predominant Neighbouring Uses:

- M25 to North
- Green Belt to East and South
- Residential to West

5.12 Access Infrastructure:

- Road
 - M25 to north
 - Mollinson Ave (A1055) to west & North
- Rail
 - Enfield Lock Rail
- Water
 - No direct access
- Public Transport
 - Bus routes along Ordnance Road.
 - Planned Guided Bus Route Adjacent to Railway Line

5.13 Location Assets

- Good access to M25
- On site education facilities
- Vacant plots on site
- Hotel on site

5.14 Development Constraints:

- Bound by M25 to North
- Areas of potential flood risk.
- Marshlands to East

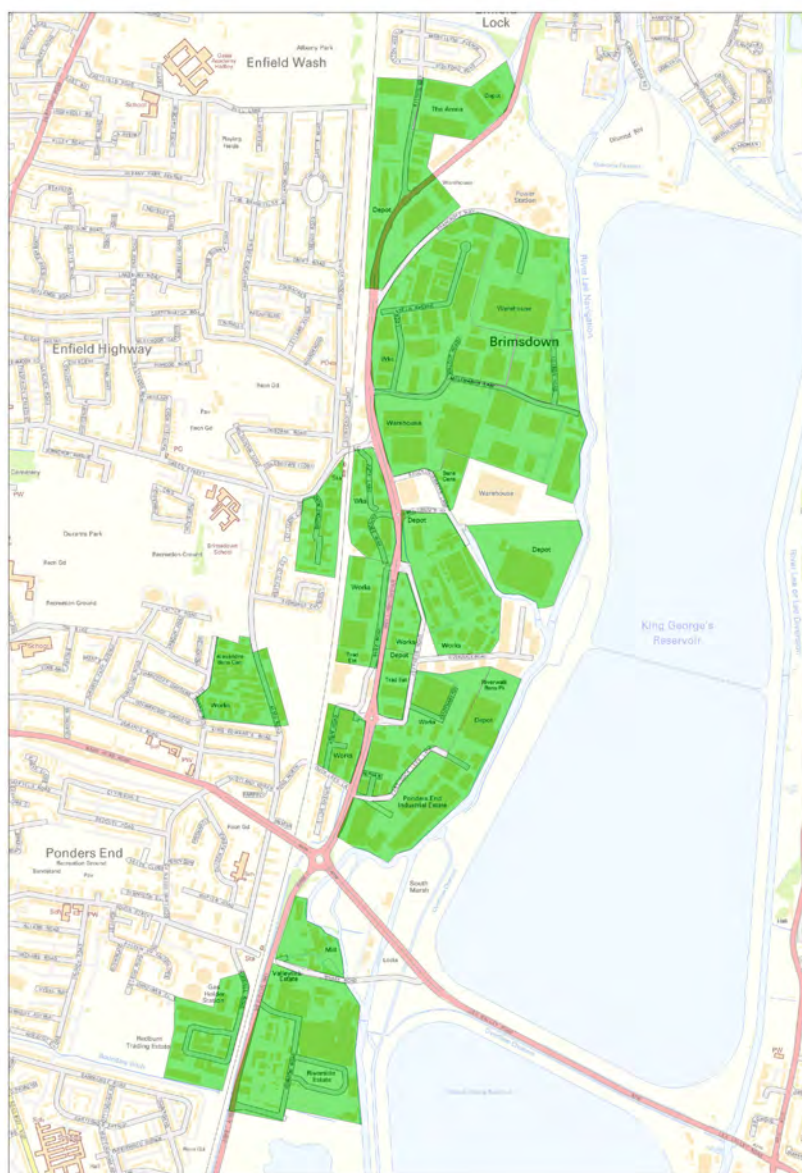
5.15 LOW CARBON ECONOMY Opportunity

- Innova Park provides a key location for modern distribution uses. The site has recently been constructed and its proximity to the M25 allows the site to benefit from excellent links to the strategic road network. The cluster has a number of high profile tenants including Sony and John Lewis as well as an education campus on site. The Education Campus could offer the opportunity to provide locals and local employees in green industries training in the longer term.
- The area still has a number of large plots of land available for further development and could consolidate its position as the Upper Lea Valleys most modern employment location. The character of the site is likely to be attractive for the development of large floor plate buildings which could incorporate energy generation on site through photovoltaic infrastructure.
- Particular sector opportunities exist for:
 - Manufacturing and engineering - Precision component engineering;
 - Construction and retrofit – installation and distribution;
 - Low Carbon Vehicles - supply and servicing, research and development; and
 - Power and fuels – vehicle fuel, alternative energy generation and renewable energy technology.

CLUSTER: GREATER BRIMSDOWN

5.16 Located further south, adjacent to King George’s Reservoir, is Brimsdown industrial park continues to maintain a strong industrial focus. This area has been the subject of proposals for a change of use to housing led schemes. However, it has been reported that initial development appraisals suggest that the land use change is not viable.

Figure 3 – Greater Brimsdown Cluster



5.17 Location:

- LB Enfield

5.18 London Plan Designation:

- Upper Lee Valley Opportunity Area
- Strategic Industrial Land
- Brownfield Land (Small Pockets – In Use Brownfield Land)

5.19 Borough Planning Designation:

- North East Enfield AAP
- Primary Industrial Area

5.20 Predominant Existing Use and Property Type:

- General Industrial
- Catering & Food Production
- Vehicle Sales
- Distribution
- Construction Trade Counters

5.21 Existing 'Low Carbon Economy' Companies

Name	Sector	Notes
Powerday Recycling	Recycling	
MDS Batteries	Solid Fuel Distribution	
Brimsgate Metal	Metal Recycling	
PHS Maxitech	Computer Recycling	
Greater London Waste Disposal	Recycling	

5.22 Predominant Neighbouring Uses:

- Residential to West
- Reservoir to East
- Golf Course to South

5.23 Access Infrastructure:

- Road
 - Lee Valley Road (A110) Runs East to West through cluster
 - Mollinson Ave (A1055) to West & North
- Rail
 - Ponders End Rail
 - Brimsdown Rail
- Water
 - Direct access to River Lee Navigation
- Public Transport
 - Bus routes along Mollinson Ave and Lee Valley Road.
 - Planned Guided Bus Route Adjacent to Railway Line

5.24 Location Assets

- Access to M25
- High Profile/Critical Mass of industrial area
- Limited residential incursion
- Railway stations on site

5.25 Development Constraints:

- Bounded by reservoir to the East
- Limited vacant land

5.26 LOW CARBON ECONOMY Opportunity

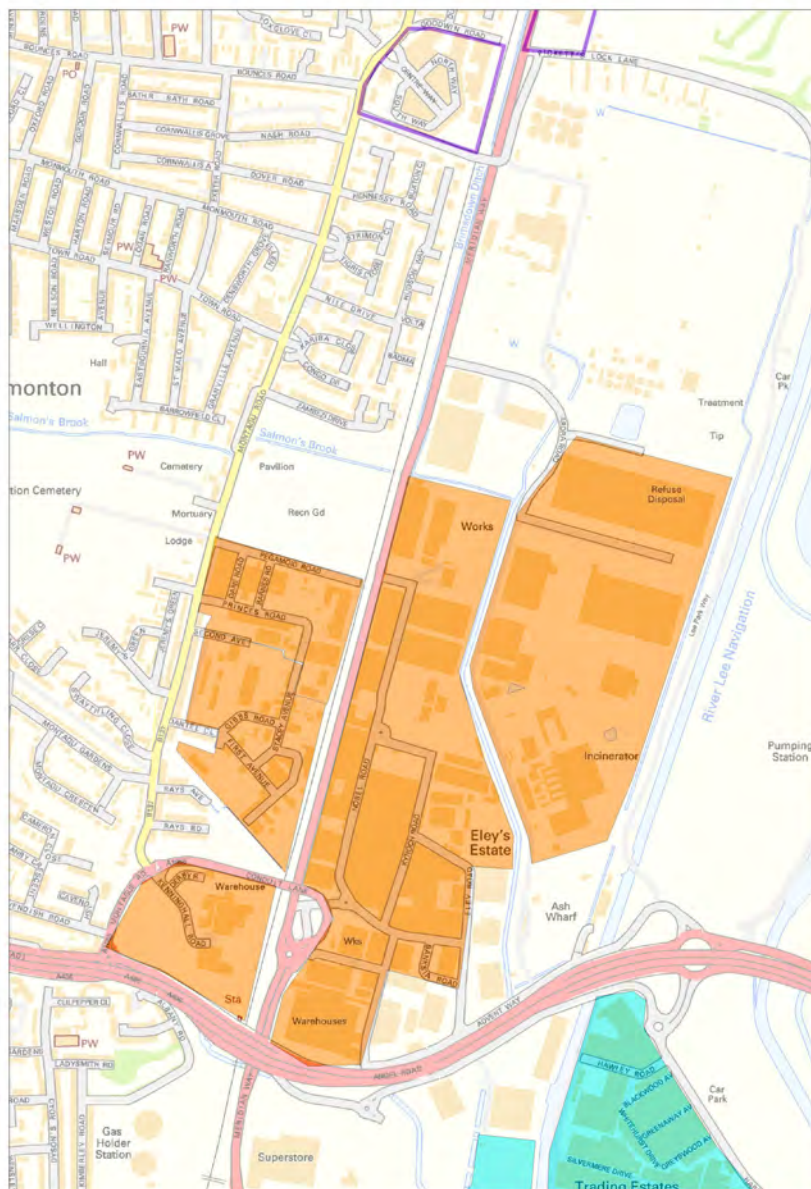
- The combination of lower land values and proximity to the strategic road network has allowed Greater Brimsdown to become one of the largest industrial/distribution areas in North London. While the majority of the cluster is comprised of newer or renovated stock there are pockets of land and buildings in need of redevelopment. These sites offer the opportunity to develop modern stock with a lower impact on the environment

- The scale of the existing industrial, distribution and utilities use along with the adjacent reservoirs make it an ideal location for a range of heavier industrial processes which cannot be located close to higher value uses such as residential or require larger safety zones.
- The number of high energy users within the cluster coupled with the number of high waste producers makes Greater Brimsdown ideal for energy from waste uses. This could start to be achieved through the implementation of a waste organisation plan.
- The cluster also has a number of truck and van showrooms which could be used to promote vehicles run on alternative fuel as well as specialist engineering companies who could be used to retrofit vehicles.
- Given its scale Greater Brimsdown offers the opportunity (in its current form) to accommodate the majority of potential Low Carbon Economy activities. The only exceptions are likely to be waste water processing and standalone research and development.

CLUSTER: ELEY'S / MONTAGU / ANGEL RD / DEEPHAMS

5.27 The Eley's Estate largely comprises a Coca Cola distribution plant and the North London EcoPark. The cluster, particularly the EcoPark has been the target of significant investment since 2003. Investment has resulted in improvement in the quality and range of facilities, including a Bulky Recycling Centre, an In-Vessel Compost Centre, a Wood Chipping Centre and an upgrade to the Energy Centre to meet new WID requirements.

Figure 4 - Eley's / Montagu / Angel Rd / Deephams Cluster



5.28 Location:

- LB Newham

5.29 London Plan Designation:

- Upper Lee Valley Opportunity Area
- Strategic Industrial Land
- Brownfield Land (Small Pockets – PDL now Vacant & In Use Brownfield Land)

5.30 Borough Planning Designation:

- North East Enfield AAP
- Primary Industrial Area
- Simplified Planning Zone
- Site Intended for Development

5.31 Predominant Existing Use and Property Type:

- Utilities
- Distribution
- Beverage Production

5.32 Existing 'Low Carbon Economy' Companies

Name	Sector	Notes
Biffa	Waste Disposal & Recycling	
Thames Water	Waste Water Recycling	
Kelly Group	Recycling and Waste Management	
Oakwood Waste	Waste Management	

5.33 Predominant Neighbouring Uses:

- Sewage Work to North
- Retail and North Circular to South
- Residential to West

- Lee Valley Regional Park to East

5.34 Access Infrastructure:

- Road
 - North Circular (A406) to South
 - Meridian Way (A1055) North to South
- Rail
 - Angel Road Rail
 - Water
 - Direct Access to River Lea Navigation
- Public Transport
 - Buses from Montagu Road and Meridian Way.
 - Poor Service to North of Site

5.35 Location Assets

- Adjacency to North Circular
- High profile anchor tenant – Coca Cola
- Limited residential incursion
- Eco-park

5.36 Development Constraints:

- Waterworks to North
- Reservoir to East
- North Circular to South

5.37 LOW CARBON ECONOMY Opportunity

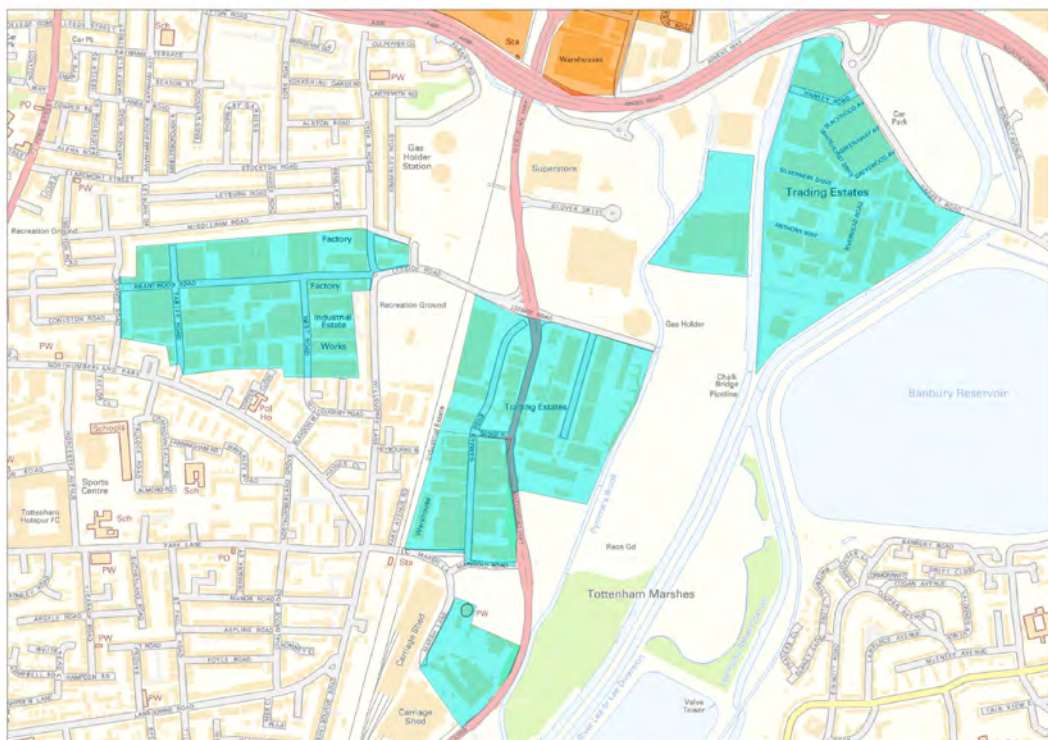
- The North London Waste Authorities Eco-Park which also should be seen as a centre of excellence for Low Carbon companies in the sub-region. The eco-park has already attracted a number of high profile waste operators including Biffa, but there is still room to attract further investment of this type within the cluster.

- The area still has a number of large buildings in poor condition which given its adjacency to the North Circular could be attractive to distribution uses. The redevelopment of these sites could provide additional large floor plate buildings which along with the newer stock could incorporate photovoltaic conversion units. The likely distribution fleets could also be converted to a more sustainable energy source.
- The scale, range of property and array of existing business activities within this cluster provides context for the future accommodation of most Low Carbon activities. However, the current offer may have difficulties in accommodating some smaller or specialised activities such as standalone R&D of low carbon vehicles, small precision engineering activities and some construction elements (particularly installation and distribution services).

CLUSTER: EAST TOTTENHAM

5.38 This area, also known as Central Leaside has been identified as having the potential for the creation of a new node through the redevelopment of vacant and under-utilised brownfield sites. It is the subject of a joint Area Action Plan setting out a vision for the area. Large scale land use change and infrastructure investment will be required to achieve the change in development and character. A Joint Steering Group involving, the GLA, LDA, local boroughs and the HCA has been active.

Figure 5 – East Tottenham Cluster



5.39 Location:

- LB Haringey

5.40 London Plan Designation:

- Upper Lee Valley Opportunity Area
- Strategic Industrial Land
- Brownfield Land (Partial Coverage – Derelict Land/Buildings)

5.41 Borough Planning Designation:

- Strategic Employment Location
- Defined Employment Area
- Area of Archaeological Importance

5.42 Predominant Existing Use and Property Type:

- Food Production
- Wholesale
- Distribution
- Utilities

5.43 Existing 'Low Carbon Economy' Companies

Name	Sector	Notes
ELV (Breakers)	Breakers & Recycling Yard	
Arrive Buses /TFL	Public Transport	
National Grid	Energy Production & Distribution	

5.44 Predominant Neighbouring Uses:

- Reservoir to East
- Retail and North Circular to North
- Residential to West
- Transport Shed to South

5.45 Access Infrastructure:

- Road
 - North Circular (A406) to South
 - Watermead Way (A1055) North to South
- Rail
 - Angel Road Rail

- Water
- Direct Access to River Lea Navigation
 - Public Transport
 - Buses from Watermead Way and Northumberland Park.

5.46 Location Assets

- Adjacency to North Circular
- Nearby retail offer
- Limited residential incursion
- Likely regeneration of neighbouring White Hart Lane area

5.47 Development Constraints:

- North Circular to North
- Reservoir to west
- Train line and residential to West

5.48 LOW CARBON ECONOMY Opportunity

- With energy already produced on site, this could potentially be converted fully or in part to greener forms of energy. This could also be done in tandem with a number of high energy consumers already located within the cluster.
- Waste produced on site, particularly the large levels from within the retail warehousing sectors could also see potential improvements through waste organisation plan.
- The area has an element of older stock which has fallen into poorer condition. These buildings could through retrofitting, use less energy and in some cases could generate energy through PV fittings.
- In particular the area offers potential to accommodate the following sectors:
 - Waste and recycling - construction waste, vehicle recovery;
 - Manufacturing – lubricants and oils;
 - Construction and retrofit – installation and distribution services;

- Low carbon vehicles – supply and servicing; and
- Power and fuels – waste to energy, alternative energy generation.

CLUSTER: TOTTENHAM HALE

- 5.49 Redevelopment at Tottenham Hale/ Hale Village is currently under way. The redevelopment proposal consists of a 4.85ha mixed-use regeneration scheme, including residential, retail, student accommodation, office employment, restaurants, a primary school, a health centre, a hotel and a public park. The development is valued at over £400 million and it is anticipated that it will provide 650 jobs for the area.
- 5.50 The Greater Ashley Road area to the west of the station has been the subject of a Masterplan and a viability exercise. The scheme is being refined in light of consultation with the Borough and the public.

Figure 6 – Tottenham Hale Cluster



5.51 Location:

- LB Haringey

5.52 London Plan Designation:

- Upper Lee Valley Opportunity Area
- Strategic Industrial Land
- Brownfield Land (Partial Coverage – Derelict Land/Buildings)

5.53 Borough Planning Designation:

- Strategic Employment Location
- Defined Employment Area
- Area of Archaeological Importance
- Lee Valley Regional Park (Partial)

5.54 Predominant Existing Use and Property Type:

- Offices
- Light Industrial
- Waste Management Facilities

5.55 Existing 'Low Carbon Economy' Companies

Name	Sector	Notes
Swarton G Sales	Palette Recycling	
LB Haringey Council	Waste management Facility	
ReStore Community Projects	Furniture and Appliance Recycling	

5.56 Predominant Neighbouring Uses:

- Lee Valley Regional Park to East
- Residential to West
- Reservoir to South

5.57 Access Infrastructure:

- Road
 - Watermead Way (A1055) North to South
 - Ferry Lane (A503) East to West
- Rail
 - Tottenham Hale Rail and Underground
- Water
 - Direct Access to River Lea Navigation
- Public Transport
 - Buses from Watermead Way & Ferry Lane

5.58 Location Assets

- Train links to City and Stanstead Airport
- Continuing regeneration of area
- Proximity to CONEL
- Adjacent retail offer

5.59 Development Constraints:

- Tottenham Marshes to East
- Residential to West

5.60 LOW CARBON ECONOMY Opportunity

- The clusters has a high number of new homes being developed which could benefit from reduced waste and lower cost energy through a district heating system.
- The cluster is also home to the Lee Valley Technopark which could be used to attract green technology companies to the sub region.
- In particular the area offers potential to accommodate the following sectors:
 - Waste and recycling - construction waste, electrical goods;
 - Construction and retrofit – installation and distribution services, specialised construction and civil engineering;

- Low carbon vehicles – research and development; and
- Power and fuels – alternative energy generation, renewable energy technology.

CLUSTER: BLACKHORSE LANE

5.61 Blackhorse Road is identified as a key employment location within the Upper Lea Valley. Situated in Waltham Forest the close is located in close proximity to Walthamstow Town Centre. It has a transport hub and waterfront, lending it great potential to be a vibrant new urban quarter. There are a number of development sites within Blackhorse Road, but a key site is the Station Hub and waterfront, extending over 8ha north of the station. A major mixed use development is planned for this site, providing over 2,000 new homes, a waterfront park, commercial space, and a public square with café, bars, convenience retail and other local services. The Council is currently working with landowners and developers and is leading on land assembly.

Figure 7 – Blackhorse Lane Cluster



5.62 Location:

- LB Waltham Forest

5.63 London Plan Designation:

- Upper Lee Valley Opportunity Area
- Strategic Industrial Land
- Brownfield Land (Partial Coverage – Derelict Land/Buildings)

5.64 Borough Planning Designation:

- Blackhorse Lane AAP
- Strategic Employment Area
- Borough Employment Area
- Archaeological Priority Zone

5.65 Predominant Existing Use and Property Type:

- Light industrial
- Trade counters
- Vehicles repairs

5.66 Existing 'Low Carbon Economy' Companies

Name	Sector	Notes
Bovince Ltd	Environmentally Sensitive Printers	

5.67 Predominant Neighbouring Uses:

- Residential to North and East
- Reservoir to West
- Town Centre to South

5.68 Access Infrastructure:

- Road

-
- Blackhorse Lane (B179) North to South
 - Forest Road (A503) East to West
 - Rail
 - Blackhorse Road Rail and Underground
 - Water
 - Only Access to Flood Relief Channel
 - Public Transport
 - Buses from Blackhorse Lane & Forest Road

5.69 Location Assets

- Access to Underground and Rail network

5.70 Development Constraints:

- Reservoir to West
- Residential to East

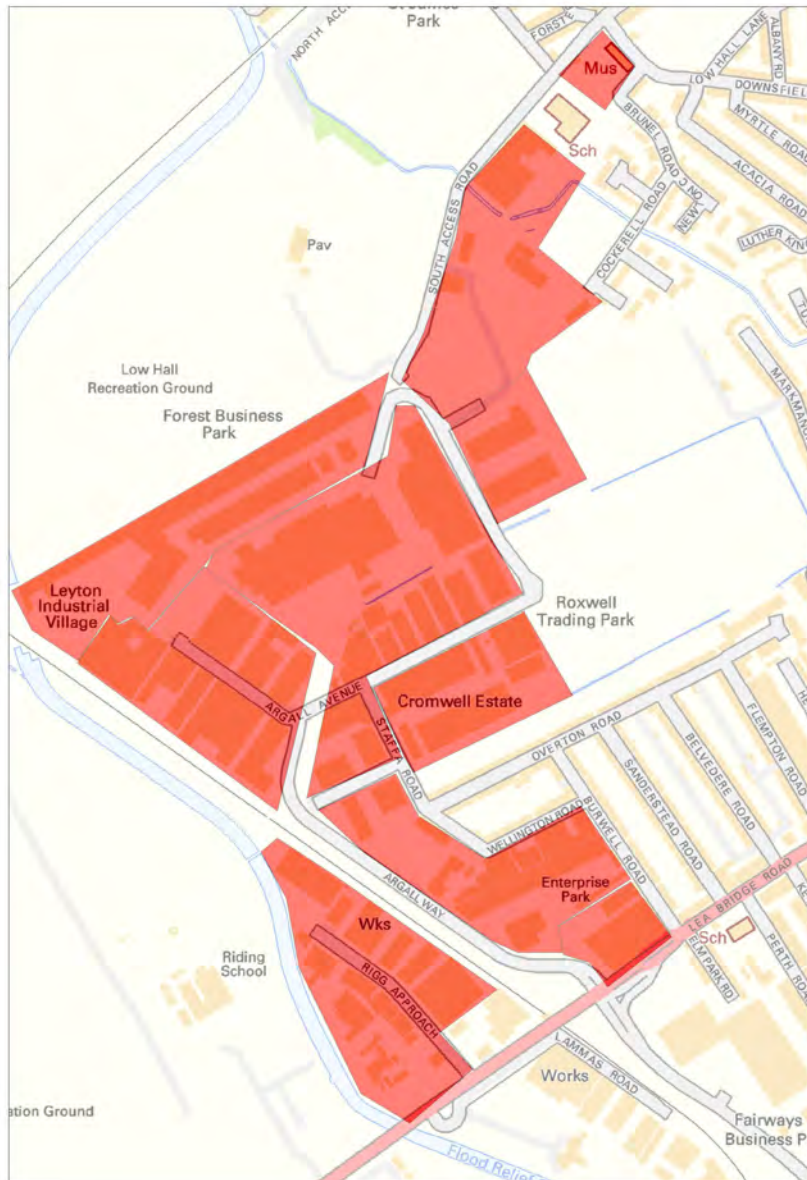
5.71 LOW CARBON ECONOMY Opportunity

- Opportunity is fairly limited at the current time for the green economy within this cluster as vacancy rate are low and there is little space for further development. However the area is subject to major regeneration plans and could become more energy efficient through refitting or removal of older stock.
- In terms of accommodating new Low Carbon Economic activity the cluster is likely to provide an appropriate location for:
 - Waste & recycling – Vehicle recovery;
 - Manufacturing and engineering – precision component engineering;
 - Construction and retrofit – component manufacture, installation and distribution;
 - Low carbon vehicles – supply and servicing, component production; and
 - Power and fuels – waste to energy, alternative energy generation, renewable energy technology.

CLUSTER: LEA BRIDGE

5.72 The Lea Bridge area is seen as having major employment potential. It has a number of access points into the Lee Valley Regional Park and presents business opportunities along Lea Bridge Road.

Figure 8 – Lea Bridge Cluster



5.73 Location:

- LB Waltham Forest

5.74 London Plan Designation:

- Upper Lee Valley Opportunity Area
- Strategic Industrial Land

5.75 Borough Planning Designation:

- Northern Olympic Fringe and Lea Bridge AAP
- Strategic Employment Area
- Archaeological Priority Zone

5.76 Predominant Existing Use and Property Type:

- Light industrial
- Storage
- Wholesale
- Distribution
- Recycling Facilities

5.77 Existing 'Low Carbon Economy' Companies

Name	Sector	Notes
Verdant Recycling	Waste Recycling	
BD Recycling	Waste Recycling	

5.78 Predominant Neighbouring Uses:

- Lee Valley Regional Park to North, South and West
- Residential and Allotments to East

5.79 Access Infrastructure:

- Road
 - Lea Bridge Road (A104) to South
- Rail
 - Access to railway line but no Station

-
- Water
 - Only Access to Flood Relief Channel
 - Public Transport
 - Buses from Lea Bridge Road

5.80 Location Assets

- Access to Strategic network
- Vacant plots of land
- Proximity to Olympic Park

5.81 Development Constraints:

- Tottenham Marshes to West
- Residential to West

5.82 LOW CARBON ECONOMY Opportunity

- As with many of the other clusters Lea Bridge could see potential improvements to energy consumption through retrofitting and renovation of older stock. The high volume waste producers and high energy consumers both on site could also see benefits through energy from waste schemes.
- In terms of accommodating new Low Carbon Economic activity the cluster is likely to provide an appropriate location for:
 - Waste & recycling – general waste, waste water;
 - Manufacturing and engineering – precision component engineering;
 - Construction and retrofit – installation and distribution;
 - Low carbon vehicles – conversion, supply and servicing,; and
 - Power and fuels – waste to energy, alternative energy generation.

REGENERATION PROPOSALS ON NEIGHBOURING SITES/AREAS:

5.83 A number of neighbouring areas are also subject to regeneration proposals which are likely to impact upon a number of the clusters.

- **A1010 Corridor** has been the subject of a high level assessment to explore and test the potential for the corridor to realise new housing opportunities and its full potential as a business and civic corridor. Preliminary findings suggest there is capacity for 2,500 homes and 1,500 jobs across a range of backland, vacant, high street redevelopment and high street intensification sites.
- This diverse corridor has a range of near, medium and long term opportunities and an infrastructure and local amenity asset base in place. Larger projects along the corridor include Tottenham Hale and the redevelopment of White Hart Lane stadium; along with investigations at Tottenham Green provide a particular opportunity to address the existing East Haringey area.
- **The Lee Valley Regional Park** is a major sporting, leisure and recreational destination. There is the opportunity to improve the quality and range of the offer and also to improve public access to the park from the surrounding communities. Pickett's Lock which is located between Ely's Estate and Greater Brimsdown within is a key leisure and sporting location within the park and is likely to see redevelopment in the near future. Proposals under consideration for this site include improved public transport and access to the waterways
- **Ponders End** which is located close to Greater Brimsdown is home to a number of major development sites in the centre and close to the railway station. There is therefore significant opportunity to create mixed-use developments with direct linkages to surrounding employment areas and the waterways. This area has been subject to a recent Masterplan framework exercise. LB Enfield is also promoting site acquisition in support of change here.

6. Relationship between locations and sectors

- 6.1 Having established both the sectoral opportunities for the Upper Lee Valley and also the locations which already accommodate significant economic activity it is important to bring the two strands together in order to understand where future activity is likely to occur.
- 6.2 To do this it is important to understand the infrastructure, physical, labour force and market drivers for the identified LCEGS activities.
- 6.3 Whilst most sectors will, in part, rely on many of the key assets presented by the Upper Lee some will be much more dependent than others. For example, all activities are reliant on the availability of an appropriately skilled workforce; however there are activities (such as engineering) where the needs of a specific skill are particularly acute.
- 6.4 Conversely, from consultation with local businesses there is a reported issue regarding access to a large supply of low or unskilled workers for process activities which makes recruitment within the waste industry challenging.
- 6.5 The availability of land and its long term availability are important to a number of businesses, principally those which require large sites or are activities which would provide a poor neighbour to more sensitive uses such as residential. This long term security of land use is important to businesses as it enables them to undertake capital investment in their plant in the knowledge the area is not going to radically change and place their location in jeopardy.
- 6.6 The EcoPark provides a particular local attractor for businesses, particularly those which are engaged in recycling/re-use or utilise waste materials as a feedstock. The volume of waste processed within the site and the land opportunities provides a great deal of certainty for a range of businesses.
- 6.7 A summary of the relationship between the LCEGS activities and the operational assets the Upper Lee Valley can offer is set out in Figure 9 overleaf.

Figure 9 - Sectors and assets

		Regional Highways	Wharfage	Utilities Provision	District Heat	Public Transport	Workforce Skills	Land	Logistics Cluster	Food Cluster	EcoPark
Waste & Recycling	General household/commercial										
	Construction & demolition waste										
	Electrical goods										
	Waste water										
	Vehicle recovery										
Manufacturing & Engineering	Precision component engineering										
	Lubricants & oils										
Construction & Retrofit	Component manufacture										
	Installation & distribution										
	Specialised construction & civil engineering										
Low Carbon Vehicles	Conversion										
	Supply & servicing										
	Component production										
	Research & development										
Power & Fuels	Green vehicle fuel										
	Waste to energy										
	Alternative energy generation										
	Renewable energy technology										

-
- 6.8 Not all of the existing employment locations within the Upper Lee Valley can meet the needs of all of the identified LCEGS activities; therefore it is possible to begin to identify a spatial approach to the promotion of the Upper Lee to businesses.
- 6.9 The larger employment clusters at Greater Brimsdown and Eley's/Montagu/Angel Road/Deephams are able to provide for the vast majority of LCEGS activity. This is unsurprising given the scale of the areas and the portfolio of sites, premises and existing business activity within them. Given these endowments wider infrastructure assets are also in place in terms of road access, utilities provision and supply chains.
- 6.10 Smaller scale areas are much more closely integrated into a wider mix of uses within the Upper Lee Valley, principally adjoining retail or residential uses. There are limits on the type of activity which can be undertaken in these locations caused either by site sizes, infrastructure provision or the potential conflicts between uses to occur.
- 6.11 These restrictions do not mean these locations do not have a role to play, but they are likely to be more focussed on certain types of activity such as higher value value added (such as electronics or IT equipment), research and development activities and construction installation and distribution services.
- 6.12 Standalone research and development activity (rather than 'product development' occurring within existing production facilities) tends to be driven by access to skilled labour, transport infrastructure and the quality and nature of premises. The current offer within the Upper Lee Valley is likely to focus these activities at Tottenham Hale (in particular the Technopark) and Innova Park/G Park where a range of high specification buildings are already in place.
- 6.13 In Figure 10 we set out the opportunities for the spatial distribution of activity across the Upper Lee Valley employment clusters.

Figure 10 - Spatial opportunities for sectors

		Innova Park / G Park	Greater Brimsdown	Eley / Montagu / Angel Rd / Deephams	East Tottenham	Tottenham Hale	Blackhorse Lane	Lea Bridge
Waste & Recycling	General household/commercial							
	Construction & demolition waste							
	Electrical goods							
	Waste water							
	Vehicle recovery							
Manufacturing & Engineering	Precision component engineering							
	Lubricants & oils							
Construction & Retrofit	Component manufacture							
	Installation & distribution							
	Specialised construction & civil engineering							
Low Carbon Vehicles	Conversion							
	Supply & servicing							
	Component production							
	Research & development							
Power & Fuels	Green vehicle fuel							
	Waste to energy							
	Alternative energy generation							
	Renewable energy technology							

- 6.14 The analysis presented in Figure 10 reflects a relatively 'market led' view of how location decisions may be made based on the range of infrastructure and other assets within each cluster. However, to maximise the potential of LCEGS based growth across the Upper Lee this market view will need some level of augmentation through public intervention.
- 6.15 In terms of Figure 10 the 'gaps' therefore highlight where public interventions and investment is likely to be required to 'steer' private investment in the future. For example, if there is an aspiration to attract high quality, standalone R&D activity to Brimsdown there is likely to be a requirement to upgrade the public transport connections, type of premises and links to education institutions.

7. Intervention

- 7.1 This section outlines the interventions which could be made in order to enhance the current performance of LCEGS activities and establish a proposition for the area would be attractive to inward investors.

Leverage the Power of the Public Sector Purchasing Role

- 7.2 It is recommended that the Upper Lea Valley low carbon business sector be supported through directed public sector procurement and purchasing decisions. Materials, services, equipment and energy purchased by government for schools, hospitals, refuse and emergency services are a significant part of the economy. The scale of investment in building stock such as housing, institutions or civic buildings is also significant. The scale and cumulative effect can underpin low carbon sector development and growth.
- 7.3 As a major purchaser, London Borough's in North London can strongly support low carbon economic sectors.
- 7.4 The Mayor of London has had a Sustainable Procurement Code since 2001 administered by Remade. London Councils has established the Sustainable Procurement project, which addressed Borough procurement of goods such as vehicles, bio-diesel, renewable energy, print services and concrete aggregates and services such as meals on wheels and facilities management. A Sustainable Procurement Task Force has established a flexible framework or requirements and toolkits and training are now offered. This work can be advanced to focus on the key low carbon economic sectors identified for the Upper Lea Valley.
- 7.5 The London Borough of Haringey has developed a strategy to deliver sustainability benefits through its procurement. The strategy commits the Council to achieving Level 4 of the Sustainable Procurement Task Force Flexible Framework – a checklist of requirements that embed sustainability in organisational procurement processes – by 2012.
- 7.6 Specific Upper Lea Valley low carbon economy sectors that can be supported by directed procurement include:

Recycling and Re-use

- 7.7 The January 2010 Mayor's Vision for London's Waste also sets ambitious targets for recycling and reducing landfill requirements. The Upper Lea Valley has a clear and leading sectoral strength in this area with a number of waste processing and recycling companies. It also has a distinct catchment from East London.
- 7.8 Long term support for this sector locally can be underpinned through public sector procurement processes. A long term and consistent requirement for recycled commodities and products can strengthen this sector. Local authorities and business organisations can also assist in promoting local recycling and re-use operations through business to business linkages. Local authorities in the Upper Lea Valley should encourage best practices among all operations, extending the best practices in facility management demonstrated by leading local businesses.
- 7.9 The Upper Lea Valley public sector can also develop this sector by requiring recycled content in products they purchase. Local government and public agencies purchase paper, plastics, glass, metals and mineral products as part of operational and capital investments on an ongoing basis. Specific recycled content requirements can be tied to waste stream commodities that London itself generates, and that can be re-processed within the Upper Lea Valley.

Low Carbon and Renewable Energy

- 7.10 The Upper Lea Valley has a number of heat generating sources that can meet local business needs. These sources and potential users have been identified through a local heat network strategy produced by the LDA.
- 7.11 There are a number of technologies that use low carbon, high efficiency or alternative fuels. This can include waste products such as used cooking from commercial and institutional kitchens, residual domestic and commercial waste that cannot be recycled and wood chips. It is recommended that public sector organisations act, individually or collectively, to favour purchase of electricity from suppliers that use these sources and encourage their use through planning.
- 7.12 The LDA has identified a number of locations in the Upper Lea Valley that could link the supply of and demand for heat energy. This includes:

-
- Ponders End: The Alma Rd Estate has been identified as an anchor load location and the Ponders End Regeneration area as a potential future heat demand customer. Enfield Power Station has been identified as a heat supply source.
 - Central Leaside: Coca Cola, Tesco Extra Store and the Deephams Sewage Treatment Works have all been identified as an anchor load locations and Meridian Water as a potential future heat demand customer. The Edmonton incinerator has been identified as a heat supply source.
 - Tottenham Hale: This is an opportunity to balance demand associated with older industrial buildings and future residential developments. Developments from Ward's Corner to Tottenham Hale and Blackhorse Lane have been identified as potential future heat demand customer.
- 7.13 The Upper Lea Valley also presents a number of opportunities to participate in the solar power sector. The solar power sector has been evolving in recent years to create large array to place on flat building roofs. Large scale distribution, manufacturing and retail buildings are able to accommodate these facilities.
- 7.14 This approach was underpinned by a feed in tariff. The solar feed-in tariff works by guaranteeing fixed, premium rates for units of energy both used and fed-back into the grid by small scale photovoltaic generators. Increased take-up, particularly by the farm sector, has led to a review by central government, which is seeking a greater role for household based schemes and to control the overall cost to the UK Treasury. However, industry advocates have made the case that larger scale schemes are more energy efficient and will produce more power overall, and that a stable and predictable feed in tariff is required to underpin the sector overall. A consultation has recently been completed, with a new tariff rate and size thresholds announced in July. It is recommended that local MPs be briefed on the opportunities and implications for the Upper Lea Valley.

Building Retro-fitting

- 7.15 There is a significant public and private housing stock in communities adjacent to the Upper Lea Valley in need of retro-fitting to reduce energy use.
- 7.16 The London Homes Energy Efficiency Programme provides resources for implementation. Haringey was a pilot borough. The Building Energy Efficiency Programme is also being led

by the LDA to fund energy efficiency projects for public sector buildings can address local authority, local education authority and NHS stock.

- 7.17 The use of firms based in the Upper Lea Valley for local implementation will build their capacity and strengthen their ability to compete in what will be a growing regional market in the future across the wider London and East of England region in this sector. A focused programme of procurement assistance targeted at local businesses within the Upper Lea Valley can build their capacity to compete in public procurement processes. Business link programmes can promote public procurement opportunities to ULV businesses and offer assistance in tendering.

Low Carbon and Electric Fleet Vehicle Servicing

- 7.18 Low carbon and electric fleet vehicles are particularly suited to shorter urban journeys rather than long haul journeys, based on their lighter weight loads and ability to return to electric charging points.
- 7.19 The Upper Lea Valley public sector can drive demand for low carbon and electric fleet vehicles by transitioning their own vehicles to new technology as these fleets are replaced. Local authorities and public agencies can also encourage transition among their suppliers by requiring private service providers also use low carbon or electric fleet vehicles or demonstrate a programme to achieve this over time. Relevant vehicles include those used for landscaping, light construction, waste collection, deliveries, and transport for elderly and special needs passengers, meals on wheels and non-critical emergency services.
- 7.20 Procurement of servicing from businesses located in the travel radius of short distance vehicle will favour the low carbon vehicle servicing businesses located in the Upper Lea Valley.

Create Location Incentives and Investment

- 7.21 A range of location specific incentives may also be applicable to the Upper Lea Valley. Many of these are being applied as part of mainstream inward investment and economic development regimes. A specific focus on supporting the low carbon sectors identified should be considered. This can include:

-
- Technical assistance by industry experts in support of transition to new allied low carbon economic sectors by existing businesses;
 - Technical assistance by industry experts in support of changing production, operations and facilities of existing businesses to reduce their energy use and carbon impact. The food production industry is a key opportunity for the Upper Lea Valley;
 - Financial subsidy for retro-fitting of the operations of existing businesses;
 - Subsidy for site preparation and remediation to meet the specific needs of newly locating green sector businesses;
 - Land assembly and identification for low carbon and alternative energy suppliers, potentially linked to
 - Reduced business rates for a fixed term for businesses operating in low carbon energy or high energy efficiency buildings;
 - Reduced business rates for a fixed term for businesses within low carbon economic sectors.
- 7.22 Similar tax incentives are available under the currently proposed Enterprise Zone initiative (UK BIS). It is recommended that Enterprise Zone designation be investigated for relevant parts of the Upper Lea Valley.
- 7.23 Planning policy is also likely to be a key element in attracting Low Carbon Economic activity to the Upper Lee Valley. Simplifying the planning process for a range of low carbon businesses offers the potential to reduce the cost and risk of investment in plant and facilities, encouraging both the growth of existing businesses and the attraction of new inward investment.
- 7.24 There are a range of opportunities for providing this policy simplification. There are a range of options to achieve this. The adoption of formal planning policy designations, including the use of Local Development Orders or Simplified Planning Zones are potentially powerful tool which can be targeted specifically at Low Carbon Economy uses or encouraging deployment of renewable technology.
- 7.25 More widely the protection of SIL and the promotion of Low Carbon activities within more general LDF policy, either within the Core Strategy or are specific DPDs, will also help to secure long term locations for low carbon businesses, promote these uses

positively within the development control process, and underline the commitment of the Upper Lee to accommodating such activity.

- 7.26 In policy and delivery terms encouraging the clustering of some uses is likely to be beneficial in achieving increased low carbon business activity within the Upper Lee. For example encouraging the co-location of heavy energy users at key nodes will assist in creating a critical mass to support the introduction of decentralised energy networks, reducing the scale of initial infrastructure investment.
- 7.27 Bringing together clusters will have softer impacts, reducing the potential for conflicts with more sensitive land uses (such as residential) and also potentially increasing inter-business training.
- 7.28 Providing long term certainty around the key uses within the identified clusters (through protection of SIL for example) will be critical for securing these clusters. Businesses with the knowledge that sites and surrounding uses are likely to be 'secure' will be able to plan for the long term, making significant investment less risky and encouraging new businesses into the cluster.

Promote Green Investment Bank Opportunities

- 7.29 The March 2011 Budget announcement identified a £3 billion fund to invest in low-carbon projects through a new Green Investment Bank. This will be funded by UK government. The intention is to leverage £15 billion of private sector investment in green projects. Full details and lending requirements and mechanisms have yet to be announced. However, it is anticipated that funds will be used investment in green technologies by the private sector, where the market is not otherwise prepared to fully finance investment. It is intended that market testing for the GIB's role will be carried out in the second half of 2011. It is recommended that an Upper Lea Valley signature project be identified and promoted for investment during the bank's incubation phase in 2012. This could play an important investment and visibility raising role for the Upper Lea Valley.

Encourage Low Carbon Business to Business Activity

- 7.30 A number of potential supply chains between the Upper Lea Valley's low carbon sectors have been identified. This is an opportunity to reinforce and strengthen the local business base through local business activity. It is recommended that local Boroughs and business

organisations coordinate a series of local business fairs that allow relevant businesses to promote their goods and services. It is recommended these be organised around the following supply chain clusters:

- Waste and Recycling – Power and Fuels
- Construction – Power and Fuels
- Vehicle Servicing – Precision Engineering, Lubricants and Oils

7.31 There is a particular opportunity to organise and consolidate by-products and waste products from the food sector to create inputs of sufficient scale to justify recycling. A coordinated and consolidated approach to collection will be required.

7.32 Ongoing facilitation of meetings and interaction of local low carbon businesses could also achieve business to business, economic and area investment gains.

Ensure Residents can Access Low Carbon Sector Jobs

7.33 Consultation with businesses in the Upper Lea Valley has identified a need to ensure an appropriately skilled labour supply. The low carbon sector requires a range of skill levels. As with any sector it is also continuing to evolve, with increasing automation requiring higher levels of skills.

7.34 It is recommended that the north London FE sector monitor requirements and offer skills development opportunities for: basic skills, semi-skill manual, skilled manual and technical occupation. There is also ongoing demand for qualified engineers, with businesses drawing labour from Hertfordshire and Essex as well as north London. The FE and HE sectors across the region will need to maintain engineering skills development and degree level and above.

7.35 The Skills for London project is currently identifying the level of skills associated with the low carbon economy and the carbon reduction agenda. The programme is intended to cover; research on the low carbon skills being sought by the construction trade, identifying the resources in F/HE to provide the skills to London businesses to meet the green agenda and identifying a toolkit for London Boroughs to ensure job and business opportunities through the environmental/climate change agenda are used to support regeneration/inclusion initiatives and vice versa. Research so far has identified that only 40% of the skills provision required is currently available. Work on developing a toolkit for

boroughs is currently ongoing, with early discussions underway between Newham College and London Borough of Newham.

- 7.36 It is recommended that a focused skills requirement survey and assessment be carried out for the Upper Lea Valley low carbon sector to inform programme development at FE colleges serving the area.
- 7.37 Consultation also raises transport access issues, particularly from residential neighbourhoods into the Upper Lea Valley employment areas from Haringey and Enfield. Ongoing development of east-west public transport will be required. Particular attention to the needs of transport for evening and night shifts at what are 24 hour operations will be required.

Promote the Upper Lea Valley as a Distinct Low Carbon Economy Location

- 7.38 It is recommended that the Upper Lea Valley be promoted as a Distinct Low Carbon Economy Location within London. This is based on:
- A distinctive base of green economy businesses, municipal services and utilities that distinguishes it from other parts of London;
 - The identification of the Upper Lea Valley as an Opportunity Area within the London Plan, along with a strong commitment to achieving jobs targets;
 - Prior identification of green economy aspirations for the area through An Economic Vision for the Upper Lea Valley endorsed by the London Boroughs of Enfield, Haringey and Waltham Forest;
 - Prior investigation of the district heat network potential of the Upper Lea Valley by the LDA;
 - The potential for a focused identity and linked intervention strategy for the Upper Lea Valley that can build on existing cross borough relationships;
 - Existing public sector forums organised around the Upper Lea Valley;
 - A range of potential employment development sites that can accommodate a range of research, technical, manufacturing a logistics operations associated with the low carbon economy;

- The likely continued focus of Borough and London wide government on the Upper Lea Valley as a distinct regeneration area.

7.39 In the absence of a formal designation process, it is recommended that NLSA liaise with local Boroughs and the GLA to establish a broad agreement that the Upper Lea Valley should be a focus for low carbon economy initiatives. A joint statement by Borough Chief Executives and, or leaders, would have the potential to embed the concept further. It is also recommended that the concept be promoted through inward investment and area marketing. It is also recommended that the promotion of a coherent identity also be embedded in grant, funding or other economic development designations to London or central government.

Enterprise Zone Potential

7.40 As the coalition government's approach to economic growth evolves the Upper Lee Valley has an opportunity in the immediate term to promote its economic potential and the value investment in the area can provide for London as a whole. A key first step is the ongoing lobbying process to secure an Enterprise Zone covering the Upper Lee.

7.41 The development of low carbon economic activities have the potential to form a key strand of the economic story for the Upper Lee Valley within the Enterprise Zone application, providing the impetus for the next phase of its economic evolution.

7.42 In line with Enterprise Zone aspirations the low carbon economy offers the opportunity for growth which generates true 'additionality' for North London and the city as a whole by attracting new inward investment, through the development of new products and services, and the growth and diversification of existing activities and businesses. The Upper Lee has a unique position in achieving this new growth, already accommodating a range of 'Low Carbon Economy', offering opportunities to access high quality input factors (such as recyclates) and having sufficient physical capacity to accommodate economic growth.

7.43 The potential within the Upper Lee also provides new opportunities to 'globalise' key parts of London's economy by being at the forefront of the green technology and service sector. The Upper Lee is already home to leading global brands that service national and international clients from the area, these links can be further developed to benefit the low carbon economy.

- 7.44 Beyond the promotional opportunities and 'soft' support Enterprise Zone status would provide the direct financial and planning benefits would also meet a number of the interventions we have identified as crucial to growing the sector.
- 7.45 Whilst the economic potential of the Upper Lee extends beyond the Low Carbon Economy activity identified within this study it should form a key part of the rationale for awarding Enterprise Zone status given the existing strengths and truly global potential.

8. Intervention programme

	Short Term	Medium Term	Long Term
Recycling & re-use	Review existing contracting arrangements and identify opportunities	Deploy procurement procedure	Maintain contracts
	Define future procurement procedure	Identify opportunities for commercial waste collection and coordination	
Low carbon & renewable energy	Review existing energy purchasing arrangements	Procure new energy suppliers	Ongoing implementation of DHN
	Develop energy purchasing strategy	Implement initial DHN phases - at major nodes	
	Further feasibility testing of District Heat Network		
	Engagement of major DHN users		
Building retro-fitting	Ongoing deployment of HEEP/BEEP	Integration of technologies training into college curriculum	Upgrading of civic buildings
	Capacity building with local construction companies	Retrofit to public sector housing stock	
Low carbon vehicle servicing	Review of fleet renewal programme	Purchase of LCV fleet	Procurement of local LCV servicing
	Review of procurement incentives for service providers re. LCV	Procurement of local LCV servicing	
		Requirement for LCV in new tenders/contracts	
Local incentives & investment	Technical assistance for business transition	Subsidy for site preparation & remediation	Business rate reductions for low carbon/retrofit businesses in ULV
	Financial subsidy for retrofit	Land identification & assembly	
	Investigate Enterprise Zone potential		
Promote Green Investment Bank opportunities	Identify 'signature' project for GIB funding in first phase	Work with businesses to identify longer term portfolio of projects that meet long term GIB criteria	
Encourage low carbon business to business activity	Coordination & hosting of events/meetings - focus on waste and by-products initially	Ongoing facilitation of meetings & events - broaden sectoral coverage	
Ensure residents can access low carbon sector jobs	Identify and monitor skills issues via requirement survey	Provide appropriate training support via FE sector	
	Address public transport issues for evening/night shifts	Deployment of skills for a low carbon economy toolkit	
Promote ULV as a distinct low carbon economy location	Work across boroughs and GLA via NLSA to focus on low carbon economy initiatives	Promotion of coherent identity via funding bids to regional/central government	
	Joint statement of intent from Borough leaders & chief executives	Promotion through inward investment and area marketing	