ATKINS

Opportunities in the Low Carbon Economy

Coventry

May 2010

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Document & Project Structure

In 2009 Advantage West Midlands commissioned Atkins to undertake a regional review of the development of a Low Carbon Economy. Following this piece of work the West Midlands' City Region Local Authorities commissioned Atkins to undertake a more detailed look at individual council areas. This report presents the "Coventry Profile" which is one of eight profiles produced for individual Local Authorities in the City Region which provides information specific to Coventry on opportunities for the development of a Low Carbon Economy. In addition to this report there are other reports of relevance, which include seven further Local Authority reports, the Technical Report, which contains the background data and the City Region Report which looks at opportunities which affect more than one Local Authority and therefore could be supported by the City Region.

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Section Page

Executive Summary

This report reviews the potential for the development of a Low Carbon Economy (LCE) in Coventry. It follows on from a regional study commissioned by Advantage West Midlands and the West Midlands Regional Observatory in 2009 which identified eight key sectors that could play a key role in the delivery of a LCE across the West Midlands.

The 2009 high level review identified eight key sectors within the economy as providing low carbon opportunities based on the level of carbon regulation affecting the sector, the scale of opportunity, the existing regional strengths, existing regional action and availability of low carbon technologies. These sectors were: *manufacture of non-metallic mineral goods; manufacture of motor vehicles and transport; manufacture of metals, fabricated metal products and electrical equipment; construction; environmental goods and services; manufacture of food and beverages; transport, communication and storage, and; public services*. For each sector, key opportunities were identified and these focussed on decarbonising current products and services (such as replacing the use of a petrol vehicle to transport goods with a renewable vehicle), provision of low carbon products and services (such as freight delivery using rail), diversification into new low carbon products (such as manufacture of LEDs) or no opportunities being available. Examples of this include the manufacture of low carbon energy generation equipment by the "Metals" sector, the provision of low carbon buildings by the Construction sector and the use of more efficient equipment by the Non-Metallic Mineral Goods sectors. The study also identified a range of determining factors to the development of a LCE across the region. These included consumer demand, policy and regulatory regime, public procurement, physical and institutional infrastructure, skills and the planning regime. For each sector and for each determining factor a range of regional actions were identified.

This report identifies the key sectors of employment in Coventry; key opportunities for Coventry to protect or increase employment levels; any barriers relevant to a Coventry and suggested actions to take in order to overcome them. In addition, the report identifies City Region wide actions and initiatives which could be taken jointly by the local authorities as it is inevitable that these organisations will need to collaborate on these initiatives if they are to be successful.

The Coventry profile was developed based on the following key inputs:

- *Economic Analysis:* Employment and business unit data to a 4 digit UK Standard Industrial Classification (SIC) of Economic Activities code level to understand the level of activity conducted by the eight key sectors operating within Coventry. Changes in data over the five year period 2003 to 2008 have also been reviewed.
- *Sector Prioritisation:* Based on employment and business unit data and the previous study's ranking of the sectors, sectors have been prioritised with those sectors having the largest employment levels or highest number of business units and the most potential opportunities from the regional study being considered the highest priority.
- *Local Authority Interviews:* Interviews with one or more council officials from either the Economic Development and/or Climate Change teams to gain their view on the key opportunities, barriers, current actions and future potential actions to develop a LCE in their area.

Based on the information contained in the profile, a list of potential opportunities was developed in order to develop a LCE. Each opportunity has been assessed in terms of impact on jobs and for regulatory drivers.

The highest employment areas within Coventry with low carbon opportunities are public services; construction; transport, storage and communications; manufacture of motor vehicles and transport. The largest change over the period 2003-2008 was the decline of the manufacture of motor vehicles; however the construction sector saw growth of 21% over the same period.

Key clusters specific to Coventry and already in place include Warwick Manufacturing Group, Warwick and Coventry University research programmes and CABLED – the low carbon vehicle initiative. Based on the

ranking exercise, the key opportunities for Coventry were found to be manufacture of motor vehicles and transport; construction; manufacture of materials and fabricated metal products, and; public services.

Opportunities that were considered to have the potential to create jobs included the following:

- Construction: Low carbon design and construction ; Low carbon renovation of housing stock; Provision of low carbon construction equipment, services and trades
- Manufacture of Motor Vehicles: Manufacture of low carbon transport equipment; Low carbon vehicle design; Development of alternative fuels and infrastructure
- Manufacture of Non-metallic mineral products: Use and development of low carbon “non-metallic mineral” products.
- Transport, Storage & Communications: Sustainable logistics and rail freight
- Environmental Goods and Services: Provision of specialist advice to all sectors; development of low carbon community energy companies/schemes
- Manufacture of food and beverages: Use of food waste for energy generation

Low carbon procurement, the provision of low carbon education and planning to support the low carbon economy development were all considered to be important public sector opportunities.

Barriers were seen to include lack of knowledge of what products/services to provide and access to entrepreneurial start-up money for new companies.

1. National & Regional Context

In December 2007, Advantage West Midlands produced a new Regional Economic Strategy for the West Midlands: *Connecting to Success*[1], endorsed by Jonathon Porritt, the then Chair of the UK Sustainable Development Commission. Hailed as a landmark strategy, *Connecting to Success* has been formally recognised as the UK's first low carbon economic strategy and has established Advantage West Midlands as a leader amongst the regions. The lessons from developing this strategy are featured in *Evidence of Success*[2].

The evidence base for this strategy helped to define for the first time what a low carbon economy is and what this meant to the West Midlands:

> *"In the West Midlands a low carbon economy means an economy that will underpin a prosperous and thriving region through capturing the economic benefits of increasing efficiency whilst reducing direct carbon emissions and using the region's strengths in engineering, science and technology to deliver low carbon solutions to national and international markets. For **Business** this means fully capturing the opportunities for both existing industries and new enterprises to ensure the West Midlands region secures a reputation for profitable low carbon enterprise. For **People** this means up-skilling to secure the benefits from new employment opportunities emerging from a low carbon economy, along with behavioural change, to enhance quality of life. For **Place**, this means creating the conditions for growth by optimising transport networks and developing a low carbon built environment through energy efficiency and renewable materials". (AWM, 2007).*

The evidence base for the development of the strategy helped to set out what a low carbon economy strategy should look like and the type of interventions to generate the biggest productivity gains and carbon reductions. One of the actions within the strategy was to "help identify low carbon economic and climate impact opportunities and risks for regional business and skills needs".

The low carbon agenda has progressed considerably over the past few years as understanding and scientific evidence for climate change has received universal acceptance, internationally, nationally and locally. As a result of international negotiations and commitments, the UK Climate Change Act 2008 established a legally binding target of 80% carbon emissions reduction by 2050; a target which will require significant and coordinated action across all sectors of the economy. Following the Climate Change Act the UK Government launched the Low Carbon Transition Plan[3] which sets out how the UK will meet the 34% reduction in emissions required by 2020 detailing actions for individual sectors of the economy. In parallel, a number of associated commitments have been made, all of which will need to be implemented at a local level. These include the following:

- More than 1.2 million people will be in green jobs.
- 7 million homes will have benefited from whole house makeovers, and more than 1.5 million households will be supported to produce their own clean energy.
- Around 40 percent of electricity will be from low-carbon sources, from renewables, nuclear and clean coal.

[1] Connecting to Success, Advantage West Midlands, 2007
[2] Evidence of Success, Advantage West Midlands, 2008
[3] The UK Low Carbon Transition Plan, HMG, 2009

- We will be importing half the amount of gas that we otherwise would.
- The average new car will emit 40 percent less carbon than now.

In order to achieve these targets, the Government has and is continually developing legislation, policy, strategies, plans and schemes. These will be applicable nationally, regionally, locally and even for individuals, and will contribute cumulatively to meet the commitments established internationally and through the UK Low Carbon Transition Plan.

Regionally there have been a number of relevant developments, including:

- Commitments from individual Local Authorities, through initiatives such as the Nottingham Declaration, to reduce carbon emissions.
- The recent announcement of the Low Carbon Economic Area for advanced automotive engineering within the region[4].

The economic opportunities arising from the shift to low carbon and the implications for business models extend across the West Midlands economy. Significant Government investments have already begun, and will continue on all scales, impacting upon the opportunities available to drive the economy.

The Carbon Trust report, *Climate Change - a Business Revolution*[5] shows how tackling climate change can create opportunities for a company to increase its value by up to 80% if it is well positioned and proactive. Conversely, it could threaten up to 65% of its value if a company is poorly positioned or a laggard.

Opportunities and risks in the economy are driven by shifts in consumer behaviour, technology and innovation and regulation. Targeted policies and support measures are therefore required as a key initiator of change across the West Midlands economy.

The first report in this study reviewed opportunities for the development of a Low Carbon Economy across the region. This report goes looks at opportunities for the development of a Low Carbon Economy within Coventry.

[4] http://www.advantagewm.co.uk/news-media-events/news/2010/midlandsdeclaredlowcarboneconomicareaforadvancedautomotiveengineering.aspx
[5] Carbon Trust (2008) *Climate Change* – A Business Revolution available from http://www.carbontrust.com/publications/CTC740_business_rev%20v5.pdf

2. Introduction

In 2009, Atkins carried out research on behalf of AWM and West Midlands Regional Observatory (WMRO) to investigate the opportunities and barriers to the growth of a Low Carbon Economy (LCE) across the West Midlands region. This initial, high-level and region-wide research provided a broad indication of how well the business sectors within the West Midlands Economy are positioned to embrace the opportunities and risks associated with transition to a LCE.

The initial study was well received by WMRO and the group subsequently decided that more detailed research would be beneficial. The new study would assist decision makers at the local authority level, particularly those in the City Region, including Coventry.

This report provides a more detailed review for Coventry. It includes:

- More detailed economic data for employment and businesses specific to Coventry
- Input from interviews with Coventry officials
- Clusters relevant to Coventry which may support the development of a Low Carbon Economy
- Barriers specific to Coventry which may prevent opportunities being achieved
- Identification of opportunities relevant to Coventry along with suggested actions
- An assessment of the opportunities for Coventry in terms of supporting employment and meeting carbon regulation

A profile has also been generated for the City Region as a whole using City Region economic data and findings for each of the Local Authorities. This is relevant to Coventry as opportunities and barriers have been identified which affect more than one Local Authority and suggested actions may be relevant to Coventry.

3. Previous Relevant Studies

The key outputs from the previous regional studies are summarised below and key outputs have been included in Technical Report Section A and B of this report as noted below. The following has been taken from a URS study into the Low Carbon Evidence Base for the West Midlands Regional Observatory Economic Strategy (2007):

Sector Exposure: The level of exposure to climate change related regulatory change for key sectors was identified as being high, medium or low risk. The potential exposures for sectors were assessed for both products and services and for operations (see Table A1 in Technical Report Section A)

Local Authority Exposure: The level of exposure to climate change related regulatory change for Coventry was identified. This identified both the percentage of employees and businesses at high risk of being affected by carbon reduction policies (see Table A2 in Technical Report Section A).

The following has been taken from the Atkins 2009 Regional Low Carbon Economy study:

Sectors: Individual business numbers and people employed across all sectors for the West Midlands were analysed (see Table A3 in Technical Report Section A). Eleven sectors were identified as currently making a large contribution to the West Midlands economy (in terms of employment and business size). These are identified below:

- Business Services (including finance & insurance)
- Construction
- Environmental Goods and Services
- Farming, Food and Drink
- Manufacture of Motor Vehicles and Transport equipment
- Manufacture of Metals, Machinery & Equipment and Electrical Equipment
- Manufacture of Non-Metallic Mineral Products (glass & ceramics).
- Public Sector Services (incorporating, Education, Health & social work and Public administration & defence)
- Tourism & Leisure (incorporating Hotels & Restaurants and elements of Other Community services)
- Transport, Storage & Communications
- Wholesale & Retail Trade

Low Carbon Opportunities: Specific low carbon opportunities were identified for each of the employment sectors identified, (see generic opportunity profiles in Technical Report Section B). The objective of this analysis was to show how organisations can reduce carbon across their operations, products and services, and therefore give an indication of how regional and local bodies can focus their efforts to assist the strategic shift to a Low Carbon Economy. The generic profiles also summarise regional activity and opportunities in these sectors and also relationships between the sectors.

The regional study identified key sectors which present the greatest opportunity in terms of development of a Low Carbon Economy to the region. Using the following criteria: (i) Carbon Regulation and policy encouraging the development of a Low Caron Economy in the sector, (ii) the Scale of Opportunity for the particular sector based on size of the sector, (iii) Existing Regional Strengths relevant to the sector, (iv) Existing Regional Action relevant to the sector, (v) Low Carbon Technologies available for the sector an evaluation was undertaken of the 11 key sectors to determine where the best opportunities for future growth lie. A simple scoring methodology was used to qualitatively evaluate these opportunities on the following basis: (H: High opportunity (3);

M: Medium opportunity (2); L: Low opportunity (1)). These scores were then summed across the above criteria for each of the above 11 sectors. The results of this evaluation are outlined in Table A4 in Technical Report Section A. The eight sectors identified as providing the most opportunity in the region were identified as follows:

- Construction
- Environmental Goods and Services
- Farming, Food and Drink
- Manufacture of Metals, Fabricated Metal Products and Electrical Equipment
- Manufacture of Motor Vehicles and Transport
- Manufacture of Non-Metallic Mineral Goods
- Public Services
- Transport, Storage and Communication.

Barriers and Potential Interventions: Table A5 in Technical Report Section A summarises the key factors with the potential to constrain and/or drive the development of a LCE in the region along with potential government interventions to assist and possible areas of regional influence.

Sector Wide Opportunities, Barriers and Regional Solutions: Table A6 in Technical Report Section A summarises for each sector the key opportunities for the sector, the potential barriers and regional solutions which may be available plus an indication of whether the suggested actions are short-term, medium-term or long-term.

4. Project Aims & Intended Audience

4.1 Project Aims

The overall objective of this project is to give each City Region Local Authority more detailed information to support the strategic planning for the LCE within their Authority. In summary the main aims for Coventry are:

- To understand key employment in Coventry
- To identify key opportunities for Coventry to protect or increase employment
- To identify any barriers and key actions for Coventry to support the development of a LCE
- To determine which actions across the City Region can be undertaken in collaboration by the City Region and Local Authorities

4.2 Intended Audience

The findings of this part of the study are directed towards officials working within the Local Authority, plus the City Region, the West Midlands Regional Observatory and Advantage West Midlands. In addition there are a range of other stakeholders to whom this project will be of interest including business support organisations and public and private sector organisations. Each of these stakeholders will need to identify and consider their role in the delivery of the LCE, both individually and in partnership with other stakeholders. However, a summary is outlined below of how each of the principle stakeholders could use this report to assist the strategic shift to a LCE:

- **Sub-regional policy makers** – to understand the implications and actions required within local economic assessments and strategies to deliver a lower carbon economy through planning control and land-use policies.
- **Business support organisations** – to understand the drivers, opportunities and interventions required to assist the transition to a LCE.
- **Individual public and private sector organisations** – to understand and develop the opportunities for their sector.

5. Project Methodology

The delivery of this project has been divided into a number of elements.

Economic Analysis

Using the eight key sectors identified in the initial study analysis of both employment and business unit to a 4 digit UK Standard Industrial Classification of Economic Activities (SIC) code level has been undertaken using 2008 data available on NOMIS for each Local Authority. This provides detailed information for Coventry on exactly what type of activity is taking place within their area. For the employment analysis the Annual Business Inquiry (ABI) Employee Analysis data available on NOMIS was used, which is an employer survey of the number of jobs held by employees. The NOMIS survey records a job at the location of an employee's workplace. For the Business Unit analysis the Annual Business Inquiry (ABI) Workplace Analysis data available on NOMIS was used, which is a survey of the number of workplaces in an area. The data is presented using the following broad categories:

- Construction
- Environmental Goods and Services
- Farming, Food and Drink
- Manufacture of Metals, Fabricated Metal Products and Electrical Equipment
- Manufacture of Motor Vehicles and Transport
- Manufacture of Non-Metallic Mineral Goods
- Public Services
- Transport, Communication and Storage

The output of this analysis is provided in below and supporting data is provided in Technical Report Section C (for business unit data), Technical Report Section D (for employment data) and Technical Report Section E (sectoral change over the period 2003 to 2008). Please note data provided in this report has been rounded to the nearest 100 (unless <100) for employment figures and the nearest 10 for business units, as recommended by the Office of National Statistics.

Identification of key sectors of opportunity for each Local Authority

The eight key sectors this study focuses on have been selected based on the work undertaken at a regional level as part of the 2009 AWM Regional Study undertaken by Atkins. This study has been reviewed and tested by a number of regional groups and has been well received. In order to identify which of these sectors provide the most opportunity for development of a LCE in Coventry the following elements have been ranked to provide key sectors of focus for Coventry:

- Coventry's employment data (both number of jobs and number of businesses)
- Sectoral opportunities based on the regional study (as reproduced in Table A4 in Technical Report Section A)

The key sectors with opportunities in the LCE are reported in section 8 below.

Interviews/workshops within each Local Authority

A structured interview was undertaken with one of more officials of the Local Authority's Economic Development Department and/or Climate Change/Environmental Department. The interview was intended to capture the officials' views on the following key areas:

- Review of Coventry's key sector opportunities
- Review of barriers for each sector and general barriers
- Identification of key geographical clusters within Coventry

- Identification of potential policy interventions and recommendations

The results of the interview has been utilised in the in the development of this report and a summary of the interview is provided in Technical Report Section F..

Development of Coventry's Profile

Using the information gathered above, a Profile was developed for Coventry. This profile contains a summary of key information relevant to Coventry, as follows:

- A prioritised set of key sectors
- A set of specific opportunities for Coventry.
- Relevant geographical clusters
- Any specific barriers for Coventry
- Potential policy interventions or other recommendations

Assessment of opportunities

Opportunities have been assessed for impact on jobs and in meeting carbon legislation.

Jobs: Taking each of the key opportunities identified for Coventry, as discussed above, the impact of implementation on jobs within the area has been assessed. For example, if the only opportunities available were simply to meet regulation as implemented, this may lead to a continuing to diminish workforce, whereas if the sector could be the first in the UK to patent a low carbon technology this could dramatically increase the workforce. For opportunities that have the potential to significantly contribute to an increase in employment levels (i.e. greater than 10% growth within that sector for a particular region) they have been identified as being of regional significance. It is stressed that the ability to predict employment growth is, by its nature, imprecise and dependent upon a number of variables. We must emphasise, therefore, that our estimates are, at best, indications of opportunities with the potential to increase employment. They do not constitute a guaranteed or reliable estimate of employment levels in these sectors in the future.

Regulatory and other key drivers: Each opportunity has been assessed for the impact of the opportunities on meeting carbon legislation and other relevant key Governmental drivers, such as the Climate Change Act, Carbon Budget Orders, Emissions Trading, the Carbon Reduction Commitment the Renewable Transport Fuel Obligation, the Environmental Transformation Fund, etc.

City Region-wide Opportunities: The relevance of each opportunity has been considered for each Local Authority and where an opportunity is relevant to a number of Local Authorities and a joint approach is considered beneficial this opportunity has been determined as a City Region opportunity.

The opportunity assessments are provided in Section 10 and a summary of key regulatory and policy drivers is provided in Technical Report Section G.

6. Local Authority Context

Coventry City Council signed the Nottingham Declaration which commits the city to reduce carbon emissions and emissions across the city have fallen over recent years, including during times of economic growth. The council itself seeks to cut its own emissions from education, buildings, landfills, street lights, fleet vehicles and sports centres by 30% by 2013.

Current actions in Coventry include the use of an electric car pool scheme (since 1995), biogas electricity generation in sewerage management, burning of waste to provide district heating (overall landfilling of waste is limited), the use of CHP at both of the city's universities and the use of ground source heat pumps. The City Council is also involved, along with universities and leading businesses in the CABLED trial of electric vehicles, installing of hydrogen refuelling station and battery charging points across the city.

The city now aims to reduce emissions by 40% by 2025 and 76% by 2050[6] and the Coventry Partnership has developed a climate change strategy to reduce the city's carbon footprint, make more sustainable use of resources and be prepared for the impacts of climate change. New housing in the city will need to be carbon neutral in line with regulation by 2016. Furthermore the Partnership is encouraging households and businesses to save energy and this approach includes providing advice, use of insulation and low energy equipment, working with suppliers. The City Council has recently commissioned a thermal study of properties in the city in order to identify dwellings in need of insulation. Coventry is also part of a Private Finance Initiative to replace the Waste to Energy plant which will burn rubbish, generate energy and provide district heating for new developments in the city centre. Finally a new streetlight PFI will cut the emissions from streetlights through the use of low energy lighting.

Figure 6.1 sets out the employment by sector in the conurbation of Coventry based on the NOMIS survey data compared to the rest of the City Region. The public services sector dominates employment across the eight key sectors. Manufacturing accounts for a fifth of employment, however this excludes manufacture of non-metallic mineral goods where employment in this sector in Coventry is near to zero. Figure 6.2 shows the relative employment within the eight key sectors compared to the City Region and West Midlands as a whole. Manufacture of Motor Vehicles and Transport and Public Services are strong relative to the rest of the area.

Figure 6.1 – Coventry's employment in the eight key sectors of low carbon opportunity compared to the rest of the City Region

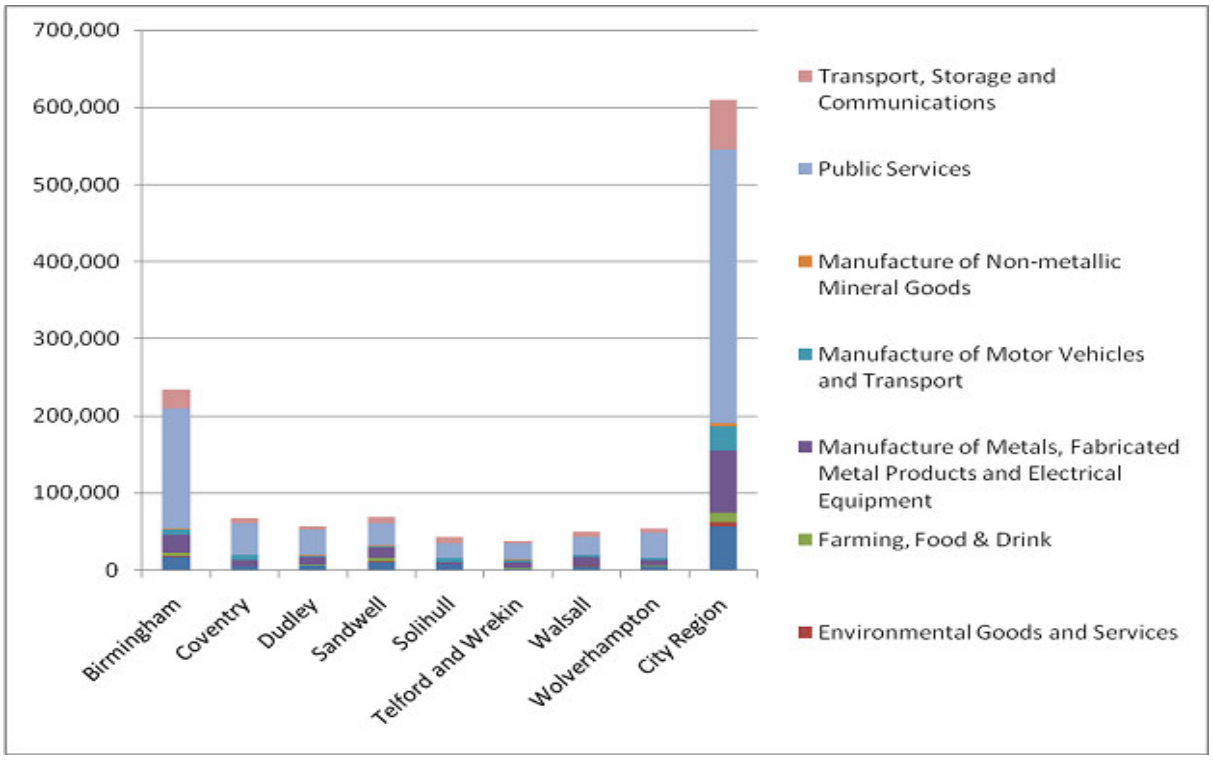
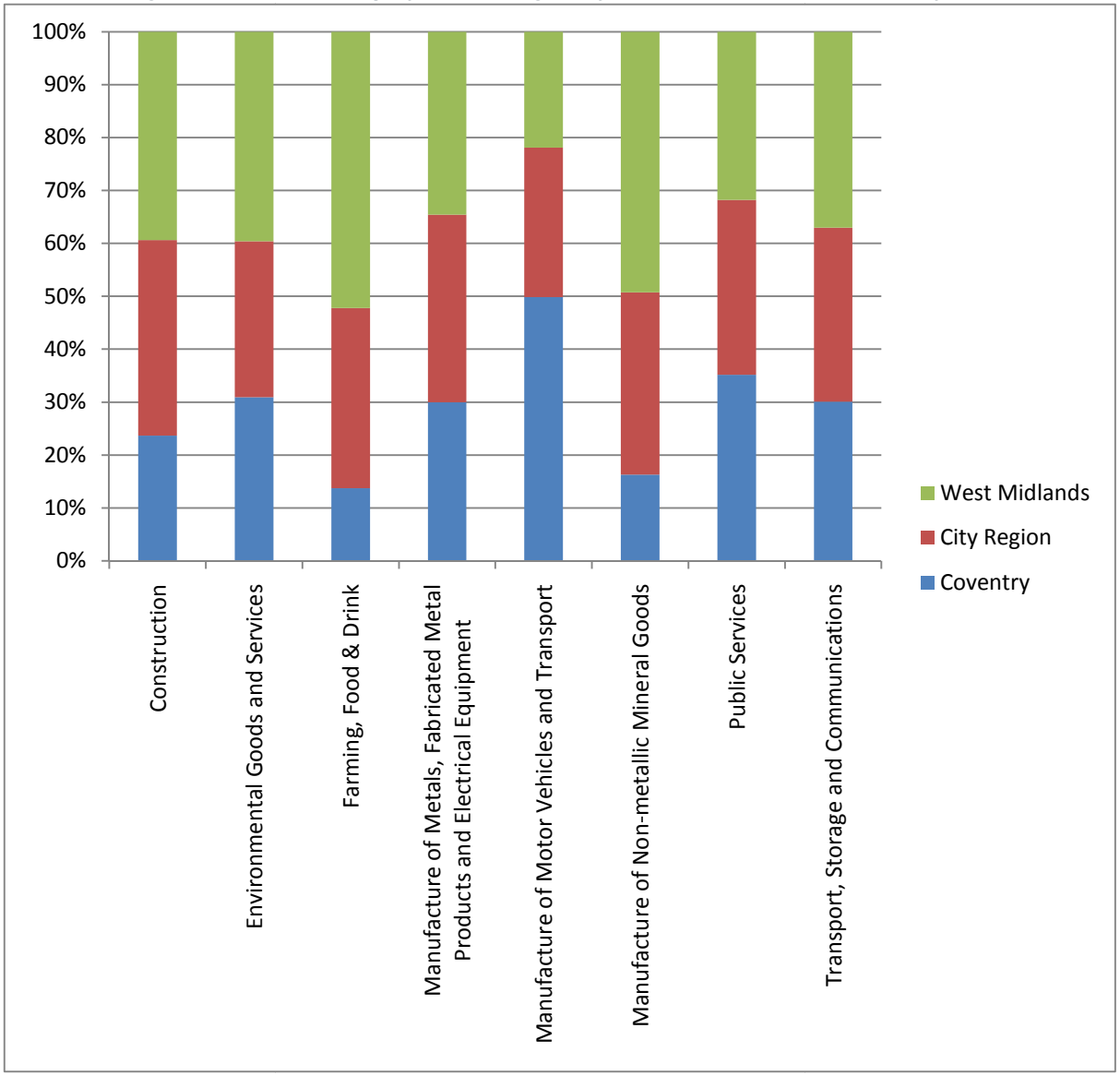


Figure 6.2 - Relative employment for eight key low carbon sectors in Coventry



The Annual Business Inquiry analysis which looks in depth at particular strengths within each of these sectors found specific specialism in the areas shown below.

Table 6.1 - Key Sub-sector Specialisms within Coventry for Employment and Businesses (based on 2008 data)

Sector	Relative strengths compared to rest of City Region	Largest Employment Subsectors (by number)	Largest Business No. Subsectors (by number)
Construction	Strong in joinery installation; Medium in renting of construction or demolition equipment; demolition/earth moving; water projects	General construction of buildings and civil engineering works (1,400) Joinery installation (900) Installation of electrical wiring and fitting (500)	General construction of buildings and civil engineering works (260) Plumbing (120) Installation of electrical wiring and fittings (120)
Environmental Goods and	Medium in recycling of non-metal waste and scrap	Manufacture of electricity distribution and control	Recycling of non-metal waste and scrap (10)

Sector	Relative strengths compared to rest of City Region	Largest Employment Subsectors (by number)	Largest Business No. Subsectors (by number)
Services		apparatus (300) Manufacture of electric motors, generators and transformers (200) Recycling of non-metal waste and scrap (30)	Manufacture of electric motors, generators and transformers (10) Manufacture of electricity distribution and control apparatus (10)
Farming Food and Drink	Low employment sector, however strengths in processing and preserving fruit and vegetables. Medium in rusks/biscuits/bread/ pastry/ cake manufacture; production and preserving of meat; operations of dairies and cheese making	(Limited statistics available) Manufacture of rusks and biscuits; manufacture of preserved pastry goods and cakes (200) Processing and preserving of fruit and vegetables not elsewhere classified (100) Production of meat and poultry meat products (100)	Detailed statistics not available.
Manufacture of Materials and Fabricated Metal Products	Strong in manufacture of television and radio transmitters and apparatus for telephony/telegraphy; industrial process control equipment; machinery for mining, quarrying and construction. Medium in manufacture of other electrical equipment; metalworking machine tools; taps and valves; non-ferrous metal production	(Limited statistics available) Manufacture of television and radio transmitters and apparatus for line telephony and line telegraphy (2,300) General mechanical engineering (700) Manufacture of locks and hinges (500)	General mechanical engineering (110) Manufacture of other fabricated metal products not elsewhere classified (20) Manufacture of metal structures and parts of structures (10)
Manufacture of motor vehicles and transport	Strong in motor vehicles; motorcycles; Medium in parts and accessories, aircraft and spacecraft; invalid carriages; other;	(Limited statistics available) Manufacture of parts and accessories for motor vehicles and their engines (2,900) Manufacture of motor vehicles (2,500) Manufacture of aircraft and spacecraft (800)	Detailed statistics not available.
Manufacture of Non-Metallic Goods	Strong in articles of concrete, plaster and cement	(Limited statistics available) Shaping and processing of flat glass (200) Manufacture of bricks, tiles and construction products, in baked clay (20) Manufacture and processing of other glass including technical glassware (10)	Detailed statistics not available.

Sector	Relative strengths compared to rest of City Region	Largest Employment Subsectors (by number)	Largest Business No. Subsectors (by number)
Public Services	Medium in other human health; adult and other education; general public services; general secondary education; higher education	Higher education (8,200) Hospital activities (6,500) Primary education (5,300)	Social work activities without accommodation (230) Social work activities with accommodation (100) Primary education (100)
Transport, Storage & Communications	Strong in supporting water transport activities. Medium in taxi operation; cargo handling;	(Limited statistics available) Transport via railways (1,700) Other scheduled passenger land transport (1,000) Taxi operation (1,000)	(Limited statistics available) Freight transport by road (180) Courier activities other than national post activities (50) Activities of travel agencies and tour operators; tourist assistance activities not elsewhere classified (50)

Despite the construction sector only accounting for 6% of employment in Coventry it was only one of two sectors in this area (the other being public services at 0.8%) that recorded employment growth equal to 21% over the period 2003 to 2008.

Figure 6.1 shows manufacturing to be a significant employer however the manufacture of motor vehicles and transport sector witnessed the largest reduction in percentage of employment (-41%) over the period 2003 to 2008.

7. Clusters

Clusters or networks of research, similar company types, networks, etc can help facilitate the development of a LCE. The following clusters have been identified as already in place within the City:

- **University led R&D:** both the University of Coventry and Warwick University are located within the area and active in low carbon research and design. Materials and automotive research are strong across the University base. Warwick Manufacturing Group, an academic department of the University of Warwick established to reinvigorate UK manufacturing through the application of cutting edge research and effective knowledge transfer. Coventry University has clear strengths in automotive engineering, through the Automotive Engineering Applied Research Group (AEARG) and construction materials. Furthermore agri-technology research at Coventry University could be exploited by firms within the agri-technology sector.
- **Low Carbon Business Network** established via the CABLED network (Coventry and Coventry Low Emission Vehicle Demonstrators is trialling 110 electric vehicles on the roads of the two cities and working with key businesses and each Council)
- **International links:** Both the universities and the city itself have international links which may be of use in bringing R&D/expert knowledge into the city.
- **Good business parks** available within the city for businesses
- **High-technology manufacturing base,** with an overlap between precision engineering, aerospace and automotive manufacturing
- **West Midlands Manufacturing Advisory Service** – assists manufacturing businesses in the region as they strive to become fit for the future.
- The West Midlands being designated as a **"Low Carbon Economic Area" for Advanced Automotive Engineering**
- **Business Link West Midlands -** "Grant finder" and business support services
- **West Midlands Centre for Constructing Excellence (West Midlands Centre for Constructing Excellence).** The West Midlands Centre for Constructing Excellence provides specialist business improvement assistance specifically to help local businesses in the construction and building technologies sectors. Eligible businesses in the West Midlands can benefit from subsidised, or in some cases fully-funded, business improvement services.
- **A range of national and regional clusters** with a sector specific focus, including those led by Advantage West Midlands and the Carbon Trust. More details are given in the generic profiles in Technical Report, Section B.
- **National Industrial Symbiosis Programme (NISP)** NISP has been operating in the West Midlands since 2003. NISP uses industrial symbiosis to identify sustainable resource management solutions for businesses. Its main aim is to help businesses improve resource efficiency and reduce waste. Industrial symbiosis engages traditionally separate industries with the aim of improving cross industry resource efficiency through the commercial trading of materials, energy and water and sharing assets, logistics and expertise.

8. Opportunities

In order to identify which of the sectors provide the most opportunity for development of a LCE within Coventry the following have been ranked to provide key sectors of focus:

- Local Authority employment data (both number of jobs and number of businesses) for 2008 taken from the relevant ABI reports
- Sectoral opportunities based on the findings of the Regional study (as presented in Table A4 of Technical Report Section A)

Table 8.1 below shows the outcome of the ranking exercise to identify key sectors of opportunity described in Section 5. The lower the overall ranking the higher the opportunity has been calculated to be for that particular sector. The sectors showing the largest opportunities based on the regional study and employment and business numbers within the City are manufacturing of motor vehicles, construction, manufacturing of materials and fabricated metal products and provision of public sectors.

Table 8.1 - Ranking of Sectors for Low Carbon Opportunities for Coventry

Sector	Opportunity Ranking	Employment Ranking	No. of Businesses Ranking	Overall Ranking (=A+(B+C)/2))
Manufacture of Motor Vehicles and Transport	1 (15)	4 (6194)	4* Not disclosed	5
Construction	3 (14)	5 (4092)	2 (879)	6.5
Manufacture of Materials and Fabricated Metal Products	3 (14)	2 (7,665)	5 (379)	6.5
Public Services	7 (12)	1 (42117)	1 (915)	8
Manufacture of Non-Metallic Goods	1 (15)	8 (225)	8* Not disclosed	9
Transport, Storage & Communications	7 (12)	3 (6630)	3 (427)	10
Environmental Goods and Services	3 (14)	7 (531)	7* Not disclosed	10
Farming Food and Drink	6 (13)*	6 (537)	6* Not disclosed	12

These sectors are considered to be attractive to Coventry for the following reasons:

Manufacture of Motor Vehicles and Transport: Coventry is strong in the production of motor vehicles, motorcycles and relatively strong in the production of parts and accessories, however it has suffered a significant reduction in employment numbers over the period 2003-8 with the closure of a major manufacturing plant. Coventry has a number of strong clusters related to automotive manufacturing with research at both Warwick and Coventry universities, links internationally to organisations such as Tata and low carbon projects which the council is already engaged in. The regulatory requirements to reduce emissions from the sector provide a strong opportunity for the sector.

Construction: Coventry has strengths in the renting of construction equipment, demolition and wrecking of buildings and general construction of buildings and access to a range of region-wide

clusters focussing on construction, e.g. West Midlands Centre for Construction Excellence. Opportunities exist via incoming regulation to reduce carbon emissions both during construction and energy use whilst buildings are in operation.

Manufacture of Materials and Fabricated Metal Products: Coventry has strength in manufacturing using general mechanical engineering and manufacturing of electrical equipment. The main opportunity lies in decarbonising the processes being used, by organisations such as the Carbon Trust, NISP or Coventry City Council providing advice.

Public Services: Coventry has around 900 people working across the public sector. Key opportunities relate to procurement of services and decarbonising products/services provided by the council and effective management of the public sector estate.

Specific areas of opportunity identified by Coventry City Council during interviews mirror those identified above with key sectors for opportunities being identified as the automotive sector (linked to aerospace and precision engineering) and construction related to planning development and a need to reduce the carbon intensity of housing in the area.

9. Barriers

Table 9.1 below summarises the general barriers identified for the Coventry City Council area in the development of a LCE. These are based on the interview with Coventry City Council plus those relevant which were identified during the regional study (shown in Table A5, Technical Report Section A).

Table 9.1 **- Summary of Region-wide and Coventry Specific Barriers to the Development of a LCE**

Factor	Potential to Constrain LCE Transition	Potential to Drive LCE Transition	Possible Government Interventions to Assist	Regional Influence (*** = Very Strong **= Fairly Strong *= negligible)	Local Authority Influence
Consumer Demand	• Consumers will not pay a premium purely for greener products. Lack of incentives for businesses and consumers to move to low carbon products/ services	• Sufficient market demand will drive commercialisation of energy and environmental technologies.	• Carbon regulation & legislation including targeted sector-specific initiatives. Must send clear and transparent signals of its strategic intentions to alter business planning and investment. • Help to ensure market demand (through procurement).	* • Can assist in terms of procurement (e.g. PSFPI).	• Develop grants for householders and businesses to incentivise uptake of products/services. E.g. for renewable energy • Procure products/services to stimulate demand • Provide access to information on low carbon products/services e.g. in libraries, free public seminars, etc
Policy & Regulatory Regime	• No clear statement of government intentions	• If clear, policy will drive business planning decisions and investment and affect consumer demand.	• Ensure market demand (see procurement below) • Create Markets for environmentally friendly attributes or credits. • Provide extra financial backing • Business development assistance. • Action to incentivise and facilitate low carbon or other technologies. • Co-ordination of policy at national, regional & local level. • Low Carbon Economic Areas (LCEA).	* • Region has role to play in co-ordinating action, particularly at the sectoral level. • Development of LCEA be n the West Midlands	• Keep under review range of potential technologies which could be used by the council to reduce area's overall carbon emissions • Liaise with regulatory bodies on issues where low carbon initiatives are hindered by current regulatory framework

Factor	Potential to Constrain LCE Transition	Potential to Drive LCE Transition	Possible Government Interventions to Assist	Regional Influence (*** = Very Strong **= Fairly Strong *= negligible)	Local Authority Influence
Public Procurement	• Government needs to lead by example.	• Purchasing power of public sector can help reduce risk of uncertainty over the scale of demand and price.	• Innovation Procurement Plans by Central Government • Small Business Research Initiative • Retrofit for the future. • Ultra Low Carbon Vehicles	** • Local/regional procurement (PSFPI). • Access some of the schemes at a regional level.	• Use public sector procurement to purchase low carbon products and services and where possible procure locally to stimulate sector
Physical & Institutional Infrastructure	• Inefficient and not conducive to low carbon activities	• Help drive business growth and sustainable transport.	• IT & Digital Infrastructure- universal broadband commitment. • Flexible intellectual property system. • Transformation of energy infrastructure. • Waste infrastructure. • Transport Infrastructure. Implement Carbon Reduction Strategy for Transport.	*** • High-quality low carbon employment land/premises. • Community energy generation initiatives. • Strategic regeneration • WIDP & WRAP to be utilised by local authorities. • Assist freight & logistics sector to adapt.	• Support development of low carbon infrastructure via long-term development plan for Local Authority including key infrastructure, e.g. waste, transport, energy
Skills	• Insufficient skills base to exploit business opportunities	• Competitive advantage to drive forwards low carbon products.	• Address shortage in many essential skills areas: Science, Technology, Engineering and Mathematics. • Communication, leadership and management skills.	*** • Work with sector skills councils. • Commission further research to understand specific job and skills requirements of the opportunities.	• Encourage current population base to undertake training and skill development, which includes low carbon • Liaise with colleges within Local Authority area over development of stand-alone low carbon programmes or integration of low carbon into specific programmes

Factor	Potential to Constrain LCE Transition	Potential to Drive LCE Transition	Possible Government Interventions to Assist	Regional Influence (*** = Very Strong **= Fairly Strong *= negligible)	Local Authority Influence
Planning Regime	• Impede development of LCE, slowing delivery.	• Accelerate process, particularly in terms of supporting businesses seeking to improve energy efficiency	• Commitment that most new homes be zero carbon by 2016 relies on planning system not slowing down construction.	** • Regional Planning Bodies (integrated RES/RSS)	• Support development of low carbon infrastructure via long-term development plan for Local Authority including key infrastructure, e.g. waste, transport, energy, homes • Consider development of high technology green business park
Lack of entrepreneurial start up money available to companies	• Lack of low carbon focussed companies will reduce level of low carbon products/ services available	• Establishment of base of low carbon companies may lead to cluster of companies forming leading to employment in the area	• Establishment and development of low carbon grants/funds e.g. Carbon Trust Incubator	• Provide focussed grants/funds for regional development of low carbon organisations	• Offer directly or encourage third parties to offer businesses grants/loans to incentivise development of LCE (e.g. via Rethink)
Global competition may affect ability to compete	• Competition may hamper Coventry's entry into the LCE		•		• Formalise and develop links via universities or key companies within the area

The generic opportunities for each sector are provided in the Generic Profiles in Section B of the Technical Report. Table 9.2 below summarises the opportunities available in each sector within Coventry given the specific employment in that sector within Coventry (see above), the relevant clusters (see above), sector-specific opportunities (see Sector Profiles – Technical Report, Section B) and key regulatory/policy drivers (see Section 10.2). . The Table provides a summary of potential opportunities, possible barriers to those opportunities being achieved and potential interventions the council could take to support the development of a LCE for the particular sector. This information is based on both the regional study and interviews with individuals within the council. An assessment has also been made of the ease of implementation for each action identified for the Local Authority. The assessment is based on potential cost, time input required, technical considerations, likelihood of success.

Table 9.2 **- Opportunities, Barriers and Suggested Local Authority Actions for Coventry**

Sector	Opportunities for Sector	Barriers to Success	Local Authority Intervention Measures to Overcome Barriers	Ease to implement*
Manufacture of automotive and transport equipment	• Manufacturing of transport equipment (including supply chain) • Low carbon vehicle design e.g. internal combustion engine, hybrid and electric vehicles, fuel cell, innovative propulsion, new mobility concepts, thermo-electric generation, powertrain, re-engineered internal combustion engine, Brake energy regeneration, lightweight construction, efficient engine technologies, energy and heat management in the vehicle, recyclable vehicles, Intelligent Navigation Systems • Development of alternative fuels and associated infrastructure (e.g. biofuels, hydrogen produced free of CO_2)	• Development and proof of technologies • Consumer understanding and therefore demand • Capital • Skills within the local workforce • Already invested in other high carbon vehicles • Lack of infrastructure for fuels reducing potential demand	• Economic development initiatives – training in product development with Business Link and other stakeholders (e.g. Chambers of Commerce and local colleges)	✓✓
			• Apply for any relevant European funding for grants to undertake training and consultancy to assist with new low carbon product development.	✓
			• Undertake publicity campaigns, seminars and breakfast meetings to raise awareness of opportunities	✓✓✓
			• Generate case studies for local businesses.	✓✓✓
			• In general, support skills development	✓✓
			• Continue to support set of six projects to support the transition to a low carbon automotive sector (e.g. “cabled”, electric buses, fleet scheme, electric charging points)	✓✓
			• Develop city wide network of researchers and automotive businesses focussing on the low carbon agenda	✓✓
			• Planning decisions to support development of infrastructure e.g. charging points	✓
Construction	• CEEQUAL civil engineering projects • Low carbon design • Reuse of materials and use of recycle materials and facades • Supporting the low carbon refurbishment of both private and public/social housing. Coventry’s building stock is likely to require significant investment to provide	• Consumer Demand • Value to provider • Perception of higher costs • Actual higher capital costs • Skills within sector • Lack of low carbon infrastructure • Availability and awareness of	• Apply for European funding for grants to undertake training and consultancy to assist with new low carbon product development.	✓
			• Undertake publicity campaigns, seminars and breakfast meetings with local businesses to raise awareness of low carbon opportunities	✓✓✓
			• Support development of low carbon products/tools for the sector	✓✓

	low carbon housing.	energy efficient equipment	• Generate case studies for local businesses focussing on demolition, earthworks	✓✓
			• Ensure council funding and public procurement encourages low carbon methods	✓✓✓
			• Support training with Skills Council	✓✓
			• Develop local authority network of suppliers, buyers and recyclers locally (e.g. via NISP)	✓✓
			• The council could support the retrofitting of housing stock in the city by working with the social housing provider (White Friar's) and supporting residents e.g. by providing information, pilot programmes (perhaps linked to Feed in Tarrif), etc	✓✓
Manufacture of metals and fabricated metal products and electrical equipment	• Low carbon processes • Production of equipment for low carbon energy systems and vehicles, e.g. CHP Network development; Clean Coal, Carbon Capture & Sequestration; Biomass plant; Wind power; Marine Energy; Smart metering; Intelligent grid management; Energy efficient equipment – industrial motors, domestic heating	• Ability to retro-fit • Financing • Skills to develop • Development of technologies • Incentives or regulation to encourage use • Skills • Lack of demonstration/pilot • Higher costs	• Economic development initiatives – training in product development with Business Link and other stakeholders (e.g. Chambers of Commerce and local colleges)	✓✓
			• Apply for European funding for grants to undertake training and consultancy to assist with new low carbon product development.	✓
			• Undertake publicity campaigns, seminars and breakfast meetings with local businesses to raise awareness of low carbon opportunities	✓✓✓
			• Identify priority locations for CHP district energy networks and set up group to implement – consider how this is impacted by local land use and planning constraints	✓✓
			• In general, support skills development	✓✓
			• Generate case studies for local businesses	✓✓

Public services	• Ability to procure low carbon services for the sector	• Lack of training or understanding of approach for procurement sector • Ability to deliver by service providers	• Undertake internal publicity campaigns, seminars and breakfast meetings to raise awareness of low carbon opportunities	✓✓✓
			• Provide guidance/support on sustainable/low carbon procurement for public sector and private sector	✓✓✓
			• Demonstrate best practice in own procurement and funding methods e.g. setting high environmental standards for construction of public buildings.	✓✓
			• Generate case studies showing examples of low carbon initiatives. Consider how the local authority can directly influence the transition to a LCE through procurement and planning policies. This will include Highways and Transportation, Waste Management as well as Social Services and other Community services.	✓✓
Manufacture of non-metallic mineral goods	• Low carbon design, construction methods and materials • Cost savings by more efficient and low carbon vehicles and equipment • Use and development of low carbon products	• Consumer Demand • Value to provider • Perception of higher costs • Actual higher capital costs • Skills within sector • Lack of low carbon infrastructure • Availability and awareness of energy efficient equipment	• Economic development initiatives – training in product development with Business Link and other stakeholders (e.g. Chambers of Commerce and local colleges)	✓✓
			• Apply for European funding for grants to undertake training and consultancy to assist with new low carbon product development.	✓
			• Undertake publicity campaigns, seminars and breakfast meetings to raise awareness of opportunities	✓✓✓
			• Develop supportive planning and economic development policies to encourage production of sustainable products	✓✓
			• Sponsor low carbon demonstration project for the construction sector (e.g. on a local authority construction project – lead by example)	✓✓✓
			• Develop network of suppliers, buyers and recyclers locally within sub-region, but with co-ordination across the region.	✓✓

			• Generate case studies for local businesses	✓✓✓
Transport, storage and communications	• Sustainable logistics for inbound and outbound distribution transports and increasing of rail freight • Development of alternative fuels and associated infrastructure (e.g. biofuels, hydrogen produced free of CO_2) • Use of low carbon vehicles and premises	• Infrastructure for fuels • Capital • Proven technology • New designs needed at cost effective prices • Manufacturers already invested in low efficiency products • Lack of emissions regulation or method to calculate emissions via supply chain	• Apply for European funding for grants to undertake training and consultancy to assist with new low carbon product development	✓
			• Undertake publicity campaigns, seminars and breakfast meetings to raise awareness of opportunities	✓✓✓
			• Develop consistent method for measuring and reporting on carbon emissions for the supply chain industry	✓✓
			• Encourage the council's supply chain sector to engage on low carbon techniques	✓✓
			• Continue developing local authority-wide low carbon infrastructure, e.g. low carbon street lamps, bus lanes, cycle lanes, CHP, etc	✓✓
Environmental goods and services	• Implementation by range of low carbon technologies (e.g. energy, transport, waste management, etc) • Provision of specialist advice to all sectors on low carbon	• Development of technologies • Incentives or regulation to encourage use • Skills • Lack of demonstration/pilot; • Higher costs	• Apply for European funding for grants to undertake training and consultancy to assist with new low carbon product development	✓
			• Undertake publicity campaigns, seminars and breakfast meetings with local businesses to raise awareness of low carbon opportunities	✓✓✓
			• Apply for European funding for grants to undertake training and consultancy to assist with new low carbon product development.	✓
			• Undertake publicity campaigns, seminars and breakfast meetings to raise awareness of opportunities	✓✓✓
			• Incentivise low carbon energy production	✓
			• Support development of new technologies	✓✓
			• Provide infrastructure development support. Review planning and land-use policies to ensure renewable energy and recycling is prioritised	✓✓

			• Support skills development	✓✓
			• Support replacement of Waste to Energy plant in Coventry with district heating infrastructure	✓
			• Use building programmes, e.g. Building Schools for the Future to implement clean technology, e.g. Ground Source Heat Pumps	✓✓
			• Make use of exemplar projects within the city to raise awareness e.g. low carbon buildings, use of new technologies, low carbon vehicle projects, etc.	✓✓
Manufacture of food and beverages	• Decarbonisation of processes to retain cost effectiveness. E.g. Increased recycling of packaging from food and drink products	• Lack of knowledge in sector • Capital for infrastructure • Demonstration projects • Re-use difficult and recycling requires specific infrastructure	• Encourage uptake of carbon product labelling or supply chain programme	✓✓
			• Work with WRAP to assist companies use less packaging	✓✓
			• Undertake publicity campaigns, seminars and breakfast meetings to raise awareness of opportunities	✓✓✓
			• Provide advice to sector	✓✓
			• Provide access to capital funding	✓
			• Generate case studies for local businesses	✓✓

*Key: Ease to implement ✓ Hard to ✓✓✓ Easy

10. Opportunity & Regulatory Assessment

10.1 Opportunity Assessment

Each opportunity identified above has been assessed to determine the impact on jobs and how the particular opportunity supports meeting of carbon related drivers. For each Local Authority the relevance of the opportunity has been indicated. Relevance has been determined based on current employment in the sector, changes in employment in the sector, relevant specialisms and access to clusters in the area. The impact of each opportunity has then been assessed as either increasing, decreasing or stabilising job numbers within the area. Each opportunity has been assessed as to whether it would be beneficial to coordinate at a City Region based on the similarity of actions across the relevant Local Authorities, the scale of the opportunity and the likely ability to coordinate actions. Results for this are given in Table 10.1.

Regulation is a key driver for the development of a LCE. As well as the high level UK Climate Change Act 2008 which sets long-term targets there are a range of regulations, financial incentives, initiatives and voluntary targets which aim to reduce carbon emissions. For each opportunity identified in the project, some of the key drivers specific to the opportunity have been identified in Table 10.2. In all cases the regulation or government initiatives support the opportunity being implemented. There are a substantial number of drivers which directly or indirectly underpin all opportunities; these include:

- UK Climate Change Programme
- UK Low Carbon Transition Plan
- Climate Change Act 2008
- Carbon Budgets Order, Carbon Accounting Regulations and associated legislation relating to carbon budgets
- EU Emissions Trading Schemes, Climate Change Levy and Climate Change Agreements
- Carbon Reduction Commitment Energy Efficiency Scheme (equivalent to a UK ETS)
- Low Carbon Industrial Strategy

It is worth noting that there are a variety of exemptions applicable for the various pieces of legislation but there may be instances whereby it may indirectly apply, e.g. CRC Energy Efficiency Scheme applies directly to larger organisations but may impact the supply chains, etc., resulting in an indirect impact upon SMEs.

Table 10.1 - Opportunity Assessment for Coventry and City Region

Sector	Opportunity	Coventry		City	
		Relevance	Impact	Relevance	Impact
Construction	• Low carbon design and construction for buildings e.g. BREEAM certified buildings for non-domestic sector	✓	↑	✓	H
	• Use of low carbon design for civil engineering e.g. CEEQUAL civil engineering projects	✓	↔	✓	H
	• Low carbon renovation of LA council stock and wider city housing	✓	↑	✓	H
	• Provision of low carbon services and trades e.g. plumbing, insulation, electrics	✓	↑	✓	M
	• Provision of low carbon equipment	✓	↑		
Manufacture of automotive and transport equipment	• Manufacturing of low carbon transport equipment (including supply chain)	✓	↑	✓	H
	• Low carbon vehicle design (e.g. Hybrid and electric vehicles; fuel cell; innovative propulsion; new mobility concepts; thermo-electric generation; re-engineered internal combustion engine; brake energy regeneration; lightweight construction; efficient engine technologies; energy and heat management in the vehicle; recyclable vehicles; Intelligent Navigation Systems).	✓	↑	✓	H
	• Development of alternative fuels and associated infrastructure (e.g. biofuels, hydrogen produced free of CO_2)	✓	↑	✓	H
Public services	• Ability to procure low carbon services/products for the sector	✓	↑	✓	H
	• "Low Carbon" Education	✓	↑	✓	H
	• Use of planning to support development of LCE (transport, energy, waste management, etc)	✓	↑	✓	H
Manufacture of metals and fabricated metal products and electrical equipment	• Low carbon processes	✓	↔	✓	L
Environmental Goods and Services	• Provision of specialist advice to all sectors on low carbon	✓	↑	✓	M
	• Development of low carbon community energy companies/schemes	✓	↑	✓	H

Sector	Opportunity	Coventry		City	
		Relevance	Impact	Relevance	Impact
Manufacture of food and beverages	• Commercial opportunity from use of food wastes from large population	✓	↑	✓	L

Impact on jobs:

↑ Likely to lead to an increase in jobs

↔ Likely to help stabilise job numbers

Table 10.2 - City Region Wide Opportunities and Regulatory Impact Assessment for Opportunities

Sector	Opportunity	Key Drivers
Construction	• Low carbon design and construction for non-domestic buildings e.g. BREEAM certified buildings for non-domestic sector	• Building Schools for the Future • 2016 Zero Carbon Homes • Building Regulations (Part L) • Sustainable Construction Strategy • Specific projects from the Environmental Transformation Fund (e.g. Low Carbon Buildings Programme) • Energy Performance Certificates
	• Low carbon design for civil engineering e.g. CEEQUAL civil engineering projects	• Sustainable Construction Strategy • Specific projects from the Environmental Transformation Fund (e.g. Bio-energy Capital Grants and Bio-energy Infrastructure Schemes)
	• Material reuse and recycling (also supports recycling sector)	• Waste Strategy for England • Landfill Directive, Waste Framework Directive and other specific waste legislation (e.g. end-of-life vehicles, WEEE, etc.)
	• Low carbon renovation of LA council stock and wider city housing	• Decent Homes Programme • Code for Sustainable Homes • Home Energy Saving Programme • Community Energy Saving Programme • Local Authority National Indicators (as appropriate)
	• Provision of low carbon services and trades e.g. plumbing, insulation, electrics	This opportunity supports the overall commitment to a LCE and help reduce the carbon emissions of organisations, businesses, etc.
	• Provision of low carbon equipment	This opportunity supports the overall commitment to a LCE and help reduce the carbon emissions of organisations, businesses, etc.
	• Off-site construction of buildings	• Sustainable Construction Strategy • Building Regulations (Part L)
	• Use of low carbon materials and equipment	This opportunity supports the overall commitment to a LCE and help reduce the carbon emissions of organisations, businesses, etc.
Manufacture of automotive and transport equipment	• Manufacturing of low carbon transport equipment (including supply chain)	• Low Carbon Transport Innovation Strategy • Low Carbon Economic Area • Strategy for Developing Carbon Abatement Technologies for Fossil Fuel Use
	• Low carbon vehicle design (e.g. Hybrid and electric	• Vehicle Excise Duty

Sector	Opportunity	Key Drivers
	vehicles; fuel cell; innovative propulsion; new mobility concepts; thermo-electric generation; re-engineered internal combustion engine; brake energy regeneration; lightweight construction; efficient engine technologies; energy and heat management in the vehicle; recyclable vehicles; Intelligent Navigation Systems).	• Passenger Car Regulations • Low Carbon Transport: A Greener Future – A Carbon Reduction Strategy for Transport • Low Carbon Transport Innovation Strategy • Low Carbon Economic Area • Ultra-Low Carbon Vehicles in the UK Vision Document
	• Development of renewable energy, alternative fuels and associated infrastructure (e.g. biofuels, hydrogen produced free of CO_2)	• Renewable Transport Fuel Obligation Renewables Obligation Order • Energy white paper 2007: 'Meeting the energy challenge' • Renewable Energy Strategy • Specific projects from the Environmental Transformation Fund (e.g. Bio-energy Capital Grants and Bio-energy Infrastructure Schemes)
Manufacture of non-metallic mineral goods	• Low carbon design, construction methods and materials	• Building Schools for the Future • 2016 Zero Carbon Homes • Building Regulations (Part L) • Sustainable Construction Strategy • Specific projects from the Environmental Transformation Fund (e.g. Low Carbon Buildings Programme) • Energy Performance Certificates
	• Cost savings by use of more efficient (and low carbon) vehicles and equipment e.g. glass shaping machinery	• Vehicle Excise Duty • Passenger Car Regulations • Low Carbon Transport: A Greener Future – A Carbon Reduction Strategy for Transport • Low Carbon Transport Innovation Strategy • Low Carbon Economic Area • Ultra-Low Carbon Vehicles in the UK Vision Document
	• Use and development of low carbon processes, products, services, trades	• Specific projects from the Environmental Transformation Fund (e.g. Carbon Trust's innovation programme and funding for new low-carbon technology enterprises)
Public services	• Ability to procure low carbon services/products for the sector	• Specific projects from the Environmental Transformation Fund (e.g. Carbon Trust's innovation programme and funding for new low-carbon technology enterprises) • Local Authority National Indicators (as appropriate)
	• "Low Carbon" Education	This opportunity supports the overall commitment to a LCE and help reduce the carbon emissions of organisations, businesses, etc.
	• Use of planning to support development of LCE (transport,	Although national legislation applies, this is more relevant on a local level and is influenced by the

Sector	Opportunity	Key Drivers
	energy, waste management, etc)	following: • Black Country Joint Core Strategy • Regional Spatial Strategy • Local Development Framework
	• Defence sector support/advice to reduce carbon emissions	• Supports Defence sector meeting government targets This opportunity supports the overall commitment to a LCE and help reduce the carbon emissions of organisations, businesses, etc.
Manufacture of metals and fabricated metal products and electrical equipment	• Low carbon processes	• Specific projects from the Environmental Transformation Fund (e.g. Carbon Trust's innovation programme and funding for new low-carbon technology enterprises)
	• Production of equipment for low carbon energy systems and vehicles, e.g. CHP Network development; Clean Coal, Carbon Capture & Sequestration; Biomass plant; Wind power; Marine Energy; Smart metering; Intelligent grid management; Energy efficient equipment – industrial motors, domestic heating	• Energy white paper 2007: 'Meeting the energy challenge' • Renewable Energy Strategy • Renewable Transport Fuel Obligation • Renewables Obligation Order
Transport, storage and communications	• Sustainable logistics	• Low Carbon Transport: A Greener Future – A Carbon Reduction Strategy for Transport • Low Carbon Transport Innovation Strategy
	• Shared loading for cargo	• Vehicle Road Tax • Low Carbon Transport: A Greener Future – A Carbon Reduction Strategy for Transport • Low Carbon Transport Innovation Strategy
	• Development/use of alternative fuels and associated infrastructure (e.g. biofuels, hydrogen produced free of CO_2)	• Energy white paper 2007: 'Meeting the energy challenge' • Renewable Energy Strategy
	• Low carbon travel services	• Low Carbon Transport: A Greener Future – A Carbon Reduction Strategy for Transport
	• Use of low carbon vehicles and premises	
Environmental goods and services	• Increase of non-metal waste recycling	• Waste Strategy for England 2007 • Landfill Directive, Waste Framework Directive and other specific waste legislation (e.g. Producer Responsibility Obligations (Packaging Waste) Regulations, etc.)
	• Provision of specialist advice to all sectors on low carbon	This opportunity supports the overall commitment to a LCE and help reduce the carbon emissions of organisations, businesses, etc.
	• Continued establishment of metal waste and scrap sector	• Waste Strategy for England 2007 • Landfill Directive, Waste Framework Directive and other specific waste legislation (e.g. Producer Responsibility Obligations (Packaging Waste) Regulations, etc.)

Sector	Opportunity	Key Drivers
	• Development of electric motors/generators	• Passenger Car Regulations • Low Carbon Transport: A Greener Future – A Carbon Reduction Strategy for Transport • Low Carbon Transport Innovation Strategy • Low Carbon Economic Area • Ultra-Low Carbon Vehicles in the UK Vision Document
	• Development of low carbon community energy companies/schemes (both within and outside area)	• Community Energy Saving Programme • Low Carbon Transition Plan objective to get 40% of electricity from low carbon sources by 2020
Manufacture of food and beverages	• Commercial opportunity from use of food wastes from large population	• Energy white paper 2007: 'Meeting the energy challenge' • Renewable Energy Strategy
	• Increased recycling of packaging from food and drink products, for example aluminium and glass bottles.	• Waste Strategy for England 2007 • Landfill Directive, Waste Framework Directive and other specific waste legislation (e.g. Producer Responsibility Obligations (Packaging Waste) Regulations, etc.)
	• Decarbonisation of processes to retain cost effectiveness. E.g. Increased recycling of packaging from food and drink products	This opportunity supports the overall commitment to a LCE and help reduce the carbon emissions of organisations, businesses, etc.
	• Low carbon products	• Specific projects from the Environmental Transition Fund (e.g. Low Carbon Buildings Programme)

11. Summary

Of the eight key sectors of opportunity Coventry's highest employment areas are public services, transport, storage and communications and manufacture of metals, fabricated metal products and electrical equipment, however Coventry had strong levels of employment relative to the other City Region local authorities in most of the sectors, making its actions particularly important to the region as a whole. The largest change over the period 2003-2008 was the decline of the manufacture of motor vehicles. Key clusters specific to Coventry and already in place include Science City, the Energy Technologies Institute, Aston and Coventry University research programmes. Based on the ranking exercise key opportunities for Coventry were found to be construction, manufacture of motor vehicles and transport, manufacture of non-metallic goods and public services. Opportunities that were considered to have the potential to create jobs included the following:

- Construction: Low carbon design and construction ; Low carbon renovation of housing stock; Provision of low carbon construction equipment, services and trades
- Manufacture of Motor Vehicles: Manufacture of low carbon transport equipment; Low carbon vehicle design; Development of alternative fuels and infrastructure
- Manufacture of Non-metallic mineral products: Use and development of low carbon "non-metallic mineral" products.
- Transport, Storage & Communications: Sustainable logistics and rail freight
- Environmental Goods and Services: Provision of specialist advice to all sectors; development of low carbon community energy companies/schemes
- Manufacture of food and beverages: Use of food waste for energy generation

Low carbon procurement, the provision of low carbon education and planning to support the LCE development were all considered to be important public sector opportunities. Barriers were seen to include lack of access to entrepreneurial start-up money for new companies.