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Low carbon economy in Warwickshire

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Low carbon economy in Warwickshire

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1 Introduction

In 2009, the Observatory was commissioned by Advantage West Midlands to carry out a major study into the opportunities for, risks and barriers to Growth into a low carbon economy. Part of this work was undertaken by Atkins and the [resulting report](#) was published at the beginning of 2010.

Following the original study, the Observatory, again working with Atkins, was commissioned by the City Region to identify more detail on the opportunities that the low carbon economy can deliver in its area. The findings of this research were presented in a [series of reports](#) covering different geographies (the City Region, Birmingham, Coventry, Dudley, Sandwell, Solihull, Telford and Wrekin, Walsall and Wolverhampton).

With the creation of the Local Enterprise Partnerships, the Coalition Government is encouraging policymakers to think local. The evidence base has to move in the same direction. Therefore, we now propose to produce local profiles for those Local Authorities in the West Midlands not included in the City Region project. These are:

- Herefordshire
- Shropshire
- Staffordshire
- Stoke-on-Trent
- Warwickshire
- Worcestershire

The research is an important part of the evidence base for the Local Authority Low Carbon Economy Programme of support for local authorities, funded from the Climate Change Skills Fund and managed by Sustainability West Midlands on behalf of Improvement and Efficiency West Midlands. For further information about the Low Carbon Economy Programme, visit the Sustainability West Midlands website at www.sustainabilitywestmidlands.org.uk/projects/.

2 Aim and methodology

2.1 Aim

The aim of this piece of research is to review the current situation and potential for the development of a low carbon economy in Warwickshire.

2.2 Research questions

The project focuses on answering the following research questions:

- Which of the opportunity sectors are best represented in Warwickshire?
- How many jobs are currently in these sectors? Would a low carbon economy secure these jobs or add new ones?
- Within Warwickshire are there any clusters of strength?
- Which opportunities are based on new technologies or products? Which are based on efficiencies and de-carbonising of existing products or processes?
- Would taking advantage of these opportunities reduce the potential impact of legislation on carbon constraints?
- What are the barriers to businesses accessing the new opportunities?
- What policy interventions could be made to overcome these barriers?

2.3 Target audience

Our target audience is local authority policy makers in Warwickshire. This research will help them understand the implications and actions required within local strategies in order to deliver a low carbon economy. It will also contribute to the evidence base informing the local economic assessment.

2.4 Methodology

The methodology proposed contains three stages which are set out below. This report provides the findings from stage 1 and 2.

1. **Conduct secondary data analysis** to identify the current situation of the opportunity sectors in Warwickshire. The Annual Business Inquiry provides data around the number of employees and number of business units by sector.

The data allowed us to calculate the following indicators for Warwickshire and the West Midlands for the opportunity sectors:

- Proportion of employees
- Proportion of businesses
- Employment growth rate
- Absolute employment size by subsector
- Proportion of employees by subsector
- Absolute number of businesses by subsector
- Proportion of businesses by subsector

The data provided in this report has been rounded to the nearest 100 for employment figures and the nearest 10 for business units, as recommended by the Office for National Statistics.

Appendix A provides a list with the SIC codes relevant to each opportunity sector. By using the same list when replicating the analysis, future results could be compared to the findings of this report. The list of SIC codes related to each opportunity sector was originally defined in the regional research¹.

This stage will address the following research questions:

- Which of the opportunity sectors are best represented in Warwickshire?
 - How many jobs are currently in these sectors?
 - Which opportunities are based on new technologies or products?
 - Which are based on efficiencies and de-carbonising of existing products or processes?
2. **Review relevant literature** around clusters and economic strengths for each local authority. This stage will address the following research question:
 - Within Warwickshire are there any clusters of strength?

¹ West Midlands Regional Observatory (2010) The Low Carbon Economy in the West Midlands, WMRO, UK

3. **Consultation with Local Authorities** to add their knowledge and expertise around the low carbon economy in their area. This stage is optional but will be a great opportunity to ensure that local authorities' views and knowledge are included in the research. In case we don't receive a response from the authorities, their results from the two previous stages will still be available for them to use.

This stage will add further information relating to the research questions above and allow us to address the following research questions:

- Within Warwickshire are there any clusters of strength?
- Would taking advantage of these opportunities reduce the potential impact of legislation on carbon constraints?
- What are the barriers to businesses accessing the new opportunities?
- What policy interventions could be made to overcome these barriers?

We conducted this stage through an electronic questionnaire that was distributed to each of the local authorities involved.

We designed the questionnaire based on the one used in the City Region research. In this way, the results can be compared across local authorities.

Appendix B shows the questionnaire sent to all local authorities.

3 Context

3.1 National context

The results of the general election held in the UK on 6th May 2010 delivered a historic moment in which the coalition government was born. The document 'The Coalition: our programme for government'² summarises the programme of work for the next five years. The low carbon economy is part of this programme.

The document states³:

"The government believes that climate change is one of the gravest threats we face, and that urgent action at home and abroad is required. We need to use a wide range of levers to cut carbon emissions, decarbonise the economy and support the creation of new green jobs and technologies"

The Coalition: our programme for government

Some actions outlined in the programme encouraging the move towards the low carbon economy are to:

- Push for the EU to demonstrate leadership in tackling international climate change, including supporting an increase in the EU emission reduction target to 30 per cent by 2020.
- Seek to increase the target for energy from renewable sources, subject to the advice of the Climate Change Committee.
- Through the 'Green Deal', encourage home energy efficiency improvements paid for by savings from energy bills. Also take measures to improve energy efficiency in businesses and public sector buildings.
- Reduce central government carbon emissions by 10 per cent within 12 months.
- Ensure more efficient use of water.
- Work towards a 'zero waste' economy, encouraging councils to pay people to recycle and work to reduce littering.
- Create a presumption in favour of sustainable development in the planning system.

The Department for Business, Innovation and Skills has also recognised the importance of the low carbon economy in achieving sustainable growth:

“... we need to build a sustainable economy that is greener, more enterprising, more technologically advanced, more balanced across the regions and grounded in diverse sources of sectoral strength. We need an economy where private sector jobs are created and innovative opportunities seized. We need to respond to the challenges of a globalised and low carbon eco-friendly economy and support businesses to realise their ambitions”

*A strategy for sustainable growth*⁴

In addition the strategy recognises that without investment in key infrastructure such as transport links, information communication technologies, green energy, water and waste the UK's competitiveness and move to a greener economy are at risk⁵.

Finally, the vision of the Department of Energy and Climate Change is of a thriving, globally competitive, low carbon energy economy. This represents a challenge but will also deliver clear opportunities as the Business Plan of the Department of Energy and Climate Change states:

“Achieving this [vision] through a long term transition to secure, affordable, low carbon energy on the way to an 80per cent cut in greenhouse gas emissions by 2050 will mean a transformation in the way we generate and use energy. ... decarbonising our energy use will mean far more use of electricity in our transport system, in the way we heat our homes and businesses, and in the way our industry operates.

Making that change offers great opportunities, creating a wealth of new green jobs as we reform our system and infrastructure, helping to protect our economy ... as we establish the low carbon technologies that will be at the heart of our energy system.”

*Business Plan 2011-2015*⁶

2 HM Government (2010) *The Coalition: our programme for government*, Cabinet Office, UK

3 Ibid p. 16

4 Department for Business Innovation & Skills (2010) *A strategy for sustainable growth*, UK, p.4

⁵ Ibid, p.8

⁶ Department for Energy and Climate Change (2010) *Business Plan 2011-2015*, UK, p.1

3.2 Sub-national context

In January 2010, the West Midlands Regional Observatory published the report 'Low carbon economy in the West Midlands'⁷. The aim of this piece of research was to develop a better understanding of the low carbon economy in the West Midlands.

This research delivered the following findings:

1. Health and social work, transport and communications, education and construction were identified as sectors which are both heavily affected by carbon reduction policies and are regionally significant (accounting for over 5per cent of total regional employment).
2. The following eight sectors were identified as good prospects in terms of future growth in the low carbon economy in the West Midlands: Manufacture of non-metallic mineral goods; manufacture of automotive and transport equipment; manufacture of metals and fabricated metal products and electrical equipment; construction; environmental goods and services; manufacture of food and beverages (including farming); transport, storage and communications; and public services.
3. Opportunities in the low carbon economy can be achieved mainly in two ways: by diversifying into new low carbon products and services or by reducing the level of CO₂ emissions involved in the current products and services (decarbonising).
4. Identified barriers to overcome in order to move towards a low carbon economy were consumer demand, the policy and regulatory regime, physical and institutional infrastructure, skills, business advice, planning, fostering innovation and technology and attracting foreign markets and investment. Sub-national influence can play a crucial role in overcoming these barriers especially around physical and institutional infrastructure, and skills.
5. The public sector can play an important role encouraging the uptake of low carbon opportunities across the West Midlands. This role can be exercised in a number of ways, including: (a) Providing guidance on sustainable or low carbon procurement for public sector; (b) Demonstrating best practice in own procurement and funding methods and (c) Developing carbon calculation tools.

⁷ West Midlands Regional Observatory (2010) *The Low Carbon Economy in the West Midlands*, WMRO, UK

3.3 Warwickshire context

In 2006 Warwickshire published their Climate Change Strategy. This strategy states⁸:

If we are to succeed in achieving reductions of greenhouse gas emissions ... by 2050, Warwickshire people will need to think carefully about their activities and re-prioritise their use of resources.

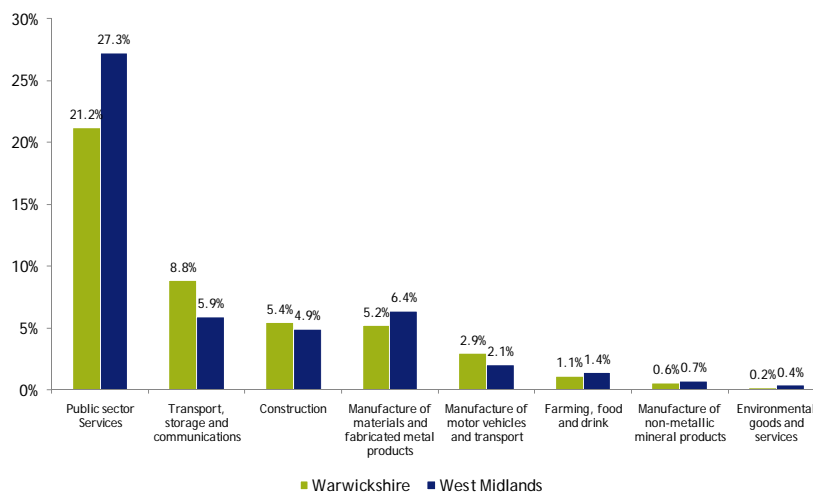
Climate Change Strategy 'Thinking global, acting local'

The following objectives, defined in the strategy, highlight the importance of the low carbon economy in Warwickshire⁹:

- Improve energy efficiency, minimise waste and increase the use of renewable sources of energy
- Improve waste management, including waste minimisation and increased recycling, more efficient use of resources and more environmentally aware procurement (including infrastructure)

Figure 1 shows the employment in low carbon opportunity sectors in Warwickshire and the West Midlands. One in five people in Warwickshire work in public sector services.

Figure 1: Proportion of employment in opportunity sectors in (2008)



Source: Annual Business Enquiry, analysis prepared by WMRO

West Midlands Regional Observatory 2010

⁸ Warwickshire County Council (2006) *Warwickshire Climate Change Strategy 'thinking global, acting local'*, June 2006, p. 3

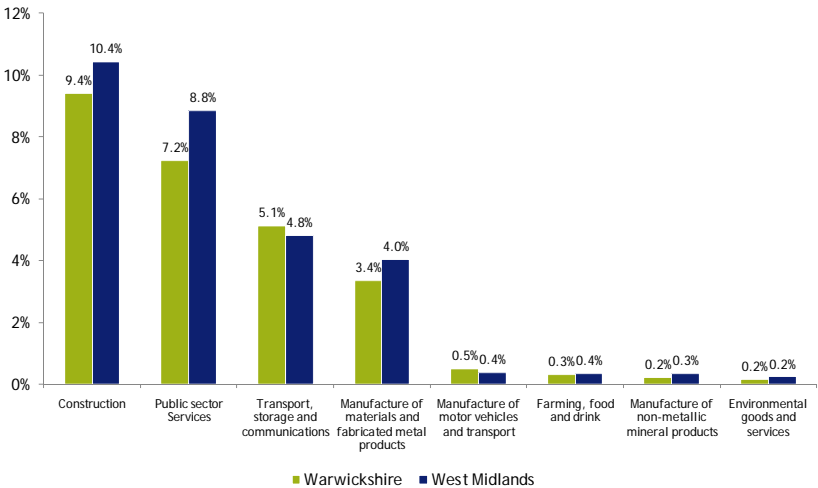
⁹ *Ibid*, p. 4

Transport, storage and communications; construction; and manufacture of motor vehicles and transport are the sectors in which Warwickshire has higher levels of employment compared to the West Midlands.

Figure 2 shows the proportion of businesses in each of the opportunity sectors. Construction, public sector services, transport, storage & communications and manufacture of materials & fabricated metal products are the sectors with the greatest proportions of businesses.

Transport, storage and communications; and manufacture of motor vehicles and transport are the sectors with higher proportions of businesses compared to the West Midlands.

Figure 2: Proportion of businesses in opportunity sectors in (2008)



Source: Annual Business Enquiry, analysis prepared by WMRO

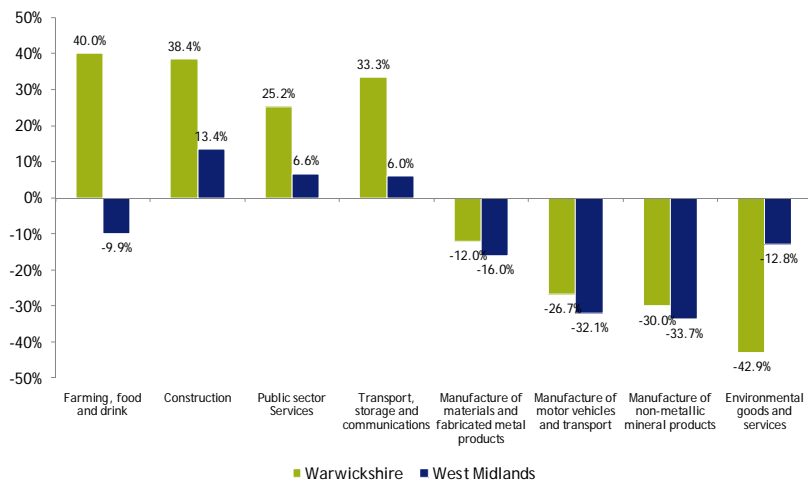
West Midlands Regional Observatory 2010

Figure 3 shows the employment growth rate for the opportunity sectors in Warwickshire and the West Midlands. The sectors that have achieved an increase in employment in Warwickshire are:

- Farming, food and drink
- Construction
- Public sector services
- Transport, storage and communications

These four sectors also had a growth rate above the West Midlands one.

Figure 3: Employment growth rate for opportunity sectors (2003-2008)



Source: Annual Business Enquiry, analysis prepared by WMRO

West Midlands Regional Observatory 2010

4 Clusters

Warwickshire's Local Economic Assessment recognises that the county has a strong presence of the following business clusters¹⁰:

- ICT
- Media
- Specialist business services

More moderate concentrations are also identified in the following clusters:

- Environmental technologies
- Building technologies

The Regional Skills Assessment 2009 identified local hot spots of employment in key business clusters. The following are the clusters with a significant number of jobs in Warwickshire¹¹:

- Building technologies
- Business and professional services
- Digital media
- Environmental technologies
- ICT
- Transport technologies
- Tourism and leisure

Food and drink was the cluster in which the number of jobs has grown particularly rapidly in Warwickshire.

The Annual Business Inquiry data allow us to review key strengths within each of the eight opportunity sectors in Warwickshire. Table 1 below shows the largest subsectors measured by the number of employees and businesses in each of them.

In addition to providing the absolute figures by subsector, we also provide the relative proportion of employees and businesses for Warwickshire and the West Midlands.

¹⁰ Hill, D. (2009) Warwickshire's Local Economic Assessment, Key issues paper: Data analysis, p. 4

¹¹ West Midlands Regional Observatory (2009) *Regional Skills Assessment 2009 - skills issues in key business clusters*, December 2009.

Table 1: Largest subsectors in each opportunity sector (2008)

Sector	Largest employment subsectors	Number of employees	Proportion of employees (W:WM)	Largest businesses subsectors	Number of businesses	Proportion of businesses (W:WM)
Public sector services	Primary education	13,000	24%:17%	Social work activities	610	32%:33%
	Social work activities	11,000	20%:16%	Human health activities	450	24%:26%
	Human health activities	9,700	18%:27%	Primary education	280	15%:13%
Transport, storage and communications	Supporting and auxiliary transport activities; activities of travel agencies	8,400	38%:28%	Land transport; transport via pipelines	710	53%:51%
	Land transport; transport via pipelines	6,900	31%:38%	Post and telecommunications	300	22%:26%
	Post and telecommunications	6,700	30%:32%	Supporting and auxiliary transport activities; activities of travel agencies	290	22%:21%
Construction	Building of complete construction or parts thereof, civil engineering	7,600	55%:47%	Building of complete construction or parts thereof, civil engineering	1,010	41%:39%
	Building installation	3,900	28%:33%	Building installation	700	28%:31%
	Building completion	1,800	13%:17%	Building completion	670	27%:27%

Sector	Largest employment subsectors	Number of employees	Proportion of employees (W:WM)	Largest businesses subsectors	Number of businesses	Proportion of businesses (W:WM)
Manufacture of materials and fabricated metal products	Manufacture of machinery and equipment not elsewhere classified	5,100	39%:26%	Manufacture of fabricated metal products, except machinery and equipment	160	53%:56%
	Manufacture of fabricated metal products, except machinery and equipment	4,900	37%:44%	Manufacture of machinery and equipment not elsewhere classified	80	26%:23%
Manufacture of motor vehicles and transport	Manufacture of motor vehicles	3,900	53%:33%	Manufacture of parts and accessories for motor vehicles and their engines	50	38%:42%
	Manufacture of parts and accessories for motor vehicles and their engines	1,700	23%:41%	Building and repairing of ships and boats	30	23%:14%
Farming, food and drink	Manufacture of other food products	1,600	57%:41%	Manufacture of other food products	40	50%:41%
Manufacture of non-metallic goods	No detailed statistics available ¹²	-	-	No detailed statistics available ¹²	-	-
Environmental goods and services	No detailed statistics available ¹²	-	-	No detailed statistics available ¹²	-	-

Source: Annual Business Inquiry. Table prepared by WMRO.

¹² Due to confidentiality issues, the data had to be suppressed

The subsectors with the highest absolute **employment** figures in Warwickshire and with a higher employment proportion than the West Midlands one are:

- Primary education
- Social work activities
- Supporting and auxiliary transport activities, activities of travel agencies
- Building of complete construction of parts thereof, civil engineering
- Manufacture of machinery and equipment not elsewhere classified
- Manufacture of motor vehicles
- Manufacture of other food products

The subsectors with the highest absolute **number of businesses** in Warwickshire and with a higher business proportion than the West Midlands one are:

- Primary education
- Land transport; transport via pipelines
- Building of complete construction of parts thereof, civil engineering
- Manufacture of machinery and equipment not elsewhere classified
- Building and repairing of ships and boats
- Manufacture of other food products

5 Opportunities

5.1 Type of opportunities

The sub-national report¹³ categorised each of the eight opportunity sectors across the two main types of opportunities: diversification and decarbonisation.

Diversification refers to the process of creating and developing new products and services that deliver lower level of carbon emissions than the traditional ones. The sectors with the greatest diversification opportunities are:

- Construction
- Environmental goods and services
- Farming, food and drink
- Manufacture of materials and fabricated metal products
- Manufacture of non-metallic mineral products
- Manufacture of motor vehicles and transport
- Transport and storage and communications

Decarbonising refers to the process of delivering products and services more efficiently. This includes using less raw material, less energy or producing less waste. The sector with the greatest decarbonising opportunities is public services

5.2 Opportunity sectors assessment

In order to identify which of the sectors provide the most opportunity for development of a low carbon economy within Warwickshire, we conducted a ranking exercise including the following elements:

1. **Sub-national ranking of sectoral opportunities¹⁴** - This ranking involved four criteria: carbon regulation, scale of opportunity, existing strengths in the West Midlands and existing actions in the West Midlands. The ranking scores ranged between 1 (high level of opportunity) and 10 (low level of opportunity).

¹³ West Midlands Regional Observatory (2010) *The Low Carbon Economy in the West Midlands*, WMRO, UK

¹⁴ West Midlands Regional Observatory (2010) *The Low Carbon Economy in the West Midlands*, WMRO, UK, pp. 19-21

2. **Warwickshire employment data** - The ranking scores ranged between 1 (the sector with the highest number of employees) and 8 (the sector with the lowest number of employees).
3. **Warwickshire business data** - The ranking scores ranged between 1 (the sector with the highest number of businesses) and 8 (the sector with the lowest number of businesses).

Table 2 shows the ranking for each of the three elements listed before. For the overall ranking, the lower the value the greater the low carbon opportunity will be. The overall ranking was calculated using the following formula:

$$\text{Overall Ranking} = \text{Sub-national ranking} + \left(\frac{\text{Local employment ranking} + \text{local number of businesses}}{2} \right)$$

Table 2: Ranking of sectors for Low Carbon Opportunities in Warwickshire (2008)

Sector	Sub-national ranking	No. employees	No. employees ranking	No. businesses	No. businesses ranking	Overall ranking
Construction	3	13,700	3	2,460	1	5
Environmental goods and services	3	400	8	40	8	11
Farming, food and drink	6	2,800	6	80	6	12
Manufacture of materials and fabricated metal products	3	13,200	4	880	4	7
Manufacture of non-metallic mineral products	1	1,400	7	60	7	8
Manufacture of motor vehicles and transport	1	7,400	5	130	5	6
Public services	7	53,700	1	1,890	2	8.5
Transport storage and communications	7	22,400	2	1,340	3	9.5

Source: Annual Business Inquiry. Table prepared by WMRO.

The sectors with the greatest opportunities in Warwickshire, highlighted in green, are:

- Construction
- Manufacture of motor vehicles and transport

6 Barriers

The sub-national research¹⁵ identified the following as the main barriers to a transition to a low carbon economy:

- Consumer demand
- Policy and regulatory regime
- Physical and institutional infrastructure
- Skills
- Business advice
- Planning
- Fostering innovation and technology
- Attracting foreign markets and investment

The research also identified the crucial role that government can play mainly through interventions to correct the high levels of information failures that exist in recognising low carbon business opportunities.

¹⁵ West Midlands Regional Observatory (2010) The Low Carbon Economy in the West Midlands, WMRO, UK

Appendix A: List of SIC codes

Construction

- 451: Site preparation
- 452: Building of complete construction or parts thereof; civil engineering
- 453: Building installation
- 454: Building completion
- 455: Renting of construction or demolition equipment with operator

Environmental goods and services

- 3110: Manufacture of electric motors, generators and transformers
- 3120: Manufacture of electricity distribution and control apparatus
- 3710: Recycling of metal waste and scrap
- 3720: Recycling of non-metal waste and scrap

Farming, food and drink

- 151: Production, processing and preserving of meat and meat products
- 152: Processing and preserving of fish and fish products
- 153: Processing and preserving of fruit and vegetables
- 154: Manufacture of vegetable and animal oils and fats
- 155: Manufacture of dairy products
- 156: Manufacture of grain mill products, starches and starch products
- 157: Manufacture of prepared animal feeds
- 158: Manufacture of other food products
- 159: Manufacture of beverages

Manufacture of metals and fabricated metal products

- 27: Manufacture basic metals

- 28: Manufacture of fabricated metal products, except machinery and equipment
- 29: Manufacture of machinery and equipment not elsewhere classified
- 30: Manufacture of office machinery and computers
- 31: Manufacture of electrical machinery and apparatus not elsewhere classified
- 32: Manufacture of radio, television and communication equipment and apparatus
- 33: Manufacture of medical, precision and optical instruments, watches and clocks

Manufacture of non-metallic mineral products

- 2611: Manufacture of flat glass
- 2612: Shaping and processing of flat glass
- 2613: Manufacture of hollow glass
- 2614: Manufacture of glass fibres
- 2615: Manufacture and processing of other glass including technical glassware
- 2621: Manufacture of ceramic household and ornamental articles
- 2622: Manufacture of ceramic sanitary fixtures
- 2623: Manufacture of ceramic insulators and insulating fittings
- 2624: Manufacture of other technical ceramic products
- 2625: Manufacture of other ceramic products
- 2626: Manufacture of refractory ceramic products
- 2630: Manufacture of ceramic tiles and flags
- 2640: Manufacture of bricks, tiles and construction products, in baked clay
- 2651: Manufacture of cement
- 2652: Manufacture of lime
- 2653: Manufacture of plaster
- 2661: Manufacture of concrete products for construction purposes
- 2662: Manufacture of plaster products for construction purposes
- 2663: Manufacture of ready-mixed concrete
- 2664: Manufacture of mortars
- 2665: Manufacture of fibre cement
- 2666: Manufacture of other articles of concrete, plaster and cement
- 2670: Cutting, shaping and finishing of stone
- 2681: Production of abrasive products
- 2682: Manufacture of other non-metallic mineral products not elsewhere classified

Manufacture of motor vehicles and transport

- 341: Manufacture of motor vehicles
- 342: Manufacture of bodies (coachwork) for motor vehicles: manufacture of trailers and semi-trailers
- 343: Manufacture of parts and accessories for motor vehicles and their engines
- 351: Building and repairing of ships and boats
- 352: Manufacture of railway and tramway locomotives and rolling stock
- 353: Manufacture of aircraft and spacecraft
- 354: Manufacture of motorcycles and bicycles
- 355: Manufacture of other transport equipment not elsewhere classified

Public services

- 751: Administration of the State and the economic and social policy of the community
- 752: Provision of services to the community as a whole
- 753: Compulsory social security activities
- 801: Primary education
- 802: Secondary education
- 803: Higher education
- 804: Adult and other education
- 851: Human health activities
- 852: Veterinary activities
- 853: Social work activities

Transport, storage and communications

- 60: Land transport; transport via pipelines
- 61: Water transport
- 62: Air transport
- 63: Supporting and auxiliary transport activities; activities of travel agencies
- 64: Post and telecommunications

Appendix B: Consultation questionnaire

1. Which business sectors have the most employment and businesses in your Local Authority? Can you identify potential low carbon opportunities in these sectors?
2. What do you consider to be the specific opportunities for your area with regards to developing a low carbon economy?
3. What relevant clusters exist to support the development of a low carbon economy? E.g. universities, science parks, research organisations, company start-ups.
4. How can a low carbon approach protect employment in your Local Authority area?
5. What do you consider to be the general and specific barriers for the low carbon economy in your area?
6. What actions can the Local Authority take to overcome these barriers?
7. What can the Local Authority do with regards to procurement?

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