



Low Carbon and Environmental Goods and Services: an industry analysis

Update for 2008/09

**Innovas Solutions Ltd
March 2010**

In partnership with



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We welcome feedback on the issues raised by this BIS commissioned study and comments should be sent to:
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Contents

Introduction	4
1. Global Market	5
2. UK Summary	6
3. Regions	14
4. International Trade	18
Annex 1	20

Introduction

In March 2009 BERR published a report commissioned from Innovas Solutions Ltd on the size of the Low Carbon and Environmental Goods and Services (LCEGS) Sector, in 2007/08.¹ This report looked at both UK and international markets and the forecast areas of growth for the UK.

This paper provides an update to that work. It presents new data for 2008/09, updated growth forecasts, and the revisions to 2007/08 based on updated information which became available during 2009. More detail on the revisions is provided in Annex 1.

The LCEGS sector is defined by Innovas as traditional environmental services and renewable energy, as well as emerging low carbon activities, such as low carbon building technologies and carbon finance. The data also includes the wider supply chain to this sector, from manufacturing and R&D to final retail and maintenance services. For a summary of the methodology on figures included in this report, please see annex 1.

Annual comparisons throughout the document are between the 2008/09 figures and the revised 2007/08 figures unless otherwise stated.

Table A: The low-carbon and environmental goods and service sub-sectors

Environmental

- Air Pollution Control
- Environmental Consultancy
- Environmental Monitoring
- Marine Pollution Control
- Noise and Vibration
- Contaminated Land Remediation
- Waste Management
- Water Supply and Waste water Treatment

Recovery and Recycling

- Hydro
- Wave and Tidal
- Biomass
- Wind
- Geothermal
- Solar PV
- Renewable Consulting

Emerging Low Carbon

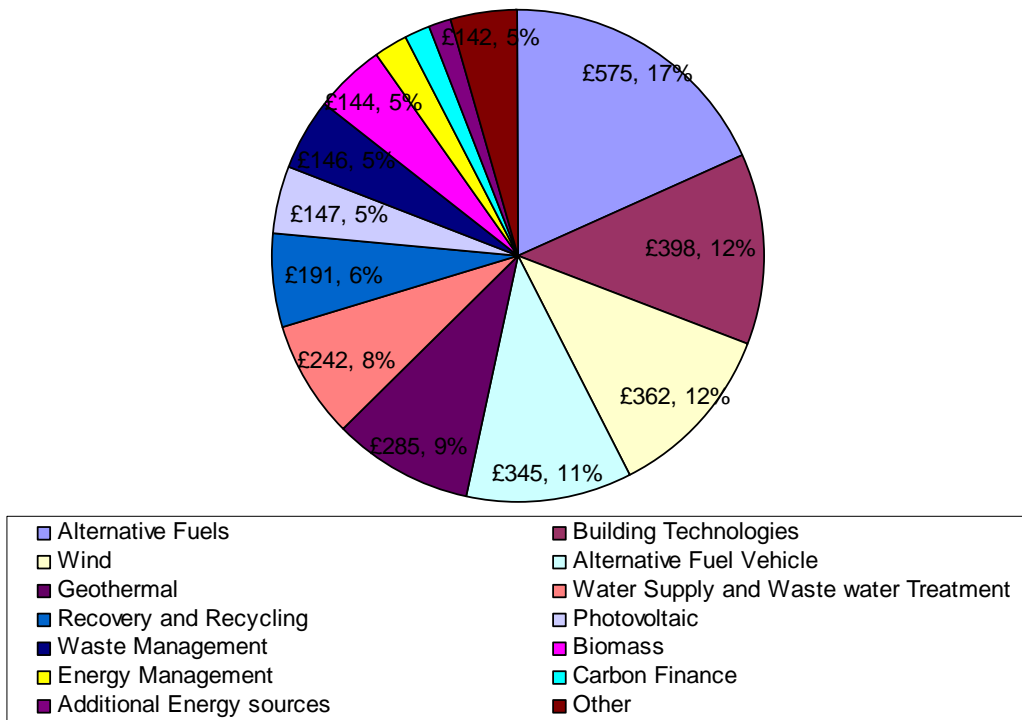
- Alternative Fuels
- Alternative Fuels for Vehicles
- Additional Energy Sources
- Carbon Capture and Storage
- Carbon Finance
- Energy Management
- Building Technologies

¹ See Innovas (2009) commissioned by BERR 'Low Carbon and Environmental Goods and Services: an industry analysis' available at: <http://www.berr.gov.uk/files/file50253.pdf> and Low Carbon Industrial Strategy Economics paper (2009) 'Towards a Low Carbon Economy – economic analysis and evidence for a low carbon industrial strategy' available at: <http://www.berr.gov.uk/files/file52165.pdf>

1. Global Market

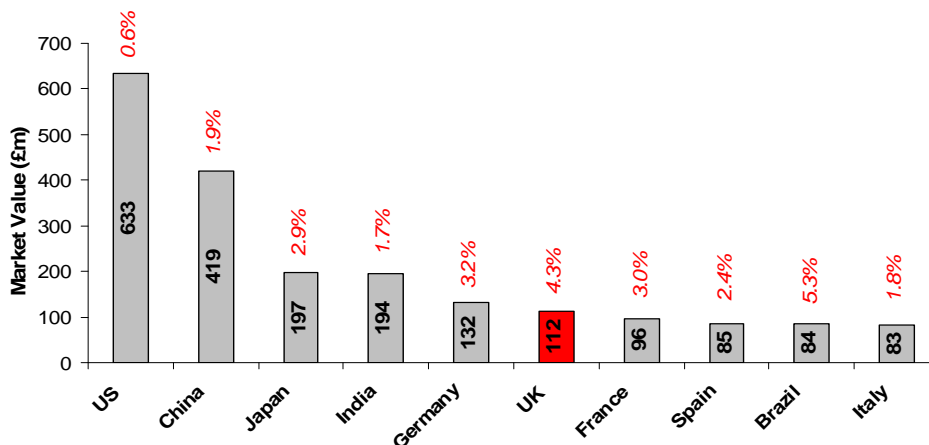
- The global LCEGS sector was worth approximately £3.2 trillion in 2008/09, an £150bn increase from 2007/08 estimates.
- It is forecast to grow by approximately 4% per year over the next 5 years.
- The global sector was estimated to involve 1.4 million companies and employs over 28 million people.
- The emerging low carbon sector accounts for 48% of all sales, with renewables and the environmental sector accounting for 31% and 21% respectively. The three sectors break down into the sub sectors below:

Fig 1.1 Global LCEGS sales by sub-sector 2008/09, £bn



- The US and China account for one third of the global LCEGS market, with the top 10 countries accounting for nearly two thirds of global value. The top ten countries by market value are shown below with annual growth rates in red:

Fig 1.2 Top 10 LCEGS countries by market value 2008/09



2. UK summary

Market Values

- Market value is estimated to have risen to £112 billion for 2008/09.
- An increase of over £5bn on previously published estimates in 2007/08 and an annual increase of 4.3% (£4.7bn) on revised figures.
- The emerging low carbon sector represented just over half of all market value (£56bn), with renewable energy 29% (£33bn) and environmental 20% (£23bn).

The diagrams below show how the overall market value increase and growth is distributed across sectors.

Fig 2.1 Environmental Subsector Values (£m) 2007/08 (Green) and 2008/09 Increase (Red)²

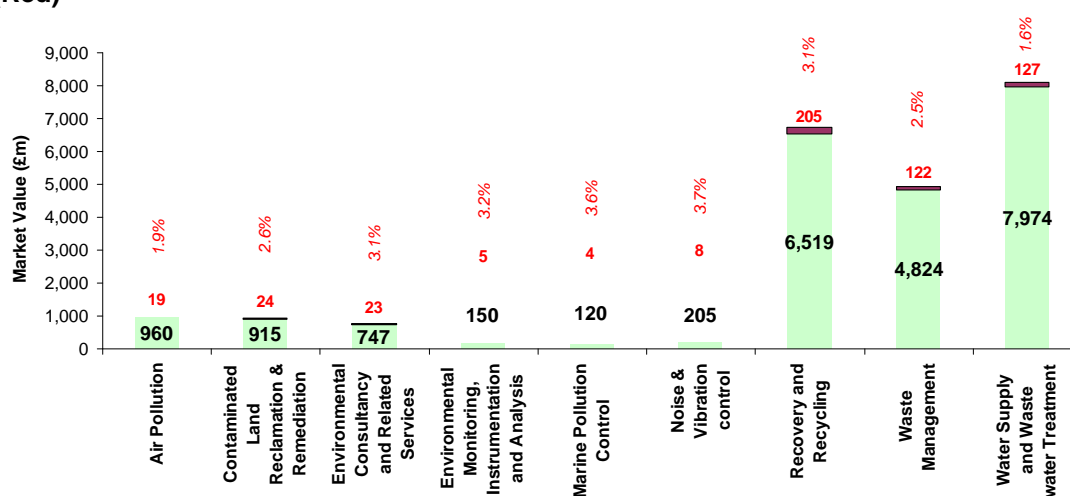
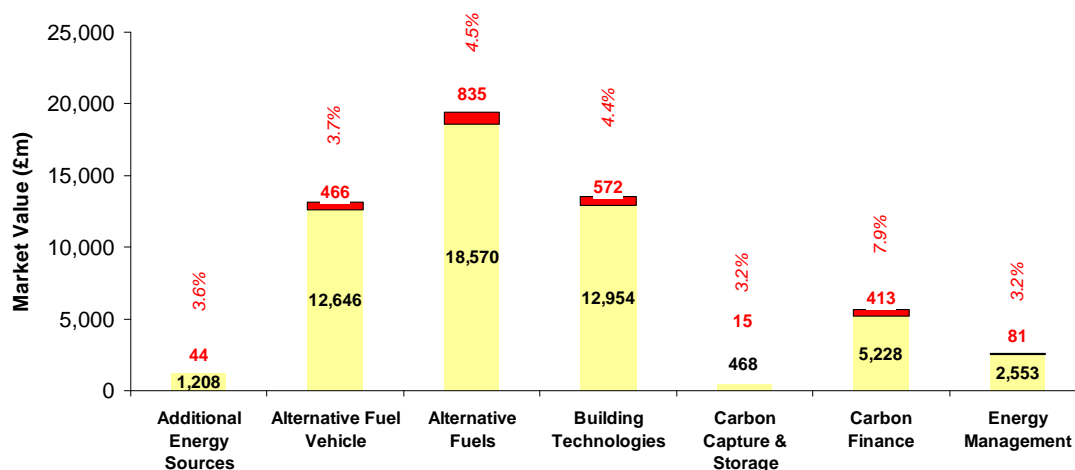
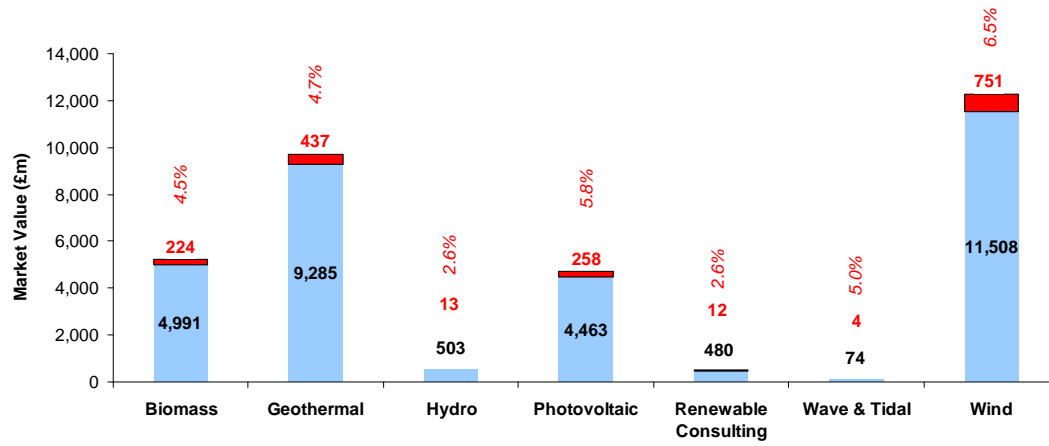


Fig 2.2 Low Carbon Subsector Values (£m) 2007/08 (Yellow) and 2008/09 Increase (Red)



² Percentages in red refer to nominal growth between 2007/08 and 2008/09

Fig 2.3 Renewable Energy Subsector Values (£m) 2007/08 (Blue) and 2008/09 Increase (Red)

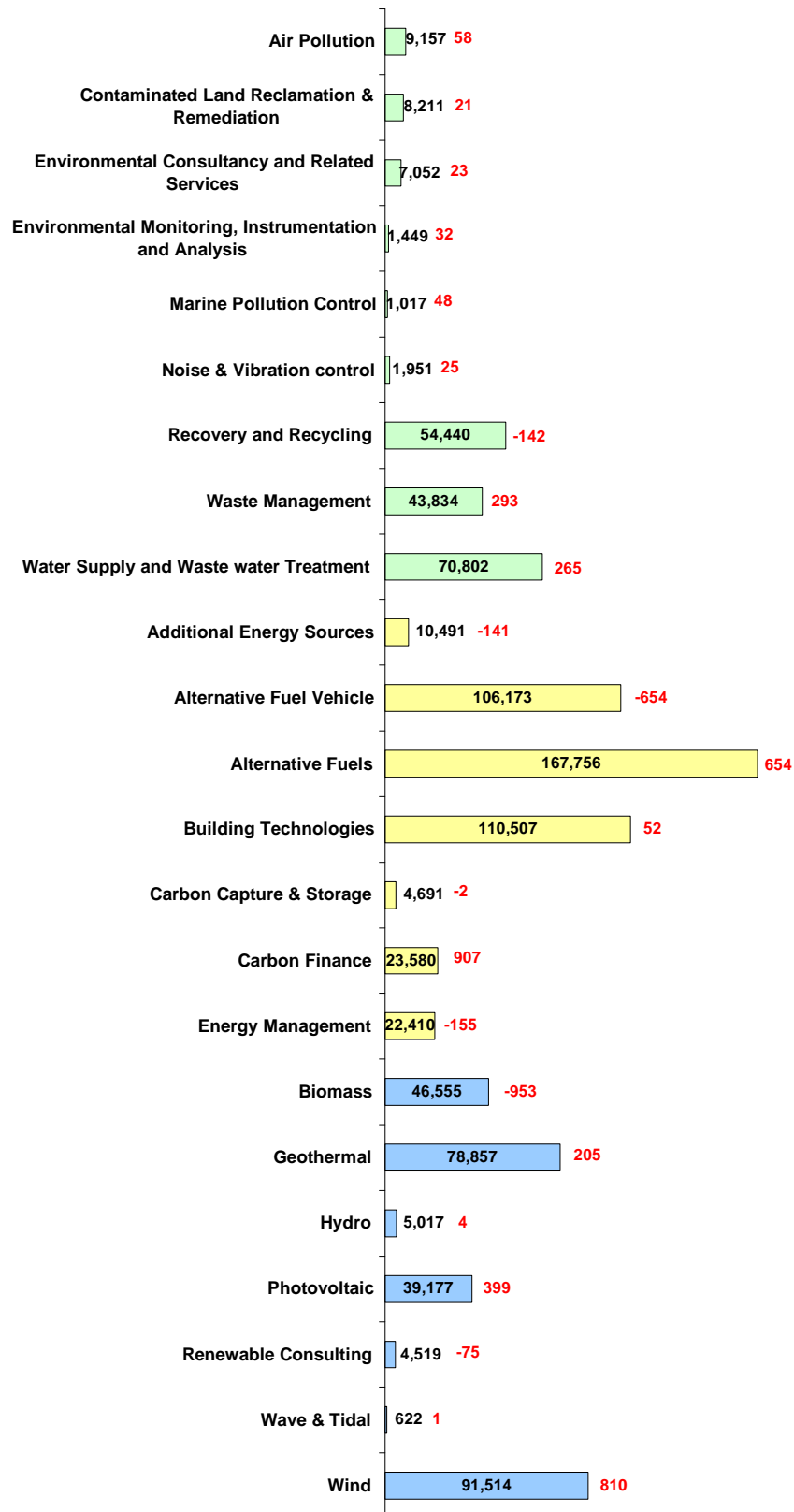


UK Employment

- The LCEGS sector employed an estimated 910,000 in 2008/09.
- This was an increase of over 28,000 jobs on previous estimates for 2007/08 and 1,675 on revised figures for 2007/08.
- The emerging low carbon sector accounted for just under half of total employment (445,600), with renewable energy employing 29% (266,300) and environmental 22% (197,900).
- Value growth was greater than growth in job estimates for 2008/09, as some companies withheld increases in their labour force even with sales increasing due to economic uncertainty.

The diagrams below show how the overall employment increase is distributed across sectors.

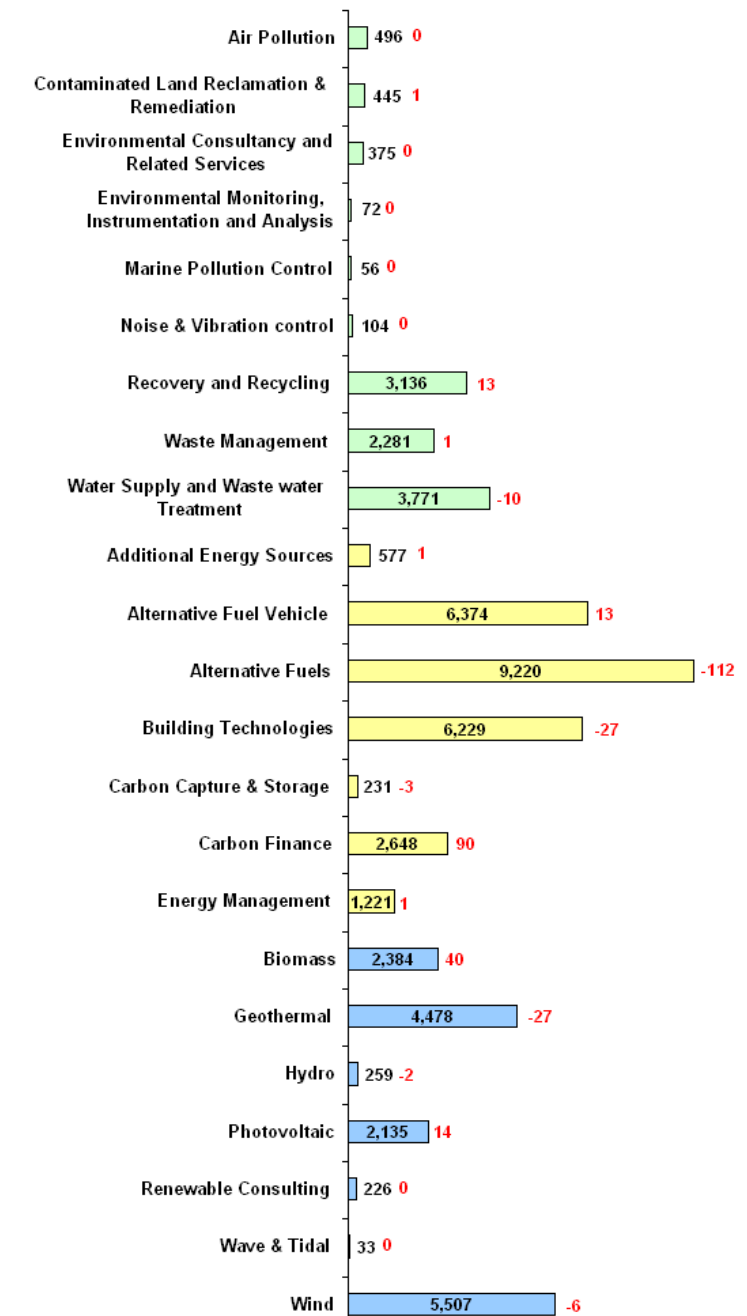
Fig 2.5 Employment numbers within each sub-sector for 2008/09, annual changes shown in red



Companies

- The LCEGS sector was estimated to involve an estimated 52,260 specialist and supply chain companies in 2008/09, 91.5% of which are estimated to be SMEs.
- The total number of companies has fallen by 0.02% on 2007/08 and approximately 2,600 compared to pre-revision estimates for 2007/08.
- The revisions are due to updated information as explained in the introduction. The number of companies active within each sub-sector are shown below:

Fig 2.4 LCEGS Company numbers within each sub-sector for 2008/09, annual changes shown in red



Growth Rates

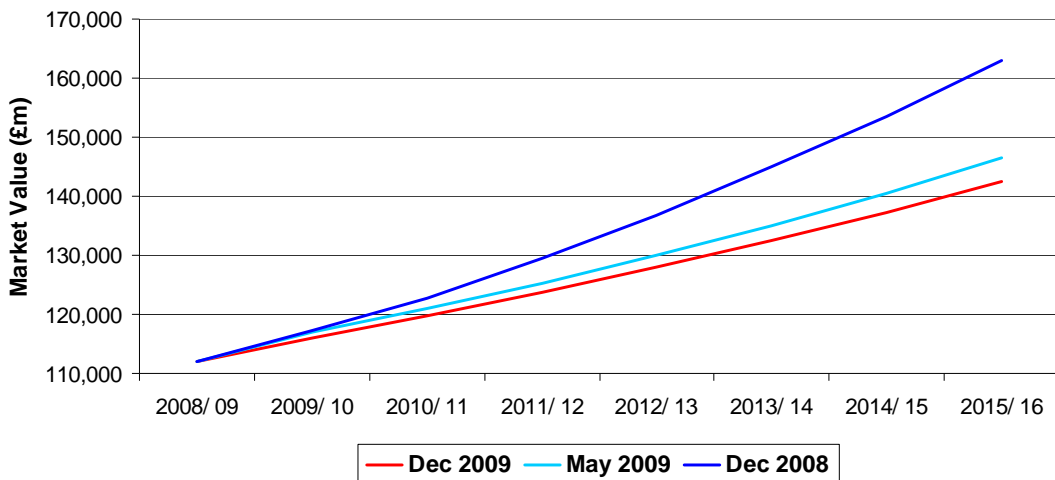
- Growth rates are based on a wide range of sources, including multiple industry forecasts, and, as noted in the methodology section included in Annex 1, reflect business confidence and expectations.
- The latest forecasts from December 2009 predict growth rates will increase from 3.2% in 2009/10 to 3.9% by 2015/16, as the market expands at a greater rate following the recession, this is shown below:

Table 2.1 December 2009 LCEGS growth forecasts by sector

Level 1	2008/ 09	2009/ 10	2010/ 11	2011/ 12	2012/ 13	2013/ 14	2014/ 15	2015/ 16
Environmental Sub Sectors	2.8	2.4	2.5	2.6	2.7	2.8	2.9	3.0
Low Carbon Sub Sectors	4.3	3.8	3.9	4.1	4.2	4.4	4.5	4.7
Renewables Sub Sectors	5.2	4.5	4.7	4.8	5.0	5.1	5.3	5.5
Total UK	3.6	3.2	3.3	3.4	3.6	3.7	3.8	3.9

Growth forecasts have been reduced during the recession, reflecting business confidence and uncertainty. The diagram below compares cumulative market values based on previous and current forecasts up to 2015/16:

Fig 2.6 UK LCEGS Sector market value forecasts, cumulative market values



Overall UK growth figures are based on a weighted aggregation of forecast growth within sub-sectors. The table below shows the top 10 (of 23) high growth sub sectors and their compound growth rate and compound annual growth rate up to 2015/16:

Table 2.2 LCEGS Top 10 highest cumulative growth sectors to 2015/16

	2008/ 09 (£m)	2015/ 16 (£m)	Compound Annual Growth Rate	Compound Growth Rate
Carbon Finance	£5,640	£9,329	7.5%	65%
Wind	£12,258	£19,147	6.6%	56%
Photovoltaic	£4,721	£6,936	5.6%	47%
Building Technologies	£13,526	£19,234	5.2%	42%
Wave & Tidal	£78	£110	5.1%	42%
Geothermal	£9,722	£13,596	4.9%	40%
Alternative Fuels	£19,405	£26,760	4.7%	38%
Biomass	£5,216	£7,066	4.4%	35%
Alternative Fuel Vehicle	£13,113	£17,635	4.3%	34%
Additional Energy Sources	£1,251	£1,598	3.6%	28%
Total UK	£112,003	£142,539	3.5%	27%

3. Regions

Market Values

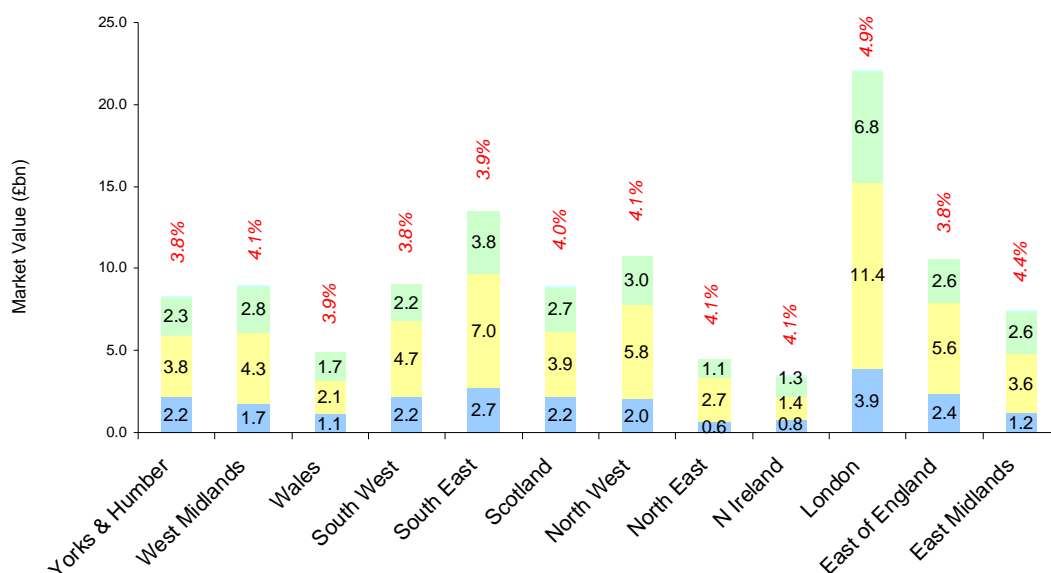
- Within the overall aggregate UK figures, there was considerable variation across regions. The map below shows the relative size of the LCEGS sector in terms of total UK sales:

Map 3.1 LCEGS Market Values by Region 2008/09



- London and the East Midlands showed the largest annual growth between 2007/08 and 2008/09 of 4.9% and 4.4% respectively, with other regions achieving varied growth of around 4%.
- The chart below shows annual value growth and regional breakdown by level 1 sectors:

Fig 3.1 Regional Market Value (£bn) Breakdown 2008/09 to overall sectors: Environmental (green), Low Carbon (yellow), Renewables (blue) and Total Annual LCEGS growth (red)



Regions specialise in different activities within the LCEGS sector, for example carbon finance is almost exclusively located in London. The breakdown below shows each Region's top 5 sectors by value, which made up over 60% of total value for all regions:

Table 3.1 Top 5 sectors by value for each region

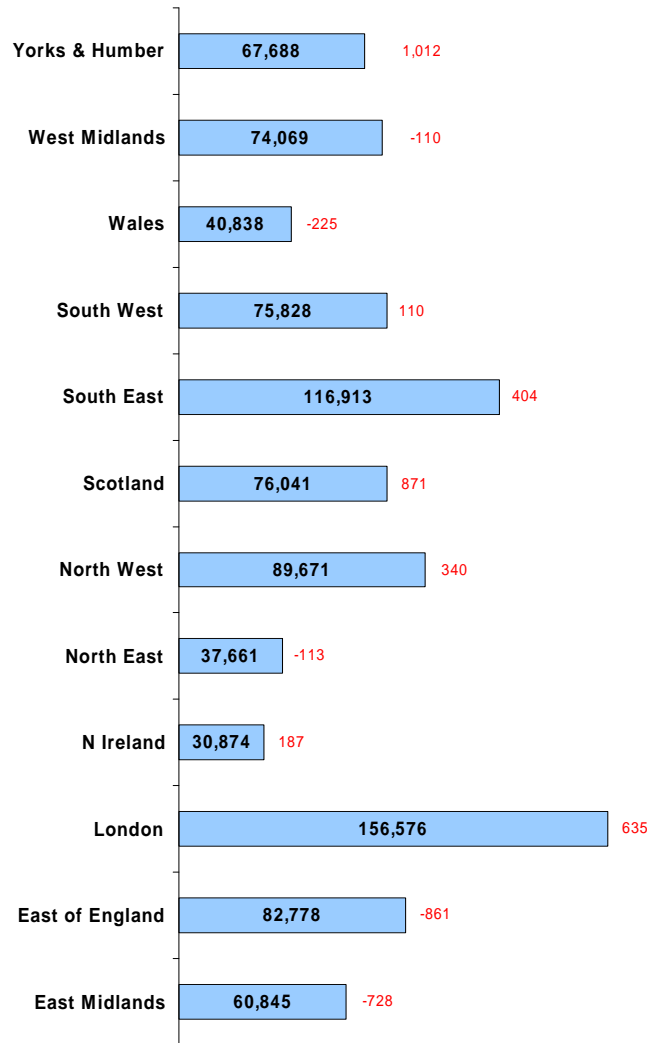
Top 5 Sectors				
Region	Sector	Value (£bn)	Employment	Percentage of Top 5 for Region Total
East Midlands	Alternative Fuels	1.7	14,000	Value - 68%, Employment - 66%
	Wind	1.2	8,500	
	Building Technologies	1.0	8,300	
	Geothermal	0.6	5,300	
	Alternative Fuel Vehicles	0.5	3,800	
East of England	Alternative Fuels	2.3	17,000	Value - 67%, Employment - 66%
	Alternative Fuel Vehicles	1.8	13,400	
	Building Technologies	1.1	8,900	
	Recovery & Recycling	1.0	8,000	
	Geothermal	0.9	6,900	
London	Carbon Finance	5.5	22,700	Value - 64%, Employment - 58%
	Geothermal	2.4	17,600	
	Alternative Fuels	2.2	19,300	
	Wind	2.1	14,800	
	Building Technologies	2.0	16,100	
Northern Ireland	Wind	0.5	3,800	Value - 65%, Employment - 62%
	Alternative Fuels	0.5	4,000	
	Geothermal	0.5	4,700	
	Alternative Fuel Vehicles	0.4	3,600	
	Building Technologies	0.3	3,000	

North East	Alternative Fuel Vehicles	0.9	6,900	Value - 71%, Employment - 68%
	Alternative Fuels	0.9	7,300	
	Building Technologies	0.6	5,500	
	Wind	0.4	3,000	
	Geothermal	0.3	2,900	
North West	Alternative Fuels	2.3	21,400	Value - 68%, Employment - 68%
	Alternative Fuel Vehicles	1.5	12,000	
	Building Technologies	1.4	11,300	
	Wind	1.3	10,400	
	Recovery & Recycling	0.7	5,500	
Scotland	Alternative Fuels	2.1	19,900	Value - 63%, Employment - 63%
	Wind	1.1	8,000	
	Building Technologies	1.0	8,000	
	Recovery & Recycling	0.7	5,800	
	Water Supply & Waste	0.7	6,200	
	Water Treatment			
South East	Alternative Fuels	2.5	23,100	Value - 68%, Employment - 67%
	Building Technologies	2.3	19,600	
	Alternative Fuel Vehicles	1.7	14,400	
	Wind	1.7	13,100	
	Water Supply & Waste	1.0	8,400	
	Water Treatment			
South West	Alternative Fuels	2.1	17,900	Value - 64%, Employment - 64%
	Alternative Fuel Vehicles	1.1	9,200	
	Building Technologies	1.1	8,600	
	Water Supply & Waste	0.8	7,200	
	Water Treatment			
	Wind	0.8	5,500	
Wales	Building Technologies	0.8	6,100	Value - 64%, Employment - 62%
	Alternative Fuels	0.7	5,900	
	Water Supply & Waste	0.6	5,100	
	Water Treatment			
	Geothermal	0.6	4,200	
	Wind	0.5	3,900	
West Midlands	Alternative Fuel Vehicles	1.6	14,200	Value - 64%, Employment - 62%
	Alternative Fuels	1.6	11,600	
	Wind	1.1	8,400	
	Water Supply & Waste	0.7	6,100	
	Water Treatment			
	Building Technologies	0.7	6,000	
Yorkshire & Humber	Alternative Fuel Vehicles	1.4	10,400	Value - 63%, Employment - 61%
	Building Technologies	1.2	9,200	
	Water Supply & Waste	0.9	7,900	
	Water Treatment			
	Wind	0.9	6,700	
	Geothermal	0.8	6,900	
UK	Alternative Fuels	19.4	167,800	Value - 61%, Employment - 61%
	Building Technologies	13.5	110,500	
	Alternative Fuel Vehicles	13.1	106,200	
	Wind	12.3	91,500	
	Geothermal	9.7	78,900	

Regional Employment

- Employment changes varied across regions, although the percentage changes were not large.
- The diagram below shows total employment in 2008/09 and annual change by region:

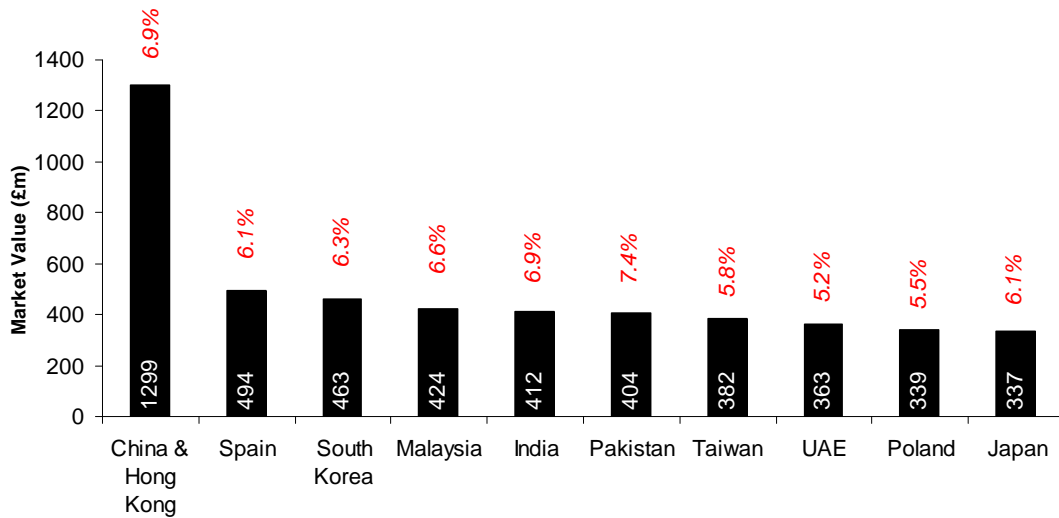
Fig 3.2 LCEGS Employment figures 2008/09 by region and annual change (red)



4. International Trade

- The UK exported £10.8bn from the LCEGS sector in 2008, 6.2% growth on 2007.³
- The UK's top 10 export destinations accounted for nearly half of all exports and are shown below:

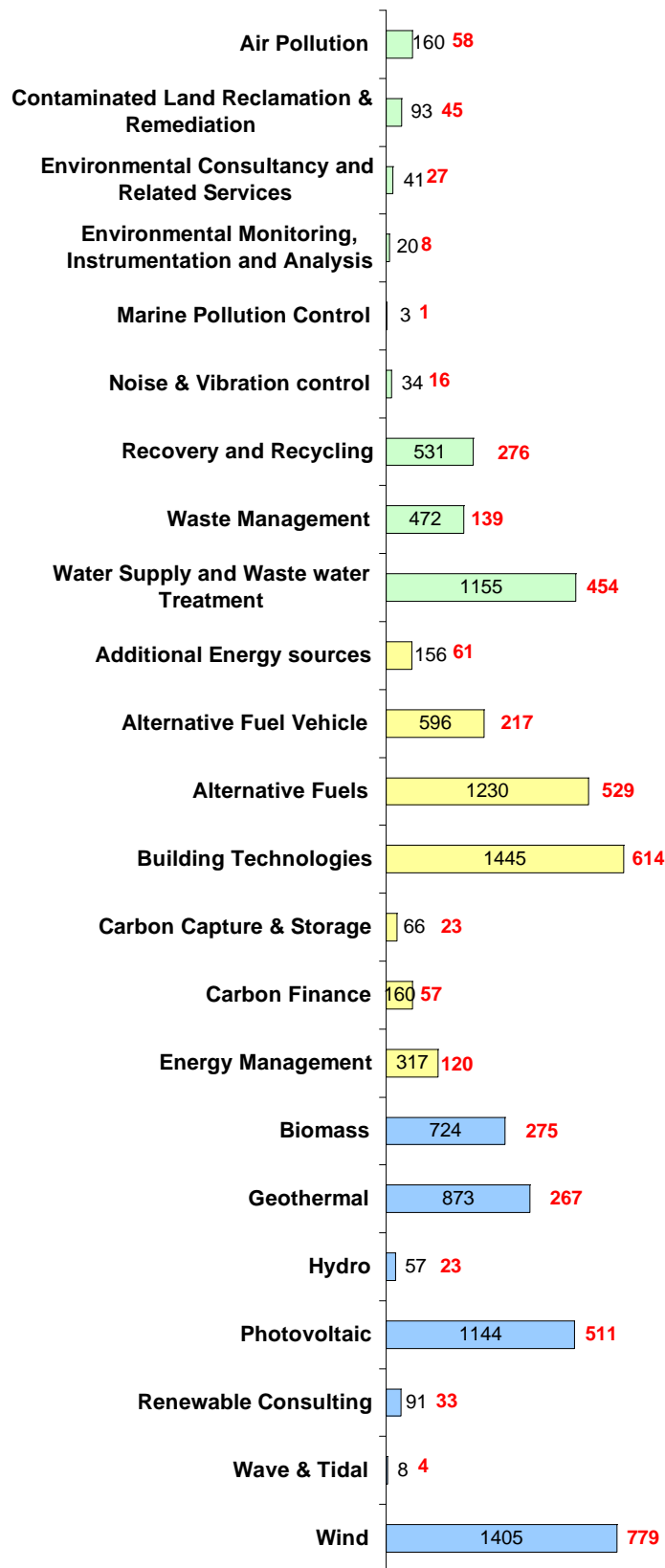
4.1 Top 10 Export markets by value 2008, annual growth (red)



³ Imports and exports are given annually rather than by financial year, therefore are not comparable to market value figures given above

All of the LCEGS sub-sectors had a positive net trade position, shown below with total export values:

Fig 4.2 LCEGS Export by sub-sector 2008 and net trade position (red)



Annex 1: Methodology⁴

Market value refers to total sales of all UK-based company involved in the production of LCEGS, including both domestic sales and exports. It includes the specialist end product, for example wind turbine manufacture, as well as the wider supply chain – eg the concrete involved in the installation. It avoids double counting by subtracting sales in the supply chain from the final good or service.

Where information is available employment figures are based on company profiles. However, employment figures are predominantly calculated on a pro-rata basis from company sales, therefore if 40% of a business' sales activity were within LCEGS, 40% of total company employment would be attributed to the LCEGS sector. Previous job forecasts are based on the assumption that market growth will be in line with value growth within the sector. However this assumption may not necessarily hold during periods of economic uncertainty and job losses. Thus value growth was greater than growth in job estimates for 2008/09, as some companies withheld increases in their labour force even with sales increasing due to economic uncertainty. However, Innovas expect to see employment growth rise again in relation to sales growth if companies become more confident about future growth.

Company numbers are estimated based on the percentage of company sales attributed to the LCEGS sector. The inclusion criterion for a company is if at least 20% of sales activity can be directly attributed to the low carbon sector – whether in environmental services, renewable energy or emerging low carbon activities (as defined in this report). The activity included reflects only that proportion of their turnover which is in this sector. Therefore, the figures only capture businesses producing low carbon and environmental products, rather than all firms who have undertaken actions to reduce their environmental impact.

Annual growth figures given in this report compare revised 2007/08 figures with 2008/09 unless otherwise stated. The growth is in nominal terms whereas growth projections for this report represent real growth. Growth forecasts reflect market conditions and business confidence at the time of the projections. As the change in growth figures show, the forecasts change in light of wider macro-economic conditions and overall business confidence within the sector.

The revision for 2007/08 data is based upon updated information and a refinement of the existing methodology based on the new information. Similar to GDP figures, revisions may be required to earlier estimates to reflect the most accurate information available. There are no planned revisions for 2008/09 data.

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⁴ For a full explanation of the Innovas methodology please refer to the original 2009 report.