

# ***Low Carbon Opportunities for Growth***

**Version 4**  
**September 2009**



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# Executive Summary

Welcome to the first draft of *Low Carbon Opportunities for Growth*. This report sets out an overview of the economic opportunities for Kent presented by the need to reduce carbon emissions and by increasing demand for 'green' goods and services.

*Low Carbon Opportunities for Growth* supports the emerging Kent Environment Strategy, which sets out a vision for a low carbon economy. It also contributes to the development of the Kent Sectors Strategy, which will be prepared by the end of 2009. It therefore helps to directly connect the county's environment and economic development strategies by identifying those areas in which Kent can grow while minimising environmental cost.

## Valuing the low carbon economy

The global market for low carbon goods and services is already estimated to be about £3 trillion per year, with the sector worth around £107 billion in the UK. In Kent, around 17,500 people are employed directly in low carbon goods and services.

The sector is also growing rapidly – at between 4 and 5 percent over the next eight years – creating around 400,000 new jobs nationally. Indeed, it is one of the few sectors of the UK economy forecast to create jobs over the course of the recession.

## Opportunities for Kent

This report sets out the potential in a number of key sectors in Kent, focused on:

- Offshore wind
- Nuclear energy
- Carbon capture and storage
- Community heating systems and biomass
- Low carbon buildings and construction
- Clean technologies
- Electronics, ICT and remote working
- Business, consultancy and financial services
- Agriculture and land-based activities

In addition, the increasing pressure of environmental regulation and changing consumer demand mean that other parts of the economy not directly associated with environmental goods and services will need to reduce carbon emissions. *Low Carbon Opportunities for Growth* sets out the practical advantages to business of doing so.

## Practical actions

Taking advantage of low carbon opportunities in some sectors will require public sector intervention. In some areas, this can only practically be achieved at national level, but in others there are potential actions that local partners in Kent can take. These are identified in an outline action plan, which provides a menu of interventions which can be taken forward for further investigation.

## A document for discussion

This report does not provide all the answers. Rather, it is a starting point for discussion, which aims to set out some practical measures that we can take locally to support Kent business in meeting the challenges of environmental and economic change.

# 1. Introduction: the economic challenges of environmental change

## Welcome

Welcome to the first, discussion draft of *Low Carbon Opportunities for Growth*. This report sets out the potential for Kent to maximise the jobs and economic benefits emerging from the need for increased environmental sustainability and lower carbon use. It sets out the opportunities for Kent, and a series of potential actions that partners could take to support Kent's long-term potential.

### 1.1. Why do we need to focus on low carbon economic opportunities?

We have produced this report because the impact of climate change, and the measures needed to mitigate it, will fundamentally change the way in which our economy works. To meet Britain's targets for the reduction of greenhouse gas emissions, by 2050 we will need to produce each unit of economic output with just ten percent of the carbon dioxide emitted today<sup>1</sup>. This will not just impact on a few industries in a few locations – it will impact on all of us.

In the shorter term, we can already see that links between environmental and economic sustainability are now closer than ever before. For example, the gradual exhaustion of oil reserves (and higher worldwide demand) means higher energy and transport costs. The need to protect the environment also means an increasing regulatory burden on economic activity, and one that is not always shared by competing locations. So environmental pressures on business are here, rising, and will not diminish.

Yet these costs are accompanied significant economic opportunities. Higher prices for conventional energy sources increase the viability of renewables and promote demand for technologies to reduce consumption. Greater fuel efficiency has obvious competitive advantages. For businesses in Kent, reducing environmental impact and taking advantage of new commercial opportunities will be essential in adapting to the need for a low carbon economy. Working together, the public and private sectors have significant ability to influence the market and build demand for new products and services.

Of course, these opportunities are not confined to Kent: local and national governments around the world are developing approaches to enable their areas to gain competitive advantage. So we need to understand where Kent's likely competitive advantage truly lies, and where we can act together to make a positive difference to the Kent economy. We can be sure that other regions will take advantage of emerging opportunities, even if we fail to do so.

*Low Carbon Opportunities for Growth* is therefore a pragmatic, opportunity-focused strategy through which Kent County Council and its partners can support a series of practical actions to take advantage of the county's opportunities.

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<sup>1</sup> BIS/ DECC, The UK Low Carbon Industrial Strategy, July 2009, p. 12.

## 1.2. Where does this report fit in?: The policy backdrop

The policy background for *Low Carbon Opportunities for Growth* is substantial and is of course internationally influenced. At UK level, the **Stern Review** of the economics of climate change published in 2006 has led to a series of measures put in place by the Government to reduce the carbon produced by businesses and individuals. These have included the Climate Change Act, which introduces legally binding targets for carbon reduction, a Renewables Obligation on electricity suppliers to source their energy from renewables and measures to ensure that all homes built after 2016 are 'zero carbon' (with all non-domestic buildings following from 2019).

These regulatory policies have been accompanied recently by an emphasis from Government on the economic opportunities associated with environmental change. In particular, the **UK Low Carbon Industrial Strategy**, launched in July 2009, seeks to set out those areas in which Government action could be focused, building on allocations made in the 2009 Budget. *Low Carbon Opportunities for Growth* seeks to build on the UK Low Carbon Industrial Strategy by establishing in greater detail where additional action could support economic development in Kent. It also makes use of the data included in the UK Strategy.

At sub-regional level, the **Kent Environment Strategy**, currently in draft form, incorporates the vision for 2030 of:

*A Kent with a thriving low carbon economy that drives a year on year reduction in greenhouse gas emissions, [where] all Kent businesses benefit from operating in a sustainable way and we are seen as a great location for green technology companies<sup>2</sup>*

*Low Carbon Opportunities for Growth* seeks to directly support the Kent Environment Strategy by considering in further detail these economic goals and by setting out actions that will make the Environment Strategy an economic success.

Earlier this year, Kent County Council also produced its Regeneration Framework, **Unlocking Kent's Potential**. This set out a broad approach to the economic development of the county over the next twenty years, and focused on the development of environmental economic opportunities in the context of the need to have a better understanding of the sectoral composition and needs of Kent's economy as a whole. Following this, work is underway to develop a **Kent Sectors Strategy**, to which *Low Carbon Opportunities for Growth* will contribute.

The Regeneration Framework also sets out a commitment to building stronger links between **employers' future skills needs** and skills provision. This report identifies several areas in which skills shortfalls impose significant constraints on business development, and enabling providers to respond to these shortfalls will be a high priority in ensuring Kent's responsiveness to future economic change.

*Low Carbon Opportunities for Growth* is not therefore an isolated approach, but one which is directly connected with both the county's environment and economic development strategies.

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<sup>2</sup> Kent Environment Strategy, 2009 (draft)

### **1.3. About the Strategy**

*Low Carbon Opportunities for Growth* is intended as a discussion document, setting out some initial thinking, which will feed into the development of the Kent Sectors Strategy by the end of the year.

The rest of this strategy is structured in two parts. Chapter 2 summarises in more detail some of the economic opportunities for Kent, especially in relation to:

- Offshore wind
- Nuclear energy
- Carbon capture and storage
- Community heating systems and biomass
- Low carbon buildings and construction
- Clean technologies
- Electronics, ICT and remote working
- Business, consultancy and financial services
- Agriculture and land-based activities

For each of these sectors, Chapter 2 considers particular blockages to development and ways in which these can be overcome.

Finally, Chapter 3 proposes for discussion a medium term action plan which the Kent County Council and its partners can take forward over the coming years.

## 2. The opportunities for Kent

### Summary

This section defines the economic opportunities that Kent may benefit from. It also highlights some of the market failures and other barriers that may need to be overcome, and sets out actions that Kent County Council and its partners may take.

### 2.1. Defining the opportunities

What do we mean by 'environmental economic opportunities'? For the purposes of this strategy, we have grouped them into three areas:

Firstly, opportunities in the **low carbon and environmental goods and services** (LCEGS) sector. Broadly, this sector covers those activities and products which aim to improve performance while reducing or eliminating negative ecological impact, and which improve the productive and responsible use of natural resources. In summary, the environmental technologies sector covers the following areas of activity (to which statistics relating to LCEGS relate):

- **Environmental**, including air pollution control, environmental consultancy and monitoring, contaminated land remediation, waste management, water supply and wastewater treatment, marine pollution control and recovery and recycling
- **Renewable energy**, including wind energy generation, biomass, hydroelectricity and renewables consultancy
- **Low carbon technologies**, including building technologies, alternative fuels, carbon capture and storage, non-renewable but low carbon energy (e.g. nuclear power), carbon finance and energy management.

Secondly, **land-based** opportunities associated with increased demand for local production and the potential for new crop development as a result of climate change.

Thirdly, **competitiveness-improvement** opportunities within the rest of the economy, recognising that we will *all* need to reduce carbon consumption. The ability to do so at an early stage is likely to yield cost advantages and improvements in firms' competitiveness; conversely, failure to adapt to change will lead to long term disadvantage. We have therefore focused in *Low Carbon Opportunities for Growth* on the potential to achieve carbon reduction across the economy, as well as promoting specific opportunities in the low carbon and environmental goods and services sector.

The following sections set out firstly the scale of the opportunity for Kent, and secondly the specific areas of growth and intervention on which we will focus.

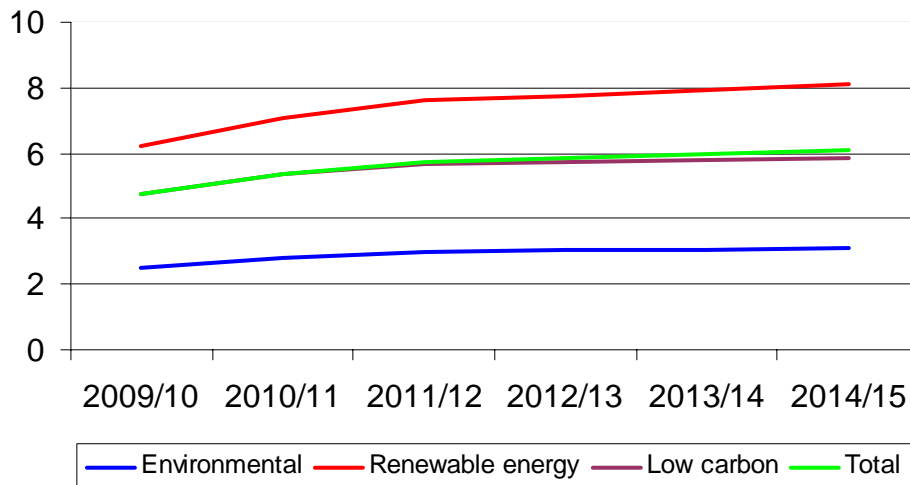
### 2.2. The scale of the opportunity

The global market for low carbon and environmental goods and services (LCEGS) alone was worth over £3 trillion in 2007/08, and is estimated to rise to £4.3 trillion by 2015. The value of the sector in the UK was £107 billion in 2007/08, representing 7.4% of GDP.

This makes the UK the sixth largest low carbon and environmental economy in the world, with over 880,000 people currently employed either directly or through the supply chain.

The LCGES sector is expected to grow at between 4 and 5 percent per year over the next eight years, creating around 400,000 new jobs, with particularly high growth rates forecast in renewable energy. Indeed, it is one of the few sectors of the UK economy expected to create jobs over the course of the current recession:

**Forecast environmental technologies sector annual growth rates (%)<sup>3</sup>**



Across the South East region, the sector contains around 6,600 firms employing 113,000 people and generating total sales of £13 billion in 2007/08<sup>4</sup>. The largest industries within the sector in the South East are renewable energy, alternative fuels and building technologies. Renewable energy is the fastest growing area (in terms of employees and market value) with wind, biomass, ground source and solar also performing strongly. Overall, the sector grew by 5% in the South East in 2007/08, with exports accounting for 11.6% of total regional sales.

Estimates of the size of the LCGES sector in Kent are difficult to make, although as a rough estimate, approximately 17,500 people in Kent work in the sector. Clearly in developing a strategy to support environmental technologies, it would be valuable to carry out further work to quantify sector size and growth prospects at county level.

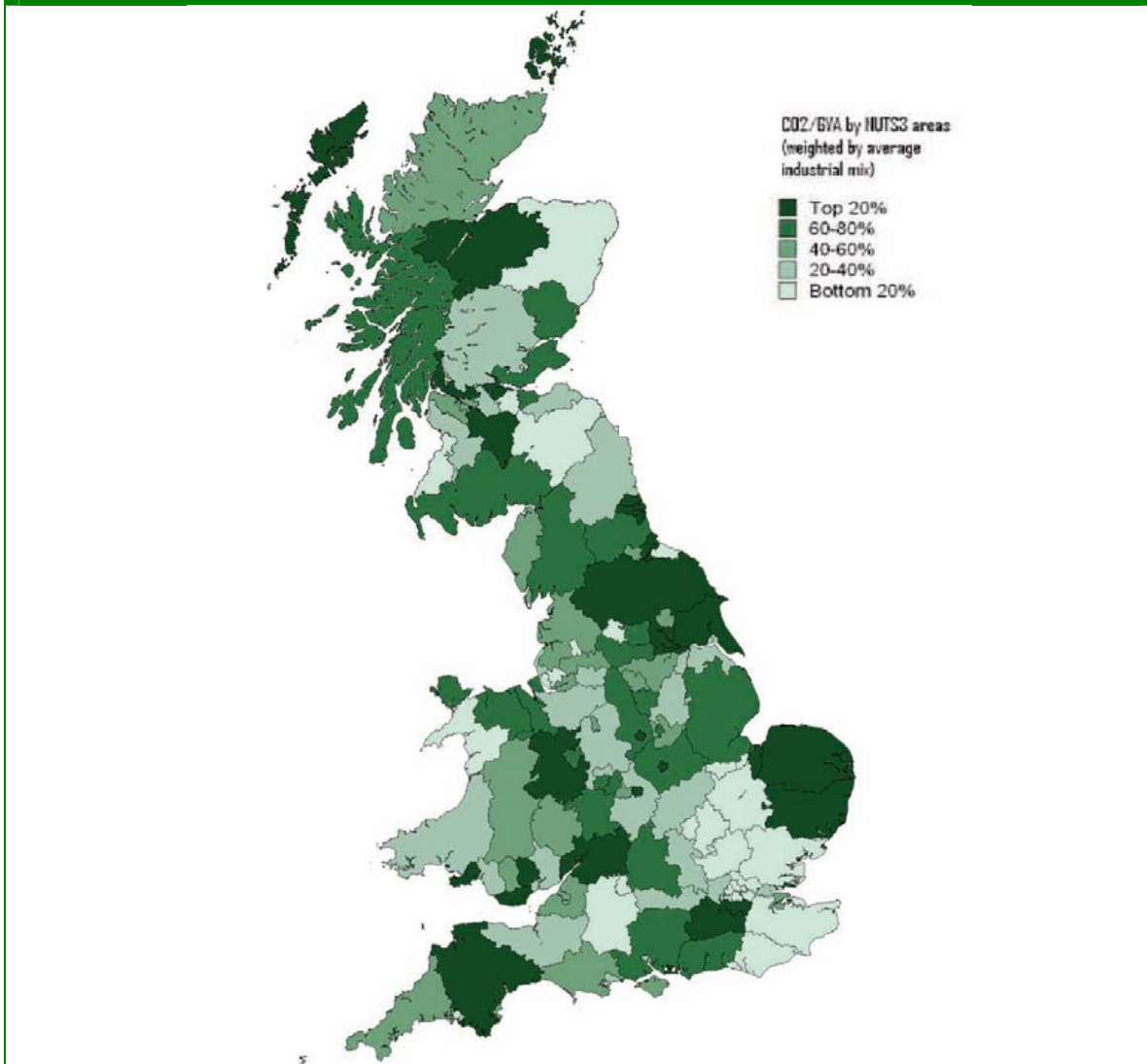
Turning to the wider economy, Kent is in a relatively favourable position to take advantage of pressures for greater energy efficiency. The energy intensity of industry in Kent (i.e. the amount of carbon emissions generated for every pound of GVA) is among the lowest in the UK, reflecting the relatively low representation in the economy of energy-intensive sectors such as chemicals, plastics and metals. Given that the costs of carbon reduction will obviously be greater in energy-intensive sectors, and given that

<sup>3</sup> BERR (2009). Calculations produced in December 2008

<sup>4</sup> BERR (2009), Low Carbon and Environmental Goods and Services: An industry analysis

there is a correlation between energy intensity and lower value production, this presents Kent with some initial advantages on which we can build.

### Energy intensity of production in Great Britain<sup>5</sup>



The following sections consider the main opportunities for consideration in Kent, before turning to the potential impacts of carbon reduction on the wider economy.

### 2.3. Offshore wind

#### *The opportunity*

The UK has Europe's largest offshore wind resource and is at present the largest single market for offshore wind in the world. The Thames Estuary is one of three initial areas where projects are being developed around the British coast and where Crown Estates have issued licences to developers.

<sup>5</sup> BIS (2009), Towards a Low Carbon Economy: Economic analysis and evidence for a low carbon industrial strategy.

There are at present three key developments under way in Kent:

- ***Kentish Flats***, a completed development of 30 turbines serviced from Whitstable
- ***Thanet Offshore***, a development of 100 turbines currently under construction, using the Port of Ramsgate as its construction base and site for future operations and maintenance
- ***London Array***, a development of 271 turbines, with the first phase now proceeding, and a major new substation under construction at Graveney. The developers (DONG Energy and E.On) also intend locating future operations and maintenance at Ramsgate.

The scale of development (2GW) is significant and industry estimates suggest that up to 20,000 jobs could be created through wind farm development around the Kentish coast<sup>6</sup>. In particular, the county has a well developed electricity grid for power connections and has been able to meet the need for port services to support construction. Kent ports are also able to provide bases for new operations and maintenance facilities, creating more than 100 new jobs and an investment estimated at £544 million over the next twenty years<sup>7</sup>.

In the longer term, there is also the potential to develop related business and services, in particular in skills and training, but also potentially in component manufacturing to support the industry's growth in the UK.

### ***Potential constraints***

One of the major challenges to the UK's ability to maximise the potential of offshore wind is the relatively late development of sector compared with overseas locations such as Germany and Denmark. This particularly affects Britain's ability to attract turbine manufacturers to locate their operations here (given existing bases abroad), or to develop new firms to enter the market (given the high costs of entry). Potentially, these challenges may be even greater for Kent, given that the county does not currently have a significant presence in the relevant manufacturing sector.

Given that offshore wind is a relatively new sector, but one in which other parts of Europe already have something of a head-start, other potential constraints on our ability to maximise local value may include a failure to adequately develop a local supply chain (including for support services), and a failure to provide the appropriate skills for the emerging industry. Clearly, these are linked and combined could provide a lost opportunity.

### ***Overcoming the barriers***

The Government is supportive of the objective of developing UK manufacturing capacity, and the 2009 Budget identified £120 million to support the development of the offshore wind sector, including funding for manufacturing and new technology demonstration projects. This represents a national response to what is a national industrial challenge.

However, there are also actions that partners can take locally to maximise opportunities for the sector:

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<sup>6</sup> DECC press release, 30 March 2009

<sup>7</sup> KCC/ BBP Regeneration, Rationale for Kent County Council investment in the Port of Ramsgate and the offshore wind farm industry, April 2008

- **Market investment opportunities:** Locate in Kent is already actively promoting offshore wind opportunities to UK, European and international companies, and recognises the sector as a key area for development
- **Promote the development of a local supply chain**, by ensuring that the opportunities arising from major developments are publicised and that Kent businesses are supported to take advantage of them. As an initial action, a joint event between Envirobusiness (the South East sector consortium for environmental technologies) and London Array is planned for later in the year.
- **Understand and respond to emerging skills demands**, particularly in those parts of the county (such as Thanet) in which investment is likely to be greatest

## 2.4. Nuclear energy

### *The opportunity*

Opportunities in the nuclear sector will increase over the coming years, as Britain's stock of existing nuclear power stations come to the end of its life. Even if nuclear energy's contribution to electricity generation remained at its current level, between six and eight new reactors will need to be built in the UK by 2025, and given the pressure to reduce carbon use, actual requirements are likely to be greater than this.

Kent already has a nuclear power station at Dungeness, due to be decommissioned in 2018. It is currently one of 11 sites nominated for the construction of a new station. If selected, the construction of Dungeness C is likely to take about five years.

Construction is likely to create 1,350 – 2,000 jobs; once up and running, the power station would be expected to operate for 60 years with a workforce of 400-600 (with a total number on site of about 1,000 taking into account the operation and decommissioning of the existing stations).

At present, the estimated value of Dungeness to the Kent economy is £30 million per year, which a new station would safeguard, potentially increase in the long term and significantly increase in the medium term during the development phase.

### *Potential constraints*

The obvious constraint to development of the sector is the absence of a decision at the time of writing on whether to proceed with Dungeness C. Should the project not proceed, it is likely that some of the advanced skills currently based at the plant would be lost to Kent (although there would still be a temporary peak in investment due to the need for decommissioning).

Assuming Dungeness C goes ahead, the two main constraints identified nationally on making the most of industry opportunities are the ability of UK manufacturers to respond to potential nuclear demand (given the length of time since the UK last built a nuclear power station) and the supply of skilled workers needed to build, manufacture, operate and maintain the nuclear fleet<sup>8</sup>.

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<sup>8</sup> Nuclear Industry Association, The UK capability to deliver a new nuclear build programme, 2009.

### **Overcoming the barriers**

Nationally, a number of actions are proposed, including<sup>9</sup>:

- Strengthening the Manufacturing Advisory Service to support civil nuclear industry suppliers
- Promotion of supply chain opportunities via the Nuclear Industry Association through a series of regional and sub-sectoral supply chain conferences
- The development of a new nuclear skills and capability plan via Cogent (the sector skills council for nuclear), ConstructionSkills, the Engineering Construction Industry Training Board and the Nuclear Decommissioning Authority

Kent-based actions that could usefully supplement this national activity are to:

- **Maintain substantive awareness** within the local public sector of the opportunities at Dungeness C, including (sequential to the work underway via the NIA) supply chain opportunities in Kent
- Alongside the development of the national nuclear skills and capability plan, **work with the sector and relevant providers** to establish and provide for the planned skills needs of a future nuclear development at Dungeness

## **2.5. Carbon capture and storage**

### **The opportunity**

Carbon capture and storage (CCS) technologies have the potential to reduce emissions from coal-fired and other fossil fuel power stations and other industrial processes by around 90%<sup>10</sup>. The technology involves mitigating the contribution of fossil fuel emissions to global warming by capturing carbon dioxide at point of source and then permanently storing it away from the atmosphere. The UK is playing a significant role in the development of CCS technologies and the Government is offering support for up to four full-scale demonstration projects.

In Kent, E.On is competing for a demonstration project in order to replace their existing coal-fired power station at Kingsnorth on the Isle of Grain with a new one utilising CCS, which would carry the carbon dioxide via pipeline to old North Sea gas fields where it would be stored.

At present, CCS technologies are in the very early stages of development and remain unproven. Should CCS be proven and utilised at Kingsnorth, it could lead to significant opportunities in Kent as a 'pioneer' location and the Government has identified the Thames Gateway (including Kingsnorth) as a potential location for a cluster of industries associated with CCs technology<sup>11</sup>.

### **Potential constraints**

As an unproven technology, the obvious barrier to the development of CCS in Kent is its failure to be utilised effectively. As with the preceding major capital projects, skills gaps and supply chain underdevelopment are also potential constraints should the project go ahead, although the evidence base for these is insufficiently developed at present.

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<sup>9</sup> See Low Carbon Industrial Strategy, p32.

<sup>10</sup> Low Carbon Industrial Strategy, p33; IPCC, Carbon Dioxide Capture and Storage: A summary for policymakers, 2005

<sup>11</sup> BIS (2009), Towards a Low Carbon Economy: Economic analysis and evidence for a low carbon industrial strategy.

### **Overcoming the barriers**

Proving the effectiveness of CCS features prominently in the Government's strategy nationally. Locally however, there would seem to be no specific interventions that local partners should take at this stage, other than to maintain an awareness of developments.

### **Rising to the skills challenge**

A consistent theme throughout the sectoral analysis in this report is the need to improve skills at all levels of the workforce. For most of the low carbon sub-sectors, skills shortfalls impose significant barriers to their development.

Work is underway involving Kent County Council, further education providers and the offshore wind industry to develop effective provision to meet employers' skills needs. But there is more that could be done, in particular in harnessing the role of the county's higher education sector to support emerging industry.

## **2.6. Community heating systems and biomass**

### ***The opportunity***

Community heat and power systems usually involve generating or utilising existing sources of energy locally and supplying them to homes and businesses via a heat main and/ or private wire network. This may involve developing a purpose built plant to run on low carbon or renewable fuel sources, or it could involve use of waste heat from power stations, industrial processes or incineration plants. Community heating technologies can be more reliable than conventional household boiler systems and can offer lower bills as well as cutting carbon emissions.

With around 137,000 new homes planned for Kent over the period 2006-26, there is considerable potential to develop local community energy infrastructure. The major growth points at Kent Thameside and Ashford are the most obvious locations but other regeneration projects at Queenborough and Rushenden on the Isle of Sheppey and Sittingbourne town centre also offer good prospects. Work to evaluate the potential for this solution to be applied in connection with these development areas is already being undertaken. In addition there is the potential to roll out smaller projects for campus style developments or large buildings in multiple occupation. For example, the NHS has recently committed to heating its new hospital development at Pembury in Tunbridge Wells using a biomass fuelled plant.

The Government has already put in place incentive structures to encourage partnerships between compatible heat generators and users and to encourage the roll out of community heating infrastructure to support new housing development. This technology is likely to create new business opportunities for companies involved in the supply and servicing of heat networks.

Renewable biomass resources are available throughout Kent, and can include coppiced wood, sawdust, arboricultural trimmings, energy crops, gas from landfills, sewage treatment and biodegradable wastes. The County Council is currently developing a wood based biomass project to supply locally sourced wood fuels to schools and public buildings. Through this initiative it is hoped to support the development of local supply chains and stimulate the market for renewable heat in Kent.

### **Potential constraints**

Potential barriers include additional capital costs associated with putting in place community heating systems within new developments and the need to generate demand and demonstrate the viability of small-scale generation.

### **Overcoming the barriers**

Given the local scale of community heat and power systems, there are several measures that local partners in Kent can take to promote opportunities in the sector, including:

- **Stimulate demand** through the development of local fuel systems in new public buildings such as schools and health facilities
- Ensure through the **master planning of major new developments** and through work with developers that provision is made where possible for community power systems
- Develop **exemplar facilities** at major developments where there is a significant public sector contribution to development (such as at Queenborough and Rushenden).

## **2.7. Low carbon buildings and construction**

### **The opportunity**

Buildings have a major role to play in reducing carbon emissions, with the Carbon Trust estimating that buildings account for around 40% of the UK's carbon emissions (of which domestic properties make up about half). At the same time, the construction industry is one of Kent's most important sectors, accounting for around 8% of the county's GVA and employing some 36,000 people in 2007 (although this figure will have fallen significantly over the past year as a result of the recession).

Demand for change in the construction sector will partly be driven by increased Government regulation, including the aspiration for all new residential buildings to be zero carbon by 2016, followed by non-domestic buildings in 2019. While imposing additional costs, this also presents opportunities for the design and build of low carbon buildings.

However, some of the most significant opportunities exist in improving the energy efficiency of existing buildings, given that around 70% of the building stock of 2050 has already been constructed. This would present savings to occupiers as well as business opportunities in the provision of energy saving solutions. Within Kent, it is estimated that there are around 490,000 homes in need of insulation improvements, a market worth about £145 million which will of course be supplemented by demand from businesses.

### **Potential constraints**

As in many other areas in the development of the low carbon economy, skills shortages are estimated to be significant, especially among those skills required for retrofitting existing buildings<sup>12</sup>. At the same time, if suitable provision can be made in Kent, this may well present opportunities for Kent-based construction firms and for the earning potential of Kent industry employees.

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<sup>12</sup> BERR (2008), Strategy for Sustainable Construction.

The other major constraint relates to demand and evidence that improved energy efficiency in new build homes does not attract the increase in value that the additional investment requires.

### **Overcoming barriers**

Nationally, the Government has launched a number of measures to stimulate demand for retrofit, including increased home energy advice and the proposal for new finance packages. However, there is potentially a major role that local partners could play in **building the retrofit market** by providing joint funding with private homeowners and with social housing providers to retrofit existing properties in the county. An outline of a potential scheme is set out in the box below.

#### **Building a retrofit market in Kent**

With 490,000 homes in Kent in need of improved energy efficiency, retrofit of modern insulation could save the average household £200 per year and generate a market for local businesses worth £145 million.

Public investment of £20 million, matched by utility companies could retrofit 60,000 homes. Focusing on those parts of the county in greatest need of regeneration, this could help to support 100,000 households. Potential contributors could include Kent County Council and utility providers as well as district councils and health bodies.

Further work will need to be done to fully establish the viability and funding mix for such an initiative, but if successful, it could have a major impact on the development of the retrofit market in Kent and complement the County Council's existing housing initiatives, such as the development of the Kent Housing Strategy and the successful empty homes programme.

A number of major projects are already underway to overcome some of the skills barriers to development of the low carbon construction sector, including:

- Developing the network of **Skills Centres** throughout the county focusing on the future skills required by the construction industry; and
- Taking forward **Suscon** at Ebbsfleet as a centre of excellence in sustainable construction associated with the major development opportunities in the Thames Gateway.

## **2.8. Clean technologies**

### **The opportunity**

As pressure increases for a lower carbon economy, demand increases for new technologies, products and processes. Some of these have already been highlighted above and include products required in insulation, construction materials and wind power. In addition, demand is increasing for less carbon-intensive crop protection and fertilisers, technologies to increase motor vehicle fuel efficiency and the development of micro-renewable solutions, such as solar power.

Nationally, the UK has strengths in particular in the growing industrial biotechnology sector, in which Kent has some R&D presence.

### **Potential constraints**

Some of the constraints on the development of Kent's potential in the clean technologies sector have been highlighted above, for example in the development of local supply chains for the major investments that could potentially be areas of strength for the county.

Associated with this, a nationally-recognised barrier to innovation in emerging technologies is the initial cost associated with their development and the uncertainty to investors of the potential return and a lack of public sector support for commercialisation of new technologies as opposed to R&D<sup>13</sup>. Investment may therefore not match eventual market potential and recent survey evidence suggests that this may be exacerbated by general investor caution at a time of recession<sup>14</sup>.

Investment shortfall is also likely to be most pronounced in SMEs, which make up the majority of firms operating in the clean tech sector, and in the relatively fragmented market conditions that tend to apply in Kent in relation to new technology development generally (in contrast, for example, to areas such as the M11 Corridor and the Thames Valley). Limited access and promotion of sector specific business support is therefore likely to provide a further constraint to development, associated with limits on investment.

### **Overcoming barriers**

In the short term, there is a need to better understand the specific needs of environmental technology businesses in Kent. However, public sector action at local level could be focused on:

- **Providing additional, sector-specific business support**, in conjunction with Business Link and Envirobusiness, the environmental technologies sector consortium
- **Developing local financing support programmes** targeted at gaps in current public sector funding provision and in response to current recessionary pressures
- **Raising demand**, for example through specifications in public buildings (see Section 2.7) and through public sector procurement requirements.

## **2.9. Electronics, ICT and remote working**

### **The opportunity**

In addition to those employed directly by the ICT sector the majority of the workforce is of course engaged in occupations that are impacted heavily by the development of information and communications technology.

Electronics and ICT present two key areas of opportunity for Kent. Firstly, demand will increase for electronic devices with applications in low carbon products (for example in photovoltaic solar cells, or in the management of heating and ventilation systems)<sup>15</sup>. Secondly, improved use of ICT presents opportunities to generate carbon savings throughout the economy, through reductions in the need to travel and the provision of 'virtual' services and products as substitutes for physical goods. This offers particular

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<sup>13</sup> BERR (2009), IB 2025: Maximising UK Opportunities from Industrial Biotechnology

<sup>14</sup> EIC Environmental Investment Network (2009), The Green Funding Challenge: Environmental investment goes missing in the recession

<sup>15</sup> European Commission (2009), Impact Assessment: Mobilising Information and Communication Technologies to facilitate the transition to an energy efficient, low carbon economy

economic opportunities for Kent given the county's partially rural nature and the greater propensity for home based businesses to be established in rural areas<sup>16</sup>.

The majority of SMEs in the South East increased ICT use in 2008/09, giving the potential to reduce travel-related costs and carbon emissions, even if these were not the main motivating factors<sup>17</sup>.

### **Potential constraints**

Constraints in relation to the development and commercialisation of ICT products may be considered in the same way as those identified for the wider environmental technologies sector in Section 2.8, with small technology companies facing similar market failures in the supply of finance<sup>18</sup>.

Regarding greater use of ICT to reduce transport requirements, a further barrier locally remains a shortfall in the provision of business broadband, especially in rural areas.

### **Overcoming barriers**

The actions set out in Section 2.8 will also support the development of the electronics and ICT sector. Further **investigation of solutions to extend telecommunications infrastructure** will also support the further development of homeworking and virtual products and services.

## **2.10. Business, consultancy and financial services**

### **The opportunity**

Despite the impact of the current recession, employment growth in business and financial services has been strong in recent years, with the sector currently accounting for 111,000 employees and the sector forecast to continue to grow over the coming decade.

Low carbon opportunities in business and financial services cover a number of areas, including:

- Environmental monitoring services
- Environmental consultancy, including regulatory compliance services
- Renewables and energy consultancy
- Carbon financing

Demand for environmental consultancy services focused on ensuring regulatory compliance and cost reduction is expected to grow strongly, with a national 31% increase in demand for environmental and economic advice between 2007 and 2008<sup>19</sup>.

### **Potential constraints**

There are few limits to the development of the business, consultancy and financial sectors, and the barriers to entry (for example, in terms of start-up finance) are less likely to be problematic than for firms concerned with technology development and commercialisation.

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<sup>16</sup> Kent County Council

<sup>17</sup> Business Link (June 2009), South East Business Monitor

<sup>18</sup> BERR (2009), UK Low Carbon Industrial Strategy

<sup>19</sup> BERR (2009), Low Carbon Industrial Strategy

### **Overcoming barriers**

It is unlikely that there are any specific actions required at local level to support the development of opportunities in this sector, other than the delivery of business support services currently provided through organisations such as Business Link. However, further work could be done with firms currently in the sector to assess whether any expansion of existing services would be beneficial.

## **2.11. Agriculture and land-based activities**

### **The opportunity**

Agriculture accounts for around 1% of Kent's GVA, but will account for 5% of the Government's target for reduction in carbon emissions by 2020. Increasing technological reliance in agriculture and increasing transport have increased the sector's carbon footprint. However, there are several opportunities available to business in Kent, including:

- Increasing demand for locally produced food (i.e. Kentish produce for local consumption)
- Increasing demand for production of otherwise imported produce for the domestic market to reduce travel costs (reflected in the development within Kent of Thanet Earth)
- Potential for the development of alternative forms of energy production (such as food waste-to-energy through anaerobic digestion or production of biomass)
- The presence within the county of centres of land-based research and development, such as HRI at East Malling

### **Potential constraints**

Marketing and difficulty of access to major distribution channels presents a potential barrier to the development of the local produce market, although one which investment over several years has been successfully overcoming. Planning constraints present an additional potential barrier in the case of larger food production centres or waste-to-energy facilities

### **Overcoming barriers**

Continued support for local produce marketing, such as via Produced in Kent, will help to overcome some of the marketing constraints that would otherwise exist. The sector may also benefit from the actions set out in relation to clean technologies (for waste reducing technologies for agricultural application) and localised energy generation set out above.

## **2.12. The wider economy**

### **The opportunity**

Aside from the specific opportunities in 'low carbon' sectors, there is considerable potential for businesses in non-LGCES parts of the economy to benefit from the transition to lower carbon use.

Rising customer demand (from the private as well as the public sectors) for improved environmental sustainability is also increasing the need for firms to reduce carbon emissions. Within the South East, 36% of SMEs reported that their customers expect them to have 'green credentials', with 49% believing that this will help to give their businesses a competitive edge<sup>20</sup>. This seems to be generally borne out by firms'

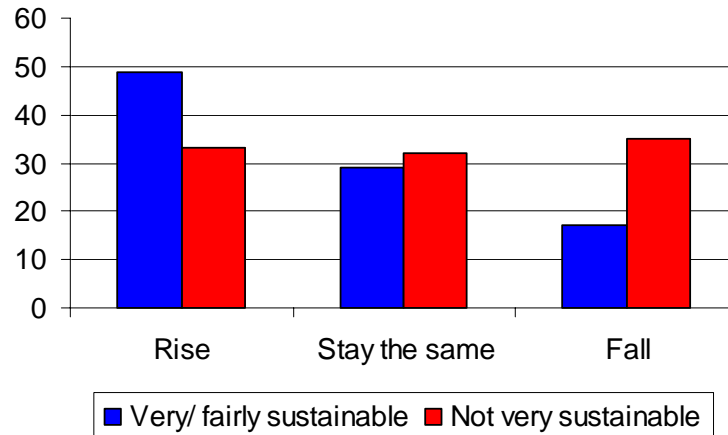
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<sup>20</sup> Business Link (June 2009), South East Business Monitor

predictions of their future prospects, with those considering their businesses to be environmentally 'sustainable' generally anticipating higher turnover during the year ahead<sup>21</sup>.

### Future turnover and estimates of sustainability<sup>22</sup>

Businesses' estimates of the following year's turnover compared with their assessment of their own environmental sustainability (2008)



Potentially therefore there are marketing gains from carbon reduction - even if these cannot be translated into specific financial benefits - and the number of SMEs implementing 'sustainable business practices' (including waste and energy use reduction) has increased over the past three years.

#### Potential constraints

Given increasing levels of activity to implement lower carbon business practices, it would seem that lack of information is not a significant constraint, and the market seems to be moving in the direction of a greater willingness to reduce energy consumption and waste. However, the capital costs of doing so may be prohibitive in some cases, especially for firms in those sectors where customer pressure is lower.

#### Overcoming barriers

Given the efforts made over the past couple of years to streamline and clarify the business support system and given the generally high levels of awareness of opportunities highlighted above, the requirement for additional support and awareness programmes (other than those that already exist through for example Business Link or sector-specific bodies) is probably limited.

However, there may be value in **direct support interventions** (for example grants or loans to SMEs to enable them to reduce energy consumption). Recent survey evidence suggests a frustration with the number of public sector grant and loan products and their accessibility and any potential new product would need to be considered with this in mind.

<sup>21</sup> SEEDA/ Business Link (May 2009), Annual South East Business Sustainability Survey

<sup>22</sup> SEEDA/ Business Link (May 2009), Annual South East Business Sustainability Survey

## 3. Realising Kent's low carbon economic opportunities

### 3.1. Towards an action plan

Chapter 2 set out a range of opportunities - across a variety of sectors - that are open to Kent from the move to an increasingly low carbon economy. It also identified some of the county's key strengths: as a nationally important location for offshore wind; as a county able to build markets for renewable construction and localised energy supply; and as an economy that already benefits from having a relatively low level of industrial energy intensity.

Yet we also face challenges in realising these opportunities, which Chapter 2 also highlighted. And of course, almost every region throughout Europe recognises the pressure to move to a lower carbon economy – so failing to develop these opportunities in Kent will leave the county at a competitive disadvantage.

Section 3.2 attempts to translate some of the potential areas of activity into an outline action plan. This identifies a series of actions under the headings of:

- **Increasing demand:** Actions through which public sector intervention can help to create low carbon markets in Kent, providing business and employment opportunities.
- **Support to business:** Actions through which the public sector can assist Kent businesses in developing innovative low carbon products or services, becoming part of the supply chain for major projects or improving their sustainability
- **Developing skills:** Actions through which the public sector can ensure provision of the skills that the low carbon economy needs – and ensure that the people of Kent are able to access future employment opportunities
- **Increasing market knowledge:** Actions through which we can ensure that we have a sufficiently informed awareness of the market for low carbon goods and services

This action plan is a 'menu' of activities which KCC and its partners can take forward to feasibility stage and beyond, depending on resource availability.

As an overall next step, further pre-feasibility work could be carried out against all the potential actions to establish a shortlist of interventions for further consideration.

### 3.2. The action plan

	<b>Action</b>
	<b>A. Increasing demand</b>
A1	<p><b>Develop the retrofit market</b>            Goal: Stimulate jobs and opportunities in the domestic and commercial retrofit market <i>and</i> reduce energy costs and emissions</p> <p>Medium-term project: Programme to retrofit housing in Kent, focused initially on the county's most disadvantaged areas, with potential for expansion to commercial sector.</p> <p>Immediate action: Assess cost, viability and funding sources for such a project.</p> <p>Anticipated timescales: Target for viability assessment December 2009; potential programme start April 2010.</p> <p>Indicative costs: Viability assessment: £50,000.            Total project: Potentially up to £20 million.</p>
A2	<p><b>Develop demand for localised energy solutions</b>            Goal: Increase demand for and awareness of biomass, wood fuel and solar energy generation</p> <p>Ongoing project: Develop KCC and other public sector buildings to incorporate biomass and other renewable energy facilities.</p> <p>Immediate action: Review success of developments to date and potential areas for improvement.</p> <p>Indicative costs: At present, zero in addition to sums already allocated.</p>
A3	<p><b>Build demand for low-carbon solutions in new developments</b>            Goal: Increase informed and market-aware demand from planners, developers and others involved in the development process for sustainable energy solutions.</p> <p>Short-to-medium term project: Programme of information and events for planners and other development partners.</p> <p>Immediate action: Project development and costing.</p> <p>Indicative costs: Development and costing: Zero additional            Total project: Potentially around £100,000.</p>
A4	<p><b>Attract major inward investment in the renewable and low-carbon energy sector</b>            Goal: Increase the presence of major investors in offshore wind, carbon capture and storage and nuclear energy</p>

	<b>Action</b>
	<p>Ongoing projects:            Develop marketing prospectus for renewable and low carbon energy companies (building on existing work by Locate in Kent and KCC            Build relationships with major investors (linked with Action D1)</p> <p>Indicative costs: Zero additional to resources already allocated within Locate in Kent and KCC.</p>
A5	<p><b>Build the market through procurement</b>            Goal: Use the public sector’s role as a purchaser to encourage firms to adopt energy reducing technologies.</p> <p>Ongoing project: Provide advice to firms in public sector supply chain.</p> <p>Indicative costs: Zero; currently delivered.</p> <p>Short-to-medium term project: Increase requirement for carbon reducing measures through public sector contracting.</p> <p>Indicative costs: To be determined</p>
<b>B. Support to business</b>	
B1	<p><b>Venture capital for LGCES businesses</b>            Goal: Accelerate the development of small and medium sized enterprises in emerging and potentially high growth low carbon sectors.</p> <p>Medium-to-long term project: Establish grant and/ or loan fund for SMEs based in Kent operating in the environmental, renewable energy and low carbon technology sectors for innovative projects and business plan development. Potentially, this fund could be combined with similar measures for high-growth businesses in other sectors, based on the emerging Sectors Strategy and KCC’s commitment to a sectorally-based approach</p> <p>Immediate action: Develop feasibility for a grant and/ or loan fund.</p> <p>Indicative costs: Feasibility study: £50,000            Total project: Potentially around £1 million</p>
B2	<p><b>Enhanced business support package for LGCES businesses with high growth potential</b>            Goal: Accelerate the development of small and medium sized enterprises in emerging and potentially high growth low carbon sectors.</p> <p>Medium-term project: Establish a programme of business advice and support, consistent with that offered by Business Link, to fill the ‘gap’ between generic business support and that offered by the Innovation and Growth Team to a limited number of high growth firms. Essentially, this would operate as a ‘pre-IGT’ programme. This could run in parallel with Project B1.</p>

	<b>Action</b>
	<p>Immediate action: Develop feasibility and costs, in conjunction with Business Support Kent.</p> <p>Indicative costs: Feasibility study: £10,000 Total project: Potentially £50-100,000</p>
<b>B3</b>	<p><b>Supply chain awareness and development</b> Goal: Enable Kent businesses to access supply chain opportunities presented by major LGCES investment.</p> <p>Short-to-medium term project: Develop programme of events and publicity for Kent businesses in conjunction with Business Link, Envirobusiness South East, Kent Districts and Backing Kent Business partners.</p> <p>Immediate action: a) Event linked with opportunities at London Array in development for early 2010; b) Develop programme</p> <p>Indicative costs: Minimal in addition to existing resources</p>
<b>B4</b>	<p><b>Low carbon business grants scheme</b> Goal: Reduce carbon footprint of non-LGCES SMEs in Kent</p> <p>Medium-term project: Provide programme of small grants to SMEs in Kent to enable them to take advantage of energy-reduction measures (e.g. insulation retrofit or specific industrial processes).</p> <p>Immediate action: Carry out feasibility study and analysis of compatibility with existing schemes.</p> <p>Indicative costs: Feasibility study: £20,000 Total project: Potentially £250,000</p>
	<b>C. Developing skills</b>
<b>C1</b>	<p><b>Suscon</b> Goal: Establish a centre of excellence for sustainable construction.</p> <p>Medium term project: With the higher and further education sectors, establish a centre of excellence at Ebbsfleet, associated with the major development of Kent Thameside. This project currently has indicative funding from the Homes and Communities Agency.</p> <p>Immediate action: Progress existing proposals</p> <p>Indicative costs: £2 million, in conjunction with SEEDA and other partner agencies</p>
<b>C2</b>	<p><b>Skills for sustainable construction and engineering</b> Goal: Improve skills for 14-19 learners in sustainable construction and related</p>

	<b>Action</b>
	<p>fields to develop their future career options.</p> <p>Ongoing and developing project: Develop network of Skills Centres around the county to provide modern, advanced skills training in vocationally-relevant environments associated with industry.</p> <p>Immediate action: Progress current projects and employer links.</p> <p>Indicative cost: Already underway.</p>
C3	<p><b>Skills for renewable energy</b></p> <p>Goal: Link available skills training offer in areas likely to see new investment in renewable energy (such as Thanet) with future employer demand.</p> <p>Short-to-medium term project: Liaise with employers to establish demand and with further education colleges and other providers to ensure that the skills training provided is appropriate to the needs of employers. Linked with transfer of 16-19 commissioning powers to KCC.</p> <p>Immediate action: Already underway.</p> <p>Indicative cost: Zero additional; within framework of 16-19 commissioning.</p>
C4	<p><b>Build university-business links</b></p> <p>Goal: Improve the links between Kent's higher education institutions, industry skills requirements and business development</p> <p>Immediate project: Map existing university expertise and spin-out potential and link with identified skills gaps and potential new opportunities</p> <p>Indicative cost: £5k consultancy.</p>
<b>D. Increasing market knowledge</b>	
D1	<p><b>Consolidate market analysis</b></p> <p>Goal: Establish a comprehensive but practical understanding of the needs of the LGCES sector in Kent and the state of its sub-sectors in order to inform policy and project development</p> <p>Short-to-medium term project: Based on this report, consider further and keep under review the markets, needs and potential interventions associated with the sector, in conjunction with Envirobusiness, Business Link, other business support organisations and the higher education sector.</p> <p>Immediate action: Ongoing; immediate start</p> <p>Indicative costs: Zero in addition to current resources</p>

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