



House of Commons  
Yorkshire and the Humber  
Regional Committee

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# Carbon emission in the Yorkshire and Humber region

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*Written evidence*

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## **Yorkshire and the Humber Regional Committee**

The Yorkshire and the Humber Regional Committee is appointed by the House of Commons to examine regional strategies and the work of regional bodies.

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## Memorandum from HM Government (CAR 01)

### SUMMARY

- The Yorkshire and the Humber’s spatial and economic strategies are driving the reduction of carbon emissions in the region, with local and regional bodies pledged to meet the targets agreed in these strategies, and the targets set nationally. From 2005–07 the region’s full *per capita* emissions fell by 3%.
- A regional Climate Change Partnership oversees carbon reduction activities and communications through “*Your Climate, Our Future—a Climate Change Plan for Yorkshire and the Humber*”. The Plan identifies priorities, for example the built environment and transport, and sets out where partnership working can bring particular impact.
- Activity recognised as being particularly successful in the region include Kirklees Council improving the insulation of its entire housing stock and York Council removing one million cars from the network through its park and ride sites.
- Yorkshire and the Humber has been, and remains, a region of high carbon-emitting industries eg power generation, manufacturing and metals. In emissions that can be influenced at local level, the region is currently ranked sixth of 12 UK regions.
- Yorkshire Forward, with its partners from the business and university sectors, is exploring the emerging opportunities presented by the need to reduce carbon emissions regionally and nationally, for example in new technology and skills.

### LEVELS OF CARBON EMISSIONS

1. The Climate Change Act 2008<sup>1</sup> introduced a legally binding framework to cut greenhouse gas emissions, with a target of reducing emissions by 80% on 1990 levels by 2050.

2. Yorkshire and the Humber is a region of power generation and manufacturing industry. The region has some of the largest power stations in the UK—Drax, Eggborough and Ferrybridge—and other large emissions sources include the metals, chemicals, and cement and lime industries, see Figure 1. Environment Agency regulated industry in Yorkshire and the Humber produced 64 million tonnes of greenhouse gases (CO<sub>2</sub> equivalent) in 2008, see Annex 1 Table 1.1.

3. In 2007, Yorkshire and the Humber was the third highest carbon-emitting region out of 12 UK regions (behind South East and then North West), see Figure 2. Industry and commercial activity accounted for almost 53% of the region’s carbon emissions, whilst the domestic and road transport sectors were responsible for 24% and 23% respectively, see Annex 1 Table 1.2.

4. Local authorities in the region track their progress on reducing carbon emissions through National Indicator 186 (*per capita* emissions in local authority areas). This indicator measures all carbon emissions that a local authority and its partners can reasonably influence, therefore does not include emissions from motorways and some European Union Emissions Trading Scheme<sup>2</sup> installations.

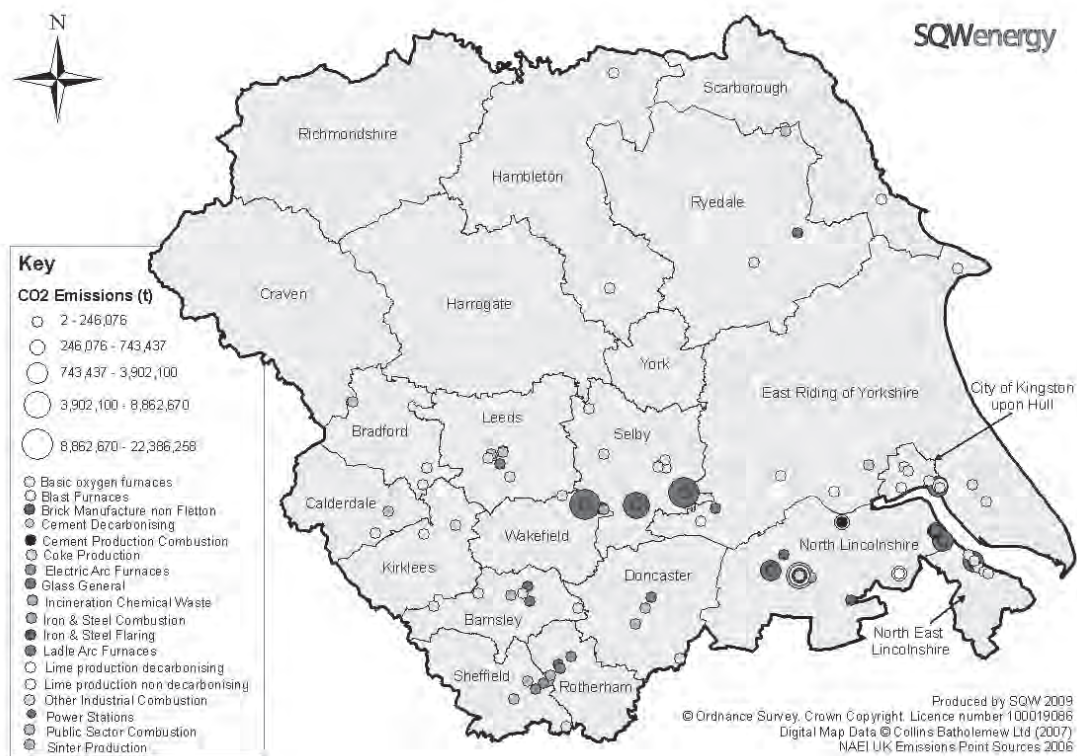
5. From 2005 to 2007, NI186 *per capita* emissions for Yorkshire and the Humber reduced by almost 4%. For this indicator, Yorkshire and the Humber was ranked sixth in total amount of CO<sub>2</sub> emissions of 12 UK regions—behind the South East, North West, Greater London, Scotland and the East of England, see Figure 2.

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<sup>1</sup> See: [http://www.opsi.gov.uk/acts/acts2008/ukpga\\_20080027\\_en\\_1](http://www.opsi.gov.uk/acts/acts2008/ukpga_20080027_en_1)

<sup>2</sup> Under the Emissions Trading Scheme, large emitters of carbon dioxide within the European Union must monitor and annually report their CO<sub>2</sub> emissions, see: [http://ec.europa.eu/environment/climat/emission/index\\_en.htm](http://ec.europa.eu/environment/climat/emission/index_en.htm)

**Figure 1**  
**LARGE POINT SOURCES OF CARBON EMISSIONS IN THE REGION**  
**BY SIZE AND SECTOR, 2006**



Source: SQW Energy using data from the National Atmospheric Emissions Inventory—Top Ten Interventions to Cut Regional Carbon Emissions Report. This report references that in 2006, total emissions (which includes power generation) were 88.6kt CO<sub>2</sub>.

**Figure 2**  
**CO<sub>2</sub> EMISSIONS FOR UK REGIONS, 2007—**  
**MEASURED IN KILOTONNES CO<sub>2</sub> (kt CO<sub>2</sub>)**

Region	Full Local CO <sub>2</sub> Emissions	NI186 CO <sub>2</sub> Emissions
North East	32,183 (11)	20,323 (11)
North West	57,337 (2)	46,594 (2)
Yorkshire and the Humber	51,273 (3)	37,692 (6)
East Midlands	39,024 (9)	32,320 (9)
West Midlands	43,994 (6)	36,777 (7)
East of England	44,106 (5)	39,729 (5)
Greater London	45,486 (4)	44,614 (3)
South East	65,107 (1)	55,062 (1)
South West	40,766 (7)	35,514 (8)
Wales	33,043 (10)	23,827 (10)
Scotland	40,364 (8)	39,735 (4)
Northern Ireland	16,336 (12)	15,049 (12)

Source: DECC 2009; DECC statistics for regional carbon emissions do not include those from power production in the region.

**REDUCING CARBON EMISSIONS**

6. In July 2009, the Government published the *Low Carbon Transition Plan (LCTP)*,<sup>3</sup> which sets out how the UK’s first carbon budget to 2020<sup>4</sup> will be delivered. It includes actions needed in the key sectors of power and heavy industry, homes and communities, workplace and jobs, transport, farming land and waste.

<sup>3</sup> [http://www.decc.gov.uk/en/content/cms/publications/lc\\_trans\\_plan/lc\\_trans\\_plan.aspx](http://www.decc.gov.uk/en/content/cms/publications/lc_trans_plan/lc_trans_plan.aspx)

<sup>4</sup> 34% reduction on 1990 levels by 2020.

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## REGIONAL APPROACH TO REDUCING CARBON EMISSIONS

7. The current Regional Economic and Spatial Strategies for Yorkshire and the Humber<sup>5</sup> both set out policies to mitigate against, and adapt to, climate change and include targets to reduce greenhouse gas emissions by 2016 by 20–25% (compared to 1990 levels).

8. Working with others, Government Office for Yorkshire and The Humber set up a Climate Change Partnership<sup>6</sup> between the public, private and third sector. This has overseen communications and action on climate change since the first regional action plan was produced in 2005. In 2009, the Partnership agreed a new plan—“*Your Climate, Our Future*”<sup>7</sup>, which identified joint actions or where gaps in action needed to be filled that closely match the sectors identified in the LCTP, see paragraph 6. It was signed by the Climate Change Partnership and local authorities, who pledged to help deliver the plan and reduce their emissions. Local areas producing climate change plans and strategies, such as North Yorkshire and Wakefield, are also adopting the same approach as that outlined in “*Your Climate, Our Future*”, providing a continuity of collaborative and individual action from national to local level.

9. Yorkshire Forward has worked strategically to take forward delivery of the targets in the Regional Economic Strategy and by supporting key projects and programmes, primarily through its sponsorship of CO<sub>2</sub>Sense.<sup>8</sup>

10. Local authorities are actively reducing carbon emissions; thirteen out of the fifteen Local Area Agreements in the region have challenging three-year targets to reduce carbon emissions. Three cover their own emissions and ten cover reducing emissions across their area.<sup>9</sup> They are supported by the Climate Change strand of the Regional Improvement and Efficiency Partnership, which is helping local authorities work with schools and businesses to reduce emissions.

## KEY COLLABORATIVE ACTIONS ACROSS SECTORS TO REDUCE EMISSIONS IN THE REGION

11. Details of action to reduce emissions from key sectors of the LCTP are given below. The power and industrial sectors will be considered under Low Carbon Economy—see paragraphs 21-33.

### *Homes and communities*

12. The LCTP requires a cut of 29% in emissions by 2020 on 2008 levels. A number of initiatives are being introduced to produce energy from renewable sources and reduce energy demands in both homes and community buildings, such as schools:

- In Kirklees, the Warm Zone initiative is using home insulation to improve the thermal comfort and energy efficiency of every home in the district over a three year period. It has had major success in reducing emissions and tackling fuel poverty<sup>10</sup> and has won an international award<sup>11</sup> and a Green Flag for innovation as part of the Comprehensive Area Assessment.<sup>12</sup> This is a model that is being followed, to different degrees, across the region by other local authorities.
- The Homes and Communities Agency is developing design guidance and supporting exemplar developments in the region.<sup>13</sup>
- The Energy Savings Trust has advised 140,000 households in the region on energy efficiency measures which have led to emissions reductions of 16kt CO<sub>2</sub>.
- North Yorkshire has dedicated Carbon Reduction Officers working in schools, and Sheffield is developing a low carbon focus to its Building Schools for the Future programme.

### *Workplaces and jobs*

13. The LCTP identifies the need to reduce carbon emissions in the work place by 13% on 2008 levels. It requires all public sector and businesses to reduce energy use and use low carbon technology.

14. All Government departments and agencies are working to meet targets contained in *Sustainable Operations on the Government Estate*.<sup>14</sup> Examples of successful activities in the region include:

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<sup>5</sup> The Regional Economic Strategy (2006) and Regional Spatial Strategy (2008).

<sup>6</sup> Membership of the Climate Change Partnership can be found at <http://www.yourclimate.org/cb.aspx?page=4C8A1AF0-0B64-44A0-990C-619D7495F0EA&dom> The Partnership is supported by a full time co-ordinator funded primarily by Defra and working across regional bodies

<sup>7</sup> ‘Your Climate, Our Future—Climate Change Plan for Yorkshire and Humber 2009-2014’

<sup>8</sup> CO<sub>2</sub>SenseYorkshire is a delivery body that works with businesses and other organisations to reduce carbon emissions, including on resource efficiency, energy and carbon capture and storage. It has a current budget allocation of a £27.63million from April 2009 to end of March 2012

<sup>9</sup> Targets are 3-4% in two years on own emissions and 10-15% across their area from 2005 – 2001

<sup>10</sup> The project has reduced around 33kt CO<sub>2</sub> per year (October 2009) across its housing stock, and estimates reductions of up to 55kt CO<sub>2</sub> per annum by the end of the project. It is funded by £11million Carbon Emissions Reduction Target funding from Scottish Power and £9million from Kirklees Council from its Capital Plan

<sup>11</sup> [www.ashdenawards.org/winners/kirklees09](http://www.ashdenawards.org/winners/kirklees09)

<sup>12</sup> <http://oneplace.direct.gov.uk/pressreleases/yorkshirehumber/pages/kirklees.aspx>

<sup>13</sup> Outwood Ghost, Wakefield, is a new low-rise, eco-housing scheme commissioned by the Yorkshire Housing Association, built with efficient use of sustainable materials. The Code for Sustainable Homes awarded this development a rating of level four, out of seven.

<sup>14</sup> Sustainable Operations on the Government Estate—<http://www.defra.gov.uk/sustainable/government/gov/estates/index.htm>

- Her Majesty’s Revenue and Customs is reducing the emissions across its 58 sites in the region by running carbon savings surveys and promoting public transport for travel to work.
- Barnsley Metropolitan Borough Council provides heat and energy from burning biomass from its own estates and nearby woodlands in a range of public buildings. As a result Barnsley has delivered a 40% emissions reduction target by 2005 and was awarded the Ashden Award in 2009.<sup>15</sup> To help other businesses and authorities follow this example, Yorkshire Forward and the forestry industry are working together to produce a sustainable supply chain of biomass for the region.

Further examples of how a range of other public bodies are reducing emissions in the work place are given at Annex 2.

### *Transport*

15. In July 2009 the Department for Transport (DfT) published its carbon reduction strategy for transport—*Low Carbon Transport: A Greener Future*—which states that low carbon travel must be a genuine, viable and attractive option for all. The DfT Low Carbon Strategy seeks to support a shift to new technologies, promote low carbon choices and use market mechanisms to encourage modal shift.

16. A number of initiatives are being introduced in the region to improve bus services, including using low carbon buses and improved ticketing.<sup>16</sup>

17. South and West Yorkshire Integrated Transport Authorities (ITAs) and the region’s local authorities are helping promote other lower carbon choices:

- York uses bus based park and ride sites to reduce car trips to the city centre. Five existing sites have removed 1m cars from the network and York has recently made a £26 million bid to DfT for the expansion of an existing site plus two new sites.
- Both ITAs are developing rapid transit systems for implementation over the next five years: a £250 million bid for a trolley bus system in Leeds and a conventional bus based scheme in Sheffield/Rotherham.
- Rail services have been improved between Leeds and Sheffield since 2004 and now a half hourly semi-fast service provides an alternative to the car.
- Cycling is being encouraged through the use of Greenways, such as the Isle of Axholme Greenway, and the recently announced DfT supported initiative to support cycle hubs at rail stations with the first one under construction in Leeds.

A full description of DfT supported work to reduce emissions appears at Annex 2.

### *Farming land use and waste*

18. The LCTP requires a cut of 7% of emissions from this sector by 2020; this includes protecting carbon sources that are locked in soils and forest. In Yorkshire and the Humber, the Forestry Commission will remove carbon dioxide from the atmosphere<sup>17</sup> by planting new woodlands and increasing the level of management in existing woodlands. It is joining up with the National Health Service on a plan to plant 1.3 million trees on the NHS estate over the next three to five years, an approach which was piloted in Yorkshire and the Humber.

## INTEGRATED REGIONAL STRATEGY

19. Legislation<sup>18</sup> providing for new integrated Regional Strategies comes into effect on 1 April 2010, which will replace the existing regional economic, spatial, transport and housing strategies. They will more effectively align and prioritise public and private sector investment and activity to achieve long term goals, including tackling climate change,<sup>19</sup> carbon reduction and moving to a low carbon economy.<sup>20</sup>

20. The integrated strategy will set out policies to reduce carbon emissions from homes, industry and transport by prioritising investment and aligning activities to:

- support economic development in low carbon sectors of particular relevance to the region
- reduce the need to travel, especially by private car, through the better location of development, stronger transport demand management, and greater priority given to investment in public transport
- encourage better energy and resource efficient buildings

<sup>15</sup> [www.ashdenawards.org/winners/kirklees09](http://www.ashdenawards.org/winners/kirklees09)

<sup>16</sup> £1.7 million is going to First West and North Yorkshire to support the purchase of 22 new vehicles. South and West Yorkshire Integrated Transport Authorities will receive £2.2 million each to help make Smartcard ticketing a reality by 2015

<sup>17</sup> The current regional woodland resource extends to 92,000ha’s and this has the capacity to remove 1.79kt CO<sub>2</sub> from the atmosphere every year. Over the last five years the Forestry Commission has supported the creation of a further 1,500 ha of new woodland which will remove an additional 22.5kt CO<sub>2</sub> annually.

<sup>18</sup> Local Democracy, Economic Development and Construction Act 2009.

<sup>19</sup> S70(4) of the LDEDC Act 2009 requires Regional Strategies to contain policies designed to contribute to the mitigation of, and adaptation to, climate change.

<sup>20</sup> Draft Policy Statement on Regional Strategies para 2.1(CLG/BIS August 2009)

- increase renewable energy production
- facilitate sustainable waste management.

21. Regional Strategies are the joint responsibility of Regional Development Agencies and local authorities. In Yorkshire and the Humber new regional arrangements were established from 1 April 2009: a Joint Regional Board made up of eight Yorkshire Forward Board members and eight local authority leaders supported by advisory thematic boards. There is also a Sustainable Development Board, with an independent Chair whose role is to champion the principles of sustainable development and provide constructive challenges where appropriate. The plan is to produce a draft regional strategy by March 2011 and have a final strategy formally agreed by October 2012. The strategy will set out policies to reduce carbon emissions from homes, industry and transport by prioritising investment and aligning activities.

#### THE LOW-CARBON ECONOMY

22. The government launched the *UK Low Carbon Industrial Strategy*<sup>21</sup> on 15 July 2009. The core objective of the strategy is to ensure that British businesses and workers are equipped to maximise the economic opportunities and minimise the costs of the transition to a low carbon economy. Yorkshire Forward leads in Yorkshire and the Humber on implementing this strategy.

#### ACTION ON KEY CARBON INTENSIVE INDUSTRIES

23. In Yorkshire and the Humber, major energy intensive industries are looking to reduce carbon emissions by using renewable energy or by ensuring that greenhouse gases produced are not emitted into the atmosphere by using carbon capture and storage. Key projects are:

- Wind Power Generation—the Crown Estates recently announced the successful development partners for its Round 3 leasing competition for Marine Wind Power generation. The Dogger Bank zone and the Hornsea zone are both located off the coast of Yorkshire and the Humber, and have a target installed capacity of 9GW and 4GW respectively.
- Biomass Energy—Drax is burning sustainable sources of biomass at its current power stations and has plans to develop three new biomass power stations in the region. To support a regional supply chain, CO<sub>2</sub>Sense is building a mill to produce wood pellets near Selby.
- Carbon Capture and Storage—the European Union has announced funding to support a major scale demonstration project in the region at the proposed Hatfield Power Plant.<sup>22</sup> The region also has a partnership that is working to develop a major scheme to capture the emissions of power stations and energy intensive industry and store it in former gas fields under the North Sea. This could store up to 60 million tonnes of carbon emissions and create 55,000 jobs during construction.

24. Across other sectors there is activity to equip low carbon industry, including the development of new industrial processes. Jointly with the North West of England, the region was recently announced as a Low Carbon Economic Area<sup>23</sup> for the Nuclear Industry, building on the manufacturing and supply chain activity for the nuclear industry spread across Yorkshire.

The Economic Area includes a new Nuclear Advanced Manufacturing Research Centre (NAMRC)<sup>24</sup> which will be based in South Yorkshire alongside the Advanced Manufacturing Research Centre, led by University of Sheffield in partnership with University of Manchester, with Rolls-Royce as the lead industrial partner.

25. Other manufacturing industries in the region are well placed to develop components for low carbon energy generation. David Brown (based in Huddersfield) has just won its first order for wind turbine gearboxes from Clipper Windpower, developing a world-leading 10MW offshore wind turbine for assembly in the North East of England.

26. The Environment Agency is working with the major emitting industries to reduce emissions, including carbon. It will oversee the Carbon Reduction Commitment Energy Efficiency Scheme for large organisations not already covered by the EU Emissions Trading Scheme. This will start in April 2010 and nationally, it is estimated will deliver emissions savings of up to 4.4 million tonnes of carbon dioxide per year by 2020.

<sup>21</sup> <http://www.berr.gov.uk/whatwedo/sectors/lowcarbon/lowcarbonstrategy/page50105.html>

<sup>22</sup> Announcement of 180 million euros from Community funds  
<http://europa.eu/rapid/pressReleasesAction.do?reference=MEMO/09/542>

<sup>23</sup> A policy initiative first announced as part of the Low Carbon Industrial Strategy.

<sup>24</sup> The NAMRC was a commitment under the Low Carbon Industrial Strategy, and is supported by £15 million of government funding from the Strategic Investment Fund and £10 million from Yorkshire Forward. Led by Rolls-Royce, founder industrial partners also include Areva, Westinghouse, Sheffield Forgemasters and NAMTEC.

#### DELIVERING THE LOW CARBON OPPORTUNITY

27. The *UK Low Carbon Industrial Strategy* identifies key sectoral activities that are needed to take forward a low carbon strategy and overcome any barriers.

28. One area identified is the development of new technology. In January the Centre for Low Carbon Futures, a collaboration between Yorkshire Forward, Yorkshire Universities and business to develop key technologies and skills, was launched. This includes working with industry, for example one project involves the Universities of Leeds and Sheffield and aims to provide a test facility, as part of the Low Carbon Combustion Centre located at Beighton near Sheffield

29. On 11 November 2009, the Government published *Skills for Growth*, the national skills strategy. It aims to make the skills system more responsive for employers and individuals. It also outlines how Government will actively target those sectors and markets on which future growth and jobs depend, including advanced manufacturing, engineering construction, life sciences, digital media and technology and low-carbon. These are key sectors to reduce carbon emissions and important in the region.

30. Yorkshire Forward has been working to develop skills across sectors in the region to address the needs for the low carbon economy. Key initiatives in the region include a Sustainable Construction and Renewable Energy Centre at Barnsley College and the National Skills Academy for Construction in Wakefield.

31. As part of the *UK Low Carbon Industrial Strategy*, Government announced the setting up of Forum for a Just Transition.<sup>25</sup> The Forum will advise Government on the issues surrounding the need to ensure that there is a fair distribution of costs and benefits across the economy from the transition to low carbon.

32. The Forum will consider how opportunities can best be created for businesses and workers in those regions where energy intensive industry is most concentrated, and hence, where the economic and social costs of the transition to low carbon are likely to be highest.

#### DEVELOPING LOW CARBON ECONOMIC ACTIVITY ACROSS THE REGION

33. The *UK Low Carbon Industrial Strategy* identifies that to meet Climate Change Act targets there will be a major impact across all businesses and supply chains to produce the low carbon goods and services needed. Key projects include:

- The Carbon Trust is helping industry and public bodies reduce their emissions by examining the way they heat and power their buildings and industrial processes and providing loans to help them achieve these savings. Surveys recommending ways of reducing carbon emissions and saving money have led to a reduction in emissions of 88kt CO<sub>2</sub> in 2008–9. In Yorkshire and the Humber, in the last year the Carbon Trust has provided loans of £4.2 million to 127 organisations, which is expected to lead to a reduction in emissions of 61kt CO<sub>2</sub>.
- Various Defra agencies are working with industries to introduce sustainable consumption and production and resource efficiency by reducing energy, water, materials use and waste. This in turn reduces costs and carbon emissions. Envirowise's company advice line answered 390 calls in 2008–9 and 1065 delegates have attended their events in 2009–10. The National Industrial Symbiosis Programme (NISP) helps companies with more problematic waste streams divert their waste from landfill, reducing CO<sub>2</sub> output in the region by over 65.7kt<sup>26</sup> since its inception. In Yorkshire and the Humber these agencies are working in close collaboration with CO<sub>2</sub>Sense and from April 2010, the work they are doing may form part of the new single body structure for Defra's material resource efficiency work.
- Support is being joined up with broader business advice through these agencies' work with Business Link.

Defra is funding Business Link to provide web based advice to businesses on environmental efficiency, including reducing their carbon emissions.<sup>27</sup>

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<sup>25</sup> The Forum is chaired by Pat McFadden, Minister for Business and David Kidney at DECC and includes representatives from central Government, national, regional and local bodies, Trade Unions and business organisations.

<sup>26</sup> NISP has worked with nearly 700 companies and over 1 million tonnes of material from landfill in Yorkshire and the Humber alone, through a process of innovation and creating clustered business opportunities through structured networking.

<sup>27</sup> [www.businesslink.gov.uk/savingmoney](http://www.businesslink.gov.uk/savingmoney)

**Annex 1****FURTHER INFORMATION ON CARBON DIOXIDE EMISSIONS FROM THE REGION****Table 1.1****ENVIRONMENT AGENCY DATA ON REGULATED INDUSTRY UNDER POLLUTION PREVENTION AND CONTROL—2008**

<i>Region</i>	<i>Total greenhouse gas (GHG) emissions CO<sub>2</sub> equivalent (million tonnes)</i>	<i>GHG emissions CO<sub>2</sub> equivalent from Power &amp; Fuel Sector (million tonnes)</i>	<i>% of global warming potential from CO<sub>2</sub>*</i>
Yorkshire and the Humber	64	53	98.5
North East	24	7	87.6
North West	21	10	90.4
West Midlands	8	5	86.1
East Midlands	42	37	97.9
East of England	14	10	87.4
London	6	4	95.7
South East	26	21	93.1
South West	5	3	83.4
Wales	28	18	97.6

\* This data shows the proportions of global warming potential from regulated industry that come from carbon dioxide rather than the other greenhouse gases. The high values for Yorkshire and the Humber, East Midlands and Wales are mainly due to the dominance of power stations.

**Table 1.2****FULL LOCAL CO<sub>2</sub> EMISSION ESTIMATES BY SECTOR, 2007**

	<i>Industry &amp; Commercial (ktCO<sub>2</sub>)</i>	<i>Domestic (ktCO<sub>2</sub>)</i>	<i>Road Transport (ktCO<sub>2</sub>)</i>	<i>LULUCF (ktCO<sub>2</sub>)</i>	<i>Total (ktCO<sub>2</sub>)</i>	<i>Population ('000s mid-year estimate)</i>	<i>Per capita emissions (t)</i>
Y&H	27,060	12,302	11,585	326	51,273	5,177	9.9
UK	232,945	145,725	136,360	1,815	513,216	60,975	8.4
% of UK	11.6%	8.4%	8.5%	-1.8%	10%	8.5%	

To Note: Data rounded up/down to whole number

LULUCF—Land Use, Land Use Change and Forestry Sector

Source: DECC 2009

**Table 1.3****NI186—PER CAPITA EMISSIONS (TONNES OF CO<sub>2</sub> PER PERSON) BY UK REGION, 2007**

	<i>2007</i>
North East	7.9
North West	6.1
Y&H	7.3
East Midlands	7.4
West Midlands	6.8
East of England	7.0
Greater London	5.9
South East	6.6
South West	6.9
Wales	8.0
Scotland	7.7
Northern Ireland	8.6

Source: DECC 2009

**Table 1.4**  
 NI186—*PER CAPITA EMISSIONS* (TONNES OF CO<sub>2</sub> PER PERSON) BY  
 LOCAL AUTHORITY AREA, 2005 AND 2007

	2005	2007
<i>Humber</i>		
East Riding of Yorkshire	7.8	8.9
Kingston upon Hull	7.4	6.8
North East Lincolnshire	11.7	11.2
North Lincolnshire	14.8	14
<i>North Yorkshire</i>		
Craven	8.9	8.3
Hambelton	11.1	10.7
Harrogate	8.4	8.3
Richmondshire	9.5	9.1
Ryedale	10.8	10.3
Scarborough	7.4	7.1
Selby	12.4	12.2
York	6.9	6.1
<i>South Yorkshire</i>		
Barnsley	7.2	6.7
Doncaster	7.2	6.9
Rotherham	8.2	6.6
Sheffield	6.8	6.5
<i>West Yorkshire</i>		
Bradford	6.2	5.9
Calderdale	6.9	6.6
Kirklees	6.5	6.0
Leeds	6.7	6.3
Wakefield	7.1	6.9
<i>Yorkshire and the Humber</i>	7.6	7.3

Source: DECC 2009

The DECC local and regional CO<sub>2</sub> emissions dataset provides a spatial disaggregation of the national CO<sub>2</sub> inventory on an end user basis, in which emissions from the production and processing of fuels (including electricity) are reallocated to users of these fuels to reflect the total emissions relating to that fuel use.

This is in contrast to “at source” emissions in which all emissions are attributed to the sector that emits them directly.

The end user basis for reporting emissions has been chosen for this dataset because it fully accounts for the emissions from energy use at the local level and does not penalise local areas for emissions from the production of energy which is then “exported” to other areas. The method used follows as closely as possible that used for the end user emissions calculated as part of the National Atmospheric Emissions Inventory and reported by DECC at the national level. Full report on 2005 to 2007 local and regional CO<sub>2</sub> emissions data can be found at: [http://www.decc.gov.uk/en/content/cms/statistics/climate\\_change/localco2/localco2.aspx](http://www.decc.gov.uk/en/content/cms/statistics/climate_change/localco2/localco2.aspx)

## Annex 2

### DETAILS OF THE ACTIONS OF PUBLIC BODIES IN THE REGION TO REDUCE CARBON EMISSIONS IN THE WORK PLACE

#### DEPARTMENT FOR TRANSPORT (DfT)

The Department for Transport Low Carbon Strategy seeks to support a shift to new technologies, promote low carbon choices and use market mechanisms to encourage modal shift. In December 2009 DfT announced the beneficiaries of its £30 million programme to support the purchase of low carbon buses, with £1.7m going to First West and North Yorkshire to support the purchase of 22 new vehicles.

Bus Service Operators Grant was reformed in April 2009 to incentivise bus operators to use low carbon buses and become more fuel efficient. Further reforms due for April 2010 will encourage operators to install Smartcard (paperless) ticketing technology so that boarding times can be speeded up and buses spend less time idling at stops. As part of the DfT’s Smart Ticketing Strategy both South and West Yorkshire Integrated Transport Authorities (ITAs) will receive £2.2 million to help make Smartcards a reality by 2015. The authorities hope to supplement this resource with a modest amount of funding from the Regional Funding Allocations so that a region wide scheme can be implemented.

Both ITAs and all the region's local authorities are promoting lower carbon choices. York has a long established policy of bus based park and ride sites to reduce car trips in the City Centre, with five sites removing 1m cars from the network, and has lodged a bid with DfT for a £26 million expansion of an existing site plus two new sites. Both South and West Yorkshire hope to introduce bus based rapid transit systems over the next five years. Leeds has a £250 million bid lodged with DfT for a trolley bus system and South Yorkshire has more modest bus based schemes under development to provide fast reliable links between Sheffield and Rotherham. Rail continues to grow in popularity and both ITAs are actively trying to improve services with the new hourly semi-fast service between Leeds and Sheffield introduced in 2004 as a viable alternative to the car. This has now become half hourly with every other train extended to serve Nottingham.

Cycling and walking are being promoted through a range of initiatives. Local authorities are installing cycle lanes and advance stop lines wherever possible to make cycling a safer option on the highway and off road routes such as the Isle of Axholme Greenway in North Lincolnshire and the Spen Valley Greenway in Kirklees provide both leisure and commuting facilities. Cycle facilities are being improved at many rail stations and the recent DfT supported initiative to install "Cycle Hubs" at railway stations offering secure storage, sales, repair and rental. The first pilot is being constructed in partnership with Northern Rail at Leeds.

To help strengthen the market for low carbon transport, the new Local Transport Act will make it easier for local authorities to specify fares and frequencies for bus travel through Statutory Quality Partnership Schemes (SQPSs). South Yorkshire ITA has put in place the country's first Statutory Partnership scheme in north Sheffield to prescribed quality standards, whilst a second SQPS for Barnsley (Interchange, Town Centre and A61 Wakefield Road) is due to go live in May 2010. Both ITAs are also considering when and if Quality Contracts are appropriate.

The Government has introduced free off peak bus travel for older and disabled people to make public transport more affordable and the region's ITAs have introduced six free bus services in seven urban areas to link up key destinations and transport interchanges to make public transport a more attractive option.

Facilities for rail freight are being improved, specifically to encourage rail freight to and from the ports on the North and South Bank of the Humber. On the North Bank, improvements to the Hull Docks branch line (£13.1 million) have been implemented by Network Rail with support from The Northern Way, Yorkshire Forward and Associated British Ports. Partial double tracking increases capacity from ten to 22 trains in each direction per day. On the South Bank, £10 million has been invested in the Brigg line to allow the movement of regular scheduled freight. In addition to this the region has several facilities for the transfer of freight from road to rail and *vice-versa*—including those at Wakefield Europort and Doncaster Railport.

#### DEPARTMENT FOR WORK AND PENSIONS (DWP)

DWP has reduced emissions from their 94 buildings in Yorkshire and the Humber by 12.3% over the last two years.

#### ENVIRONMENT AGENCY

The Environment Agency in Yorkshire and Humber regulates companies that produce 26% of greenhouse gas emissions from all regulated industry in England and Wales. The Environment Agency regulated industry in Yorkshire and the Humber produced 64 million tonnes of greenhouse gases (CO<sub>2</sub> equivalent) in 2008. Over 98% of this emission is CO<sub>2</sub>. In Yorkshire and the Humber 56% of the region's regulated greenhouse gas emissions come from just three large coal-fired power stations in the Lower Aire valley—Drax, Eggborough and Ferrybridge. (Source: Pollution Inventory Environment Agency)

The Environment Agency has been working with operators to implement efficiency measures as a way of reducing greenhouse gas emissions per unit of production. A recent redesign of the Drax power station turbine blades achieved an efficiency saving of 4% at a project cost of £100million and Drax now claims to achieve 40% thermal efficiency at full load, the most efficient coal-fired station in the country. (Source: Environment Agency)

Greenhouse gas emissions from the region's industry regulated by the Environment Agency are dominated by emissions from large coal fired power stations and can vary from year to year depending on production. These emissions have reduced by 12 per cent compared to emissions in 1990 (State of the Environment Report—Yorkshire and Humber).

However, significant reductions of nitrous oxide, a powerful greenhouse gas, have also been achieved under the Large Combustion Plant Directive. Between 1990 and 2008 regulated greenhouse gas emissions reduced by 7.2% and 27% of this reduction was non-CO<sub>2</sub>.

Between 1990 and 2008 regulated CO<sub>2</sub> emissions reduced by 5.4%. The reductions happened during the 1990s and there has been an increase since 1998 (greenhouse gas 5.4%, CO<sub>2</sub> 6.6%). This would have been even greater if looking at 2007 figures—in 2008 Ferrybridge had significant outages. (Source: Pollution Inventory Environment Agency)

The main regulatory instruments available are EU Emissions Trading Scheme (ETS) for installations with particularly high energy use and the Carbon Reduction Commitment (CRC) Energy Efficiency Scheme for large organisations not already covered by ETS. CRC will start in April 2010.

The CRC across England and Wales is estimated to deliver emissions savings of up to 4.4 million tonnes of carbon dioxide per year by 2020. Analysis indicates that by improving energy efficiency, CRC will achieve cost-effective emissions reductions, saving participants money, and enabling green growth—benefiting the economy by £1 billion by 2020. The Environment Agency estimates that 5,000 organisations will register for CRC as a participant. The Agency estimates that up to 20,000 organisations will register for CRC as an organisation that needs to make an Information Disclosure.

In 2006, landfill sites in Yorkshire and the Humber added the equivalent of 2.5% to the region's direct carbon dioxide emissions. (Yorkshire and the Humber—Progress in the Region 2008) Methane from landfill sites comprises only just over 1% of the total global warming potential of the region's industry but it is a far more powerful warming effect and survives in the atmosphere for a much shorter period than CO<sub>2</sub>. This means that prompt action on greenhouse gases like methane is essential to reach an early peak of greenhouse gases in the atmosphere and limit the overall temperature rise.

The Environment Agency's aim, as part of its Corporate Strategy, is to reduce its 2006–07 carbon emissions by 33% by 2015. Additionally, it has signed up to the 10:10 commitment; to reduce CO<sub>2</sub> emissions by 10% in 2010. To do this it will make its buildings as energy efficient as possible, eliminate travel wherever possible, run its vehicles on waste-derived bio-diesel where it has the facilities to site diesel tanks, invest in renewable technologies, and aspire to generate 3% of its own energy by 2015.

The Environment Agency already has voltage optimisation at several offices, and it will be rolled out to the rest during 2010–11, reducing its office electrical consumption by around 10%. It is working with Partnership for Renewables to establish wind turbines on open Environment Agency land, such as flood storage land and riverbanks. These are set to be in place by 2011 in the Yorkshire area and could save 2,800 tons of carbon dioxide and generate enough electricity to power about 1,100 homes.

The Environment Agency is working in partnership as part of Local Strategic Partnerships and others to support achievement of carbon emission reductions. Its partnership project work generally focuses on climate change adaptation actions.

## Energy Savings Trust (EST)

### *Reducing carbon emissions*

The Energy Saving Trust is active within the region: encouraging and facilitating the uptake of carbon reduction activities in the domestic, renewable energy, and travel sectors. The Trust has two key officers deployed in the region providing high level strategic support and development infrastructure for regional bodies and local authorities.

In addition the Trust operates two Energy Saving Trust advice centres which provide advice and assistance to individuals, communities and local authorities through a dedicated advice line. These centres also provide support to local energy efficiency and renewable energy schemes and projects installing measures into homes; this is combined with work to develop the supply chain infrastructure specifically for renewables.

Supported schemes include local initiatives such as local Warm Zones and The Energy Partnership as well as National schemes including Warm Front and National Energy Action. The Energy Saving Trust's activities in the region combine work for DECC, CLG and DfT in a coordinated and personalised service.

The Energy Saving Trust is working through its advice centres to provide and assist the delivery of the acclaimed Kirklees Warm Zone, energy efficiency and renewable energy grants across North Yorkshire and York, and area based delivery schemes in Wakefield and the Leeds City Region. The Wakefield scheme for example has referred over 50% of the households it has assessed to installers for energy efficiency measures to be installed.

The Energy Saving Trust is helping the regional climate change partnership develop communication campaigns to bring about behaviour change and the take up of energy saving measures.

### *Energy Saving Trust Advice Centre Data for the Yorkshire and the Humber—2008–09*

The 2008–09 year's data comprises of two Energy Saving Trust Advice Centres, and the EST Energy Efficiency Advice Centres which were in place at the beginning of the year in the region. This analysis aggregates all the advice centres together to generate a single regional saving.

The advice centres together advised over 140,000 households between April 2008 and March 2009. Over 60% of advice centre customers were 55 years and over and over 70% of households were semi-detached and detached houses.

The estimated carbon saving that has been influenced from this advice is 16,000 tonnes of CO<sub>2</sub> for the year, and over 400,000 tonnes of lifetime CO<sub>2</sub> (ie taking account of the life of the energy saving measure). The lifetime savings were achieved primarily through the following activities:

- Installation of new loft insulation or loft top up.
- Cavity wall insulation.
- Other installed measures—such as draft proofing and solid wall insulation.

Note on demographic analysis:

1. The advice centre customers tended to be older in age:

18-34	8%
35-54	28%
55-65	27%
65+	36%

2. The dwellings of advice centre customers (including those dwellings without installations) were as follows:

Flats	6%
Terraced	22%
Detached houses	33%
Semi detached houses	39%

The Energy Saving Trust is working with Yorkshire Forward and partners to support European Regional Development Fund programmes to deliver economic recovery through innovative energy efficiency schemes in priority communities.

#### *The low carbon economy*

The Integrated Regional Strategy will help coordinate the Trust's work in developing the supply chain infrastructure by providing an overarching recognition and regional commitment to this field of work, which does not exist at the present time. In pursuit of this, the Energy Saving Trust is facilitating the Yorkshire and Humber Microgeneration Partnership and sponsoring its conference and awards.

#### FORESTRY COMMISSION

The Forestry Commission is working with regional partners to both reduce carbon emissions and to move the region towards a low carbon economy. As highlighted in the recently published report<sup>28</sup> "*Combating Climate Change—a Role for UK Forests*" the forestry sector can make a real contribution to emissions reduction targets through sequestering carbon in the biomass of new woodlands and through the use of woodfuel as a source of renewable energy.

The Forestry Commission will continue to support woodland creation and will also work with partners to facilitate the development of the woodfuel market. The current regional woodland resource extends to 92,000 ha's and this has the capacity to remove 736kt CO<sub>2</sub><sup>29</sup> from the atmosphere every year. Over the last five years, the Forestry Commission has supported the creation of a further 1,500 ha of new woodland which will remove an additional 12kt CO<sub>2</sub>/annually.

The Forestry Commission estimates that 50% of the regions 92,000 ha of woodland are currently under-managed<sup>30</sup> and this provides a significant opportunity to develop the region's renewable energy capacity. Work in South Yorkshire has already resulted in the creation of England's most significant heat clusters being established with an installed capacity of 6.5Mw.

The Forestry Commission has also taken a positive role in promoting sustainable development and the use of renewable energy. This can be demonstrated by the award winning Dalby Forest Visitor Centre<sup>31</sup> which incorporates a biomass heating system and both a wind turbine and solar panels to provide electricity.

#### HER MAJESTY'S REVENUE AND CUSTOMS (HMRC)

HMRC has 5,347 staff working in the region, based at 58 different sites. To reduce energy usage and carbon emissions at these sites, HMRC is in the process of introducing automatic meter reading and carrying out a programme of carbon saving surveys. Recycling stations are also being installed for the disposal of all office waste. Staff located in West Yorkshire are encouraged to take advantage of a public transport discount scheme for their commute to work. HMRC has pledged its support for the 10:10 initiative. One of its aims is to match its 2009–10 commitment to reduce carbon emissions from business travel by 10%.

<sup>28</sup> Combating Climate Change—a Role for UK Forests. An assessment of the potential of the UK's trees and woodlands to mitigate and adapt to climate change (2009).

<sup>29</sup> Based on an average carbon accumulation rate of 8ktCO<sub>2</sub>/ha/yr (Read Report 2009).

<sup>30</sup> England Woodfuel Strategy (2007) regional analysis.

<sup>31</sup> Prime Minister's Better Public Building Award 2007.

#### NATIONAL HEALTH SERVICE (NHS)

NHS Yorkshire and the Humber, the strategic health authority (SHA), is an active member of the Regional Climate Change Partnership and is promoting joint work with other agencies including a workshop with local authority sustainability leads in April 2010. The SHA provided a contributing author to the *NHS Carbon Reduction Strategy* and has now extended its sustainability approach, with a new regional framework being considered by NHS Chief Executives and Chairs over the next few months. This systematically expands the NHS efforts beyond CO<sub>2</sub> reduction to include climate change adaptation to buildings and services, business continuity and emergency planning.

A separate “Made in Yorkshire” initiative, with a national reach, is the NHS Forest piloted in the region in 2009. This aims to plant 1.3 million trees on the NHS estate over the next three to five years and also aims to improve the healing environment, provide exercise opportunities for communities and create local engagement with the NHS, especially schools.

11 February 2010

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### **Memorandum from Local Government Yorkshire & Humber (LGYH) (CAR 02)**

#### EXECUTIVE SUMMARY OF EVIDENCE

- i. Yorkshire and Humber has a strong industrial heritage which it aims to use as a springboard to drive forward a low carbon economy. For example, we are uniquely placed at the forefront of developing carbon capture and storage technology for low carbon energy production together with the job opportunities that will create.
- ii. Local government with its democratic mandate is best placed to take forward carbon reduction actions locally and at city region level through the services they deliver and contact they have with their constituents. Many of our local authorities boast exemplar practice with further collaboration and dissemination being led through YoHr Space, the Regional Improvement and Efficiency Partnership.
- iii. Existing strong partnerships across local government that connect with regional agencies and business will be the cornerstone of our future success. Together, we will need to overcome the barriers to a low carbon future and seize the initiative through developing skills and knowledge, improving high speed rail connectivity, and securing more freedoms to take ownership of our future.

#### LEVELS OF CARBON EMISSIONS

1. With our industrial base of power stations, oil refineries and chemical plants we have one of the most carbon intensive economies in Europe. Yorkshire and Humber is the third highest emitter of carbon of the nine English regions, with only the North West and South East being higher.
2. Total emissions for the region as calculated by the Department for Energy and Climate Change (DECC) are 51,273kt CO<sub>2</sub>. Our industries and commerce account for around half of our total carbon emissions at 27,060kt CO<sub>2</sub> (53%), whilst domestic emissions at 12,303kt CO<sub>2</sub> (24%) and road transport at 11,585kt CO<sub>2</sub> (23%) are broadly equal and account for around a quarter of the total each.
3. The principle carbon emitting industries are from production of metals, cement, and lime — all based in the North Lincolnshire local authority area. We also have a significant number of the largest fossil fuel fired power stations in the UK at Drax, Eggborough and Ferrybridge, based in the Selby and Wakefield local authority areas.
4. Population growth and housing growth will potentially have a major impact on carbon emissions in the future. With a population of over five million residents and over 2 million households, Yorkshire and Humber already has three of the five most populated local authority areas in the UK in Leeds, Sheffield and Bradford. Projections indicate that by 2026 we might see 400,000 more households with a population of over six million residents which will present further challenges in carbon reduction.

#### REDUCING CARBON EMISSIONS

5. Activity on tackling climate change in the region is widespread. Partnerships across business, public and voluntary sectors are working jointly and individually to better understand the challenges, risks and mitigation actions required to secure a safe, prosperous and sustainable future for the region. CO<sub>2</sub> Sense Yorkshire leads on behalf of the region’s Regional Development Agency, Yorkshire Forward, on not only supporting businesses develop tools that help their own organisations be responsible, but also to take advantage of business opportunities that a low carbon economy will bring.
6. Voluntary sector organisations such as Groundwork and Global Action Plan add value through working closely with the public sector to deliver environmental improvement projects and engage with citizens at a practical level.

7. However, as the government has already identified, local authorities who have the democratic mandate in local areas, are often best placed to strategically drive forward long lasting and real change through the services and ongoing relationship they have with local people and the places in which they live.

8. There are a number of strategic drivers within local government for delivering on climate change. The performance framework of national indicators requires all local authorities to report on the environmental impact of local authority operations, carbon emissions from the whole local authority area, tackling fuel poverty, and preparing for the effects of a changing climate. In addition to these, almost all local strategic partnerships (LSPs) have adopted relevant climate change national indicators within their Local Area Agreement (and those that have not have prioritised this work anyway).

9. Work through local authority housing and planning departments will also help reduce carbon emissions, for example, through “decent” homes provision and renewable energy generation requirements on new developments. Within the schools setting the curriculum supports the Sustainable Schools programme to highlight the impact of our choices on food, travel, waste and energy.

10. There is evidence through the contribution, strength, and range of networks and partnerships in the region that Yorkshire and Humber has a long tradition of collaborative working across traditional local authority boundaries, particularly on climate change.

11. In 2005 Yorkshire and Humber was the first region to develop a climate change plan through the Regional Climate Change Executive. Membership was drawn together from the key agencies in the region (eg Government Office, Environment Agency) together with representatives nominated from within relevant sectors such as local government and the voluntary sector. As then, the new Partnership is Chaired by a local authority leader and through utilising the resources of its members has been able to work with and support local authorities in taking action.

12. One such example is the Local Area Climate Change Network that brings together all local authority climate change officers and a number of LSP officers to learn, share and collaborate. Network meetings enable officers to find out more about government policy, how it will affect their local authorities and to share best practice. Network meetings over the last twelve months have focused on business support, the Low Carbon Transition Plan, performance data collection and citizen engagement. Most recently the network has played a key role in shaping the work programme for the YoHr Space Climate Change Board.

13. YoHr Space, the Regional Improvement and Efficiency Partnership for Yorkshire and Humber, which is hosted by LGYH, provides tangible support in ensuring value for money by changing the way we work through collective input, shared experiences and common solutions. Climate change was identified as a priority in the Regional Improvement and Efficiency Strategy (RIES) and subsequently a work stream around this theme was established with initial direction provided by the Local Area Climate Change Network.

14. Delivery of the work programme overall will not only see a reduction carbon emissions and preparation for a changing climate, but also result in significant efficiency savings across the region. Improvement will be built on previous successes and further learning developed from models of best practice. Project areas include senior management and elected member leadership, climate change and schools, citizen and business engagement, and adapting to a changing climate.

15. There is evidence that the YoHr Space Climate Change Board is already facilitating wider sharing of information, building relationships between local authorities, and providing a platform for future collaboration. For example, all proposals for their work plan are designed from the bottom up in collaboration with all stakeholders, rather than the use of a competitive bidding system. A number of project ideas have been developed in readiness to take advantage of future funding streams and discussions have started on how we can continue to work collaboratively after the formal end of the YoHr Space programme. Full details of the current work programme are set out in appendix A.

16. Local authorities have also taken a lead individually. There are many exemplar projects across the region from renewable energy production to car sharing schemes. In West Yorkshire, Kirklees has been a long established leader as the first and only authority to join the UK Emissions Trading Scheme in 2002. The council established the largest local authority solar energy project and installed wind turbines on its own buildings. The Kirklees Warm Zone programme offers free insulation to homes regardless of the residents’ financial means, together with the option of interest free loans to home owners to invest in small scale renewable and low carbon technologies for their homes. It is estimated that from the first year of the programme over 10,000 tonnes per annum of CO<sub>2</sub> has been saved.

17. In June 2004, Barnsley MBC adopted a Biomass Implementation Policy, committing it to considering biomass heating systems for all new and refurbished buildings. It has already completed a 470 kW wood-fuelled district heating scheme for 166 flats, and a 500 kW scheme for the council depot. Both of these replaced old coal boilers, but the next scheme will use 800 kW of wood-fuelled district heating in new office buildings, in preference to gas. This work has enabled a small wood-chip supply business to start up, and Barnsley MBC is also starting its own wood-chip supply from Council waste. There is plenty of scope to go further, with 133 coal boilers still in place in Council-owned properties; and significant further potential for local wood supply from forestry management and coppice.

18. LGYH and Yorkshire Forward have established a new working relationship and regional governance arrangements to take forward development of the integrated Regional Strategy known as “The Yorkshire and Humber Strategy”. As required by government energy and climate change will be central to development of this strategy. Earlier concerns about the profile of climate change in the new regional arrangements have been addressed with the Regional Climate Change Partnership represented on the Independent Sustainable Development Advisory Board and a dedicated evidence and drafting work stream on climate change.

19. Development of the Yorkshire and Humber Strategy provides an excellent opportunity to fully embed action on tackling climate change at the heart of plans for the region, but we must be resilient in the aim to decouple economic growth from any adverse impact on the environment.

#### THE LOW CARBON ECONOMY

20. Yorkshire and Humber has a traditional industrial heritage including coal mining, steel production and energy generation. As a region we have contributed heavily towards production of greenhouse gases and therefore to global warming. In response, it is recognised through the Regional Economic Strategy (RES) that the region has set a stretching target to reduce carbon emissions by up to 25% by 2016. To do this we will need to embrace a low-carbon economy.

21. We are well placed to take advantage of the opportunities ahead. We can play to our strengths by optimising our extensive infrastructure in relation to North Sea gas and oil extraction. This will help us move rapidly to low carbon energy production through the use of carbon capture and storage technology. With the support of around €180 million of EU funding the region has the potential to be a world leader in this field — bringing new jobs and opportunities.

22. There will be opportunities around off-shore wind farms with new sites recently being identified by the Crown Estate off our eastern seaboard, together with potential, particularly along the south bank of the Humber, to develop the associated manufacturing and processing plants. We aim for Yorkshire and Humber to have more than one locality with “low-carbon economic area” status.

23. Challenges to achieving these ambitions will be tough. We will need to ensure that our workforce has the necessary knowledge and skills to take advantage of these opportunities so that we don’t lose out to external competition. Carbon emissions associated with supporting industries (such as manufacturing) will need to be minimised. High speed rail has been identified as critical to our success to ensure sustainable connectivity for both people and freight to the South East and across the trans-Pennine corridor. Timescales and uncertainty around High Speed 2 will have to be managed in the interim with upgrades to existing infrastructure.

## APPENDIX A YoHr SPACE

### CLIMATE CHANGE PROGRAMME—OVERVIEW

AS AT 20 JANUARY 2010

#### *Programme Aims*

The YoHr Space Climate Change Programme aims to:

- meet the needs of local areas to support delivery of programmes and services which address climate change and prepare for its impacts. In particular, this will involve helping local authorities to work with their partners to meet these challenges and deliver LAA targets and wider objectives in a sustainable manner.
- support local authorities to deliver their key actions from the Climate Change Plan for Yorkshire & Humber by building on individual local authority and partner actions to deliver a greater outcome through joint working.

#### *Programme Outcomes*

The following outcomes have been developed to ensure joint delivery of key LAA climate change performance measures:

- Highly visible political and senior management leadership on climate change across the region.
- Significant reduction in energy use and carbon emissions from the schools’ estate.
- Duplication of effort eliminated with local authorities naturally seeking collaboration on common climate change issues.
- A strong and supportive network of local authorities helping each other to reduce carbon emissions locally.
- Robust measures in place to reduce the impact of a changing climate, particularly flood risk.

*Project Areas*

- Leadership on climate change
- Taking forward climate change activity in schools
- Engaging citizens and businesses on combating climate change
- Understanding local areas action on climate change

*Funding*

2008–09	£232,886
2009–10	£245,347
2010–11	£245,347 (indicative)
<b>Total</b>	<b>£723,580</b>

**1. LEADERSHIP ON CLIMATE CHANGE***Approach: empowerment and leadership*

To follow the successful approach piloted by West Yorkshire to help senior members and officers understand and support activity on climate change mitigation and adaptation.

<i>Project</i>	<i>Overview</i>	<i>Funding £000</i>
Climate Change Leadership Academy (York & North Yorkshire)	Based on West Yorkshire Leadership Academy — Delivery of four workshops around key climate change indicators of NI188, 195, and 196 with a follow up delivery and outcomes focussed session.	16.2
Climate Change Leadership Academy (South Yorkshire)	Based on West Yorkshire Leadership Academy — Workshops around key climate change indicators of NI188, 195, and 196 with a follow up delivery and outcomes focussed session. Features additional element to produce communications materials and on-going web resource.	20
Climate Change Leadership Academy (Humber Sub-Region)	Based on West Yorkshire Leadership Academy — Delivery of workshops focussed at different stakeholder groups such as elected members, LSP partners, and senior officers — with final session bringing all these groups together.	19.8
Leadership on Carbon Reduction in Schools (West Yorkshire)	Conference for school Headteachers, Chairs' of Governors, and School Bursars to address tackling energy use (and therefore carbon emissions) from the schools estate.	15
Carbon Reduction Commitment Toolkit and Guidance	Provision of a toolkit and guide on CRC specifically designed for local authorities to ensure compliance.	3

**2. TAKING FORWARD CLIMATE CHANGE ACTIVITY IN SCHOOLS***Approach: practice lead*

This involves sharing best practice between local authorities already doing good work in the region on energy efficiency in schools and others on promoting climate change messages in schools. The work will also build on work being promoted through sustainable schools.

<i>Project</i>	<i>Overview</i>	<i>Funding £000</i>
School Engagement Programme (York & North Yorkshire)	Production of a common resource pack, training and events for teachers, heads and bursars to promote reduction in carbon emissions from schools and to promote pro-environmental behaviours of students.	80
School Engagement Programme (South Yorkshire)		90

<i>Project</i>	<i>Overview</i>	<i>Funding £000</i>
Climate Change Challenge for Schools Green Day	To run a green day for 200 individual schools using the Commission for Architecture and Built Environment's (CABE) climate change activity kit for schools.	48

### 3. ENGAGING CITIZENS AND BUSINESSES ON COMBATING CLIMATE CHANGE

#### *Approach: leadership/practice lead*

Engaging citizens and business is a key priority of the Regional Climate Change Plan. There needs to be better understanding of the support already available (eg Energy Savings Trust, CO<sub>2</sub> Sense) to identify gaps in provision where local authorities could add value.

<i>Project One</i>	<i>Overview</i>	<i>Funding £000</i>
Green Product Research	This project will commission research to collate information on companies in the region that provide green business-to-business services and will be presented as an online directory. This will be promoted to business facing organisations, such as green business clubs, Business Link, Chambers of Commerce, Federations of Small Businesses, the Carbon Trust and Envirowise. It will also be promoted to environment policy units, business facing units and procurement units of local authorities throughout Yorkshire and Humber.	30
Engaging the voluntary sector	To commission a programme of workshops and develop a toolkit to engage and assist the third sector (voluntary, community and faith organisations) improve the environmental sustainability of organisations and engage with others to inform the community how they can improve. The project will be designed regionally, but delivered locally.	50
Local Authority Business Environmental Advice	40% of businesses go to local authorities for business advice. Communicating the business climate change message — using Council's as an integral part of the communication network is critical. This project will bring together teams from Economic Development, Planning, Customer Services, and Environmental departments with tailored training.	50

### 4. UNDERSTANDING LOCAL AREAS ACTION ON CLIMATE CHANGE

#### *Approach: geographic support*

To support delivery planning by local authorities in tackling their NI targets, initial support to gather information on activity across all the different sectors in an area.

<i>Project One</i>	<i>Overview</i>	<i>Funding £000</i>
Local Climate Impact Profile – South Yorkshire	The aim of this project is to deliver the first part of the Local Climate Impact Profiles (LCLIPs) for Doncaster, Rotherham and Barnsley local authority areas, and to start off follow up interviews with heads of service.	12.5
Local Climate Impact Profile — North Yorkshire	The media trawl work has been identified as the first stage of work needed to address the needs of the North Yorkshire local areas in preparing for the impacts of climate change. Follow up work will include interviews with heads of service.	12.5
West Yorkshire Adaptation Action Plan	The project aims to create: <ul style="list-style-type: none"> <li>— a comprehensive Adaptation Action Plan for the five West Yorkshire Local Authorities (LAs);</li> </ul>	12.5

<i>Project One</i>	<i>Overview</i>	<i>Funding £000</i>
	<ul style="list-style-type: none"> <li>— well structured evidence for the LAs to progress through levels of NI 188; and</li> <li>— create a single unified framework for consultation, engagement and target setting with key area-wide Local Strategic Partnership (LSP) partners, particularly those working across local authority boundaries, such as the West Yorkshire Fire and Rescue Service, West Yorkshire Police and the NHS.</li> </ul>	

29 January 2010

### **Memorandum from The National Institute of Adult Continuing Education (CAR 03)**

#### OVERCOMING BARRIERS TO REDUCING CARBON EMISSIONS

1. The field of sustainability and transition to a low carbon economy is rising in importance on the adult learning agenda. There is a huge learning need for communities and workplaces to understand sustainability issues in order to bring about changes in lifestyles, consumption patterns and employment aspirations. Adult learning can also support communities to make a constructive contribution to environmental decision making. There will also be a massive training need across the Region to train new entrants to the low carbon industries and to equip the large numbers already employed to retrain, especially low and un-skilled workers, to ensure a just transition to a low carbon economy.

2. NIACE (the National Institute of Adult Continuing Education) has carried out some initial research in this area and is working as a member of the UNESCO Decade of Education for Sustainable Development steering group and the national post-16 partnership in this area. Our work indicates that adult and community learning and voluntary, community and not-for profit organisations are at different stages of introducing sustainability into their work; many are at an early stage and most need support to develop. The pace of development will need to accelerate if organisations across the whole sector are to develop opportunities for learning, especially for those who are living in deprived areas.

3. NIACE is currently supporting organisation in the adult learning and third sectors to share information about learning for sustainable development, and examples of good practice including in our own region can be found on the Excellence Gateway ([www.excellence.gateway.org.uk](http://www.excellence.gateway.org.uk)). We would be happy to provide further details of adult and community learning organisations in the Region who are strong in the field of promoting this type of learning.

4. As you will be aware, funding for learning for sustainable development for adults and families which is not about training for working in a sector but about awareness and understanding of the issues, is restricted. Thus there is scope to develop learning and skills across our region to complement and support regional plans for clean energy developments.

19 January 2010

### **Memorandum from Natural England (CAR 04)**

#### EXECUTIVE SUMMARY

- Natural England is a national Non Departmental Public Body delivering a range of services for the natural environment in Yorkshire and the Humber. Our purpose is “to ensure that the natural environment is conserved, enhanced and managed for the benefit of present and future generations, thereby contributing to sustainable development”. We are working with regional partners to both reduce carbon emissions and move the region towards a low carbon economy.
- Natural England acts as an environmental leader in setting a target to reduce its own carbon emissions by 50% by the end of 2010, from our baseline year of 2007. Our experience shows how setting an ambitious carbon reduction target with the commitment of the Board and our senior managers can drive significant carbon reductions throughout an organisation and within a short timescale.
- Our primary influence on the region’s carbon emissions is through land management via:
  - Agri-environment schemes and Sites of Special Scientific Interest which keep carbon in soil, and help remove carbon from the atmosphere. Especially important in these respects are the region’s peatlands.

- The Energy Crop Scheme which supports biomass production (principally short-rotation coppice and Miscanthus) replacing fossil fuels in energy generation.
- The direct management of our own land holdings, in particular the restoration of peat habitats in the Humberhead Peatlands National Nature Reserve.
- Demonstration Projects, such as the South Pennines Ecosystem Services pilot project.
- Within the region we spent £42 million on Environmental Stewardship (see below) in 2009–10 and the schemes currently cover 65% of the available agricultural area. We estimate that as a result of the schemes we have increased the amount of carbon stored in the region's soils by around 290,500 tonnes CO<sub>2</sub> a year, which is equivalent to annual carbon emissions from over 40,000 households. The schemes also make a strong contribution to climate change adaptation, the conservation of the region's biodiversity and maintenance of landscape character. A key priority is to maintain current uptake of the schemes so that the existing stores of carbon being protected are not lost.
- Increasing the carbon stored within the region's peat will make a significant contribution to carbon emissions. Yorkshire and the Humber peat soils are estimated to contain 80-100 million tonnes of carbon. They function as an important reservoir for carbon storage but only when they are in good condition. It is important to safeguard habitats such as the region's blanket bogs because they can degenerate rapidly and have the potential to release substantial volumes of greenhouse gases including methane and carbon. We are committed to initiatives and programmes of work such as the Yorkshire Peat Partnership, Wetland Vision initiative and our work on the Humberhead Peatlands National Nature Reserve to restore and maintain the region's peatlands.
- We estimate that energy crops planted with aid from the Energy Crop Scheme will replace 17,231 tonnes of coal, offer a carbon reduction of 54,084 tonnes of CO<sub>2</sub> per year and store 2,230 tonnes of carbon per year.
- The region's upland areas have significant potential to provide a broad range of ecosystem services of enormous benefit to society. These areas are vital for carbon storage, flood risk management, water quality & supply, and recreation, as well as being home to many rare and important species. Natural England is developing an ecosystem service pilot in the Southern Pennines. Through sound science and financial innovation we seek to develop new partnerships that will link land managers, as providers of ecosystem services, with those that benefit from them, such as local communities.

## 1. BACKGROUND

1.1. Natural England is a statutory body created in 2006 under the Natural Environment and Rural Communities Act by bringing together English Nature and parts of the Rural Development Service and the Countryside Agency. Natural England's purpose is "to ensure that the natural environment is conserved, enhanced and managed for the benefit of present and future generations, thereby contributing to sustainable development". It is from this perspective that Natural England in the region felt able to respond, on the following items:

- which organisations are active in the region to reduce carbon emissions;
- which branches of central, regional and local government are working to reduce carbon emissions in the region, and the extent to which they are working together;
- what projects are operating or are planned to reduce carbon emissions in the region, with illustrative examples of how they are working and their prospects for success.

## 2. REDUCING NATURAL ENGLAND'S CARBON EMISSIONS

2.1. At our vesting in October 2006, we set out our target to reduce our carbon emissions by 50% by the end of 2010. To further demonstrate our environmental leadership we will achieve this target through direct reductions in emissions and not through offsetting or passing on the carbon burden to our customers, suppliers or staff. We have committed to ensuring that delivering this target will be cost neutral with all necessary investment paid back in five years.

2.2. A baseline of 6676 tCO<sub>2</sub> was established for the 2007 calendar year. This was based on the methodology set out in ISO14064 and Defra carbon emission factors. Approximately two-thirds of the baseline was made up of carbon emitted through energy consumption on our built estate whilst business travel accounted for the remaining third.

2.3. The majority of our offices are leased from Defra. Defra's support for achieving our target has resulted in close partnership working to improve the energy performance of shared buildings across the estate.

2.4. By the end of October 2009, we had achieved a reduction of 26% from the 2007 baseline. Further actions will be implemented throughout 2010 in order to try and reach our ambitious 50% reduction target. By April 2010 within the Yorkshire and the Humber region the six administrative offices inherited at vesting

will have been closed and staff relocated to just three offices in Leeds, York and Northallerton. All offices within the region will have an Energy Performance Certificate (EPC) rating of at least Category C and are in easy walking distance of main line railway stations.

2.5. As a result of shifting our accommodation to city/town centre locations with strong public transport links we anticipate a significant switch to public transport amongst our staff, which will generate additional carbon reductions.

2.6. Carbon reductions through estate rationalisation have been supplemented by the introduction of a green travel policy and flexible working options for staff. Senior level commitment and staff ownership of the carbon reduction target has been critical to enabling and maintaining more sustainable ways of working.

2.7. In the region we were set a target to reduce travel emissions by 20%, a saving of 36,613 kgCO<sub>2</sub> by 31 March 2010. By November 2009 we had reduced travel emissions by 19.86% — a saving of 36,357kg CO<sub>2</sub>.

2.8. Our experience and progress over the short term could readily be replicated in other parts of the public sector given the right level of commitment and support.

### 3. REDUCING EMISSIONS—THE ROLE OF AGRI-ENVIRONMENT SCHEMES

3.1. Natural England is responsible for the delivery of agri-environment schemes (Environmental Stewardship) in the region. The schemes enable us to work with land managers to farm their land whilst at the same time providing environmental benefits. They operate through 10-year voluntary agreements. They are funded through the Rural Development Programme for England (RDPE), made up of European and UK Government funds. Responding to climate change was introduced as a new over-arching theme of Environmental Stewardship in 2008.

3.2. Within the region we spent £42 million on Environmental Stewardship in 2009–10 and the schemes currently cover 65% of the available agricultural area in the region.

3.3. There are three ways in which agri-environment schemes contribute to reducing carbon emissions:

- By increasing the carbon stored within soils and vegetation. Examples include buffer strips in arable and grassland, hedgerow management and the conservation of archaeological features. We estimate that as a result of the schemes we have increased the amount of carbon stored in the region's soils by around 90,500 tonnes CO<sub>2</sub> a year, which is equivalent to annual carbon emissions from over 12,000 of the region's households.
- Reducing losses of carbon through the restoration of degraded habitats, creation of new habitats and conservation of peatlands. 25,500 hectares of carbon-rich, upland peat moorlands are being restored by the scheme reducing carbon losses. When new habitats, such as reedbeds and wet grassland, are created, carbon is sequestered in the soils and vegetation. We estimate that these options deliver carbon storage of 200,000 tonnes CO<sub>2</sub> a year.
- By reducing agricultural inputs and therefore direct greenhouse gas emissions. This is as a result of a change from intensive production to low or zero input systems. For example: reduced stocking, unfertilised, uncultivated buffer strips, taking land out of cultivation or continued production with reduced fertiliser and pesticide inputs.

3.4. Carbon reductions are not necessarily permanent. They could be easily reversed if farmers revert back to previous land management at the end of the agreement period. We therefore need to maintain the current uptake of the schemes.

3.5. The substantial carbon savings achieved so far have largely been a by-product of management designed for other environmental objectives. We are assessing how we can enhance their current contribution to climate change mitigation, particularly in terms of protecting and increasing carbon storage.

### 4. REDUCING EMISSIONS—THE ROLE OF THE REGIONS PEATLANDS

4.1. Increasing the carbon stored within the region's peat will make a significant contribution to carbon emissions. This region's peat soils are estimated to contain 80-100 million tonnes of carbon. They function as an important reservoir for carbon storage but only when they are in good condition. When peat is drained, cultivated or mined, carbon is released. We estimate that these activities are responsible for the emission of 3.4 million tonnes CO<sub>2</sub>-e a year. This is equivalent to emissions from 500,000 houses, and is more than all UK domestic aviation (2.4 MtCO<sub>2</sub>-e), or the UK chemical industry (3.25 MtCO<sub>2</sub>-e).

4.2. At 2,887 hectares the Humberhead Peatlands National Nature Reserve (NNR) near Doncaster is the largest area of raised bog in lowland Britain. Until 2001, peat was extracted from the moors for sale to the horticultural industry with consequent losses of stored carbon. The peatlands are now owned by Natural England. We are restoring the peatlands and increasing their capacity to store carbon. This NNR is an exemplar site for the region with a focus on practical demonstration and research.

4.3. We have provided £594,000 to secure a £1.76 million wetland habitat creation and restoration scheme (Wetland Vision) in the area which is known as Humberhead Levels. Led by the Humberhead Levels Partnership this initiative aims to create an internationally renowned, unique wetland landscape, supporting

thriving communities, the economy and wildlife. We will work with a range of organisations including the Burnet Trust, Isle of Axholme Internal Drainage Board, the Environment Agency, the RSPB and Yorkshire, Lincolnshire and Nottinghamshire Wildlife Trusts.

4.4. The Yorkshire Peat Partnership coordinates the restoration of the region's upland peatlands. The partnership includes Yorkshire Wildlife Trust, the Yorkshire Dales and North York Moors National Park Authorities, Environment Agency, Nidderdale AONB, Yorkshire Water and the National Trust.

#### 5. REDUCING EMISSIONS — ENERGY CROP SCHEME

5.1. The Energy Crop Scheme is managed by Natural England and the Forestry Commission on behalf of the Department of Energy and Climate Change. The scheme offers a 50% grant towards the establishment costs for Miscanthus and short rotation coppice (willow).

5.2. Up to 2009, 2006 ha of Miscanthus and 392 ha of short rotation coppice has been planted in the region with the aid of this grant. We estimate that these plantings will provide the energy equivalent of 17,231 tonnes of coal and offer a carbon reduction of 54,084 tonnes of CO<sub>2</sub> per year.<sup>32</sup> Miscanthus and short rotation coppice have the capacity to store large amounts of carbon underground for a long period. We estimate that the current plantings would store 2,230 tonnes of carbon per year.

#### 6. REDUCING EMISSIONS — SOUTH PENNINES ECOSYSTEM SERVICES PILOT PROJECT

6.1. The region's upland areas have significant potential to provide a broad range of ecosystem services of enormous benefit to society. These areas are vital for carbon storage, flood risk management, water quality & supply, and recreation, as well as being home to many rare and important species.

6.2. Natural England is developing an ecosystem service pilot in the Southern Pennines that aims to revolutionise the way in which upland land managers are able to generate income. Land-use in the uplands is currently dominated by livestock production, profitability tends to be low and the sector is heavily dependent on subsidies.

6.3. Through sound science, financial innovation and new partnerships, the project seeks to transform the economics of upland land management and demonstrate how the provision of ecosystem services can be turned into genuine business opportunities. By doing this, it is hoped that the multiple problems of water quality, flooding, carbon storage, and wildlife decline will be addressed in an integrated and cost-effective way. Throughout the pilot we will seek to develop new partnerships that will link land managers, as providers of ecosystem services, with those that benefit from them, such as local communities.

28 January 2010

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### Memorandum from Sheffield City Region (CAR 05)

#### 1.0 INTRODUCTION

1.1 Geographically, the Sheffield City Region (SCR) covers the four Metropolitan Borough Council areas of Barnsley, Doncaster, Rotherham and Sheffield, and the District Council areas of Bassetlaw, Bolsover, Chesterfield, Derbyshire Dales, and North East Derbyshire that are within Derbyshire and Nottinghamshire County Councils; and part of the Peak District National Park Authority.

1.2 With a population of 1.75 million and a workforce of 770,000, the SCR has seen significant economic growth and regeneration in recent years. In focusing on economic growth in the future, especially post recession, the Leaders of the local authorities in the city region are committed to a series of key priorities for action to increase GVA and jobs in the area.

1.3 A specific geographic priority in the Sheffield City Region is the Dearne Valley. It is seen as a distinctive area in the city region with its combination of challenges; having been one of the most heavily polluted areas in North West Europe, there are now opportunities for the Dearne Valley to maximise its potential as a green eco-valley, with a growing reputation for being one of the least polluting areas in North West Europe.

1.4 We welcome the opportunity to respond to this inquiry about carbon emissions in the region. We have not addressed all of the questions, but have focused on those questions which are most relevant to the work we are undertaking as part of the Dearne Valley eco-vision project. The questions and our respective responses follow.

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<sup>32</sup> Calculation based on the following assumptions; Plantations at full maturity and still growing; 20 tonnes of Miscanthus is equivalent to 12 tonnes of coal; an average crop yield of 12 tonnes/ha; Energy production from 1 tonne of coal produces 2.93 tonnes of CO<sub>2</sub>. Also includes the saving of the carbon footprint of arable cropping land (1.5 tonnes CO<sub>2</sub>/ha) which is saved as a result of perennial cropping and minimal cultivation.

## 2.0 SUMMARY

- An eco-vision has been developed for the Dearne Valley spanning the three local authority areas of Barnsley, Doncaster and Rotherham.
- It envisages a low carbon future for the Dearne Valley, applying the solutions needed to address climate change and creating a low carbon community.
- The local authorities and organisations operating in the Dearne Valley are working together to implement the aims and objectives of the eco-vision.
- Projects being developed include those to improve the energy efficiency of homes and buildings and engage with the communities to secure their buy in to leading a low carbon lifestyle.
- A more co-ordinated approach from national Government departments, around funding to encourage low carbon living, would increase efficiency and reduce the burden on bidding organisations.
- A key incentive to behaviour change in the home will be around saving money.
- The availability of grant funding and subsidies and evidence of short pay back periods for investment in new energy efficiency measures and renewable energy technology will be valuable in persuading householders to make improvements to their homes.
- In turn, creating the demand for low carbon products and services will help to grow the low carbon economy in the region as businesses can see the commercial viability of starting up or diversifying into low carbon technologies.

## 3.0 LEVELS OF CARBON EMISSIONS

### *How Yorkshire and the Humber compares with other regions in terms of carbon production*

3.1 As part of the Dearne Valley eco-vision project we are bidding for funding from CLG to undertake some feasibility work for further eco-towns and eco-developments. If we are successful, some of the money secured would be used to compile an accurate base line of emissions across the Dearne Valley area. We know that the per capita carbon footprint in the area is low when compared with the national average. This reflects the relatively deprived nature of the area. Our challenge is to increase prosperity and, at the same time, keep carbon footprint low by ensuring that people are more aware of the effect of their choices on the environment. In addressing this challenge we shall seek to promote low carbon activity rather than carbon intensive activity.

3.2 We anticipate that the two main sectors to be identified as contributors to carbon emissions in the Dearne Valley will be housing and transport and that industry will play a more minor role. As a result our efforts will be targeted on engaging with the communities who live and travel in the Dearne. We shall also work with existing businesses in the area to help them to improve their energy and resource efficiency, where possible, and will engage with employees who may live and will certainly travel in the Dearne Valley.

## 4.0 REDUCING CARBON EMISSIONS

### *Which organisations are active in the region to reduce carbon emissions*

4.1 As part of the Dearne Valley eco-vision the three local authorities of Barnsley, Doncaster and Rotherham are working with a range of organisations who currently operate in the area including the Environment Agency, Natural England, the Homes and Communities Agency, Job Centre Plus, Yorkshire Forward, Transform South Yorkshire, South Yorkshire Passenger Transport Executive, Dearne Valley College and all schools in the area, along with the local Chambers. These organisations have joined together, under the auspices of the Dearne Valley Special Board, chaired by local MP John Healey. The Special Board has developed and agreed the vision for the future of the Dearne to develop as “a pioneer in grasping the opportunities and applying the solutions needed to reduce the community’s CO<sub>2</sub> emissions such that the Dearne becomes the lowest carbon community of its type within a decade.”

The partners are now working together to develop a strategy and work programme to deliver the aims of the vision.

### *Which branches of central, regional and local government are working to reduce carbon emissions in the region, and the extent to which they are working together*

4.2 One of the main barriers we face in the implementation of the eco-vision is the unco-ordinated way that central government departments are operating. For example, the Department of Energy and Climate Change (DECC) launched its Low Carbon Communities Challenge in September and the Dearne Valley eco-vision partners submitted a bid for funding based on the development of a series of “smart houses” to demonstrate energy efficiency and renewable energy technologies to communities. The bid was unsuccessful as part of phase 1 of the funding and was revised and resubmitted to phase 2 of the Challenge. However, we were notified on 19 January that we were unsuccessful as part of the phase 2 funding. On January 21 we received a letter from the Department of Communities and Local Government informing us that £5 million

of capital funding had been made available for demonstrator projects providing advance exemplars of eco-town PPS standards and concepts. This scheme will fund the same activity as the earlier DECC Low Carbon Communities Challenge fund. Furthermore funding has been sought from the Technology Strategy Board (via BIS) for the Retrofit for the Future Programme to test out innovative technologies in hard to treat properties. Again the similarities are striking and confusing. Whilst we welcome the opportunities to secure funding for the Dearne Valley, each bidding process creates an extra burden on local partners. A more streamlined Government approach, where monies for similar types of projects are pooled and the bidding rounds combined would be much more efficient.

*The extent to which the Integrated Regional Strategy is likely to be effective in coordinating efforts to reduce carbon production in the region*

4.3 It is encouraging that Climate Change and Environmental Resources is a key work stream of the Yorkshire and Humber Strategy. However, the success of the Strategy will depend on whether it is adopted as a high level strategic document that has little influence on the detail at a local level. There is also the danger that compromises will be made in an attempt to reach a consensus across the region.

4.4 Tough decisions will need to be made by the politicians in the region. For instance would the region be against setting up a new manufacturing base in the Dearne Valley area (eg producing wind turbines) if this increases carbon production significantly?

*What projects are operating or are planned to reduce carbon emissions in the region, with illustrative examples of how they are working and their prospects for success*

4.5 As part of the development of the eco-vision we have identified three priority themes which will be the focus of our early work. These priorities are as follows:

*Community:* Developing a new model of housing to create successful communities.

*Economy:* Creating a specialist educational offer and a unique skills base which will support economic growth, primarily in the low carbon technologies sector.

*Environment:* Rediscovering and revealing the river.

4.6 As part of the emerging work programmes for these areas of work we are proposing the following types of projects which will reduce carbon emissions:

- A mass retrofit of the existing housing stock to high levels of energy efficiency;
- Engaging employers to look at the energy efficiency of their buildings and operations;
- Increasing the understanding of climate change and eco-know how within the community and amongst businesses to effect behaviour change;
- Making improvements to the public transport network across the Dearne;
- Improving the network of walking and cycling routes across the Dearne;
- Engaging with schools in the Dearne Valley to introduce sustainable development programmes and increase young people's awareness of climate change issues;
- Encouraging local production of food through allotments projects; and
- Providing and promoting local leisure opportunities, maximising the natural and heritage assets available in the Dearne.

4.7 As part of the detailed feasibility and implementation of these projects we shall establish appropriate base line data and set targets for carbon reductions to enable robust monitoring to take place.

4.8 Our chances of success will be increased if we can demonstrate the value of new technologies and introduce early benefits to the communities of the Dearne Valley, providing tailored advice about how to make improvements, change behaviours and incentivise people in our communities by reducing the cost to them of implementing improvements.

## 5.0 THE LOW-CARBON ECONOMY

*How regional industries can take advantage of the low-carbon economy*

5.1 We want the Dearne Valley to be a focus for businesses that specialise in providing the low carbon technology products and services that the eco-vision will create a demand for (eg via the retrofit of the existing housing stock or around environmental management). We aim to make the Dearne Valley an attractive place for such businesses to locate due to the local supply chains that will be created and the availability of a skilled workforce, trained in the skills required for the future to address climate change.

5.2 A developing cluster of businesses will be able to establish links with the three local universities, who are keen to get involved with the delivery of the eco-vision, to undertake research and knowledge transfer.

*The barriers to the region becoming a low carbon economy*

5.3 In order to promote a low carbon economy in the region, businesses need to be confident that there is a sufficient market for their product or service. This will include creating demand to make low carbon technologies and services a feasible option for the customer to purchase and business to supply. In the early stages it may mean that the cost of products and services would have to be subsidised in some way for the consumer. In any event further public awareness raising will need to be undertaken to ensure that consumers have an understanding of what is available and are encouraged to use more low carbon products and services, which might be seen as untried technology at a premium price.

5.4 The multitude of advice and information available to businesses and start ups regarding the low carbon economy and improving resources and energy efficiency can be confusing. A single point of contact which hides the wiring for businesses would be advantageous.

5.5 Finally, the shortage of skills and training could be a barrier to the development of the low carbon economy. The Dearne Valley eco-vision partners have recognised this fact, hence our early work looking at the economy is focused on providing the education and skills base to meet the emerging demands of a low carbon economy.

28 January 2010

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### **Memorandum from White Rose Forest (CAR 06)**

#### EXECUTIVE SUMMARY

- White Rose Forest (WRF); Project Managed by Guy Thompson is a partnership of local authorities, government and voluntary organisations working across West Yorkshire to “play its part in creating a healthy, prosperous and environmentally resilient place for the people, economy and wildlife of our city region”.
- WRF is heavily involved in Green Infrastructure (GI) strategy and is on the Steering Group of the Leeds City Region GI project. One of the projects four GI objectives is to “Mitigate and Adapt to Climate Change” by developing initiatives that are carbon neutral, that reduce greenhouse gas emissions or that actively take carbon dioxide out of the atmosphere.
- WRF is a sub regional partner of CO<sub>2</sub>Sense Yorkshire (arms length support organisation funded by Yorkshire Forward, Regional Development Agency for Yorkshire and Humber).
- Through funding from CO<sub>2</sub>Sense Yorkshire the WRF has employed a full time Wood Energy Coordinator whose aim and objectives is to develop the supply chain for woodfuel in West Yorkshire.
- Working with and encouraging businesses and organisations to displace fossil fuels with carbon neutral woodfuel the WRF will contribute to CO<sub>2</sub> savings in the sub region.

#### WHITE ROSE FOREST—HELPING TO REDUCE CARBON EMISSIONS IN THE YORKSHIRE AND HUMBER REGION

##### 1.0 *Introduction to White Rose Forest*

This section gives a brief overview of the White Rose Forest and its work and involvement in the region.

##### 1.1 *Make up of White Rose Forest*

The WRF is a partnership of local authorities, government and voluntary organisations working across West Yorkshire to “play its part in creating a healthy, prosperous and environmentally resilient place for the people, economy and wildlife of our city region”.

##### 1.2 *Team*

WRF is Project Managed by Guy Thompson who works on GI strategy and projects and has recently been joined by Claire Hoyles who has taken post as a Wood Energy Co-ordinator, promoting wood fuel in the sub region.

##### 1.3 *Partnership members*

Members of the White Rose Forest partnership carry out a vast array of activities to help manage and improve our environment, attract resources and help shape policies to bring this all about. Current members are:

- Bradford Environmental Action Trust.
- BTCV.
- Groundwork Wakefield.

- Woodland Trust.
- Yorwoods.
- Calderdale Metropolitan Borough Council.
- City of Bradford Metropolitan Council.
- Leeds City Council.
- Wakefield Metropolitan Council.
- Kirklees Council.

## 2.0 *Green Infrastructure*

WRF through Guy is heavily involved in Green Infrastructure (GI) strategy in the region and is on the Steering Group of the Leeds City Region GI project. Leeds City Region is made up of the authorities of Barnsley, Bradford, Craven, Calderdale, Harrogate, Kirklees, Leeds, Selby, Wakefield, York, together with North Yorkshire County Council.

The objective of the partnership is to:

“develop an internationally recognised city-region; to raise our economic performance; to spread prosperity across the whole of our city region, and to promote a better quality of life for all of those who live and work here.”

One of the projects four GI objectives of the Leeds City Region is to “Mitigate and Adapt to Climate Change” by developing initiatives that are carbon neutral, that reduce greenhouse gas emissions or that actively take carbon dioxide out of the atmosphere.

This will be achieved through initiatives such as the use of woodfuel, tree planting, carbon sequestration, low carbon transport etc

## 3.0 *Wood Energy*

As part of the Woodfuel Infrastructure Programme being delivered by CO<sub>2</sub> Sense Yorkshire (formerly Future Energy Yorkshire), the WRF has employed a full time Wood Energy Co-ordinator for West Yorkshire; Claire Hoyles.

The posts responsibility will be promoting the take up of wood fuel boilers through education initiatives such as study tours, helping businesses and organisations source funding for installations, promoting best practice etc. Woodfuel is a carbon lean fuel so when displacing fossil fuel offers substantial carbon savings.

The post is also responsible for helping to establish a viable wood energy supply chain across the sub-region. This involves increasing the number of undermanaged woodlands into management through the distribution of infrastructure grants which can be used to purchase harvesting and processing equipment, storage facilities, specialist transport vehicles.

In bringing more woodfuel into the market it will give confidence to the consumers that there is a reliable local supply of woodfuel thus encouraging the number of installations in the region.

29 January 2010

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### **Memorandum from Climate Change Partnership for Yorkshire & Humber (CAR 07)**

#### EXECUTIVE SUMMARY OF EVIDENCE

i. Yorkshire and Humber has a strong industrial heritage which it aims to use as a springboard to drive forward a low carbon economy. For example, we are uniquely placed at the forefront of developing carbon capture and storage technology for low carbon energy production together with the job opportunities that it will create.

ii. In addition to the wide range of activity undertaken by regional agencies, businesses and the voluntary sector the Climate Change Partnership for Yorkshire and Humber adds value to existing work by identifying gaps in activity and by bringing together stakeholders to work in partnership where this will support more effective and rapid progress.

iii. We recognise that development of the Yorkshire and Humber Strategy provides an excellent opportunity to fully embed action on tackling climate change at the heart of plans for the region. However, climate change and energy are not represented explicitly in the current regional governance structures. It will therefore be critical that the Partnership continues to build relationships and support decision makers as new regional plans are developed.

iv. Success will require considerable effort, commitment and effective collaboration from many different agencies. Clear, ambitious but realistic targets for emissions reduction and for adaptation measures must be evident in the new Integrated Regional Strategy. Commitment to delivery of such objectives should in turn become visible in the plans of partners and the programmes developed by the Thematic Boards in the region's new governance structure.

#### LEVELS OF CARBON EMISSIONS

1. With our industrial base of power stations, oil refineries and chemical plants we have one of the most carbon intensive economies in Europe. Yorkshire and Humber is the third highest emitter of carbon of the nine English regions, with only the North West and South East being higher.

2. Total emissions for the region as calculated by the Department for Energy and Climate Change (DECC) are 51,273kt CO<sub>2</sub>. Our industries and commerce account for around half of our total carbon emissions at 27,060kt CO<sub>2</sub> (53%), whilst domestic emissions at 12,303kt CO<sub>2</sub> (24%) and road transport at 11,585kt CO<sub>2</sub> (23%) are broadly equal and account for around a quarter of the total each.

3. The principle carbon emitting industries are from production of metals, cement, and lime — all based in the North Lincolnshire area. We also have a significant number of the largest fossil fuel fired power stations in the UK at Drax, Eggborough and Ferrybridge.

4. Population growth and housing growth will potentially have a major impact on carbon emissions in the future. With a population of over five million residents and over 2 million households Yorkshire and Humber already has three of the five most populated local authority areas in the UK in Leeds, Sheffield and Bradford. Projections indicate that by 2026 we might see 400,000 more households with a population of over 6 million residents which will present further challenges in carbon reduction.

#### REDUCING CARBON EMISSIONS

5. Activity on tackling climate change in the region is widespread. Partnerships across business, public and voluntary sectors are working jointly and individually to better understand the challenges, risks and mitigation actions required to secure a safe, prosperous and sustainable future for the region.

6. The Climate Change Partnership for Yorkshire and Humber is a multi-agency partnership with membership drawn from the key agencies in the region (eg Government Office, Environment Agency, and Yorkshire Forward) together with representatives nominated from within relevant sectors such as local government, business and the voluntary sector. The Partnership is Chaired by a local authority leader and reports annually to an executive stakeholder group Chaired by the Regional Minister for Yorkshire and Humber. At a national level, the Regional Climate Change Partnership is a member of Climate UK—a network of all regional climate change partnerships in the UK, supported by DEFRA.

7. In 2005 Yorkshire and Humber was the first region to develop a climate change plan through the then Regional Climate Change Executive. A major revision of the plan was undertaken with stakeholders in 2008–09 and was launched by the Secretary of State, DEFRA, in March 2009 along with a complimentary regional study on adaptation. This new Climate Change Plan for Yorkshire and Humber sets out, sector by sector, how as a regional partnership we can really add value to existing work by identifying gaps in activity and by bringing together stakeholders to work in partnership where this will support more effective and rapid progress. Our success will require considerable effort, commitment and effective collaboration from many different agencies. An executive summary of the plan is included as annex A to this submission.

8. Whilst the Climate Change Partnership for Yorkshire and Humber does not deliver carbon reduction projects directly itself, it does provide leadership and support to those that are. One such example is the Local Area Climate Change Network that brings together all local authority climate change officers and a number of LSP officers to learn, share and collaborate. The network enables members to find out more about government policy, how it will affect their localities, to share best practice, and seek opportunities for collaboration. Network meetings over the last twelve months have focused on business support, the Low Carbon Transition Plan, performance data collection and citizen engagement. Most recently the network has played a key role in shaping the work programme for the YoHr Space Climate Change Board — part of the Regional Improvement and Efficiency Partnership.

9. The past 12 months has seen significant change in governance across the region with the abolition of the Yorkshire & Humber Assembly and establishment of a new Joint Regional Board and thematic boards. The Regional Climate Change Partnership has adopted a pragmatic approach, so that progress is not hindered, whilst a new regional architecture is embedded. The Partnership will keep its terms of reference under review so available resources are best utilised to add value and impart expert advice and support for the benefit of the region.

10. The Sub National Review states that Government expects particularly strong Integrated Regional Strategy content and outcomes on the following issues: economic outcomes and drivers of productivity; housing; and climate change and energy. Climate change and energy are, however, not represented explicitly in the current regional governance structures. Developing strong linkages between the Climate Change

Partnership and the new regional governance structures have therefore identified as crucial. As a first step a position on the new Sustainable Development Advisory Board by the Climate Change Partnership will be taken up, but noting that this new body is not decision making.

11. The high level support from the executive stakeholder group for the region's Climate Change Plan needs to carry through into clear, ambitious but realistic targets for emissions reduction and for adaptation measures in the new Integrated Regional Strategy. Commitment to delivery of such objectives should in turn become visible in the plans of partners and the programmes developed by the Thematic Boards in the region's new governance structure.

12. We recognise that development of the Yorkshire and Humber Strategy provides an excellent opportunity to fully embed action on tackling climate change at the heart of plans for the region, but we must be resilient in the aim to decouple economic growth from any adverse impact on the environment.

#### THE LOW CARBON ECONOMY

13. Yorkshire and Humber has a traditional industrial heritage including coal mining, steel production and energy generation. As a region we have contributed heavily towards production of greenhouse gases and therefore to global warming. In response, it is recognised through the Regional Economic Strategy (RES) that the region has set a stretching target to reduce carbon emissions by up to 25% by 2016. To do this we will need to embrace a low-carbon economy.

14. We are well placed to take advantage of the opportunities ahead. We can play to our strengths by optimising our extensive infrastructure in relation to North Sea gas and oil extraction. This will help us move rapidly to low carbon energy production through the use of carbon capture and storage technology. With the support of around €180 million of EU funding the region has the potential to be a world leader in this field – bringing new jobs and opportunities.

15. There will be opportunities around off-shore wind farms with new sites recently being identified by the Crown Estate off our eastern seaboard, together with potential, particularly along the south bank of the Humber, to develop the associated manufacturing and processing plants. We aim for Yorkshire and Humber to have more than one locality with “low-carbon economic area” status.

16. Challenges to achieving these ambitions will be tough. We will need to ensure that our workforce has the necessary knowledge and skills to take advantage of these opportunities so that we don't lose out to external competition. Carbon emissions associated with supporting industries (such as manufacturing) will need to be minimised. High speed rail has been identified as critical to our success to ensure sustainable connectivity for both people and freight to the South East and across the trans-Pennine corridor. Timescales and uncertainty around High Speed 2 will have to be managed in the interim with upgrades to existing infrastructure.

### APPENDIX A

#### CLIMATE CHANGE PLAN FOR YORKSHIRE AND HUMBER

YOUR CLIMATE, OUR FUTURE: EXECUTIVE SUMMARY [[www.yourclimate.org](http://www.yourclimate.org)]

*A realistic vision for 2020*

Yorkshire and Humber is seriously exposed to climate change. For example, as a region we have more properties and businesses at serious flood risk than any other, apart from London. The Humber estuary is vulnerable to rising sea levels.

Our industrial base of power stations, oil refineries and chemical plants also means that we have one of the most carbon intensive economies in Europe. Their competitiveness will be under threat as demands for lower emissions increase. The task of transforming our economy and investment priorities to take account of these factors is urgent. Failure to move quickly will not only add to the risk of potentially damaging climatic events. It would also make our economy less able to compete in the new world of tough emissions targets and growing customer demand for green practices.

By contrast if we adopt the right policies and promote change now, we can also make the most of the opportunities that climate change may bring. This is a huge challenge, but it can be done. To illustrate what this might mean in practice, a realistic view of the region in ten years time would include:

- Climate Change mitigation and adaptation underpins future regional strategies and has strong local and regional leadership.
- The economy is more diverse and resource efficient with low carbon products and services in all sectors.
- Businesses use carbon trading effectively to stimulate investment in emissions reduction.
- The link between economic growth and waste growth is broken.
- Car use is reducing year on year.
- All new development is zero carbon.
- We are better prepared for extreme weather events.

- Agriculture and forestry benefit from longer growing seasons whilst managing soil quality, new pests and diseases, and extreme weather.
- We are able to help the natural environment stay healthy and adapt to climate change.

### *The Plan*

The plan does not list lots of detailed actions. It is not specifically linked to CO<sub>2</sub> targets and cannot provide a breakdown of how they will be achieved. There are already a number of national, regional and local initiatives to deliver these targets.

The plan sets out a way forward, which will become even clearer in the future single Integrated Regional Strategy. The Plan identifies gaps and sets out added value where partnership working will bring greater impacts rather than listing the mitigation and adaptive actions that every organisation needs to be putting in place.

The plan's purpose is aimed at regional and local leaders, and for decision makers in all sectors, and provides principles that will help the region adapt to climate change, and to reduce our contribution to its causes. It covers areas where discussions with regional and local stakeholders suggest that current work and programmes on their own will not deliver the outcomes required and joint action will be required. Its framework for action is divided into seven key priority areas with a further three cross cutting themes.

### *Priorities*

**Strategy and Monitoring:** because new regional and local plans such as the Integrated Regional Strategy, Sustainable Community Strategies and Multi Area Agreements are being developed. The latest information on climate change impacts and forecasts needs to be an integral part of them. The Plan puts a responsibility on the region to track progress and take remedial action where necessary.

**The Built Environment:** because almost half of our carbon emissions come from the operation of our housing stock. Although the Government aims to have all new build carbon neutral from 2019, at least 70% of the housing stock we will have in 2050 is already built to much lower carbon efficiency standards.

**Transport:** because around 30% of greenhouse gas emissions come from transport. Research also tells us that making significant progress will be very difficult without a big reduction in car use or the development of low carbon alternatives.

**Health Services:** because the health sector must deal with the growing impact of extreme weather on health and welfare, which will get more serious as the population ages. The health sector also generates significant carbon emissions.

**Business:** because industry and business account for around a quarter of carbon emissions, and because there are major business opportunities in developing low carbon technologies, products and processes.

**Land Management:** because the way the land is managed needs to adapt to changing weather patterns and can help to increase the resilience of the region to the impact of climate change. Different land management practices can also reduce the impact of change on species and agriculture, as well as create opportunities for sustainable food and energy supply, and carbon sequestration.

**Citizen Engagement:** because adapting to change and reducing future emissions requires all of us to be prepared to do things differently and to make choices which at first seem difficult and inconvenient.

### *Cross cutting themes*

**Energy:** because the consumption of fossil fuel based energy sources is the biggest direct influence on the volume of greenhouse gas emissions.

**Waste:** because waste streams are important potential sources of materials and energy. Increasing recycling and reducing landfill will significantly reduce greenhouse gas emissions.

**Water:** because the pressures on water resources and water sewerage infrastructure will increase. Water efficiency is key to reducing the impact of water treatment and pumping on carbon emissions and ensuring security of water supply over the longer term. The region already recognizes its vulnerability to flooding and must improve resilience to increased flood risk as a result of climate change.

### *Taking delivery forward*

The completion of the Yorkshire & Humber Climate Change Plan and the Regional Adaptation Study mark a major milestone in the drive to better understand the challenges and to accelerate action on tackling climate change in the region. The publication of these two complementary pieces of work signals a shift in emphasis from strategy to delivery.

It will be the responsibility of the Climate Change Partnership to take forward delivery of the Climate Change Plan including integrating the key adaptation work arising from the Regional Adaptation Study.

The Partnership will put in place robust monitoring arrangements to ensure progress. They will constantly review their work programme and priorities to ensure the best use of available resources.

Emerging governance structures in the region will be sensitive to the critical task of ensuring the causes and effects of climate change are tackled with urgency.

*Membership of the Climate Change Partnership for Yorkshire & Humber*

Arthur Barker (Chair), Paul Bellotti, Simon Bowens, Stuart Clewlow, Jon Clubb, Carole Cozens, Amanda Crossfield, Elizabeth Edgington, Roger French, Tim Godson, Gail Hammond, Elizabeth Jones, Joanne Pollard, Gordon Rogers, Debbie Rosen, Anna Steynor, and Jeremy Walker.

29 January 2010

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**Memorandum from ONE HULL (CAR 08)**

It has not been possible in the time available to produce a comprehensive regional report with appropriate sharing of data and working together on a report. Instead we, in Hull, have produced a brief snapshot report about carbon emissions in and around the city of Hull.

**CARBON EMISSIONS IN THE YORKSHIRE AND HUMBER REGION: EXECUTIVE SUMMARY**

*Levels of carbon emissions*

- Major carbon use in the area is industry, industrial energy use being 52% of all use. In particular the industrial electricity usage is high mostly due to the prevalence of manufacturing industry in the city.
- Contributory industries are Chemicals, (incl. Pharmaceuticals & Petrochemicals), Food, Transport and Logistics.
- Generally the Hull area is comparable with other regions and is, about average for the Yorkshire and Humber region.

*Reducing carbon emissions*

- Organisations active to reduce carbon emissions: Hull City Council, NHS Acute Trust, Hull University, ONE HULL LSP; some major industrial companies: Arco, Croda, KCom and Smith & Nephew; and pressure groups: Civic Society, Friends of the Earth, Greenpeace, Transition Towns.
- Various branches of central, regional and local government are working to reduce carbon emissions in the region. In addition to ones mentioned above GOYH and the Environment Agency are active along with CO<sub>2</sub>Sense (the RDA company) which has recently been formed from other bodies to coordinate regional activity.
- The Integrated Regional Strategy is likely to be less effective in coordinating efforts to reduce carbon production in the region in the short term because of the lag between the disbanding of the Y&H Assembly and the RDA CO<sub>2</sub> Sense getting up to speed.
- Projects which will help to reduce carbon emissions in the region: New Housing initiatives, BSF, and the Warmzone fuel poverty initiative will all have some contribution in Hull. In addition the LSP and other agents are looking at developing tidal and wind energy generation projects.

*The low-carbon economy*

- The LSP is working across its partners and widening its influence to develop better means for regional industries to take advantage of the low-carbon economy.
- The main barrier to the region becoming a low carbon economy is the very strong influence of the power generation and coal industry. This can be counter productive in the region developing a balanced strategy.
- The future of the regional carbon economy lies in maintaining output of energy, the area is a net producer of energy and at the same time drawing on innovative schemes using natural power sources prevalent in the area like tides and wind. However, investment is low.

## FULL REPORT TO THE YORKSHIRE AND THE HUMBER REGIONAL COMMITTEE

## A. LEVELS OF CARBON EMISSIONS

1. *Local and Regional CO<sub>2</sub> Emissions Estimates for 2005–07***1.1 Table of CO<sub>2</sub> Emissions for Kingston upon Hull 2005–07**

<i>Yorkshire and The Humber</i>	<i>All CO<sub>2</sub> figures in tonnes</i>		
	<i>2005</i>	<i>2006</i>	<i>2007</i>
<b><i>Kingston upon Hull</i></b>			
A. Industry and Commercial Electricity	480	489	447
B. Industry and Commercial Gas	263	231	218
C. Industry and Commercial Large Gas Users	—	—	—
D. Industry and Commercial Oil	143	115	117
F. Industry and Commercial Solid fuel	22	26	21
G. Industry and Commercial Process gases	1	1	1
H. Industry and Commercial Wastes and bio fuels	1	1	1
I. Industry and Commercial Non fuel	—	—	—
J. Industry Off road	71	71	71
L. Agriculture Oil	1	1	1
M. Agriculture Solid fuel	—	—	—
N. Agriculture Non fuel	—	—	—
O. Domestic Electricity	247	251	245
P. Domestic Gas	308	303	286
Q. Domestic Oil	0	0	0
R. Domestic Solid fuel	2	1	2
S. Domestic House and Garden Oil	2	2	2
T. Domestic Products	6	6	6
U. A-Roads Petrol	65	61	59
V. A-Roads Diesel	68	68	66
Y. Minor Petrol	114	108	108
Z. Minor Diesel	78	79	84
ZA. Road Transport Other	2	2	1
<b>Grand Total</b>	<b>1,872</b>	<b>1,816</b>	<b>1,736</b>
Population ('000s, mid-year estimate)	254.7	256.2	257.0
<i>Per Capita Emissions (t)</i>	<i>7.4</i>	<i>7.1</i>	<i>6.8</i>

2. *Extent of Carbon Intensiveness*

2.1 At 6.8 tonnes *per capita* emissions Hull might not appear to be a major carbon intensive economy. Indeed *per capita* Hull is one of the lower carbon emitting areas in the Yorkshire and Humber region.

2.2 However the major electricity generating power stations across the region are a considerable source of CO<sub>2</sub>. Major carbon use in the area is industry, industrial energy use being 52% of the total. In particular the industrial electricity usage is high mostly due to the prevalence of manufacturing industry in the city. Surrounding the city are carbon emitting industries like petrochemicals, other chemicals and glass making which all require a lot of energy.

2.3 The low lying land area around Hull is probably the reason why the carbon use is lower than in similar areas within the Yorkshire and Humber Region. This impacts on the use of carbon in transport. It is generally considered that very the split of CO<sub>2</sub> will be approximately 1/3rd emissions from housing, 1/3rd emissions from industry and 1/3rd emissions from transport — In Hull there are about 1/3rd emissions from housing but 52% from industry and only 17% from transport. The conclusion is that Hull has a very carbon intensive economy but the low land area skews the transport figures.

2.4 The three year average (2005, 2006, 2007) of the Yorkshire and Humber Area is 7.3t *per capita* as against a national three year average of 7.75tpc. Hull's three year average is 7.1tpc making it below the national average and slightly below the regional average. The city and the region are both reducing carbon emissions year on year.

2.5 *Industries producing carbon*

Main industries in the city are:

- Petrochemicals.
- Chemicals.
- Pharmaceuticals.
- Foods.

Port industries.  
Sanitary/Heating Manufacture.  
Telecommunications and Engineering.  
Protective Clothing and Equipment.

Main industries regionally are:

Energy Supply and Generation.  
Foods.  
Port industries.  
Petrochemicals.  
Chemicals.  
Aerospace.  
Motor Transport.  
Building.  
Caravan/Sectional Building.

## B. REDUCING CARBON EMISSIONS

### 3. *Major Companies actively Reducing Carbon emissions*

3.1 Croda Chemicals and Smith & Nephew claim to have reduced their carbon emissions by around 50% (probably as a result of inclusion in the EU-ETS). Public sector bodies are only recently getting focused deliver on CO<sub>2</sub> savings (Hull CC since 2000 has reduced its CO<sub>2</sub> emissions overall by over 10%). There is no indication that the SME and commercial sectors are yet geared up to meet the challenge.

3.2 Smith & Nephew (Medical supplies/wound management ) have managed this turnaround in energy efficiency in the last three years due to intelligent metering, quick repair and maintenance, use of the latest technology and improved logistics.

3.3 Croda, (Chemicals incl. Petrochemicals and Pharmaceuticals) have invested in a large wind turbine generator which has reduced energy bills significantly and enables Croda to supply energy to the National grid. The Turbine is also expected to pay for itself more rapidly than the original timescales that were factored in to the business case. The turbine has become a popular local landmark very quickly.

3.4 Arco and KCom have both been active in reducing their individual carbon footprints and expanded the business aim to educate their staff to be carbon use aware in their daily home lives as well as their working lives.

### 3.5 *Other Active organisations*

CO<sub>2</sub>Sense (the RDA company) has recently been formed from other bodies to coordinate regional activity. It works alongside:

GOYH  
The Environment Agency.  
ONE HULL Local Strategic Partnership.  
Hull City Council.  
Hull Forward.  
Yorkshire Forward.  
NHS Hull (PCT).  
Hull Acute Trust.  
Hull University.

Voluntary and Community Organisations:

Hull Civic Society.  
Friends of the Earth.  
Greenpeace.  
Transition Towns.

These pressure groups and voluntary groups use example setting and publicity in the press and through their memberships to promote CO<sub>2</sub> reduction.

3.6 The ONE HULL LSP has GOYH, The Environment Agency, NHS Hull, Hull Acute Trust, Smith & Nephew, Croda, Arco, KCom, Associated British Ports, Hull Forward (URC), Hull University, Reckitt Benckiser all sitting on or closely associated with the various partnerships.

3.7 There are also a number of important new clean energy businesses such as bio-fuels, the Humber Gateway wind generated energy and also tidal energy production. In addition there is a proposed bio waste energy plant planned at Driffield, energy from straw burning along the coast at Hornsea/Withernsea and a possible incinerator generator at the BP plant at Saltend.

#### 4. *Integrated Regional Strategy*

4.1 The loss of the Y&H Assembly has been a set back for coordinated effort as it was undertaking effective work over a broad spectrum. The loss of the Y&H Assembly suggests that the Integrated Regional Strategy will no longer be followed through at the anticipated pace as the RDA has not yet picked up the impetus to meet the challenge adequately.

#### 5. *Carbon reduction programmes*

5.1 There are potential housing developments such as Gateway (Housing Market Renewal Programme) and a 600 home new development on Orchard Park Estate (PFI). These are both considering district heating but this approach has failed to materialise when attempted in the past.

5.2 BSF Secondary schools — It has been agreed that the primary form of heating for all new build schools will be from biomass and the partners are currently setting up a local biomass supply chain to support this initiative.

5.3 Local companies are developing tidal stream electricity technology — HCC is supporting the initiative and will attempt to exploit for its own use when it moves beyond the trial stage. The ONE HULL LSP is investigating a community wind farm for its partners.

5.4 As part of the city wide Affordable Warmth Strategy Hull Warm Zone (the fuel poverty initiative) is delivering around £7 million of insulation and heating grants to the domestic sector (this included spend on Decent Homes). Warm Zone is also planning a £0.5 million domestic renewables revolving loan funded project.

### C. THE LOW-CARBON ECONOMY

#### 6. *Initiatives*

6.1 Yorkshire Forward is supporting a number of initiatives such as the MAF advisory service to manufacturing industry as well as producing a regional Energy Strategy. The local authorities are developing strategies or have already produced them and are active in reducing CO<sub>2</sub> with partners. Government Office of Yorkshire and the Humber and the Environment Agency are working with the local LSP climate change teams who are creating new initiatives and partnering with community projects. CO<sub>2</sub> Sense is the RDA which provides active support to create excellence in the region's academic institutions to attract developers.

#### 7. *Barriers to the region becoming a low carbon economy*

7.1 The region is very strongly influenced by the power generation and coal industry. This can be counter productive in the region developing a balanced strategy. Carbon emission is likely to continue to be significant because manufacturing industry is still very much a key part of the local economy.

7.2 Other factors militating against the low carbon economy include the complexity of the funding available to assist low carbon development and difficulties in accessing the funding. The public are constantly getting mixed messages and the practicalities of implementing low carbon projects are equally confusing. For example; at Drax power station the bio mass is imported through Hull Docks and sent by road to the plant for burning. This creates a very mixed up situation with bio mass road miles, importation of combustible bio mass and the general long supply chain issues that create unnecessary CO<sub>2</sub> emissions.

7.3 The planning system has proved to be a problem for wind farms and other CO<sub>2</sub> reducing energy sources, being complex and open to press sensationalisation, Nimbyism and other ill — informed influences in decision making.

7.4 There are major costs surrounding those organisations which are a net producer of green energy and wish to connect to the National Grid.

7.5 The business rates do not offer incentives to those businesses and other organisations acting positively to reduce their emissions. This coupled with the inadequate funding to cope with the high costs at the moment of CO<sub>2</sub> friendly technology, the bureaucracy associated with the Renewables Obligations Certifying and the Carbon Trading market also make low carbon a problematic practical issue in the region.

## 8. *The future of the regional carbon economy*

8.1 The region is already a net producer of energy and wishes to remain so. The future in relation to CO<sub>2</sub> reduction probably lies in smaller scale CHP power stations based in urban areas to provide the system and carbon efficiency needed.

8.2 There is a distinct need to partner up and network to ensure wider benefits of developments are delivered eg a community wind farm can reduce risk in the planning process and secure the opportunity for industry and communities to participate in low carbon electricity generation together tying communities together.

8.3 In this area there is opportunity to become a world leader in tidal and wind generated energy and this coupled with bio mass fuels could lead to the region becoming a beacon for green energy production. However the investment has to be found, the government's thinking has to be straightened out with a clear strategy and practical solutions not based on short term fixes to keep lobbyists happy

29 January 2010

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### **Memorandum from Friends of the Earth (CAR 09)**

Summary: Friends of the Earth is at the forefront of policy development driving the transition towards a low carbon economy, global to local. We have been strongly engaged in this work in the Yorkshire & Humber region over the last decade. However existing action by regional and local authorities has not been successful in incorporating emissions reduction into regional strategies and implementation programmes. Consequently the region has lost out in the race to become an acknowledged "first mover" in this transition. Greater certainty and leadership, and specific policy mechanisms — principally the establishment of low carbon budgets at regional and local levels, to complement the new national budgets—are therefore required as a matter of urgency.

#### INTRODUCTION

1. Friends of the Earth is pleased to be able to make the submission on a subject critical to the transition to a competitive regional low carbon economy and for the protection of our regional and global environment and welfare.

2. Friends of the Earth is unique amongst environmental campaigning organisations in that we are active on issues relating to climate change at all possible levels: international, national, regional and local. This gives us credibility and expertise which we hope is appreciated.

*International:* As a leading member of the Friends of the Earth International Federation covering 77 countries we have been working throughout the two-year period up to Copenhagen for a demanding global legally binding deal based on the requirements of climate change science and the principle of justice between developed and developing countries

*National:* As the deviser of the Climate Change Act for which we secured bipartisan and government support, and promoted through Parliament using the energies of our 200+ local groups and supporters to engage public engagement and commitment by MPs. Friends of the Earth is also active in its dialogue with government departments significant for climate change in order to discuss and develop the subsequent implementation mechanisms that are required: the Treasury, DECC, Communities, Transport etc.

*Regional:* We have been fully involved and constructive participants in the regional process (Regional Assembly/ Regional Boards/ Regional Spatial and Economic Strategies — RSS & RES) over the last decade focusing our contributions increasingly around the climate change policy "driver". Prior to publication of Adopted RSS, we raised concerns with the Regional Minister that the previous overall target for emissions reductions had been excluded in the Proposed Changes document. The outcome was that those targets were reinstated.

*Local:* The current Friends of the Earth *Get Serious about CO<sub>2</sub>* campaign works with local authorities to set ambitious targets for emissions reductions of at least 40% by 2020 using the established NI186 measurement (part of the Local Government Performance Framework). We have already persuaded three local authorities in the region (Leeds, Bradford and Harrogate) to adopt these targets and more are considering the proposal.

3. At the regional and local levels relating to this enquiry we are therefore both constructive participant, seeking to advance implementation, and informed observer able to identify the strengths and weaknesses of activity. Our positions are based on an understanding of developing climate change science (we are advised by the Tyndall Centre) and we are able to consider all forms of potential intervention: technological, financial, regulatory and behavioural. We are committed to truly sustainable development.

4. With the Climate Change Act 2008 now in place our emphasis has shifted towards the implementation of the emissions reduction framework it has created. In our recent regional submissions we have advised government that we should be understood as a powerful and supportive regional advocate for its UK Low Carbon Transition Plan.

5. This submission is in two parts. In the first we identify the inconsistencies and weaknesses in current regional frameworks, actions and attitudes which are weakening the implementation in this region of that Transition Plan. In the second part we have identified the changes that are required to provide the certainty that organisations, businesses and communities need to develop an embedded momentum that places low carbon at the heart of all they do.

#### PART 1: INCONSISTENCIES UNDERMINING THE TRANSITION TO LOW CARBON

6. The Y&H region has a disproportionately high level of carbon emissions due to the industrial nature of the area and emissions and particularly large point sources of the three coal-fired power stations at Drax, Eggborough and Ferrybridge generating of 19% of the UK's electricity, steel processing at the Corus plant at Scunthorpe and intensive chemical processing on the Humber Estuary. Measures affecting these emissions cannot be applied at the regional level but instead will occur through the influence of the EU ETS.

7. It is difficult to assess the performance of Y&H against other regions as each has its own distinct characteristic affecting its emissions profile. The Stockholm Environment Institute (SEI)'s REAP analysis showed the region having a carbon footprint (based on consumption-related emissions) of 11.94 tonnes CO<sub>2</sub> per capita, compared to the UK average of 12.08 tonnes.

#### *Inconsistent targets:*

8. The existing Regional Economic and Spatial Strategies share a key target to reduce consumption-related carbon emissions by 25% by 2016 (on a 1990 baseline). This target is now out of step with the recommendations of the Committee on Climate Change (CCC) which has more recently recommended that UK carbon emissions are reduced by 42% by 2020 (on a 1990 baseline) or 34% in the absence of a binding global agreement. This would set the UK on a trajectory for an 80% reduction (as laid down by the Climate Change Act) in emissions by 2050. The RSS/RES was set based upon a 60% reduction by 2050. So, there are different interim and end targets, and time periods. Friends of the Earth believes that the 42% target (the "intended" target) is scientifically robust and that the UK Government should commit to this target immediately. Whereas the RES target represents a year-on-year target from 1990–2016 of 1.1% p.a., the CCC "intended" target represents an annual reduction of 1.8% pa to 2020.

9. Furthermore the RES/RSS targets are for greenhouse gas rather than CO<sub>2</sub> reductions and are then calculated on a consumption basis, whereas the national policy framework is based on production-related emissions. This brings a degree of complexity and inconsistency to tying regional strategies to the national policy framework. However to date the government has neither indicated an intention to establish a formal regional target, applicable to all the English regions. Friends of the Earth raised this issue with the Secretary of State Hilary Benn at the launch of Y&H Climate Change Plan in spring 2009

#### *Inadequate reduction trend:*

10. So how is the region performing against its own target? The most recent local and regional greenhouse gas emissions figures (released by DECC in September 2009) report that between 2005–6 emissions from the region actually increased by 0.5% followed by a 2.1% decrease from 2006–07 —when the regional economy was growing trend rate. This represents a 1.7% decrease over the two years from 2005 to 2007 ie less than half the rate of progress required to meet the CCC "intended" target and insufficient also to meet the RES target.

#### *Regional strategies not contributing:*

11. A substantial part of the explanation must be within the findings of the 2007 Regional Assembly report (by Cambridge Econometrics/ Arup Consulting/ SEI) which showed — but only *after* proposed RSS was substantially "set in stone"—that the implementation of its proposals would be actually increase emissions rather than contribute to the reduction target it contained. Instead they would result only in a stabilisation of *production*-related emissions with *consumption*-related emissions almost doubling between 2003 and 2021.

12. A further Regional Assembly study by SEI (with JMP Consulting) *Stepping Off the gas* March 2008 on the specific area of transport emissions further underlined the failure of regional strategies to be integrated with emissions reduction targets. It concluded that transport emissions would continue to rise, even with an unprecedented suite of transport interventions measures to restrain emission. The response of the regional authorities to these findings was extremely disappointing; effectively they ignored the report and simply continued with the existing transport programmes. This was a powerful example of weak regional leadership.

*Ineffective Regional Climate Change Plan 2009:*

13. Friends of the Earth participated in the steering committees responsible for the preparation of both the original RCCP and then its revision. Having learnt from the experience of the first Plan, which failed to deliver because of its weak, we proposed a stronger approach seeking to align the regional plan with the emerging national framework of the Climate Change Act—thus to turn it into a “regional delivery plan”. We were also extremely conscious that the time period of the Plan 2009–14 would be critical for the achievement of wider scale interim targets (what turned out subsequently to be the CCC 2020 carbon budget period). Quite regrettably the 2009 Plan is in essence as weak as its predecessor, principally because it has not been aligned with the national framework. Consequently Friends of the Earth took the unprecedented step of criticising the Plan on the occasion of its launch. The absence of target setting in the Plan means that there is no indication of the overall emissions reduction the Climate Change Plan is intended to achieve; or how, sector by sector, that reduction would be achieved; and no clear signals being communicated to regional stakeholders so that, with certainty, they can take their independent emissions reduction decisions. This leaves the Climate Change Plan without any sense of focus, at a critical juncture for the transition to a competitive regional low carbon economy.

*Weak monitoring framework/absence of corrective framework:*

14. The Annual Monitoring Reports and Progress in the Region LGYH and Yorkshire Futures respectively both report on the overall picture on carbon emissions but they are not linked to a framework resulting in clear corrective action being taken, following recognition that insufficient progress is being made. This sharply contrasts with the situation at a national level where the Committee on Climate Change has been both thorough and forthright in monitoring the national emissions trajectory. It also contrasts with the local level where the Comprehensive Area Assessments for local strategic partnerships indicate where progress has been made or not (with green and red flags for innovative practice and failure respectively).

## PART 2: CHANGES REQUIRED TO PROVIDE CERTAINTY OF DELIVERY

*Regional and local carbon budgets:*

15. The Integrated Regional Strategy needs to set a binding emissions reduction target which is consistent with both the scientific evidence and the intended target recommended by the Committee on Climate Change ie of at least 42% (on 1990 levels) for the period 2018–2022. To support this, they should five year carbon budgets reflecting the structures and targets set up by the Climate Change Act with further adoption of emission reduction targets beyond 2022 as the Committee on Climate Change recommends them to national Government. This will support the growing number of local authorities who are setting ambitious targets for carbon reduction in their own local areas.

*Performance framework:*

16. The establishment of regional and local carbon budgets or pathways will need to be accompanied by a performance monitoring and incentive regime that also links across to the availability of funding. Ahead of the general election political parties are developing their thinking on this, to which Friends of the Earth is contributing; see for example our Accelerating Green Infrastructure Financing: Outline Proposals for UK green bonds and infrastructure bank

*Emissions reduction integrated into strategies and programmes:*

17. The solution to the inconsistencies and weaknesses affecting regional strategies noted in Part 1 lies in both the need and opportunity for the developing Integrated Regional Strategy to be linked to the delivery of the National UK Low Carbon Transition Plan. The IRS must represent a step change in policy alignment and delivery. However no such formal intention has yet been identified, nor has the government yet stated whether IRSs must include a regional reduction target consistent in some way with national carbon budgets. IRS should also be central to the building of a competitive regional low carbon economy.

18. From there the proposals of emerging IRS would need to be assessed (on the basis of modelling) as to whether they will deliver on these targets. Policy scenarios for the major sectors (eg economy/housing/transport etc) and as they are integrated should be assessed for their impact on carbon emissions. Then the IRS should be reviewed annually to check progress along its emissions reduction pathway with a defined mechanism to provide urgent corrective action if necessary.

*Commitment by leadership:*

19. Our judgment is that this region used to be “ahead of the pack” in regional emissions reduction leadership (the RSS/RES target was the first in the country). However that lead has now been lost to others. Previously coordination between GOYH, Yorkshire Forward and the Regional Assembly seemed to be advancing this agenda, through collaboration with regional partners including from the environmental sector. So far the Assembly’s strategic successor (Local Government Yorkshire and Humber) has yet to demonstrate the same strategic commitment to emissions reduction.

20. Neither have subregional partnerships such as Leeds City Region and the functional sub-regions (FSRs), with LCR acquiring more formal powers through the City Region pilot programme. Their objective setting has in recent years instead been focused on economic development, to the downgrading of environmental performance and carbon emissions. So the Joint Regional Board, with Yorkshire Forward and GOYH, needs to reconsider and broaden that approach so that it contributes the development of a low carbon region.

*Regional support from Yorkshire Forward*

21. Friends of the Earth has long been a supporter of the demonstrated commitment of YF to low carbon. The establishment of CO<sub>2</sub> Sense has been welcome in that it ties together many of the broad strands of work carried out by YF which previously was failing to achieve the synergistic opportunities of a coordinated response. There is a possibility that too much emphasis has been placed on the development of the major CCS project linking major point sources with storage under the North Sea. An over-commitment of resources here might result in missing out on broader-based potential opportunities with greater certainty to reduce emissions more cost-effectively (energy efficiency measures/renewable energy).

22. Yorkshire Forward has a key role to play in ensuring that the regional business sector thrives in a low carbon economy. For this to happen, substantial investment must be made across a wide range of sectors to ensure that low carbon industries and investment are attracted to the region and continue to receive support as their market matures. In particular, the region has great potential as an engineering, manufacturing, support and service sector for the offshore and marine renewable industry. Some early work has started on this (eg development of tidal energy on the Humber) but this needs to be escalated and maintained

23. Yorkshire Forward's support for co-firing of biomass at Drax to reduce its carbon emissions by 15% has had some impact on these energy-related emissions has resulted from. However, a concern arises from the source of this biomass which was originally from locally-grown willow but now takes a wider range of feedstocks.

*Local innovation:*

24. The powerful national example of Kirklees Council will be well known to the committee. Their roll-out of free retrofitting of insulation into residential properties is cited rightly as world-leading performance by a local authority. This has been the result of setting tackling climate change as a key strategic priority and committing the necessary resources to the problem. Other elements of their work including providing long term loan finance for renewable energy microgeneration is also highly commendable. Councils are also working collaboratively eg the west Yorkshire schools energy programme. It was for these reasons that Friends of the Earth has focused its Get Serious programme of activity at the local authority struggle strategic share/subregional and regional levels 1.

25. However, some local authorities are definitely lagging behind, and this is a drag on and disincentive to low carbon implementation elsewhere. To overcome this all councils must be brought within a consistent carbon budget framework which sets long-term goals and provides the opportunity for cost-effective financing to both organisations and residents alike.

*Low carbon infrastructure delivery:*

26. Local authorities are also struggling to fulfil their part in delivering low carbon energy generation. Policy ENV5 of the Regional Spatial Strategy has clear indicative targets for the generation of grid-connected energy from renewable sources. Despite these targets being supported by national planning policy many renewable energy applications are faced with serious barriers to approval. This results in developers either scaling back their proposals to ensure approval at the first hearing or going to lengthy and costly appeals with substantial delays.

27. This situation is making it almost certain that the targets in ENV5 will be missed for 2010 and makes the next decade increasingly challenging to achieve the targets for 2021. Linking this across to the opportunities for a regional low carbon economy, this situation makes the development of a home-grown renewable industry ever more difficult as investors are faced with great uncertainty over the scale of market growth.

*"Stop supporting the worst polluters":*

28. A major weakness in regional/subregional strategy making in recent years has been the attempt to recouple (not decouple) transport growth (claimed to be related to economic growth) to emissions growth. This is exemplified through the support in the current Regional Funding Allocation programme for carbon intensive road schemes such as the FARRRS £160 million scheme to provide an access road including to for Robin Hood Airport near Doncaster. This has failed to understand the marginal significance of such activities (the DfT 2009 air traffic forecasts limit this airport to only 1m ppa in 2030) or allow for the damage

being done to turn over and employment in the more important regional tourism industry by the promotion of outbound leisure flights. Friends of the Earth has led the way in challenging these unanalysed assumptions.

29 January 2010

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### **Memorandum from Yorkshire and Humber Chambers of Commerce (CAR 10)**

#### **INTRODUCTION**

1. Yorkshire & Humber Chambers of Commerce (YHCC) is the umbrella body for the seven local, independent Chambers of Commerce in Yorkshire & Humber which are run by business for business. The Chambers have 11,500 business members in the region covering all sizes of company and all sectors of the economy.

#### **SUMMARY OF OVERARCHING COMMENTS**

Chambers of Commerce support the promotion of a low carbon economy. We recognise that climate change is perhaps the biggest long term challenge to our region.

Building a low carbon economy is not only important environmentally, but the shift has real potential economic benefits:

- Some businesses can benefit by producing lower carbon energy such as clean coal, wind, tidal, biomass etc which could support thousands of ‘green’ jobs directly and in supply chains;
- Many businesses can benefit by developing new products and services in markets stimulated by the growing demand from more environmentally aware customers; and
- All businesses can become more competitive by reducing their use of expensive energy and other resources.

The transition to a lower carbon economy must enhance not erode the competitiveness of our businesses, otherwise we risk exporting both jobs and carbon emissions.

The vast majority of businesses in the region (91%) are already taking positive action to reduce their carbon emissions and wider environmental impact. The focus of future assistance is therefore not promoting the message “do something” but helping businesses ‘do the right things’ which will have the biggest positive impact.

Too often the debate around climate change and carbon emissions is rhetorical and not all businesses will be motivated by social responsibility. A hard-headed, practical approach needs to be applied to make genuine carbon reductions.

There is a significant amount of business support available to help firms reduce carbon emissions. However, this support is often fragmented, confusing and unsustainable. It needs to be simpler and consistent to work in the long term.

#### **LEVELS OF CARBON EMISSIONS**

*The extent to which Yorkshire and the Humber is a region with a carbon-intensive economy*

2. The Committee will receive evidence from other organisations setting out the detailed information about carbon emissions from our region. This evidence will show that carbon emissions from Yorkshire & Humber are higher than most other parts of the UK, partly because our region produces a huge amount of the nation’s power and partly because of our industrial base. Despite the higher emissions, it should be recognised that businesses operating in these sectors are hugely important to the regional economy, and should continue to be so in the future.

3. As well as an environmental challenge, this industrial profile poses an economic challenge insofar as the region is vulnerable to a policy approach which penalises carbon emissions. Taking positive action today to make the transition to a low carbon economy therefore makes economic as well as environmental sense.

4. However, we are concerned that the public debate around carbon emissions is too narrowly focused on a small number of sectors such as energy production and air transport, both of which are vital to the wider economy. We would welcome measures to ensure the public debate is better balanced and informed by the evidence, otherwise we risk making the wrong policy choices which could damage the economy.

5. Progress in the Region shows that the figure for renewably generated electricity as a proportion of total energy consumed in our region in 2007 was just 5.3%. Whilst this appears low, it had doubled since 2003, was higher than the England average of 4.1% and has the potential to be significantly increased if the region can attract investment in renewable energy production including biomass, clean coal, on and off shore wind, tidal *etc*. This should continue to be a key regional policy priority and the region needs to have a strong body, such as Yorkshire Forward, to work with industry to capture these long term opportunities.

6. The region is right to set targets to reduce carbon emissions and increase the amount of energy generated from renewable sources. We strongly welcome the work of Yorkshire Forward, businesses and other partners to move towards lower carbon energy production which we believe has very significant future potential if the Government, regional bodies and businesses can work together to maximise this investment.

*Which regional industries and other activities contribute to carbon production in the region*

7. We have no additional comments to make regarding this line of inquiry.

*How Yorkshire and the Humber compares with other regions in terms of carbon production*

8. We have no additional comments to make regarding this line of inquiry.

**REDUCING CARBON EMISSIONS**

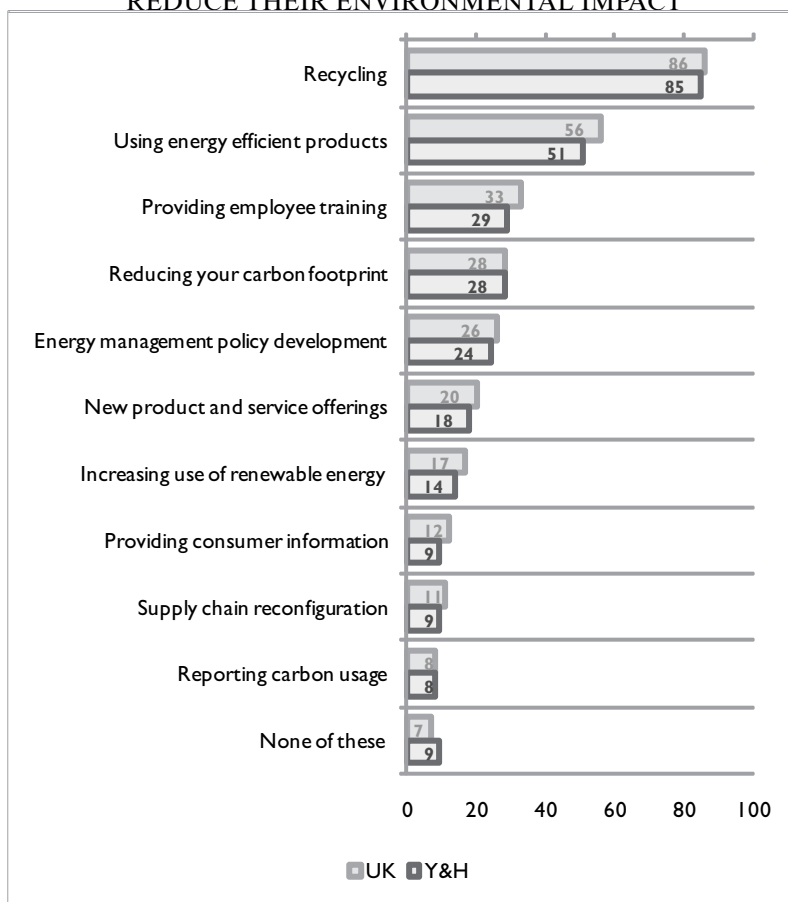
*Which organisations are active in the region to reduce carbon emissions*

9. Businesses themselves are already very active in seeking to reduce their carbon emissions and wider environmental impact. We surveyed 439 Chamber of Commerce members in Yorkshire & Humber in 2008 which showed that businesses were already acting to reduce carbon emissions—partly due to corporate social responsibility but also to cut energy bills and increase efficiency. Although most businesses are taking action far fewer are able to quantify the benefits. That must change to ensure benefits outweigh the costs and there is a persuasive case for companies to act. Businesses are unlikely to be influenced by sound bites and rhetoric from the green lobby, however sincere.

10. Businesses said they would be influenced by real and practical factors such as the cost of energy, tax and regulatory environment in which they operate. Energy costs (94%), environmental taxes (83%) and Government regulations (83%) are the factors most likely to drive the behaviour of businesses. Seven out of ten Yorkshire businesses say customers are likely to influence their response to climate. However, businesses also say they want to see proper incentives to make greener choices, better support to help them make positive changes and the development of new technologies which can have a major influence on tackling climate change.

11. Around half the firms we surveyed said climate change was currently a significant issue for them, but this figure was higher for larger businesses and more businesses expect it to be a significant issue for them in the future. Nine out of ten businesses were already taking steps to reduce their environmental impact in the following ways:

**STEPS THAT BUSINESSES ARE ALREADY TAKING TO REDUCE THEIR ENVIRONMENTAL IMPACT**



Source: YHCC Energy & Environment Survey, 2008

12. There are a significant number of organisations and initiatives seeking to work with businesses to reduce carbon emissions within the region. Whilst this activity is well intentioned, and often useful to the businesses concerned, the overall picture is characterised by duplication and confusion about where companies can access business support to reduce their emissions.

13. The research reveals that there is some helpful support available to businesses from organisations such as the Carbon Trust but awareness of what is available and from whom is generally too low. Companies need help to measure their environmental impact, provided with clear advice about the relative costs and benefits of implementing various measures and given practical incentives to take those actions.

14. The array of information, advice and consultancy for businesses from the Carbon Trust, Environment Agency, Envirowise and WRAP as well as wide range of regional and local bodies, which can appear bewildering for small businesses. Many different organisations may be involved in the same projects offering advice, funding, planning or implementation and a more streamlined system would be helpful.

15. Regionally, we welcome the integration of Carbon Action Yorkshire, Resource Efficiency Yorkshire and Future Energy Yorkshire under the single umbrella of CO<sub>2</sub> Sense. This is a sensible first step which recognises the current confusion amongst businesses.

16. Because too much support is fragmented, confusing and unsustainable, we advocate the following approach to business support:

- The number of publicly funded business support organisations and initiatives offering some kind of information or advice needs to be streamlined, and focused on the gaps where there are not private sector providers offering the same advice or service.
- Many companies of all sizes are taking positive action to reduce their emissions but larger companies are more able to do so in a structured and effective way. Support should therefore be targeted at small firms.
- Too many publicly funded organisations and schemes operate in the same territory in terms of information and advice and will not be financially sustainable. Taxpayer funded business support has a role to play but needs a long term, consistent approach.
- Sound advice on the actions businesses can take is important, but it is even more vital that this is backed up with proper help and financial to implement the practical actions which will actually reduce carbon emissions.

*Which branches of central, regional and local government are working to reduce carbon emissions in the region, and the extent to which they are working together*

17. Our 2008 survey showed that businesses are far from convinced that Government will put in place the policies necessary to reduce carbon emissions with 33% agreeing they will be able to do so and 38% disagreeing. Only 11% agree Government departments are effectively working together to tackle climate change with 54% disagreeing.

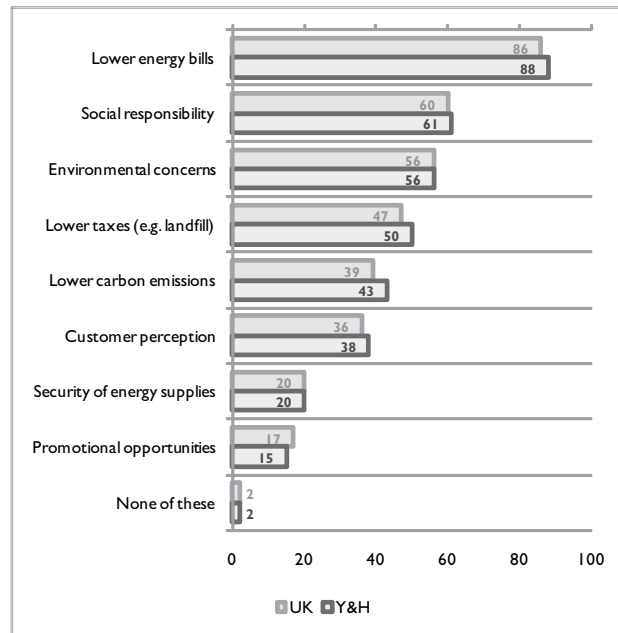
*The extent to which the Integrated Regional Strategy is likely to be effective in coordinating efforts to reduce carbon production in the region*

18. The Integrated Regional Strategy has a very important role to play in promoting the region's transition to a low carbon economy and giving businesses a long term policy approach required to inform their decision making and business planning. The IRS will help the region to:

- Set out the key principles and targets which set the overall policy framework.
- Bring together economic, transport and planning strategies together for the first time which is particularly important for the development of renewable energy infrastructure.
- Take a strategic view about streamlining business support activity to avoid future proliferation of initiatives and organisations.

19. The chart below shows that some businesses will take action to reduce their environmental impact and carbon emissions as part of their social responsibility. However, the vast majority of companies will take action to reduce their costs. This is an important message in the design of policy in the Yorkshire & Humber Strategy which must appeal to businesses 'heads' as well as their 'hearts'.

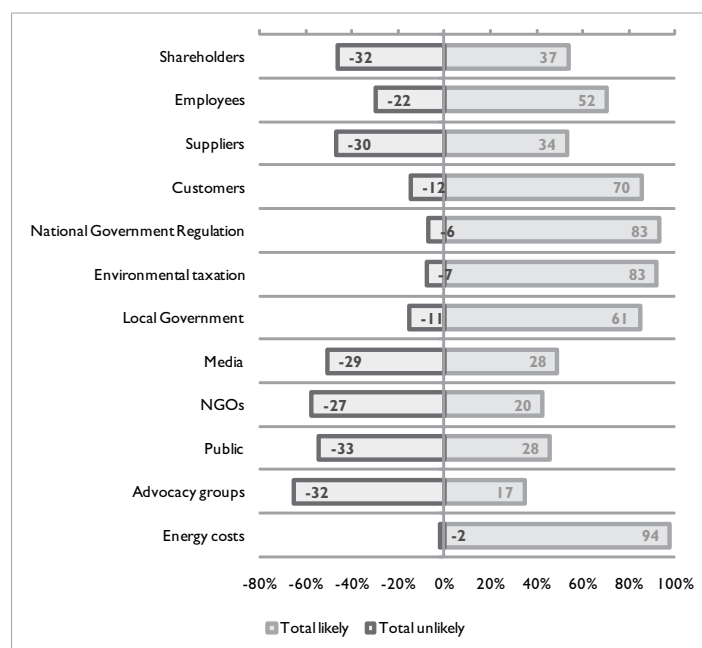
PRIMARY MOTIVATIONS OF BUSINESSES TO REDUCE THEIR ENVIRONMENTAL IMPACT/ENERGY USE



Source: YHCC Energy & Environment Survey, 2008.

20. The chart below clearly shows that tax and regulation would drive the actions of businesses to reduce their environmental impact and carbon emissions. This is hardly surprising given that businesses want to and have to comply with such regulations. However, it also shows that 70% of businesses are likely to take positive action on the environment in response to their customers whilst less than 30% would respond to the media, NGOs, public or advocacy groups. The crucial point is that ‘preaching’ to businesses about what they should do is far less effective in changing corporate behaviour, than decisions that customers will make about the products they want or the companies they want to buy from.

WHO/WHAT IS MOST LIKELY TO INFLUENCE BUSINESSES TO REDUCE THEIR ENVIRONMENTAL IMPACT?



Source: YHCC Energy & Environment Survey 2008.

*What projects are operating or are planned to reduce carbon emissions in the region, with illustrative examples of how they are working and their prospects for success*

20. We do not have any comments to make on this line of inquiry.

#### THE LOW-CARBON ECONOMY

How regional industries can take advantage of the low-carbon economy;

21. The term ‘low carbon economy’ is often interpreted as being about responding to climate change, but in fact a low carbon economy can be seen as an ultra-efficient one with primary energy sources being produced in a more sustainable way. The infrastructure and skills available from the region’s existing power generation industry, and our natural assets from wind and tides, means we have real potential to generate new ‘green’ jobs.

22. The transition to a low carbon economy has real potential to generate economic benefits at a number of different levels as set out in the summary of this submission.

#### *The barriers to the region becoming a low carbon economy*

23. The role of national and regional Government will be very important. The UK Government needs to continue to work with Government’s around the world to persuade them about the need for globally binding agreements on carbon reductions. This is essential both to stimulate global markets for the green industries of the future, but also to give businesses in our region greater confidence that they will be competing on a level playing field with global competitors in terms of tax and regulatory regimes (even if there will be variations in the specific policies in different countries).

24. The UK and Yorkshire & Humber must ensure that the transition to a lower carbon economy does not erode the competitiveness of our businesses by taking the wrong choices on green tax and regulation. This would risk exporting both jobs and carbon emissions. It does not need to happen if the right policy approach is taken.

25. Major investment at European and UK Government levels is also required to support and promote fledging industries and technologies. This is particularly true for energy infrastructure which will be expensive to develop and needs a long term, consistent policy framework to open up the markets and promote investment in carbon capture, off-shore wind etc. We are concerned that the planning system will be a barrier to these investments and we support the Government’s establishment of the Infrastructure Planning Commission which we believe can help deliver national and regional carbon reduction targets.

26. At the regional level, we do believe that it’s important there is a strategic body with the ability to lead this agenda from a public sector perspective. Yorkshire Forward have done this effectively to date, and we are concerned that the uncertainty about their future role and funding could hamper the region’s low carbon aspirations. A business focused organisation with the necessary vision, expertise and influence will be needed in the long term if our region is to accrue the full potential benefits of the low carbon economy in terms of jobs and investment.

#### *Where the future of the regional low carbon economy lies*

27. We do not have any further comments to make on this line of inquiry.

29 January 2010

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### **Memorandum from Yorkshire Forward (CAR 11)**

Yorkshire Forward is the Regional Development Agency for Yorkshire and Humber. We aim to make the region a better place to live, work and invest. This includes working towards a low carbon economy, not least because without action the impacts of climate change will undermine sustainable economic growth. There are meanwhile massive opportunities to exploit growing markets for low-carbon technologies.

This is reflected within the Regional Economic Strategy, which identifies responding to climate change as an action and within its cross cutting themes. Yorkshire and Humber was the first English region to set ambitious greenhouse gas (GHG) reduction targets in its Regional Economic Strategy. The current target in the RES is for a 20–25% reduction in GHG emissions by 2016 on 1990 levels. That was a leading position for an economic document prepared in 2005, although the level of ambition will be need to reviewed and further increased in future strategy development.

Detailed information on regional emissions has been provided by Government Office Yorkshire and the Humber, and so figures are only presented here for substantiation. Instead, Yorkshire Forward’s response focuses on our approach to developing a low carbon economy. It discusses the activities that Yorkshire Forward views as fundamental to achieving ambitions on climate change mitigation, and provides examples of how these are being delivered in partnership.

**LEVELS OF CARBON EMISSIONS**

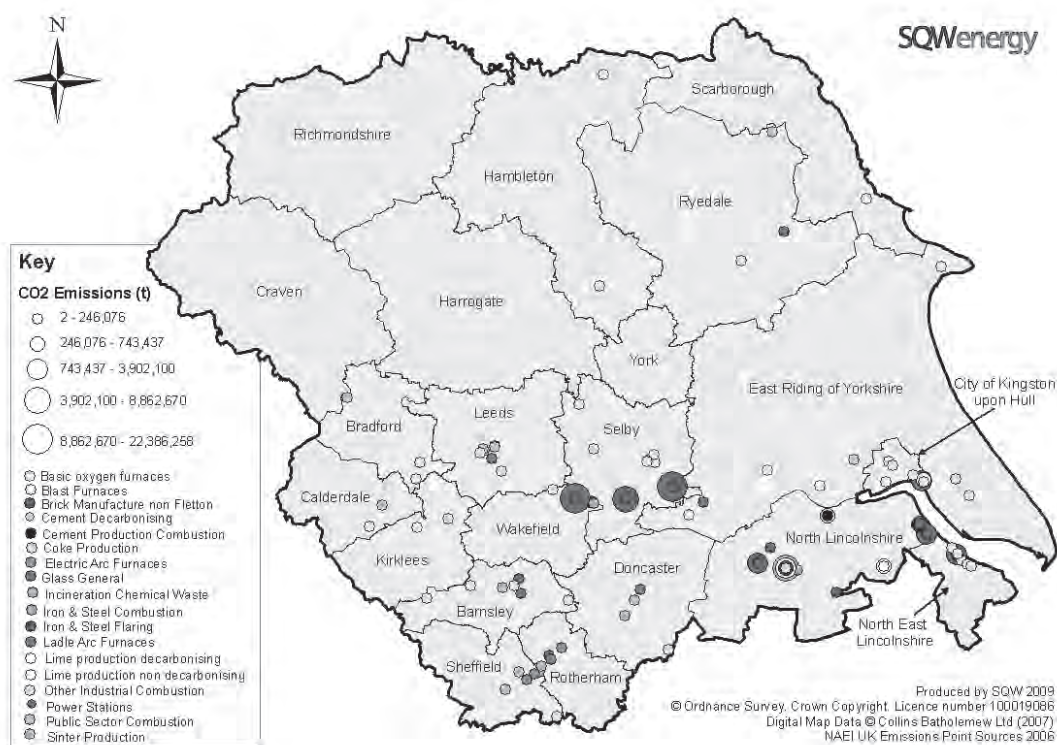
*To what extent is Yorkshire and Humber a region with a carbon-intensive economy?*

*Which regional industries and other activities contribute to carbon production in the region?*

*How does Yorkshire and Humber compare with other regions in terms of carbon production?*

Yorkshire and Humber's history of heavy industry and power generation means that the region is the UK's third highest emitter of CO<sub>2</sub> from energy consumption (ie excluding power generation) with emissions of 51.3mt CO<sub>2</sub> in 2007.<sup>33</sup> Sectors with the largest carbon footprints include metals, chemicals and mineral products.

These sources account for two thirds of the region's total annual greenhouse gas emissions of almost 90mt CO<sub>2</sub><sup>34</sup> (this higher figure is for consumption plus production—ie including power stations). A map of point source emissions, including power generation, is shown below.<sup>35</sup> This highlights local variation and concentrations such as in North Lincolnshire where industries such as steel are responsible for the area producing around a third of the region's total industrial and commercial emissions.



These figures should be viewed against the fact that the region is a key energy producer, accounting for over 18% of the Country's electricity generation capacity.<sup>36</sup> Yorkshire and Humber's major coal-fired power stations include Eggborough, Ferrybridge and Drax, with Drax alone representing 5% of England's installed power generation capacity.<sup>37</sup> As a net exporter of energy, the region provides a major contribution to the UK economy, whilst also presenting major opportunities to trial and implement low carbon energy generation. Given our high share of national power generation and carbon emissions from it, action in this region will be vital to meeting national carbon reduction targets.

Other carbon intensive sectors include transport and buildings (domestic and commercial). On the basis of energy consumption, road transport accounts for 22% of the region's carbon emissions, whilst the domestic sector accounts for 24%. Both figures are similar to the national average. A growing population and economy will increase demand for transport, housing and energy. Yorkshire Forward is now integrating its economic and employment modelling with carbon emissions and population projections to inform strategy development and decision making.

<sup>33</sup> ([http://www.decc.gov.uk/en/content/cms/statistics/climate\\_change/climate\\_change.aspx](http://www.decc.gov.uk/en/content/cms/statistics/climate_change/climate_change.aspx)). This figure is based on local gas, electricity and road transport fuel consumption estimates and does not include those from power generation.

<sup>34</sup> DEFRA/National Atmospheric Emissions Inventory—production and consumption emissions combined.

<sup>35</sup> Data from the National Atmospheric Emissions Inventory (NAEI)—as set out in SQW's Top Ten Interventions to Cut Regional Carbon Emissions Report, 2009.

<sup>36</sup> Digest of UK Energy Statistics—Power Stations in the United Kingdom 2009.

<sup>37</sup> *ibid*

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## REDUCING CARBON EMISSIONS

*Which organisations are active in the region to reduce carbon emissions?*

Yorkshire Forward is committed to driving regional progress towards a low carbon economy, bringing together the top businesses and public agencies, and focusing on energy, low carbon technologies and good business practice. Our activity can be categorised into three main areas: leadership, understanding, and action:

*Leadership:* Climate change goals cannot be achieved through a single approach. They require action across economic sectors and society. Yorkshire Forward's Low Carbon Economy policy<sup>38</sup> provides our partners with direction in terms of raising awareness, prioritising investments, and bringing forward significant demonstrator activity. This is helping to prepare the region for the challenges and opportunities of climate change. Examples of our leadership role include:

- Being the first economic agency or department in the region to raise climate change as a key issue in its strategies, and the first region to set targets on it.
- Establishing CO<sub>2</sub>Sense, a company dedicated to helping businesses and organisations to prosper in the low carbon economy. This includes striving to work with the region's top 100 businesses to reduce their carbon emissions. Current and planned Yorkshire Forward investment in CO<sub>2</sub>Sense between April 2009 and March 2012 totals over £20 million, demonstrating the RDA's commitment to, and foresight in, this agenda.
- Leading the Yorkshire and Humber Carbon Capture and Storage (CCS) Partnership to make the case for a region wide CCS network that could be designed to transport and store 60Mt CO<sub>2</sub> a year by 2030.
- Engaging partners across the region in the agenda, at a strategic level and in terms of encouraging partners to embrace low carbon principles in project delivery. Our role in securing Low Carbon Economic Area designations is an example of how Yorkshire Forward is raising the region's low carbon ambitions.

*Understanding:* Yorkshire Forward proactively develops research on the low carbon economy to inform policy and investment decisions. One current example is work to assess the implications of the Climate Change Act for regional competitiveness. Initial findings suggest that the region will be more affected by the Climate Change Act and related policies than other parts of the UK because it is more energy intensive than average. There will however be market opportunities such as retrofitting housing stock and the manufacture of renewable technologies. This, along with other Yorkshire Forward and broader regional research, is informing development of the evidence base for the Integrated Regional Strategy.

Yorkshire Forward financially supports and works with *Yorkshire Futures*, the regional observatory, to provide intelligence and information on the low carbon economy and emissions. Yorkshire Futures research on "The Top Ten Interventions to Cut Regional Carbon Emissions"<sup>39</sup> identifies the most viable and cost effective interventions. The report indicates these interventions could reduce the region's carbon emissions by up to 23% by 2020.

*Action:* Yorkshire Forward is a leading RDA on carbon emissions reduction, with a voluntary target to reduce emissions associated with its interventions by 500,000 tonnes CO<sub>2</sub> per year. The target demonstrates that a low-carbon approach can benefit the economy, supporting jobs and businesses at the same time as reducing emissions.

Yorkshire Forward, Yorkshire Futures and CO<sub>2</sub>Sense are all members of the *Yorkshire and Humber Climate Change Partnership*,<sup>40</sup> which brings together key organisations to tackle climate change. Membership of the partnership helps to drive collaborative action, avoid duplication and to consult on strategy and delivery with a range of stakeholders who have considerable climate change expertise. Further examples of action are provided under relevant questions later and in the annexes.

Finally, many individual businesses, voluntary groups, agencies and universities are acting on climate change. It is however beyond the scope of this submission to attempt to list all of these.

*Which branches of central, regional and local government are working to reduce carbon emissions in the region, and to what extent are they working together?*

*National:* Yorkshire Forward works with the Department of Energy and Climate Change (DECC) through an officer working group and a Director-led forum. This provides strategic leadership and coordination across the RDA Network in relation to DECC issues. It also provides Yorkshire Forward with the opportunity to influence and inform DECC policy development and its implementation.

There are also links with the Department for Environment, Food and Rural Affairs (DEFRA) on resource efficiency, and with other Departments on various climate change-related activities. Specifically, Yorkshire Forward has recently worked closely with the Department for Business, Innovation and Skills (BIS) on the

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<sup>38</sup> <http://www.yorkshire-forward.com/about/our-policies/lower-carbon-economy>

<sup>39</sup> <http://www.yorkshirefutures.com/articles/top-ten-cut-carbon-yorkshire>

<sup>40</sup> [www.yourclimate.org](http://www.yourclimate.org)

development of Low Carbon Economic Areas. The more Departments (including those above and others including Dft, CLG and HMT) provide a joined up and committed approach to climate change across the board, including in terms of targets and guidance, the easier it is for regions and RDAs to respond clearly and positively.

*Regional:* Yorkshire Forward's collaboration with two other key organisations at regional level is important: Local Government Yorkshire and Humber and Government Office for Yorkshire and the Humber (GOYH). Examples include:

- A partnership approach to developing the Integrated Regional Strategy (IRS) Workstream on Climate Change and Environmental Resources.
- A forthcoming Renewable Energy Capacity Study which will help to inform the IRS and its relevant Workstreams.

Yorkshire Forward recognises GOYH's efforts to assist local authorities in meeting climate change commitments. This includes monitoring progress against National Indicators and providing support for the Climate Change strand of the Regional Improvement and Efficiency Partnership.

*Local:* Whilst the nature and extent of action may vary, most local authorities in the region are active in responding to climate change. Excellent examples such as in Kirklees are a real benefit in showing what can be done. Other areas such as the Dearne Valley Eco Vision show the value of collaborating across boundaries.

*To what extent is the Integrated Regional Strategy likely to be effective in coordinating efforts to reduce carbon production in the region?*

In December 2009 the Joint Regional Board agreed that the new Integrated Regional Strategy should be ambitious on climate change and the low carbon economy and seek to become a global leader in key areas of opportunity. This reinforced the earlier commitment to sustainable economic growth, including climate change adaptation and mitigation.

Evidence is now being gathered to inform the development of policy options and the strategy so that low carbon considerations are fully integrated. A "Climate Change and Environmental Resources" Workstream led by Yorkshire Forward is one six Workstreams that drive and structure work on the Strategy.

Yorkshire Forward recognises that achieving consensus and buy-in on the low carbon economy across the region will be critical to co-ordinated emissions reduction. As a result, there is currently an open invitation to submit evidence on climate change, offering the opportunity to influence the strategy at the earliest stage. A series of "Evidence Hearings", including one on climate change, are being organised for early 2010. These will facilitate discussion and enable key issues to be aired.

*What projects are operating or planned to reduce carbon emissions in the region (with illustrative examples of how they are working and their prospects for success)?*

Yorkshire Forward supports wide ranging projects to reduce carbon emissions. The following examples demonstrate how Yorkshire Forward's interventions benefit the low carbon economy. Further detail can be found in Annex 2. The illustrative examples here are listed under six key strands of the low carbon economy.

#### REDUCING ENERGY DEMAND AND INCREASING RESOURCE PRODUCTIVITY

Major investment in CO<sub>2</sub>Sense (previously described) helps businesses to reduce energy use and maximise resource efficiency. Additionally, Yorkshire Forward is developing low carbon buildings. For example, the Advanced Manufacturing Park in Rotherham is now home to the UK's first building fuelled by "green" hydrogen.

#### GENERATING CLEANER AND RENEWABLE ENERGY

Yorkshire and Humber provides over 20% of England's biomass power generation. Yorkshire Forward has invested in a £5 million Woodfuel Infrastructure Programme. This includes grant schemes for businesses in the biomass supply chain, complementing the development of England's largest wood pellet mill at Pollington near Goole, which will boost use of biomass energy. Yorkshire Forward has also supported demonstration projects and businesses using technologies such as small scale water power and is supportive of other technologies such as wind energy.

#### CARBON CAPTURE AND STORAGE (CCS)

Yorkshire Forward and CO<sub>2</sub>Sense have played a leadership and convening role in making the case for CCS in the region and bringing together public and private sector partners. We have supported a successful regional bid to secure €180 million (£165 million) funding for the UK's first commercial scale CCS project. This funding could unlock considerable further private sector investment in low carbon technologies, create export markets and deliver major reductions in carbon emissions.

## LOW CARBON ENGINEERING AND MANUFACTURING

Yorkshire Forward is working with industries that will be essential to a low carbon economy. This includes CCS as well as work on biorenewables (fuel, processes, products) and to attract large wind turbine manufacturers who, along with their supply chain, are interested in the Humber (with its ports, land banks and deep sea water access) as a hub for offshore wind development. Yorkshire Forward has helped secure the UK's new Nuclear Advanced Manufacturing Research Centre and will be investing up to £10 million which will create hundreds of jobs in the region.

## LOW CARBON INFRASTRUCTURE

Infrastructure, including transport, impacts upon carbon emissions. Much of Yorkshire Forward's work on this is about a strategy and influencing role, for instance making rail a top transport priority. This has been backed by projects to improve rail services through extra carriages or additional services (eg between Sheffield and London). We are further planning to support innovative action to reduce carbon emissions and fuel poverty in deprived households across a spread of districts. The "Digital Region" project introducing next generation Broadband to South Yorkshire can help to reduce emissions by reducing the need to travel, whilst renaissance work often makes centres more attractive to get around without a car.

## SKILLS, INTELLIGENCE AND SERVICES

The Centre for Low Carbon Futures is a new initiative between the Yorkshire Universities and Yorkshire Forward. It brings together world-leading research expertise on climate change whilst providing climate change solutions of national and international significance.

## THE LOW-CARBON ECONOMY

*How can regional industries take advantage of the low-carbon economy?*

*Where does the future of the regional carbon economy lie?*

Yorkshire and Humber has potential to become a world leader on the low carbon economy. It has competitive strengths and assets that will accelerate low carbon business investment, employment and economic growth. These include:

- a concentration of power generation capacity close to areas of high demand;
- major engineering and manufacturing businesses with supply chain opportunities;
- the Humber coast adjacent to the North Sea's substantial offshore wind potential; and
- England's largest ports complex and its supply chain and export potential.

A low carbon *economy* is not simply about having the lowest carbon emissions. Areas like Yorkshire and Humber, with an economy steeped in power generation and manufacturing, cannot realistically have the lowest emissions of any area. Indeed, manufacturing products that reduce emissions globally (eg components for wind turbines) will increase carbon emissions in the areas that make them. Our understanding of the low carbon economy is about a *transformation* away from a carbon intensive economy towards a strong, forward looking economy where many jobs and businesses are in fields that respond to climate change. We see six main strands of activity as essential to this transition:

## REDUCING ENERGY DEMAND AND INCREASING RESOURCE PRODUCTIVITY

The region's carbon emissions are linked to the relatively high percentage of employment it has in sectors where energy expenditure accounts for 10%+ of GVA. There is significant scope to reduce the demand for energy and raw materials by the region's businesses, heightening competitiveness and reducing the vulnerability of an energy intensive economy faced with likely long term increases in energy costs.

## GENERATING CLEANER AND RENEWABLE ENERGY

Yorkshire and Humber has a good land resource for renewable energy (eg wind and biomass) and its potential offshore can help to establish the UK as the world's largest single market for offshore wind. There are innovative developments and future possibilities in other technologies too, including using waste food as a power source and in tidal/wave energy. Our concentration of power stations will also put an onus on "decarbonising" fossil fuel power generation, led by the private sector. This includes co-firing with biomass, such as at Drax, building on the large share of biofuel companies locating in the region. Collaborative work with other regions is ongoing to secure LCEA designations for offshore wind and biorenewables.

## CARBON CAPTURE AND STORAGE (CCS)

The region's cluster of large single point industrial sources of CO<sub>2</sub> emissions—such as power stations and heavy industry—and a coastline adjacent to the depleting gas reservoirs of the southern North Sea—put it in an ideal position to exploit CCS at a commercial scale with a potential that could be realised by few other parts of the world. We anticipate designation of an LCEA on CCS imminently and major market opportunities to stem from this.

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## LOW CARBON ENGINEERING AND MANUFACTURING

Yorkshire Forward sees great opportunities to develop and supply new and growing markets in the low carbon economy, using existing industrial and business specialisms. These include bio-refining and speciality, high value chemicals, plus opportunities in the supply chain for renewable energy (eg wind turbine construction) and new nuclear build.

## LOW CARBON INFRASTRUCTURE

There will be major business opportunities in sustainable construction (housing and other premises), retrofitting buildings and homes. Other grid based infrastructure, whether that be based on broadband or energy also provides business opportunities. Sustainable transport offers economic opportunities in areas such as electric vehicles, and in types of transport that are intrinsically lower carbon.

## SKILLS, INTELLIGENCE AND SERVICES

Exploiting business opportunities in the above areas will be dependent upon having people with the right skills and capacities to support them, whether those skills be technical in nature, or generic (eg problem solving, collaborative, entrepreneurial). Additionally, there will be consultancy and service based opportunities in helping others to respond to the low carbon economy, and new developments in carbon trading and low carbon finance.

In moving forward, cross-regional and wider collaboration will be essential. Working in partnership with England's RDAs, we are identifying industries and technologies in which we have competitive advantages, and exploring opportunities for synergy across regions.

Yorkshire Forward has worked with other RDAs to secure designation of a number of Low Carbon Economic Areas.<sup>41</sup> Most recently, Yorkshire Forward has secured an LCEA for the civil nuclear industry with the North West. This will exploit the supply chain opportunities resulting from the new nuclear build programme and complement the recently announced new Nuclear Advanced Manufacturing Research Centre and Rolls-Royce's planned civil nuclear factory in South Yorkshire. We are playing a key role in the development of further LCEAs, including CCS and offshore wind, and equivalent network activity on biorenewables.

A further example of collaboration is our work with the North West Development Agency and One North East through the Northern Way.<sup>42</sup> The Northern Way Energy Workstream will seek to exploit a small number of large scale opportunities including offshore wind, marine power, reducing carbon emissions in industry and business and decentralised energy.

### *What are the barriers to the region becoming a low carbon economy?*

The low carbon economy is a challenge as well as an opportunity. International competition is high, especially around supply chains due to energy and labour costs. As a result, the region will need to compete on expertise rather than cost.

An increase in low carbon manufacturing and product design will help to increase competitiveness long term. However, as we recover from the recession, many companies are focused on surviving the present rather than future opportunities. Forward looking, innovative perspectives are vital.

Other barriers include sectors and organisations not taking advantage of schemes and advice that are on offer due to perceived complexity or a lack of awareness—something that CO<sub>2</sub>Sense is addressing. Finally, substantial central Government investment, clear political and policy drive towards low carbon, and consistent long term signals to markets and individuals are important.

In terms of low carbon manufacturing, support is needed in two main areas:

1. General support to companies around market intelligence, access to markets, technology development and implementation, and a skilled workforce
2. Specific support to potential inward investors (eg dockyard facilities for offshore wind) or large scale investments by existing regional businesses.

The construction sector faces the challenge/market opportunity of retro-fitting the UK housing stock. In 2007, the sector accounted for 185,000 jobs and over £5.5 billion of GVA in the region. A large proportion of the region's 2.2 million homes will require better insulation, new heating technologies and other energy efficiency measures and new housing will have to be carbon neutral by 2017. The construction industry will require a considerable overhaul to respond to these opportunities before others do.

The region could be at risk of not capitalising fully on low carbon economy opportunities because of a limited skills base. For example, the average age of engineering employees is generally older than that of other sectors, and not enough skilled people are arriving to replace people retiring or leaving the sector. Yorkshire Forward is currently mapping the skills implications of a low carbon economy to ensure the region's workforce are equipped and learning provision appropriately targeted for this agenda.

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<sup>41</sup> LCEAs aim to pull together partners to focus on accelerating the growth of low carbon industries.

<sup>42</sup> <http://www.thenorthernway.co.uk/>

CO<sub>2</sub>SENSE CASE STUDIES

Yorkshire Forward is extremely proud of the achievements of CO<sub>2</sub>Sense,<sup>43</sup> its Section 2(c) Company dedicated to helping businesses reduce their carbon footprint, improve resource efficiency and exploit new market opportunities. CO<sub>2</sub>Sense has evolved from three separate programmes, Carbon Action Yorkshire, Future Energy Yorkshire and Resource Efficiency Yorkshire, which benefited from over £6.75million of Yorkshire Forward support up to the end of March 2009. Current and planned Yorkshire Forward investment in CO<sub>2</sub>Sense between April 2009 and March 2012 totals over £20 million, demonstrating the RDA's commitment to, and foresight in, this agenda.

*Carbon Trading*—CO<sub>2</sub>Sense has played an essential part in preparing the region's largest businesses for carbon trading and the Carbon Reduction Commitment legislation through its Carbon Trading Yorkshire scheme. Around 45 companies have participated in a simulated carbon trading programme which required all the preparation and skill that would be required to trade carbon for real, but in a safe practice environment.

*Green Frog Power (Hull) Ltd*—this project will generate green electricity in Hull, East Yorkshire through the combustion of liquid biomass fuels. The power plant will generate 29,000MWh of electricity a year, enough electricity for about 4,000 households for a whole year. Excess heat from the process will be sold to a vegetable oil processing business owned by the promoters and to a local tanning business.

The project cost is £1 million, which makes the technology a low cost option in comparison to other renewable technologies. It will cost £250,000 per megawatt of capacity, compared to an industry average of £2million.

CO<sub>2</sub>Sense has been one of the key funders to the project, contributing a loan of £200k to constructing the plant. This funding was delivered through the Grid Connected Renewables funding programme which is a dedicated funding pot for the development of renewable electricity projects in the Yorkshire and Humber region.

*Emley Anaerobic Digester*—CO<sub>2</sub>Sense is working with Clayton Hall Farm, Kirklees (West Yorkshire) to establish an anaerobic digestion facility. CO<sub>2</sub>Sense has aided the grid connection application, assisted with the financial aspects for the project, and supported the developer in the early development stages such as feedstock negotiations, business plan writing, financial modelling and project planning. The facility will process 10,000T of food and agricultural waste per year. This will generate 2,400MWh of electricity per year and save 1,400T of carbon dioxide annually.

*Safestyle UK*—this Barnsley-based supplier and retailer of PVCu windows received £16.5k investment from CO<sub>2</sub>Sense Yorkshire for new recycling equipment to divert 4,000 tonnes of waste wood, glass and polythene from landfill every year, saving £170k pa and creating new jobs. This will also reduce their CO<sub>2</sub> emissions by 3,000 tonnes over three years. The project demonstrates recycling best practice in the design and manufacture of windows whilst supporting the development of recycling resources in the region.

*Settle Hydro*—this is the first community owned “run of river” hydro project to be developed in Yorkshire. The project is owned by Settle Hydro, an Industrial and Provident Society for the Benefit of the Community created specifically for owning and operating the hydro scheme. The hydro scheme, sited on the river Sett, near Bridge End Mill in Settle is 48kW in size, and will generate around 180,000kWh per year which is enough to supply around 50 houses with electricity for a year.<sup>44</sup> It is expected that over 10 years the scheme will save nearly 800T of carbon dioxide through displacing fossil fuel electricity generation. The scheme will also enable regeneration of Settle through the provision of grants from profits generated by the project.

CO<sub>2</sub>Sense has been one of the key funders to the project, contributing a grant of £50,000 to the cost of constructing the plant. This funding was delivered through the Grid Connected Renewables funding programme.

*i-plas*—this Halifax-based company has given the construction and rail sectors the opportunity to reduce operating costs and cut their carbon footprints by developing a recycled plastic that can replace traditional materials. The technologically advanced approach to plastic recycling creates composites which outperform traditional materials such as wood, concrete and steel, which are then turned into products such as rail sleepers, kerbing, ground reinforcement systems, bollards and roofing battens, all of which have 100% recycled content and in turn are 100% recyclable.

*i-plas* began in 1999 with the support of Kirklees MBC, Calderdale MBC, Yorkshire Forward and ERDF funds, operating essentially as a pilot plant. CO<sub>2</sub>Sense provided £65k of investment support in 2007 to transfer the plant to regional plastic product manufacturer, Lynwood Products. Since then, *i-plas* has rapidly grown to become the third largest reprocessor of plastic in Yorkshire and Humber and is the UK's leading supplier of manufactured innovative plastic composites. Most of the plastic used by *i-plas* is sourced, collected, sorted and reprocessed in Yorkshire—keeping the product carbon footprint low and supporting the local economy. It is estimated that every tonne of plastic diverted from landfill reduces greenhouse gas emissions by 1.66 tonnes.

<sup>43</sup> [www.co2sense.org.uk](http://www.co2sense.org.uk)

<sup>44</sup> Based upon an average electrical consumption of 3500kWh.

*Grants for the Food and Drink Sector*—the food and drink sector is one of CO<sub>2</sub>Sense’s priorities, and food waste producers, collectors and processors can now bid for funds to deliver waste reduction initiatives, recycling services, or re-use projects. They can also bid for funds to achieve energy and water savings. The Greenhouse Gas Savings Capital Investment Fund is designed to increase the capacity of the resource efficiency sector in Yorkshire and Humber. Funded projects are expected to hit targets for CO<sub>2</sub> emissions reductions, tonnage of waste diverted from landfill, business growth and cost saving. Businesses and projects that were successful in the last round of Greenhouse Gas Savings Capital Investment funding received between £8,000 and £75,000 of support.

## Annex 2

### EXAMPLES OF YORKSHIRE FORWARD INVESTMENT IN THE LOW CARBON ECONOMY

#### GENERATING CLEANER AND RENEWABLE ENERGY

Yorkshire Forward has invested in a £5m *Woodfuel Infrastructure Programme* to assist woodfuel projects. This includes a number of grant schemes for businesses in the biomass supply chain. This follows on from, and complements, FEY’s involvement in developing England’s largest wood pellet mill at Pollington near Goole. The mill, built with an additional £5m investment, will produce 50,000 tonnes of wood pellet *per annum*, securing a source of low-carbon heating for up to 13,000 homes in Yorkshire and Humber. The new pellet mill will provide a reliable source of wood pellets, whilst the Woodfuel Infrastructure Programme will develop the biomass supply chain for all forms of woodfuels.

Additionally, it will deliver a robust and sustainable industry through establishing an infrastructure and developing technologies for all forms of woodfuel utilisation, as well as supporting the development of markets for biomass fuels.

#### CARBON CAPTURE AND STORAGE (CCS)

Yorkshire Forward and CO<sub>2</sub>Sense have supported a regional bid to secure €180m (£165m) funding for the UK’s first-ever CCS project. This level of EU funding could unlock considerable further private sector investment in low carbon technologies.

This potentially ground-breaking scheme is the result of combined work by central Government, Yorkshire Forward, Powerfuel and the National Grid, with the support of Doncaster MBC. Powerfuel PLC is proposing its 900 megawatt Hatfield site, near Doncaster, for the scheme. Hatfield’s location is ideal for developing CCS because of its proximity to a large number of power stations as well as depleted gas fields in the North Sea for carbon storage. Yorkshire Forward has been working closely particularly closely with Powerfuel and the National Grid to develop part of the scheme which involves building a network of CO<sub>2</sub> pipelines linking power stations and major industrial installations across Yorkshire and Humberside.

It is intended that the plant be operational by 2015, with the main construction contractor to be appointed shortly. The project is expected to create 2,500 jobs in plant construction and 6,000 related to the pipeline.

#### GREEN ENGINEERING AND MANUFACTURING

Yorkshire Forward is working to attract a number of large *wind turbine manufacturers* who, along with their supply chain, are scrutinising the Humber’s existing ports capabilities and large land banks with deep sea water access. In addition to attracting inward investment, Yorkshire Forward is supporting regional companies looking at the opportunities the offshore wind industry presents.

Yorkshire Forward is hosting an Offshore Wind Supply Chain event in conjunction with The Crown Estate in Doncaster on Friday 26 February 2010. The event will act as a “marketplace” providing information and networking opportunities to help companies do business and get involved in offshore wind developments. The event will also provide the opportunity to hear from government and industry representatives about the future of offshore wind, and to meet Round 3 wind farm zone developers.

Yorkshire Forward is also investing up to £10m in the UK’s new *Nuclear Advanced Manufacturing Research Centre* (NAMRC) which will create hundreds of jobs in our region.

Based in South Yorkshire, the NAMRC will provide a focal point for the bulk of the UK civil nuclear manufacturing industry supply chain, ensuring that manufacturers in the UK have the capability and capacity required to compete for nuclear new build in the UK and globally, from skills training to research and development. The centre will be based on the world leading Advanced Manufacturing Park in South Yorkshire and led by the University of Sheffield in partnership with the University of Manchester with Rolls-Royce as a lead industrial partner.

#### REDUCING ENERGY DEMAND AND INCREASING RESOURCE PRODUCTIVITY

As well as supporting CO<sub>2</sub>Sense in their work with the business community, our commitment to reducing emissions includes the development of low carbon buildings. The Advanced Manufacturing Park (AMP) in Rotherham is home to the UK's first building fuelled by "green" hydrogen. The electricity generated by the building uses a recycled wind turbine to produce the hydrogen, and because it is sourced from renewable energy and not fossil fuels, it is truly "green" hydrogen.

The turbine being used at the AMP is a V29 VESTAS wind turbine, rated at 225kW and is capable of producing 500 Mega Watt hours of power each year (equivalent to around 100 houses) ideal for lower wind speeds. Yorkshire Forward has worked with TNEI, Pure Energy Centre, Allen Build and ARUP to deliver this project.

#### LOW CARBON INFRASTRUCTURE

Yorkshire Forward recognises the contribution that transport makes to carbon emissions. Although our present role is to add value by working with others and influencing them to address regional priorities, we will consider investment to address regional transport priorities where there is clear strategic added value, an economic rationale, and market failure.

East Midlands Trains, working in partnership with South Yorkshire Passenger Transport Executive (SYPTTE) and Yorkshire Forward, have worked together to introduce two trains an hour between Sheffield and London. This marks a significant improvement from the current hourly service.

The introduction of these new services means that passengers travelling between Sheffield and London will have the benefit of an additional 24 trains throughout the day, providing greater choice and helping to improve the economic competitiveness of the Sheffield City Region.

#### LEADERSHIP AND INTELLIGENCE

The *Centre for Low Carbon Futures (CLCF)* is a new initiative between the Yorkshire Universities and Yorkshire Forward. It brings together world-leading research expertise based within the region's higher education institutions to help build a competitive, sustainable and carbon efficient regional economy, whilst providing climate change solutions of national and international significance. It will support commercialisation of applied research and help low carbon energy businesses to exploit new market opportunities.

Examples of areas of the low carbon economy that it will address include CCS, where Leeds and Sheffield Universities have recognised centres of excellence in combustion research, capture technology and the business, supply chain and relevant governance issues, whilst Hull University has a centre of excellence in Environmental Science with relevance to the consenting and monitoring requirements for commercial scale CCS. Members of the CLCF have already come together with the British Geological Survey and CO<sub>2</sub>Sense Yorkshire to bid for the UK Energy Research Centre's CCS Roadmap project.

2 February 2010

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#### **Memorandum from Martin Reed (CAR 12)**

Investigation into the levels of carbon dioxide emissions in South Humberside from gas fired power stations located in the region.

##### 1.0.0 SUMMARY

1.1.0 This document is a response resulting from an invitation to submit data to a House of Commons Select Committee providing an estimate of the "carbon emissions" of the area broadly defined as South Humberside. The study was confined to the emissions from gas fired power stations. APPENDIX A lists the locations and outputs of the units in the study.

These units use the fuel to drive a gas turbine (jet engine) initially and then further use the residual heat to raise steam to drive a second system of generation.

1.2.0 Importantly in the study there is an assumption, which is clearly not the case. That is, that all the combustion-derived energy is converted to electrical energy output which implies 100% efficiency which is never the case in practice. This of course means that the values of carbon dioxide output are conservative.

1.3.0 The strategy was to compile the necessary raw data and attempt to extract results, which would give an estimate of the carbon dioxide within the region.

Using the total generating capacity it is possible to obtain a meaningful estimate of these emissions applying certain assumptions.

1.4.0 The broad approach of the study is to define the energy that can be obtained from the combustion of a given hydrocarbon, in this case ethane which is one the principle components of natural gas, in terms of energy per unit mass. All other components yield similar results.

1.5.0 Subsequently it is possible to relate energy produced by the generative process to the mass of hydrocarbon consumed and further show that this is directly related the carbon dioxide output. Throughout the study there are a number of “STATEMENTS” to assist the reader.

## 2.0.0 ABOUT THE WRITER

2.1.0 First and foremost I am at pains to stress that I am by no means an expert academic in this field and any science student at A level standard could accomplish the same assumptions and calculations contained herein.

2.2.0 I graduated with an Open University degree in 1988 (in the spirit of the OU’s pick and mix I studied pure and applied mathematics along with various technology subjects) and have a lifelong interest in environmental matters. I am now retired from my past job as a hospital engineer.

## 3.0.0 ANALYSIS

3.1.0 *Statement I: 1 Kg ethane burnt gives rise to 2.9 Kg carbon dioxide*

See Appendix B

3.2.0 *Statement II: The calorific value of ethane is 51.9 MJ/Kg. (various sources)*

3.2.1 In other words for every kilogram of ethane burned 51.9 million joules of energy will be produced.

(The SI unit of energy, the joule, has a small magnitude. 4.2 joules are required to raise the temperature of one gram of water by a mere one degree centigrade.

3.2.2 A megawatt (MW) is a rate of energy consumption/production of one million joules per second).

3.2.3 Turning now to the other side of the process, that is electricity generation, we have determined that in S. Humberside that the total generating capacity is 4183 MW. See Appendix A.

3.3.0 *Statement III: Every second 80.6 Kg of ethane are consumed*

3.3.1 This follows dividing the total energy output per second by the caloric value ie  $4183/51.9$ .

3.3.2 This value can be scaled up to give the annual consumption = 2.5 million tonnes.

3.4.0 *Statement IV: The annual carbon dioxide production is 7.4 million tonnes*

3.4.1 This concluding statement follows directly from Statement I.

## APPENDIX A

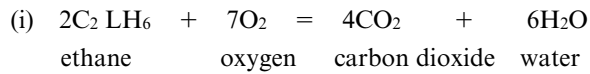
### LIST OF CCGT GAS FIRED POWER STATIONS IN THE SOUTH HUMBERSIDE REGION

Brigg	262 MW	8 miles E. of Scunthorpe
Immingham	940 MW	Humber Estuary
Keadby	735 MW	2 miles W. of Scunthorpe
Killingholme	665 MW	1 mile W. Of Immingham
Scunthorpe	296 MW	
South HB	1285 MW	2 miles W.of Grimsby
<b>Total</b>	<b>4183 MW</b>	

Source: National Grid.

**APPENDIX B**

**THE COMBUSTION OF ETHANE CAN BE DESCRIBED  
BY THE CHEMICAL EQUATION**



Molecular weights:

Carbon	=	12
Oxygen	=	16
Hydrogen	=	1

Then kilogram mass ethane in (i) =  $2(24 + 6) = 60$  and similarly for carbon dioxide in (i)  $4(12 + 32) = 176$ . Therefore 1 kg ethane gives rise to  $176/60 \text{ Kg} = 2.9 \text{ Kg}$  carbon dioxide.

25 February 2010

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