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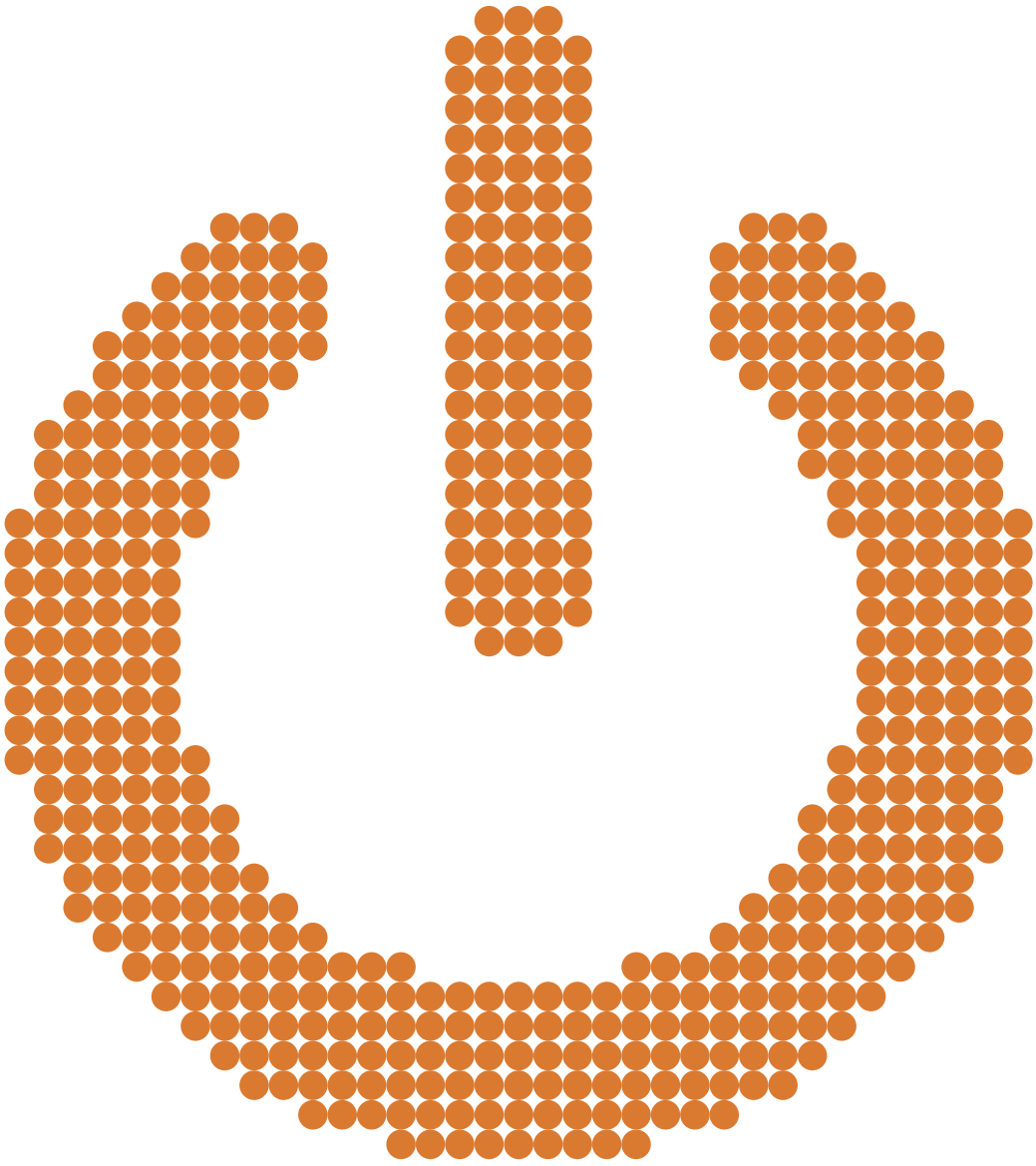

SETTING THE PACE
NORTHERN ENGLAND'S LOW CARBON ECONOMY

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ALDERSGATE GROUP

The Aldersgate Group is an alliance of leaders from business, politics and civil society that drives action for a sustainable economy.

Our members include some of the largest businesses in the UK, leading NGOs, key professional institutes and politicians of all parties. We believe that economic success, both now and in the future, depends upon a political and economic framework that delivers a healthy environment and sustainable use of resources, good environmental performance at the organisational level, growth, jobs and competitive advantage in rapidly growing environmental sectors.

Our policy proposals are formed collaboratively and benefit from the expertise of our members who span a wide range of industry sectors and public interests. Our breadth and collegiate approach allow us to formulate progressive policy positions to benefit all organisations and individuals in the UK.

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EXECUTIVE SUMMARY

Businesses, communities and local authorities in the North of England are seizing the opportunity to develop a local low carbon economy, bringing much needed investment and jobs to the region. And there is significant potential for further growth.

Climate change represents a major challenge to the UK, but developing the means to mitigate our carbon emissions and adapt to the effects of climate change presents an enormous commercial opportunity. In the North of England, low carbon investment has already had a significant impact on regional regeneration. It has created thousands of skilled jobs, developed local supply chains, encouraged innovation and produced clean energy generation. In 2013 there were already 136,000 people working in the low carbon economy in the North.[1]

This report makes the case for greater local government support and a clear national industrial strategy to strengthen the low carbon economy in the North, create further jobs in the sector and ultimately help the UK to meet its climate change targets on time and on budget. Case studies from across the North of England show that low carbon initiatives in sectors as diverse as manufacturing, energy infrastructure, biofuels, natural assets, smart heat, resource efficiency and offshore wind are doing just this and bringing knock-on benefits for their supply chains and the wider economy.

1 The Department for Business, Innovation and Skills (2015) *The size and performance of the UK low carbon economy.*

Case studies from Northern England's low carbon economy

1. **Nissan EVs**
£420m investment & 2,000 jobs

2. **Teesside Collective**
Protecting 20,000 jobs & £4bn of exports

3. **Hornsea Project One offshore wind**
£6bn investment & 1,600 construction jobs

4. **Green Port Hull**
£310m investment & 1,000 direct jobs

5. **Vivergo Fuels**
£350m biofuel plant, equivalent to taking 180,000 cars off the road

6. **Alkborough Flats**
Flood risk management benefits of £12.26m over 100 years

7. **Manchester's low carbon economy**
1,950 companies employing 37,000 people

8. **The Mersey Forest**
621 hectares of new or improved woodlands

9. **Jaguar Land Rover aluminium recycling**
£5.8m invested in Halewood, preventing 500,000 tonnes CO_2e

10. **Liverpool charging points**
Building a network of 126 EV charging points

11. **Ormonde offshore wind**
Powering 126,000 homes, with £500m investment

12. **Uplands peatland restoration**
3,250 hectares of degraded peat restored, reducing flood risk

The North of England is attracting considerable low carbon investment, but there is untapped potential to drive even greater growth. To ensure that recent political uncertainty does not undermine the flow of investment, it is vital to improve investor confidence by providing:

- **A clear and stable national low carbon policy landscape to deliver the UK's climate targets on time and budget,** with a sufficiently detailed emissions reduction plan that can drive greater private sector investment in energy efficiency and low carbon technologies such as offshore wind and low emission vehicles.

- **A new Carbon Capture and Storage strategy**, to support roll out at a commercial scale, building on the learnings already acquired from the previous commercialisation programme.

- **Improvements to the condition of natural resources,** ensuring that local and national government better account for the importance of the natural environment in increasing the resilience of existing infrastructure, protecting businesses and communities from risks such as flooding and supporting the tourist industry. This should be accompanied by forward looking planning rules to ensure that any new infrastructure development is fit for purpose for the long term and resilient to the impacts of climate change.

- **Regional champions of the low carbon economy,** with devolved authorities routinely considering low carbon economy opportunities in local decision making and ensuring, where appropriate, opportunities for local community participation in such decision making. The ongoing negotiations of devolved deals provide an opportunity to ensure that local government is better equipped to take on this role.

- **Strengthened regional collaboration,** in areas such as transport and digital infrastructure.

- **More focus on the development of co-ordinated low carbon skills strategies,** through greater collaboration between local government, the private sector, higher education and local educational bodies.

The industrial heartland in the North of England drove the growth of the nation and made the UK one of the most advanced economies in the world. By driving forward low carbon policy, it now stands to benefit from significant investment and could play a central role in the UK becoming a resilient, competitive and world leading low carbon economy.

ONE THE OPPORTUNITIES FOR LOW CARBON REGENERATION

The North is "where the modern world was brought into being. A well-spring of innovation that changed the course of history," in the words of Rt Hon Greg Clark MP.[2]

The economic output of the North of England was £304bn in Gross Value Added (GVA) in 2014: if it were a country, it would be the tenth largest economy in Europe.[3] Whilst the benefits should be most tangible at the local level, HM Treasury anticipates that by 2030, a stronger Northern economy could provide 250,000 more jobs and £37bn additional GVA to the national economy.[4]

However, a recent report from the Joseph Rowntree Foundation found that 10 of the 12 cities ranked highest on the study's index of relative decline in the UK are in the North of England.[5] In the national referendum on European Union (EU) membership on 23rd June 2016, the North East, North West and Yorkshire and the Humber all voted to leave the EU.[6] Bridget Phillipson, MP for Houghton and Sunderland South, described the result as "a reflection on the fact that people in the North East feel that time and time again we're left behind. When it comes to jobs and investment, support from this government is found to be lacking."[7]

Regeneration in the North has focused upon improved transport links through the Northern Powerhouse agenda, City and Growth deals, and devolution deals for Greater Manchester, Liverpool City Region, the Tees Valley, Sheffield City Region, the North East Combined Authority and the West Yorkshire Combined Authority, but it is clear that there is still significant room for the economies of northern regions to grow. As the TUC notes, a sustainable industrial strategy is essential to support the balanced economic growth that is even more necessary post-Brexit.[8] Low carbon investment presents an opportunity "to offer real economic change to a section of the population too-often overlooked."[9]

Local and national conditions must be sufficiently clear and stable to attract business investment. The outcome of the UK's referendum has created short-term uncertainty for businesses in key areas such as access to the EU's single market, the UK's future relationship with the EU and some of its flagship policies on the environment and energy, and the impact of leaving the EU on the national economy. This could lead to an investment hiatus, putting growing low carbon industries at risk. However, the current atmosphere of uncertainty also presents an opportunity to reassess how to ensure that investment in the growing low carbon economy is being directed across the region. In order to support further investment, national and local government must provide reassurance that the Northern low carbon economy will remain a priority for support in the years ahead.

2 Speech by Rt Hon Greg Clark MP (July 2016). Read more: bit.ly/gcspee

3 Financial Times (March 2016) *North of England: New focus on powerhouse potential.*

4 Joint Statement between the North's Core Cities and Government: Northern Powerhouse Phase 2 (2016).

5 Joseph Rowntree Foundation (2016) *Uneven growth: tackling city decline.*

6 The Telegraph (2016) *EU referendum results and maps: Full breakdown and find out how your area voted.*

7 BBC (2016) *EU referendum: Almost all North East areas vote for Brexit.*

8 Trade Union Congress (2016) *Powering ahead: How UK industry can match Europe's environmental leaders.*

9 Ibid

Creating jobs and keeping jobs

The North of England has already attracted investment in its energy efficiency and low carbon industries, from Siemens' offshore wind turbine blade factory in Hull to Jaguar Land Rover's investment in aluminium recycling in Liverpool. This is having a significant impact on regional regeneration. Through these investments, local authorities and communities have created thousands of skilled jobs, developed local supply chains, encouraged innovation and produced clean energy generation for the region, stimulating a "better type of economic growth".[10]

There are many low carbon growth opportunities in the North of England's traditional industrial hubs. The total turnover of UK companies directly engaged in low carbon and renewable energy activity in 2014 was £46.2bn.[11] In terms of employment, the low carbon economy grew 12% between 2010 and 2013, and in 2013 employed 136,000 people in the North alone.[12] Moreover, moving towards a more resource efficient or circular economy has the potential to create 23,000 predominantly additional jobs in the North East, North West and Yorkshire and the Humber.[13]

Beyond creating additional jobs, low carbon industries in the North may also be able to contribute to retained jobs and absorb jobs lost in other industries. The workforce in the UK's oil and gas industry has reduced by about 84,000 in 2015, with the North Sea's industry particularly affected. The government has identified that the UK's offshore oil and gas workforce possesses transferable skills for renewable energy, which is a sector that faces a challenging skills shortage.[14] Low carbon industries may offer an opportunity for transition rather than unemployment.

Similarly, the tourism industry is one of the largest employers in the North and is dependent on high quality natural assets. For example, the Lake District National Park attracts 16.4m visitors and over £1.2bn a year in income, generating over 16,000 tourism related jobs.[15] The attractiveness of this and other Northern tourist destinations is dominated by the quality of natural assets. Improvements and maintenance of natural assets can therefore contribute to economic growth and retained jobs in the tourism industry.

The race to attract low carbon investment

The Paris Agreement reached in December 2015 set an historic imperative for strong international action on climate change. For the first time, 195 countries committed to holding the increase in global average temperature to well below 2°C above pre-industrial levels and to pursue efforts to limit temperature increase to 1.5°C.

At the domestic level, the UK must reduce its greenhouse gas emissions by at least 80% by 2050 compared to 1990 levels.[16] This will require significant investment in low carbon projects from energy efficiency in buildings and renewable energy, to district heating and low emission transport.

The international market for low carbon goods and services is growing, with over $285bn invested in clean energy globally in 2015.[17] The UK's competitors are actively investing to seize a greater share of this market. For example, China invested over $100bn in renewable energy in 2015 alone and plans to double its wind energy capacity, treble its solar capacity and increase the deployment of electric vehicles by a factor of 10 in the next five years,[18] while the US is committed nearly to treble its spending on low carbon generation by 2020.[19] Meanwhile – and despite some positive developments in areas such as offshore wind – the UK is losing ground and has slipped out of the top ten most attractive countries for renewables investments.[20] This must be reversed if the UK is to remain a relevant and competitive player on the global stage.

10 As called for by IPPR North (2015) *The State of the North 2015.*

11 ONS (2016) *Low carbon and renewable energy economy, final estimates: 2014.*

12 BIS (2015) *The size and performance of the UK low carbon economy.*

13 WRAP (2015) *Employment and the Circular Economy – Job creation in a more resource efficient Britain.*

14 The Telegraph (2016) *North Sea union attacks Government's 'woefully inadequate' oil jobs plan.*

15 See more: bit.ly/Ldtou

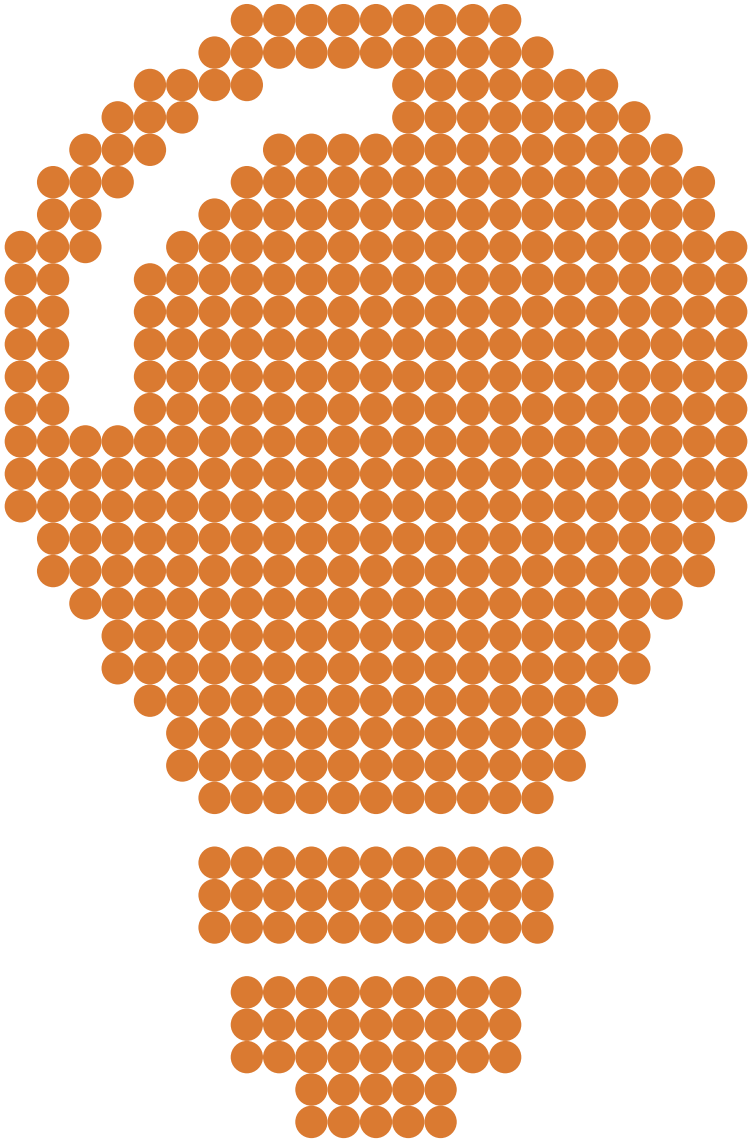
16 Climate Change Act 2008.

17 UNEP and Bloomberg New Energy Finance (2016) *Global Trends in Renewable Energy Investments 2016.*

18 E3G (2016) *Pulling Ahead On Clean Technology: China's 13th Five Year Plan Challenges Europe's Low Carbon Competitiveness.*

19 Green Alliance (June 2016) *Will the UK economy succeed in a low carbon world?*

20 EY (May 2016) *Renewable energy country attractiveness index: What happens when grid parity hits?*



Thanks to greater levels of autonomy presented by recent devolution deals, local stakeholders in the North of England have the ability to include low carbon opportunities in regional development. There is real appetite: in March 2016, 90 organisations from across Northern England signed a declaration calling for clean energy for the North[21] and the region already hosts expertise in the low carbon energy sector. It can become a leader and a testing ground for low carbon energy policy.[22] However, there is room for more innovation beyond just the energy sector as the Northern low carbon economy continues to grow.

Exploring the Northern low carbon economy

This report looks at projects in the North East, Yorkshire and the Humber, and the North West, recognising that the regions are connected but distinct, with differing characteristics and needs. We use 'low carbon' in a wide sense to signify projects which can help mitigate or adapt to climate change and environmental degradation, from energy efficiency, renewable energy, transport and heating projects, to land management schemes focusing on enhancing 'green infrastructure' and natural resources.

Whilst by no means exhaustive, these case studies give a flavour of the scale of the low carbon economy in the North of England and how conditions are right to attract further investment and grow in the years ahead.

21 See the declaration: bit.ly/GACed

22 KPMG (2016) *Energising the North.*

TWO : THE NORTH EAST

The North East refers to Northumberland, County Durham, Tyne and Wear and the Tees Valley, and is home to the cities of Newcastle upon Tyne, Sunderland and Durham.

Ultra low emission vehicles in Sunderland

Nissan is the North East's largest private employer[23] and its Sunderland factory is leading the charge on ultra low emission vehicles and lithium-ion batteries. Production of the all-electric Nissan LEAF and the battery plant have supported over 2,000 jobs at the plant and in the associated supply chain since production began in 2013.

Nissan invested £420m in 2013 to support Electric Vehicle (EV) production, followed by a further £26.5m investment in the development of advanced lithium-ion batteries in January 2016, making the plant the largest of its kind in Europe. The additional 2016 investment secured 300 highly skilled jobs in manufacturing, maintenance and engineering.[24] Furthermore, Nissan is working with the Universities of Warwick and Newcastle in a new £19.4m research and development project to advance battery technology, which will help to bring down the cost of electric vehicles and increase their uptake.

The Teesside low emission industrial zone

The Teesside Collective is a cluster of leading energy intensive industries (EIIs) working to create the first low emission industrial zone in Europe through the development of shared emission reduction infrastructure. The Collective has already scoped out how post-combustion Carbon Capture and Storage could be achieved within individual plants. Work is now being undertaken to understand an alternative process of how hydrogen could be produced centrally and used for heat, with the carbon dioxide by-product captured centrally for sub-sea storage or used in other industrial processes. This project could play a key role in kick-starting the hydrogen economy from Teesside.

Teesside hosts 58% of the UK's chemicals industry and its industry cluster is responsible for 20,000 jobs, producing £4bn of exports per year. Decarbonising heavy industry in the region would support industrial activity in a way that is consistent with the UK's emissions targets, thereby safeguarding well paid jobs in high value businesses whilst reducing the UK's emissions.

The Collective sees itself as a magnet for other EIIs seeking to take advantage of the facilities, as well as for new industries using carbon dioxide in a range of products such as polymers and carbon bricks, or for new industries in the hydrogen economy. The Collective anticipates that success in creating a low emission zone would allow Teesside to become a national industrial asset, putting the UK at the forefront of innovation.

23 : Financial Times (2016) *North of England's drive to cultivate foreign direct investment.*

24 : Nissan (2016) *Nissan's advanced lithium-ion battery plant in Sunderland to make future generation electric vehicle batteries.*


© Teesside Collective

THREE: YORKSHIRE AND THE HUMBER

Yorkshire and the Humber is the fifth largest region in the UK by area. It is home to the major cities of Leeds and Sheffield, and a number of smaller cities including Bradford, York, Doncaster and Hull.

Biofuel and animal feed in Yorkshire and Lincolnshire

Vivergo Fuels' £350m plant is the largest current investment in the 'Energy Estuary' of the Humber. It takes local feed wheat and processes it into two high value commodities: bioethanol and protein rich animal feed for livestock. The animal feed produced at the plant provides enough protein for 20% of the UK dairy herd, partially offsetting the UK's high dependency on imports, and the sustainable bioethanol can be blended into petrol to reduce transport emissions in the near term. The company estimates that the emissions reduction impact of using their bioethanol over traditional fuels is the equivalent of taking 180,000 cars off the road each year.

Vivergo Fuels employs 150 people directly and indirectly and has recently started an apprenticeship scheme alongside its well-established 'intern to employment' scheme. The business supports the local economy to the tune of £60m through its procurement strategy, aiming to purchase its feed wheat from farmers within a 50-mile radius where possible, grown on land which has not been diverted from an alternative use. Along the total supply chain, Vivergo Fuels estimates that it supports up to 3,000 jobs.

Intertidal wetlands in Lincolnshire

Around 90,000 hectares of land surrounding the Humber Estuary is at risk from flooding, with much of the productive land based on the floodplain. The Alkborough Flats project forms a major part of the flood risk management strategy for the Estuary.

The project involved flooding 440 hectares of intensively farmed agricultural land on the south bank of the Humber Estuary, creating the largest managed realignment site in Europe, to act as a storage site for floodwater and reduce costal erosion.[25]

25: See more: bit.ly/Alkmr


© Vivergo Fuels


© Yorkshire Water

Alongside flood defences, the site provides intertidal wetland that compensates for habitat loss elsewhere in the Humber system from sea level rise and engineering works, as well as tourism and recreational benefits including a new network of footpaths. It is a joint project between ABP, the Environment Agency, Natural England and North Lincolnshire Council. The project is estimated to deliver total flood risk management benefits of £12.26m over 100 years, in addition to an annual £165,000 of enhanced recreation and tourism, and almost £750,000 per year from wildlife habitat benefits.[26]

Uplands peatland restoration

Over the last 10 years, Yorkshire Water has worked with partners to restore up to 3,250 hectares of degraded peat across the Pennines. Peatlands provide an important source of clean water and are also a major store of carbon: in England, the equivalent of around five years of CO_2 emissions.[27] Damage to the peat causes it to release the stored carbon back into the atmosphere.

Moreover, peatland has an important role to play in reducing the risk of flooding. Research funded by Yorkshire Water has found that the speed at which water flows off degraded moors is an order of magnitude faster than a moor that is fully vegetated.[28] Vegetation and peat absorbency allow a healthy bog to act as a buffer to rainfall.

The North has been hit especially hard by flooding in recent years, affecting homes, damaging infrastructure and harming agricultural output. Yorkshire and the Humber, and the North West were identified as the third and fifth biggest flood risk areas respectively by Flood Re, with over 77,000 homes at risk between the two regions.[29] The Slowing the Flow initiative in Pickering, North Yorkshire has used a range of land management techniques, including reseeding heather and planting new woodlands to reduce the chance of flooding in the town from 25% to 4% or less in any given year.[30] Investment in natural assets to aid flood prevention is therefore important for local residents and the longevity of any new infrastructure investment in the region.

26 UK National Ecosystem Assessment (2011).

27 Natural England (2010) *England's peatlands: carbon storage and greenhouse gasses.*

28 Holden et al (2015) *Impact of prescribed burning on blanket peat hydrology.*

29 BBC (2016) *New flood insurance scheme to cut bills by hundreds of pounds.*

30 See more: bit.ly/slowtf

IN DEPTH: THE HUMBER CLEAN ENERGY CLUSTER

Siemens, ABP and DONG Energy are transforming the Port of Hull with investment in a clean energy cluster of offshore wind farms, turbine manufacturing and port facilities.

The Joseph Rowntree Foundation placed Hull at number five on the list of most declined cities in the UK,[31] which has made the development of offshore wind as a significant industry for the Humber region particularly welcome. Humber Local Enterprise Partnership (LEP) has recognised it as the number one economic opportunity for the area.[32]

Three large infrastructure companies are now operating in the region, bringing ongoing investment and economic development to the Port of Hull and surrounding area: Siemens, DONG Energy and Associated British Ports (ABP) are creating a clean energy port cluster known as Green Port Hull that will bring £6.3bn investment and over 1,000 direct jobs to the Humber alongside further supply chain benefits.

In 2014, Siemens confirmed its decision to invest in the Green Port Hull project alongside ABP to create a new manufacturing plant for 6MW wind turbine blades. Subsequently in February 2016, DONG Energy began construction of Hornsea Project One, the world's largest offshore wind farm.

The development will generate enough power for over one million homes, more than eight times the number of homes in Hull.[33] DONG Energy has also acquired a lease for the rest of the Hornsea Zone, with enormous potential for further development. If built, Hornsea Projects Two, Three and Four could deliver continued growth to the area, with an investment timescale extending beyond 2019.

These linked projects are producing economic benefits throughout their construction, during the maintenance and operation of the wind farm, and through wider supply chain investment.

31 Joseph Rowntree Foundation (2016) *Uneven growth: tackling city decline.*

32 Regeneris Consulting (2015) *Impact of DONG Energy Investments in the Humber Area.*

33 Based on 2011 census data, with a load factor of 41% and average electricity consumption per home of 4.1MWh per year. Sources: DECC (2016) *Energy Trends: Renewables;* DECC (2015) *Energy Consumption in the UK Average electricity consumption per UK household in 2014 (with temperature factor applied).*

Construction, operations and maintenance

ABP's £150m investment in Green Port Hull is being spent on the enabling works at Alexandra Dock, including making the site ready for Siemens to build its blade manufacturing facility and service building and associated infrastructure. This requires the expertise of a wide range of professionals, including specialist marine engineers and lawyers, dredging companies, civil and structural engineers and property experts.

Since 2015, Siemens has generated additional jobs through the construction of its new factory. Its £160m investment in the new Hull facility will directly create 1,000 ongoing jobs in offshore wind turbine blade manufacturing, assembly and servicing facilities.

DONG Energy's £6bn investment in offshore wind projects in the Humber region could create an average of 1,600 construction jobs in the Humber per year from 2015 to 2020, ranging from 700 to 2,700 per year. In addition, from 2020 DONG Energy estimates there will be 500 long-term jobs in the operation and maintenance of its offshore wind farms at Hornsea Project One. Approximately £1bn of the total £6bn investment will be captured by employees and businesses in the Humber area.[34]

> The investment in Green Port Hull which is nearing completion, together with Hull being the UK City of Culture, represents a turning point for the city; Hull is experiencing sustainable economic growth, local people are being recruited into well paid local jobs, local companies are winning significant new business.
>
> Hull is experiencing the benefits of a further £700m investment in energy generation and in the household and health products sectors. This investment has acted as a catalyst to developments in the University of Hull and the creation of the Ron Dearing University Technical College (UTC) in the city centre which has a call sheet of private sector sponsors which will be the envy of many.
>
> In short, there is a momentum in the city which has created a mood of quiet confidence and optimism in Hull

COUNCILLOR STEPHEN BRADY
LEADER OF HULL CITY

34 Regeneris Consulting (2015) *Impact of DONG Energy Investments in the Humber Area.*

We have always said we want to recruit local people and our investment opens the door to hundreds of people who live and work locally who we know have similar and transferrable skill sets

CAROLYN WOOLWAY, SIEMENS' HEAD OF HUMAN RESOURCES FOR THE HULL PROJECT

Supply chain investment

The pipeline of connected projects maximises benefits for the Humber Estuary. **A pipeline of several construction projects, which requires a stable and supportive national policy on renewable energy development, allows a supply chain to build up and creates ongoing jobs for local residents.**

For example, Hobson & Porter, a family owned and managed construction contractor in Hull secured a £3.4m contract with DONG Energy to construct the maintenance facility for Westernmost Rough Offshore Wind Farm.[35] Another example is CallMac Scaffolding, a specialist scaffolding designer firm based in the Humber area. It has received orders of up to £1m to 2018 thanks to its work on DONG Energy's Westermost Rough and Race Bank offshore wind farms. This ongoing source of business from DONG Energy alongside other work in the area has enabled the firm to employ four new permanent staff and two additional trainees.

The growth of the offshore wind industry has given CallMac Scaffolding the confidence to invest around £100,000 in a second yard that will act as a training and offshore base for the firm.

Humber LEP has secured Regional Growth Funding to support 90 businesses in the offshore wind sector, and has engaged over 20 foreign businesses interested in investing in the Humber as a result of the cluster of offshore businesses in the area. The impact of this pipeline can be seen in British Chambers of Commerce data, which showed a significant upturn in business confidence in the Humber in recent years.[36]

Beyond the Port

The investments by ABP, DONG Energy and Siemens can bring transformational benefits which extend beyond the projects themselves. East Riding Council leader Stephen Parnaby has called the development an historic moment for the Humber region, saying: "The wide-scale economic benefits this investment will have for East Riding businesses cannot be overstated."[37]

Local skills and training

The development of the offshore wind sector in the Humber has led to significant investment in training for local students and workers. Siemens has made 14 four-year advanced apprenticeships available starting in September 2016, and has spent half a million pounds to date at the Hull College Group, which launched a new state-of-the-art facility in March 2016 to train the Siemens wind turbine blade factory workforce. As a result of the growing offshore industry, the University of Hull has invested in training in offshore wind, and £11m has been invested into a new University Technical College (UTC) in Scunthorpe specialising in engineering and renewable energy, with partnerships from companies operating in the sector. A further UTC specialising in digital engineering will open in Hull in 2017, of which Siemens is one of the leading employer sponsors.

Green Port Hull is also working with local businesses and training providers to ensure there is a capable workforce in place. The 'Green Port Hull Pathways to Employment' project was launched in January 2016 and Green Port Hull has also set up a careers and information hub in Hull's Central Library.[38]

35 Hull Daily Mail (2014) *Hull based Hobson & Porter secures £3.4m contract with DONG Energy Power.*

36 Regeneris Consulting (2015) *Impact of DONG Energy Investments in the Humber Area.*

37 BBC (2014) *Siemens confirm Green Port Hull wind turbine factory to be built.*

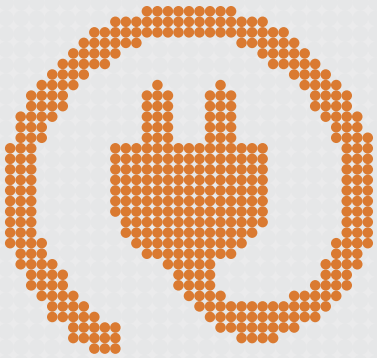
38 See more: bit.ly/GPHth

OUTPUTS FROM THE HUMBER'S LOW CARBON ECONOMY

The three projects in this case study will deliver:

£6.3bn
investment

over
1,000
direct long term jobs



1,000,000
homes powered
(8 times the number of homes in Hull)

Greater international competitiveness

Whilst looking for sites for a new factory, Siemens examined 200 potential locations around Europe. The expectation of a large UK offshore wind market of 2–3GW per year, and the supportive base of local MPs were important factors in Siemens' decision to choose Hull. However, it took four years for the company to make a final investment decision owing to the constantly reducing visibility of the size of the UK's future offshore wind market.[39]

Humber LEP has urged the UK to move quickly in creating a low carbon manufacturing hub.[40] Matthew Knight, Director of Strategy and Government Affairs at Siemens agrees, stressing that: "now is the time for the UK to provide a clear low carbon policy and industrial strategy if it wants to grow its manufacturing base and become a major exporter of low carbon technologies such as offshore wind."

The government has made a commitment to support up to 10GW of new offshore wind projects by 2030 and has set aside funding for future Contracts for Difference auctions, which is welcome. Nonetheless long-term policy clarity and a commitment to building low carbon infrastructure across all sectors will be essential, if the UK is to maximise the potential skills, employment and supply chain benefits that could come with the transition to a low carbon economy.

39 Energy and Climate Change Committee (2016) *Oral evidence: Investor Confidence in the UK Energy Sector. HC 542.*

40 Humber LEP *Unlocking the Potential of the Energy Estuary.* bit.ly/Hlepcd

FOUR : THE NORTH WEST

The North West of England comprises Cheshire, Cumbria, Greater Manchester, Lancashire and Merseyside. It is the third most populated region in the UK and is home to the major cities of Manchester and Liverpool.

Manchester's growing low carbon economy

There are currently more than 1,950 low carbon and environmental goods and services sector companies in Greater Manchester, employing 37,000 people and with a collective annual turnover of £5.4bn.[41] The burgeoning industry will be instrumental in helping Greater Manchester achieve its target of a 48% reduction in CO_2 emissions by 2020.

One initiative is the £20m Smart Heat pilot project, which has been launched to provide 600 homes with air source heat pumps connected to a smart grid. This will allow the residents to reduce their fuel bills whilst reducing demand on the gas network.[42] As domestic heating accounts for around 20% of the UK's total emissions,[43] greater use of low carbon heating systems will be essential to meet emissions reduction targets. If successful, this pilot project will put the city at the forefront of emissions reductions in residential heat.

Greater Manchester is also working towards 'zero waste'. In January 2015 the Greater Manchester Waste Disposal Authority completed a £631m construction programme of 43 new recycling and waste management facilities with Viridor Laing (Greater Manchester) Limited. This has enabled an average rate of 45% of household waste being sent for reuse, recycling and composting and the generation of up to 70MW of green energy by burning waste which cannot be recycled. The construction programme created and safeguarded around 5,000 jobs over five years.[44]

Electric vehicle infrastructure in the Liverpool City Region and Greater Manchester

Merseytravel is leading the Recharge project with £350,000 funding from the Office of Low Emissions Vehicles (OLEV) to provide a network of 126 EV charging points in key locations across the Liverpool City Region. These points will be free and publically available, with 28 points already installed.

A Greater Manchester Electric Vehicle scheme, also part funded by OLEV, has been launched with more than 250 charging bays across the ten Greater Manchester districts. Private sector partners, such as NCP and intu Trafford Centre are also involved, providing their own charging bays to supplement the network.

The Committee on Climate Change anticipates that EVs and plug-in hybrid vehicles will need to reach 9% of new sales by 2020, and 60% by 2030 in order to achieve the UK's emissions targets.[45] Infrastructure investment of this size is key to supporting the uptake of EVs, encouraging low carbon transportation between Northern cities and helping the UK to meet its emissions reduction commitments.

41 : Business Growth Hub (2015) *Manchester's private sector invited to build UK's greenest economy.*

42 : See more: bit.ly/gmcse

43 : Energy Technologies Institute (2015) *Smart Systems and Heat: Decarbonising Heat for UK Homes.*

44 : See more: bit.ly/gmwda

45 : Committee on Climate Change (2015) *The fifth carbon budget – The next step towards a low-carbon economy.*

Recycling aluminium in Liverpool

Jaguar Land Rover is leading a project to boost the amount of recycled aluminium used in vehicle manufacture by up to 75% by 2020, partly funded by Innovate UK. The REALCAR (REcycled ALuminium CAR) project has invested £7m across three sites, including over £5.8m at the Halewood press shop outside of Liverpool to segregate waste aluminium scrap so that it can be re-melted into recycled aluminium sheet for use in vehicles. Novelis, the world's leading aluminium recycler and Jaguar Land Rover's key REALCAR partner, has also invested around £6m in their recycling facility in Warrington, Cheshire, creating 30 new jobs and increasing production capacity by more than a third.

Aluminium recycling uses up to 95% less energy than primary aluminium production, cutting direct production emissions and reducing transport emissions associated with importing virgin materials. So far, Jaguar Land Rover has reclaimed over 50,000 tonnes of aluminium scrap in the 2015/16 financial year, preventing the release of 500,000 tonnes of CO_2e as a result of the REALCAR project.[46]

The Mersey Forest: Adding value to the local economy

The Mersey Forest is a network of 500 square miles of woodlands and green spaces across Cheshire and Merseyside and is the largest of England's 12 Community Forests. It is run by a partnership of seven local authorities and other bodies including the Forestry Commission, Natural England, the Environment Agency and United Utilities. Thanks to this project, 264 hectares of new community woodland has been created in the Merseyside region close to urban areas, often in particularly deprived communities, and 357 hectares have benefitted from improved woodlands management.

A study of the initiative found that for every £1 invested in the programme, more than £10 was generated through increased GVA, social cost savings and other benefits, including a total of £1.4m from carbon sequestration and £3.9m in health benefits.[47] The forest has also helped deliver greater quality of life for local residents and increased the financial value of the area: development of the community woodland in St Helens as part of Mersey Forest directly enhanced existing property values by approximately £15m.[48]

46 See more: bit.ly/rcjlr

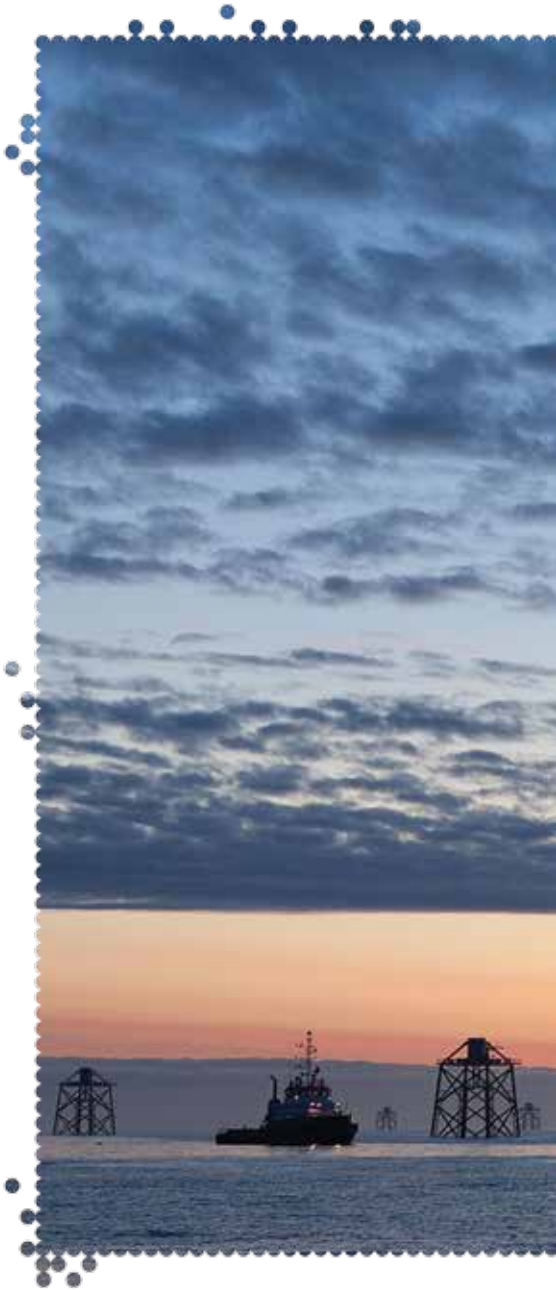
47 eftec (2015) *The Economic Case for Investment in Natural Capital in England: LAND USE APPENDIX.*

48 Forest Research *Regeneration of previously developed land: Bold Colliery community woodland.*

Ormonde Offshore Wind Farm

Vattenfall's 150MW Ormonde Offshore Wind Farm located off Barrow-in-Furness was fully commissioned in 2012 and in 2014 produced enough electricity to power around 126,000 homes. The wind farm received approximately £500m in investment and employed over 800 UK workers during the construction phase. Vattenfall is committed to ensuring that their project procurement and investment supports local businesses, maximising use of local labour and developing a local supply chain where possible. At Ormonde, Vattenfall used a number of local and national businesses, including Fife-based Bifab for jacket sub-structures.

Now that the wind farm has been completed, 40 local residents have been employed to operate, maintain and manage the wind farm. Looking ahead, Ormonde will support approximately two million working hours for the next 20 to 25 years.



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POLICY RECOMMENDATIONS

Targeted national and local government support can help maximise the benefits of low carbon investment in the North of England.

The North of England is taking advantage of the low carbon economy to regenerate the region: investment is already flowing into a huge range of projects and local governments are successfully seizing these opportunities. Nonetheless, there is untapped potential for greater growth in the region driven by low carbon industries. Building on the successes of projects to date, local and national government must take steps to secure further investment, particularly as investor confidence wavers in an uncertain landscape.

National government:

- **Provide a clear and stable policy landscape:** investors repeatedly cite policy uncertainty as a reason for reticence in investment. Coherent, long-term messaging and a set of policies which support the UK's climate commitments are essential to attract investment at sufficient scale and lowest possible cost. In the short term, the national government should:

  a. Ensure the timely publication of an adequately detailed emissions reduction plan, with the objective of attracting greater levels of affordable private sector investment in energy efficiency and low carbon projects to help deliver the UK's climate targets under the fourth and fifth carbon budgets.

  b. Provide a regular update of the budget available to support low carbon infrastructure projects looking several years ahead.

- **Draw up a new Carbon Capture and Storage (CCS) strategy:** in light of the cancellation of the UK's CCS commercialisation competition in 2015, a clear plan to support the roll out of commercial scale CCS is needed. CCS will be key to support industrial activity in a way that is consistent with the UK's emissions targets, not only in the North but also the rest of the country. The government should take advantage of the learnings and assets that have already been acquired through the previous commercialisation programme to ensure that the commercialisation of CCS technology can progress in a timely and lower-cost manner.

National and local government:

- **Improve the condition of natural assets:** working with the Natural Capital Committee, national and local government should take into account the importance of natural resources in supporting economic activity and protecting infrastructure against risks such as flooding. Following the Brexit vote, a clear commitment to retain and improve legal protection of high value habitats and ecosystems is fundamental to continuing to grow the tourism sector of the Northern economy. An investment strategy in the natural assets of the North, such as the high peatlands would also build resilience and reduce future costs to taxpayers of extreme weather events such as the Cumbrian floods of December 2015.

- **Develop forward looking planning rules:** improving the condition of the north's natural assets should be accompanied by forward looking planning rules to ensure that any new infrastructure development is fit for purpose for the long term and resilient to the impacts of climate change.

Local government:

- **Champion the low carbon economy:** the devolved city mayors, alongside other local government councillors, businesses and communities should become 'climate champions', to ensure that low carbon opportunities are regularly considered in local decision making and to encourage the building of new low carbon infrastructure. National and local government should consider how the ongoing negotiations of devolved deals can help local government champion the growth of the low carbon economy.

- **Strengthening regional cooperation:** pan-Northern collaboration between the devolved cities is essential in matters such as transport and digital infrastructure. A working group convening regional political leaders, corporate stakeholders and investors could help to coordinate low carbon developments.

- **Prioritise the development of low carbon skills:** building on the increased devolved powers over post-16 and -19 skills provision, local government can champion and deepen partnerships between the public sector, private sector and local educational bodies to produce coordinated local strategies on skills. This can be tailored to the specific needs of the area, addressing skills shortages experienced by local employers and vocational training. Local government should coordinate with skills and apprenticeship bodies, and LEPs to provide integrated skills and employment support. There is further scope to work with SMEs to provide more high quality apprenticeship or traineeship opportunities in new low carbon sectors.

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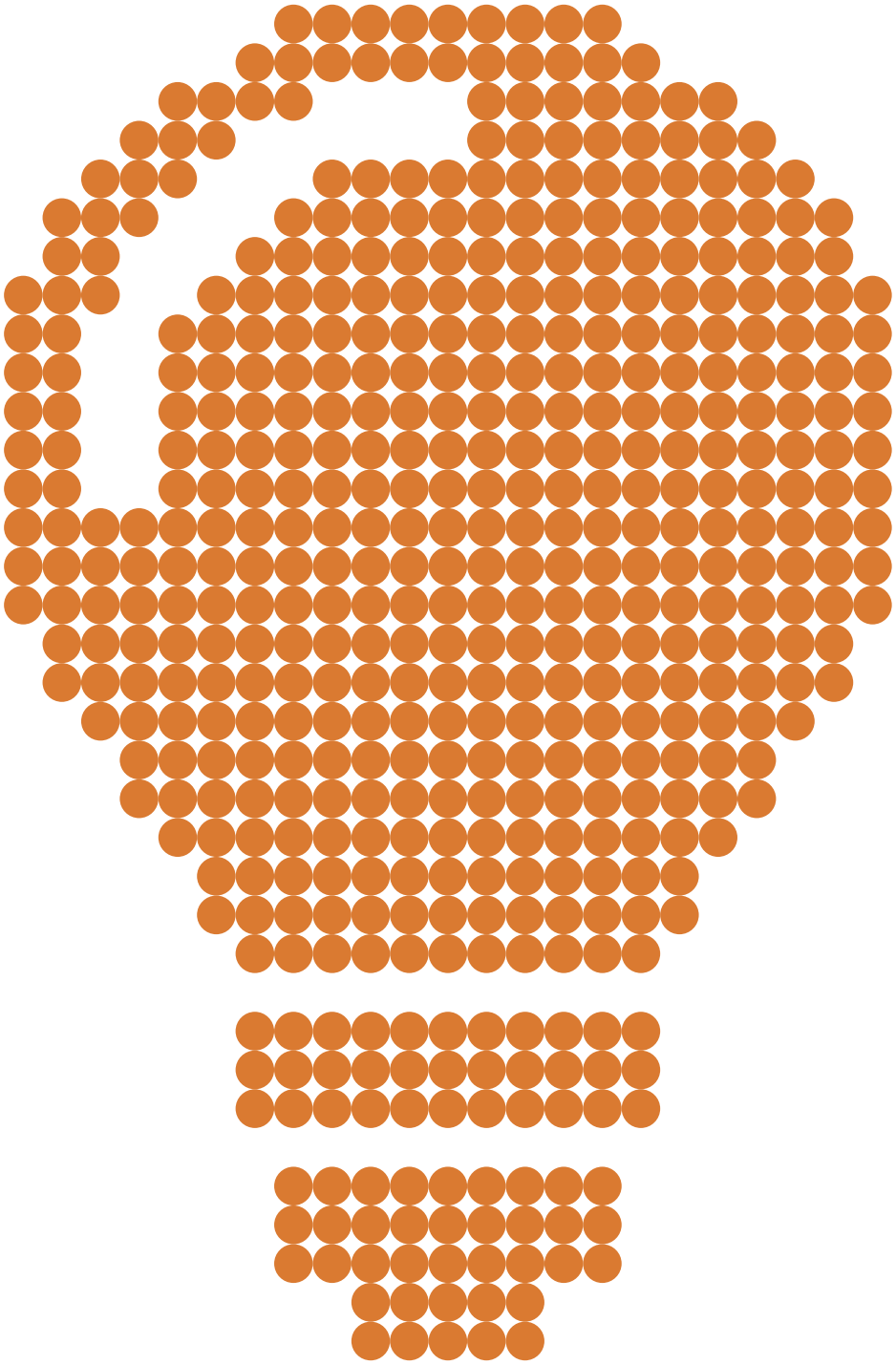

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