Norfolk Vanguard Offshore Wind Farm

Appendix 31.3

OFFSHORE WIND POLICY AND REGIONAL SECTOR REVIEW

Environmental Statement

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Glossary

AAS	Assisted Area Status
BEIS	Department for Business, Energy & Industrial Strategy
CBI	Confederation of British Industry
CfD	Contract for Difference
CORE	Centres for Offshore Renewable Engineering
EPIC	Engineering Procurement Installation Commissioning
FTE	Full Time Equivalent
GVA	Gross Value Added
LDO	Local Development Order
LEP	Local Enterprise Partnership
NPPF	National Planning Policy Framework
NUTS	Nomenclature of Territorial Units for Statistics
O&M	Operations and Maintenance
RoRo	Roll on Roll off

31 OFFSHORE WIND POLICY AND REGIONAL SECTOR REVIEW

1. This appendix describes policy relating to the offshore wind industry from a national to local level. It then goes on to briefly describe the growth of the offshore wind industry in the UK and East of England.

31.3 Policy review relating to development of offshore wind sector

31.3.1 Industrial Strategy

2. The Department for Business, Energy & Industrial Strategy (BEIS) has created the UK's current Industrial Strategy (BEIS, 2017). This focuses on five foundations:

- Ideas; where it says, *"through our Industrial Strategy, Britain will take a leading role in a new industrial revolution as significant as the last";*
- People; where emphasis is *put "technical education on the same footing as our academic system, with apprenticeships and qualifications such as T levels";*
- Infrastructure; where, amongst other aspects, it aims to *"improve people's lives where they live and work, with clean, affordable energy";*
- Business Environment; where it aims to *"drive productivity in businesses of all sizes by increasing collaboration, building skills and ensuring everyone has the opportunity of good work and high-paying jobs"*; and
- Places; where it recognises that the "*UK has greater disparities in regional productivity than other European countries."* To counter this, the strategy intends to *"introduce new policies to improve skills in all parts of the country, create more connected infrastructure, back innovation strengths."*

3. The Confederation of British Industry (CBI) report Unlocking Regional Growth (March 2017) found that one of the main productivity drivers the project could potentially influence is "*Educational attainment of young people at 16 and (their) skills*." This follows *"previous CBI research that shows school-age education is the biggest single long-term driver of economic growth… Moreover, the people moving out of a region to go to university rarely return. So, for businesses to be able to drive growth, we need to focus on people leaving school with the right skills."* The CBI found a clear correlation between businesses offering work experience placements or work inspiration (through site visits, mentoring, mock interviews and enterprise competitions) and the growth in Gross Value Added (GVA) per hour of a Local Enterprise Partnership (LEP).

4. Furthermore, the Apprenticeship Levy was implemented in April 2017 which has a specific objective of boosting productivity by investing in human capital. The levy is charged at a rate of 0.5% of an employer's paybill.

5. The Industrial Strategy also sets four grand challenges. These include Growing a Data-Driven Economy, Future Mobility, Ageing Society and Clean Growth.

6. Within Clean Growth the strategy aims to "maximise the advantages for UK industry from the global shift to clean growth – through leading the world in the development, manufacture and use of low carbon technologies, systems and services that cost less than high carbon alternatives."

7. The strategy states that the government is *investing £162m in innovation for low-carbon industry.* More locally, BEIS has also started to implement its supply-chain driven strategy by creating the Low Carbon Innovation Fund - East of England (March 2017). This is a £10,000 to £1 million investment *"venture capital fund, providing equity finance for SMEs based wholly or partially in the East of England."*

8. As discussed in the following sections, Norfolk Vanguard Limited is a major stakeholder in the energy sector of the New Anglia LEP and, as such, is contributing to achieving the Industrial Strategy by developing low carbon energy, a labour demand in the renewable energy sector, and contributing to skills development in the region.

31.3.2 Energy Sector Skills plan for New Anglia

9. Norfolk Vanguard Limited are in discussion with the New Anglia Local Enterprise Plan (LEP) as they prepare to publish their Energy Sector Skills plan, in which Norfolk Vanguard Limited are recognised as a key energy stakeholder in the region.

10. In line with the Industrial Strategy, the Energy Sector Skills Plan focusses on developing people as a foundation of securing a Sector Deal[1] between the UK Government and the offshore wind sector.

11. As part of this plan, the New Anglia LEP engaged employers in the offshore wind sector who provided the following insights:

- *"Overall the workforce demands for the offshore wind industry are project cycle based;*
- *Employers indicate a 3:1 ratio between workforce needs at peak build compared to live running operations;*
- *This leads to a transient, contractor based, workforce, with around 25% of the overall workforce being permanently employed by the main developers of offshore wind (i.e. Tier 1 companies);*

[1] The Department for Business, Energy & Industrial Strategy describe a Sector Deal as a *partnership between the UK government and industry on sector-specific issues that can create significant opportunities to boost productivity, employment, innovation and skills.* As described here: https://www.gov.uk/government/publications/industrial-strategy-sector-deals/introduction-to-sector-deals

- *Recruitment is generally done through national channels, often with contractors being brought in from previous or concurrent national projects;*
- *Key skills needs include project management skills linked to heavily oriented project based work methods; and*
- *The civil infrastructure investment stages require a mixture of key roles and trade based skills from across construction and civil engineering, including digging, cabling/piping and onshore new build for power transmission."*

12. The plan recognises that "*the relationship that the Energy sector has with Construction is the most prominent crosscutting issue*." Therefore, "*planning effectively for upscale and downscale stages, skills and labour supply will become critical elements to ensure the benefits of the investment are maximised for the local area."*

13. To meet the challenge of developing skills in the energy sector, the New Anglia LEP outline the following priority areas:

- Mobilise industry leadership with a focus on securing co-investment through a Sector Deal combined with a new Careers Strategy;
- Develop a higher technical engineering offering to supply local, graduate level, mechanical and electrical engineering skills;
- Build 'intra-industry' and 'inter-sector' workforce transferability;
- Address the overall "Energy Skills Fragility" by developing a suite of key skill sets that can be transferred across energy sectors;
- Build inclusive local capacity and secure the future of the energy workforce through improved gender equality and as a coordinated approach to career development; and
- Develop the apprenticeships and group training by using the apprenticeship levy to catalyse uptake in the supply chain of larger employers.

14. As described in section 31.7.1 in Chapter 31 Socio-economics, the project is contributing to realising the ambitions of the Energy Sector Skills Plan which, in turn, contributes to the economic plans outlined below.

31.3.3 New Anglia Economic Plans

15. The Norfolk and Suffolk Economic Plan (New Anglia LEP, 2017) was produced by New Anglia LEP. This highlights clean energy as one of nine strategically important sectors for the New Anglia LEP. In particular this is facilitated by the transfer of offshore energy skills from oil and gas to the offshore wind farm sector.

16. The Plan points to the importance of developing the Clean Energy Cluster around Great Yarmouth and Lowestoft to serve the offshore wind farm sector. Priority

places are highlighted as the Norfolk and Suffolk Energy coast including Bacton, Great Yarmouth, Lowestoft and Sizewell, with assets on and offshore.

17. Norfolk Rural Strategy 2017-2020 (Norfolk County Council, 2017) states that electricity is an enabler of growth. The Strategy highlights that *"transformation of the way power is produced, distributed and consumed is accelerating, but many developers report that access to grid capacity is a constraint in rural areas. This needs addressing by strategic engagement with UK Power Networks to secure a commitment to enable growth and support ambitious rural projects."*

18. The Norfolk Rural Strategy makes specific reference to building on the Norfolk and Suffolk Economic Plan to "promote similar themes and specifically the need for knowledge-led growth, a focus on moving up the value chain, the potential in the tourism sector and the need to embrace technology." All proposed themes are stated to be relevant to Norfolk's rural areas including the opportunities posed by the development of clean energy.

19. The North Norfolk Economic Growth Strategy & Action Plan (North Norfolk District Council, 2016) states that economic *"growth is needed to improve the standard of living and quality of life of local residents; bring greater resilience to fluctuations in the global and national economy; and create investment in infrastructure, services and facilities."*

20. Under the heading "Maintain existing jobs and help businesses expand" the Council plan to implement the Business Engagement Strategy to create "cluster groups of businesses, with the aim of building collaboration, supply chain development, mentoring and product development, which will help promote priority sectors" such as offshore renewables.

21. Although the landfall and onshore cable route is located in Norfolk, the travel to work distances highlighted in Chapter 24 Traffic and Transport show that the project has the potential to affect the growth of Suffolk as well.

22. East Suffolk Growth Plan 2014 to 2025 identifies Energy, Ports and Logistics as priority growth sectors and lists Lowestoft and Great Yarmouth Enterprise Zone as a priority location. The Plan notes *''we are at the heart of the world's largest market for offshore wind*" and states *''the Government has granted Enterprise Zone (EZ) status to key employment sites in Lowestoft and Great Yarmouth, largely because of the potential of the fast-growing energy industry.''* The area has also been designated by the Government as one of the country's six Centres for Offshore Renewable Engineering (CORE).

31.3.4 Local Strategy and Policy Review

23. Local Plans are prepared by planning authorities and set out a framework for the future development of an area on a 15-year horizon. They define; the priorities for an area, strategic policies, the framework for neighbourhood plans, land allocations, infrastructure requirements, housing needs, requirements for safeguarding the environment, measures for adapting to climate change and so on. They are also the starting-point for considering whether planning applications should be approved.

24. The Planning and Compulsory Purchase Act 2004 and the Town and Country Planning (Local Planning) (England) Regulations 2012 set out matters that should be considered when preparing a Local Plan and prescribe their form and content. The National Planning Policy Framework (NPPF) describes the evidence that should be gathered in the preparation of local plans and the approach that they should adopt (Paras 150 – 185). In consultation with the local community the local planning authority is required to Development Plan Documents that cover policies and include the Core Strategy for the area.

25. The Core Strategy is generally the primary development plan document used to guide development in an area over 15 years. It sets out the overall planning policy strategy for the area, describing the spatial vision, strategic objectives and key principles that have been adopted. It may set out policies relating to the scale and location of developments and address issues such as development management, sustainability, housing, transport and so on.

26. Under Local Planning Regulations 2012 planning authorities can adopt joint local development documents. A Joint Core Strategy is often developed as a partnership between adjacent local planning authorities. This is to ensure that planning policy strategies for combined areas support one another's development

27. Core Strategies for the three districts that the onshore cable route crosses have been reviewed as follows:

- North Norfolk Core Strategy;
- Breckland Local Core Strategy; and
- Greater Norwich Development Partnership Joint Core Strategy.

28. North Norfolk District Council states that in 2021 North Norfolk will be an area with strong local distinctiveness where the unique coastal and rural environment will be protected for its own sake. North Norfolk District Council states that the area *"will have a diverse, high-value economy with attractive and vibrant towns and villages that act as employment and service centres for the surrounding rural hinterland. Residents will have a high quality of life, and there will be an increased range of housing and job opportunities for all, to help maintain socially-balanced and*

sustainable communities." This vision has been based on North Norfolk's seven towns, sustainable tourism, protection of the environment for its own sake, and actively maintaining the coastal areas.

29. North Norfolk District Council has a core policy pertaining to the development of renewable energy. Whilst the benefits of offshore renewable energy generation are noted, the Policy EN 7 of the Core Strategy states that "*renewable energy proposals will be supported and considered in the context of sustainable development and climate change, taking account of the wide environmental, social and economic benefits of renewable energy gain and their contribution to overcoming energy supply problems in parts of the District."*

30. The Breckland Local Core Strategy states that Breckland Council supports the development of renewable energy in order to meet carbon reduction targets. It also highlights the need for rural economic development but notes that this should be tempered against the necessity to protect the countryside and environment. Thus, "*economic development in the countryside will only be supported where the operation of the business necessitates the locations, represents a sustainable solution to an identified need and is in line with national policy."*

31. Greater Norwich Development Partnership includes the councils of Broadland District, Norwich and South Norfolk and is supported by Norfolk County Council. This states that the area's economic strengths include specialisms in biotechnology, food processing, financial services and creative industries, none of which are directly relevant to the construction of energy infrastructure. However, in the rural areas, market towns continue to provide the most sustainable focus for development and there is a defined objective of "*securing another 27,000 new jobs of all types and levels in all sectors of the economy and for all the workforce."*

32. A review of the Core Strategies shows that all of the local planning authorities potentially affected by the project would be supportive of the potential for employment but are required to temper this against the need to protect the environment and rural communities. North Norfolk District Council asserts this most strongly because approximately a quarter of its economy (North Norfolk District Council, 2017) is dependent upon tourism, which (as described in Chapter 30 Tourism & Recreation) is driven by the attractiveness of the natural assets in the area. The balance between creating low carbon energy infrastructure, creating local employment, and considering local businesses or communities is complex but vitally important for the sustainable development of the area. Therefore, the Environmental Statement has covered all of these factors across this chapter, Chapter 27 Human Health, and Chapter 30 Tourism and Recreation by drawing on interrelated chapters to demonstrate clear source pathways of potential impacts.

31.3.5 Port Strategy and Policy Review

33. The East of England Energy Zone comprises Great Yarmouth and Lowestoft together, as one of the Government's low carbon Enterprise Zones and Centres for Offshore Renewable Engineering (CORE). In these areas incentives are provided to new and expanding businesses and industries to take advantage of investment in offshore wind development. Ports in the North-Eastern CORE (including the Tees Valley and Humber ports), and Sheerness in the South-Eastern CORE may also be strategically important for the development of the Norfolk Vanguard project and will provide competition to the development of Great Yarmouth and Lowestoft.

34. Great Yarmouth Borough Council has released The Plan 2015-2020 (Great Yarmouth Borough Council, 2015) to promote economic growth. The Plan presents their ambition to be a fast growing coastal 'Enterprise Town'. In 2015 Great Yarmouth Borough Council won funding from the Coastal Communities Fund until 2017, to expand their enterprise services by targeting help at specific business sectors. In line with the New Anglia LEP plans, one of these target areas focuses on offshore energy. As such Great Yarmouth Borough Council is looking to strengthen their relationship with the LEP. In line with their wider national Industrial Strategy, The Council is also aiming to *"support young people and adults to help them recognise the opportunities for good jobs in the offshore economy."*

35. To provide the planning framework for the Enterprise Zone, Waveney District Council and Great Yarmouth Borough Council have created Local Development Orders (LDO) to help enable the further development of Beacon Park and South Denes, Ellough in Beccles and Mobbs Way, Power Park (Beach Industrial Estate), Riverside Road and South Lowestoft Industrial Estate in Lowestoft. The goal is to enhance economic growth through the development of high-tech/research and development sector businesses, particularly those associated with the offshore energy industry. The aim is to allow greater permitted development rights for businesses in these areas.

36. Great Yarmouth and Lowestoft have also been included in the Government's Assisted Area Status (AAS) map since 2014. The status makes local businesses eligible to bid for additional Government and European funding and tax breaks to create jobs, invest in new premises or machinery and grow. This in turn could help businesses associated with the offshore wind sector grow and create more jobs and expertise.

37. As discussed in section 31.5.1.2, the construction of the project could be a major incentive to invest in the ports at Great Yarmouth and Lowestoft. This would support the outlined strategies within the East of England Energy Zone.

31.4 UK Offshore Wind Sector

38. On 11th September 2017, BEIS announced three offshore wind projects had been successful in competitive auctions for Contracts for Difference (CfD)[2] (BEIS, 2017). This represented a reduction in the cost of offshore renewable energy generation of approximately 47% since the last CfD auction in February 2015. This demonstrates very significant cost reductions achieved in a relatively short space of time and indicates the potential for passing this cost saving to UK consumers. Cost reductions have been due to significant improvements in the efficiency of offshore wind energy which signifies confidence in the growth of the national sector.

39. In September 2017, RenewableUK published figures for the Offshore Wind Industry Investment in the UK. The figures show that, overall, 48% of the UK offshore wind farm value chain is procured from the UK, an increase of 5% from 2015. The largest growth area has been in the development phase which has seen an 11% increase in UK content to 73%. During operation, the UK content has grown by 2% to 75% and in the capital (construction) stage the average UK content is 29%, having grown by 11% since 2015.

40. In March 2017 Catapult Offshore Renewable Energy published the Economic Value of Offshore Wind: Benefits to the UK of Supporting the Industry. They estimated that "*a strike price of £90 and 50% UK content, would represent an estimated £1.7bn per GW in net benefit for the winning bid.*" Headline figures from this report are:

- *"By continuing to increase UK content in areas of strength such as blade and tower manufacture, cable supply and operations and maintenance (O&M), and developing strengths in other areas, including installation and foundation manufacture, it is projected that up to 65% UK content could be possible by 2030, given the deployment of 19GW+ installed capacity.*
- *The gross value added (GVA) to the UK per GW installed, is estimated to increase to £2.9bn by 2030 – if 65% UK content can be achieved.*
- *Supporting UK offshore wind is cost-benefit neutral with a strike price of £105 and 30% UK content. But industry is already doing better than this, and each additional 10% of UK content is worth a net £500m – £600m (depending on strike price), and each £10 strike price reduction is worth £240m – £350m (depending on the level of UK content)."*

41. Vattenfall Wind Power Limited is a significant part of this positive growth. In addition to both Norfolk Vanguard and Norfolk Boreas offshore wind projects which will both be multi-billion pound projects, Vattenfall Wind Power Limited have begun

[2] The BEIS defines a CfD as the *difference between the 'strike price' – a price for electricity reflecting the cost of investing in a particular low carbon technology – and the 'reference price'– a measure of the average market price for electricity in the GB market.* Source : https://www.gov.uk/government/publications/contracts-for-difference/contract-for-difference

the development works for an extension to the Thanet Offshore Wind Farm and have undertaken a £300 million investment for the European Offshore Wind Deployment Centre on the north-east coast of Scotland, which is currently under construction.

42. This is in addition to substantial offshore wind sector investments to the East of England, particularly in the Humber estuary where £6 billion of private sector investment is planned from 2013 to 2019. A joint investment between Siemens and Associated British Ports has also invested £310 million in turbine assembly and blade manufacturing plants at Alexandra Dock, Hull. The numerous East Anglia offshore wind developments have also to date led to £25 million of investment to the Port of Lowestoft and £5 million in preparing Great Yarmouth Port for offshore wind farm construction.

31.5 East of England Offshore Wind Sector

43. Since 2010 the UK Offshore Wind Industry has seen a significant growth of 40% per annum; from 1.3GW in 2010 to 5.1GW as of 2016 (Cambridge Econometrics, 2017). The Offshore Wind Industry currently supplies 5% of Britain's power and this is set to increase to 10% by 2020 (RenewableUK, 2017). This has been incentivised by UK Government policy and market support measures such as the CfD system. The industry has seen a significant growth in the appetite of developers to bring forward offshore wind farm projects. There is an increase in the planned number and scale of offshore wind projects and the associated investment from the private sector. The challenge now is to ensure that the regions and communities of the UK reap the benefits from this growth.

44. The scale and variety of investment underpin the projected growth in employment in the offshore wind sector from 10,000 Full Time Equivalent (FTE) jobs to 21,000 FTE jobs in 2032 (Cambridge Econometrics, 2017). This shows that the greatest growth in direct employment will be in operations and maintenance with a comparable reduction in construction employment; this is in line with the completion of the construction of offshore wind projects over the next decade. Similarly, indirect employment is predicted to grow in manufacturing, professional services (such as finance, science & technical, business administration, and information communication), and other services (such as motor trades, wholesale, transport, accommodation, etc.).

45. The regional growth is predominantly in the East of the UK. The North East and Yorkshire and the Humber show particularly strong growth from 100-2000 FTE jobs (per Nomenclature of Territorial Units for Statistics, NUTS2, region) in 2017 to more than 4000 FTE jobs in 2032. In the New Anglia LEP region the growth is expected to be 1000-2000 FTE jobs in 2017 to 2000-4000 FTE jobs in 2032 in the offshore wind

sector. This represents approximately a doubling of FTE employment figures in offshore wind over 15 years.

31.5.1.1 Existing offshore wind projects

46. The project will be built in an area that is already receiving significant investment in the construction and operation of offshore wind farm projects. A list of offshore wind farms in operation or under construction is presented in Table 31.1. This section will provide a brief overview of the existing industry and section 31.8.1 in Chapter 31 Socio-economics addresses projects that are in planning.

Table 31.1 Wind farms in operation serviced from New Anglia LEP

Wind farms		Owner/Operator	Capacity (MW)	Estimated O&M FTE
Operational	Scroby Sands	EON	60	10[3]
	Greater Gabbard	Innogy Renewables UK	504	100[4]
	Sheringham Shoal	Statoil, Statkraft, Green Investment Bank	210	50[8]
Under construction	Dudgeon	Statoil, Statkraft, Masdar	402	Unknown
	East Anglia 1	ScottishPower Renewables	714	86[5]
	Galloper	Innogy Renewables UK, Green Investment Bank, Siemens, Macquarie, Sumitomo Corporation	336	90[6]

Source: Renewable Energy UK

47. RenewableUK (October 2016) report that:

- *"Offshore wind in the East of England has resulted in a hub of activity for the region. The region is at the centre of the UK's Offshore Wind Industry and ideally placed to serve existing offshore wind farms, those that are under construction and those that are to be built. The region is home to companies across the supply chain, from those who are based at Orbis Energy, the specialist innovation and incubation centre at Ness Point in Lowestoft, to larger offshore specialists companies such as Seajacks and CWind who have their headquarters in the East of England.*

[3] Department for Trade and Investment (2005). Scroby Sands - Supply Chain Analysis. Available online at: http://webarchive.nationalarchives.gov.uk/+/http:/www.berr.gov.uk/files/file20840.pdf. Accessed on 05/06/2017.
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[6] Galloper Wind Farm Ltd. Front Page of Project Website [Online] Accessed on Sept 2017. Available at: http://www.galloperwindfarm.com/

- *Great Yarmouth has recently been selected to be the site of Statoil's Operations Centre for the Dudgeon Offshore Wind Farm. Similarly, the Port of Lowestoft will act as the offshore construction coordination base for Galloper Wind Farm."*

48. When considering employment rates, Galloper Wind Farm is expected to create 700 jobs during construction and around 90 permanent jobs during operation. The project launched an East Coast Internship with two apprentices joining the Offshore Construction Coordination Base in Lowestoft to complete research and design projects related to the construction of Galloper.

49. RenewableUK indicate a number of companies in the East Anglia area, mainly grouped around Great Yarmouth and Lowestoft, as follows:

- Orbis Energy, Lowestoft, is a centre of excellence for the offshore renewables sector who have indicated a supply-chain of 6,000 companies in the region;
- Sembmarine SLP, Lowestoft, are one of the only single-source Engineering Procurement Installation Commissioning (EPIC) companies in the UK. They currently employ 249 staff;
- Seajacks, Great Yarmouth, is a UK-based operator of purpose-built offshore wind turbine installation vessels which employs over 250 people;
- 3Sun, Great Yarmouth, provide multi-skilled technicians to the Offshore Wind Industry. In 2016 the group employed 294 staff and planned to increase employment by 200 staff.

50. Sheringham Shoal's operational base is in the relatively small town of Wells-next-the-sea (Scira Offshore Energy, 2012). This provides an average employment of 50 permanent staff and had a peak of 80 FTE staff during construction of the operational base. The contractor for the operational base was Mansell Construction Services Ltd, in Swaffham, and the architect was LSI Architects of Norwich.

51. The Greater Gabbard project created 100 permanent jobs in its £1.5 million operations and maintenance base in Lowestoft[7] with a 95% local employment rate. However, the project contractor was Fluor (an international company) and the wind turbines were manufactured by Siemens. However, Siemens does have a blade manufacturing centre at Hull[8] that was recently used to produce the turbine blades for Dudgeon offshore wind farm so there may be an opportunity for an increasing amount of construction expenditure in the UK on future projects.

[7] Greater Gabbard overview, accessed June 2017 - http://sse.com/whatwedo/ourprojectsandassets/renewables/greatergabbard/

[8] Major milestone as Siemens dispatches first turbines from Hull site, accessed June 2017 - https://www.siemens.co.uk/en/news_press/index/news_archive/2016/major-milestone-as-siemens-dispatches-first-turbines-from-hull-site.htm

52. The East of England Energy Group has published the East of England Fabrication Directory 2014 (East of England Energy Group, 2014). This lists 25 companies in the East of England, with 19 in Norfolk and northern Suffolk. These are primarily focussed around Great Yarmouth with some in Lowestoft and a couple in Norwich. Services provided cover fabrication services developed from the oil and gas industry. In general, contracts awarded to UK companies include the following (RenewableUK, 2017):

- Wind farm design;
- Design of sea fastenings;
- Transition pieces;
- Secondary steel work;
- Substation design, fabrication and installation;
- Foundation design and engineering;
- Grouting;
- Crew transfer services;
- Cable protection systems;
- Array cable manufacture;
- Training services;
- Technicians;
- Marine co-ordination;
- Preassembly of towers and turbines;
- Unexploded ordnance management; and
- Inspection services.

31.5.1.2 Port investments driven by offshore wind growth

53. Based on BVG Associates Strategic review of UK east coast staging and construction facilities (BVG Associates, 2016) there is significant opportunity to drive growth in the East of England, including East Anglia. This review studied 23 east coast port locations and found that from 2011 to 2016 "owners of ten east coast ports have spent or committed more than £400 million on facilities that are either exclusively or partially focused on capturing offshore wind activity."

54. They also note that "more than half of this investment has been speculative, based on the port owners' assessment of the potential opportunity from offshore wind and other sectors. The rest has been stimulated by firm contractual commitments by offshore wind players." These results clearly demonstrate that the development of an offshore wind farm drives investment to port locations.

55. BVG Associates note that the "offshore wind supply chain development is taking place in the UK. This progress is being driven by the Government's requirement to

deliver credible supply chain plans that support increased competition, rather than significant shortfalls in European supply."

56. The review comprises a Port Assessment that includes Great Yarmouth. This concludes that it "meets all requirements and is available immediately or investment has already been committed" to allow the port to:

- *"support turbine staging activity for one large offshore wind farm per year (approximately 100 complete 8MW turbines per year); and*
- *provide staging services and has enough available land to cater for a facility producing 100 units per year, whether they are nacelles, towers, blade sets, jackets or monopiles."*

57. The assessment states that Great Yarmouth has a "12.5ha area that will be used for the turbine staging activity for Galloper and East Anglia ONE. As part of this contract, the port is investing £6 million to increase the load bearing capacity of the site and install a RoRo linkspan[9] to import components. There is also an 8ha brownfield site suitable for manufacturing activity within the port estate."

[9] A linkspan is a type of drawbridge for moving vehicles on and off of a RoRo (roll-on, roll-off) vessel or ferry.

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