

East Anglia THREE

Non-Technical Summary

Environmental Statement
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Table of Contents

1	Introduction	1
1.1.1	About this document	1
1.1.2	Who is Developing the Project.....	4
1.1.3	Role of National Policy Statements in the Decision Making Process	4
1.1.4	Need for the Project	5
1.1.5	Site Selection and Consideration of Alternatives	6
1.1.6	The proposed East Anglia THREE project	7
2	Topics considered in the Environmental Impact Assessment	14
2.1	Offshore	14
2.1.1	Marine Physical Environment.....	14
2.1.2	Marine Water and Sediment Quality	15
2.1.3	Underwater Noise and Electromagnetic Fields	15
2.1.4	Sea Bed (Benthic) Ecology	15
2.1.5	Fish and Shellfish Ecology	16
2.1.6	Marine Mammal Ecology.....	17
2.1.7	Offshore Ornithology.....	17
2.1.8	Commercial Fisheries.....	17
2.1.9	Shipping and Navigation	18
2.1.10	Aviation and Ministry of Defence	18
2.1.11	Offshore Archaeology and Cultural Heritage	19
2.1.12	Infrastructure and Other Users	19
2.2	Onshore	19
2.2.1	Geology and Ground Conditions	20
2.2.2	Air Quality	21
2.2.3	Water Resources and Flood Risk	21
2.2.4	Land Use	21
2.2.5	Terrestrial Ecology	22

2.2.6	Onshore Ornithology	22
2.2.7	Onshore Archaeology and Cultural Heritage.....	22
2.2.8	Noise and Vibration	23
2.2.9	Traffic and Transport	23
2.3	Project Wide Topics	24
2.3.1	Socio-Economics	24
2.3.2	Seascape, Landscape and Visual Amenity	24
3	Conclusions	25
4	Contact us	26

1 INTRODUCTION

1.1.1 About this document

1. This document is the Non –Technical Summary (NTS) of the Environmental Statement (ES) for the proposed East Anglia THREE Offshore Windfarm (also known as the proposed East Anglia THREE project). It provides a summary of the project, the site selection process and the key findings of the Environmental Impact Assessment (EIA).
2. The proposed East Anglia THREE project is a Nationally Significant Infrastructure Project (NSIP). Consent to construct, operate and decommission the proposed East Anglia THREE project is therefore being requested from The Secretary of State for Energy and Climate Change, under The Planning Act 2008.
3. The purpose of the EIA is to assess and examine the potential impacts of the proposed East Anglia THREE project on the environment, from construction through to decommissioning. In accordance with the Infrastructure Planning (Environmental Impact Assessment) Regulations 2009, the findings of the EIA process have been presented in an ES and submitted as part of the consent application for the proposed East Anglia THREE project.
4. The proposed East Anglia THREE project would comprise offshore wind turbines, offshore electrical platforms, offshore and onshore export cables and a substation compound adjacent to the existing substation at Bramford, Suffolk. The East Anglia THREE Development Area is shown in *Figure 1* and *Figure 2*.

Figure 1: Location of the proposed East Anglia THREE project and the East Anglia ONE Offshore Windfarm Site, within the East Anglia Zone.

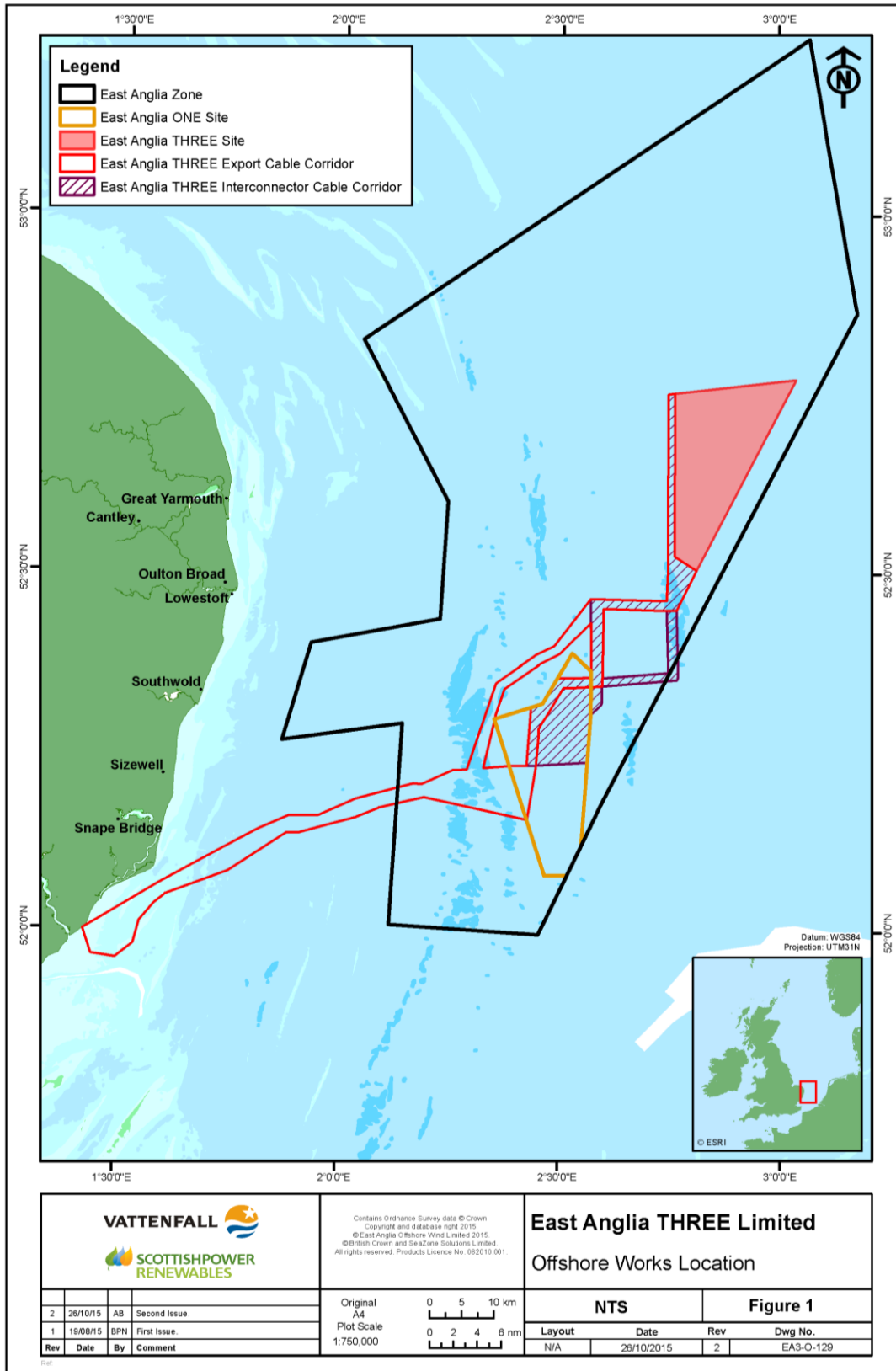
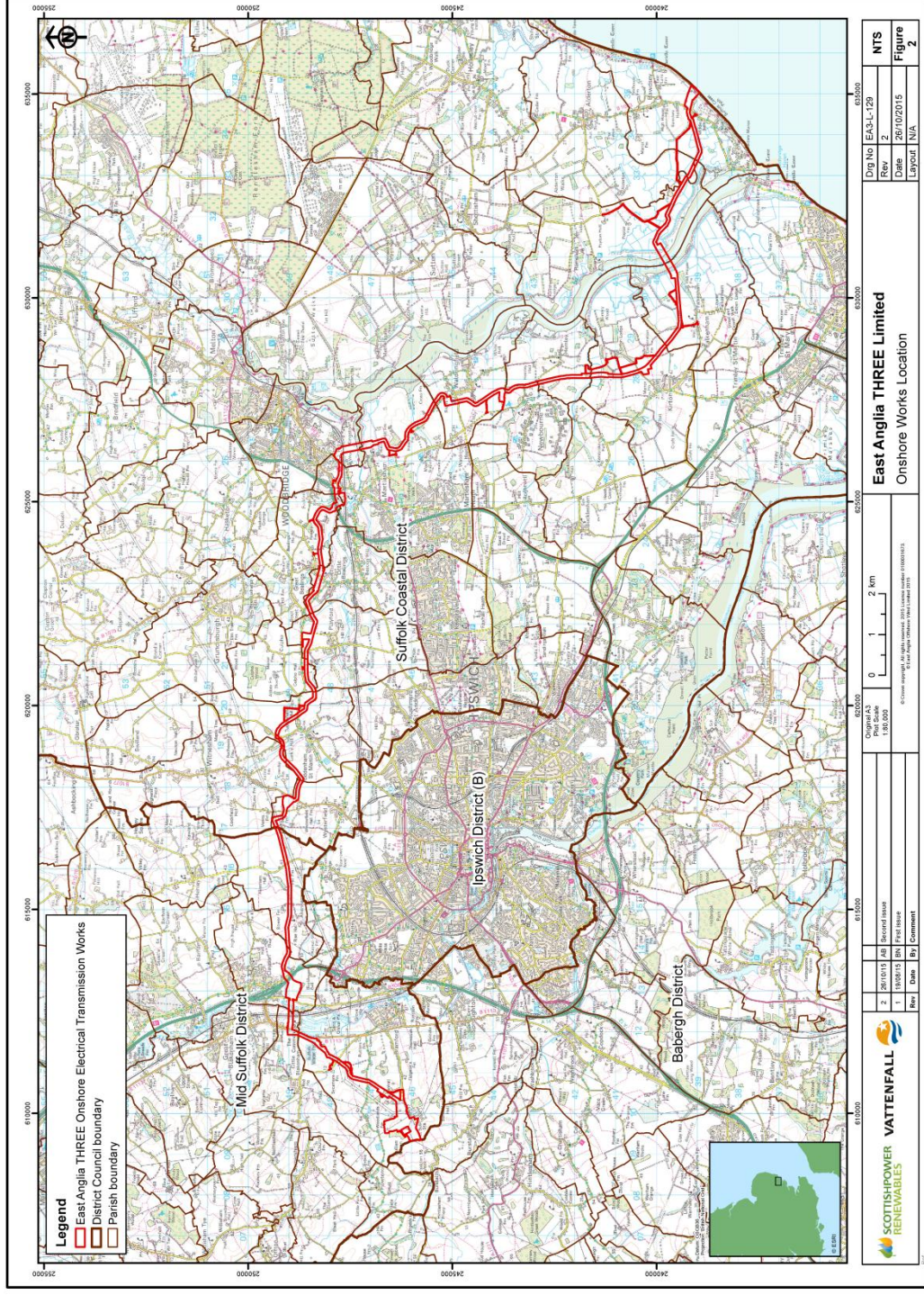


Figure 2 The Onshore Cable Route and Substation Location.



1.1.2 Who is Developing the Project

5. East Anglia Offshore Wind Limited (EAOW) is a joint venture owned 50:50 by ScottishPower Renewables (UK) Limited (SPR) and Vattenfall Wind Power Ltd (VWPL).
6. SPR is part of the Iberdrola group, one of the largest utilities in the world and the leading wind energy producer. Committed to sustainable value creation for all stakeholders, Iberdrola is focused on the Atlantic Area and has a renewables capacity of over 24,900 MW. In addition to a strong global onshore portfolio including Whitelee (the UK's largest onshore windfarm), and investment in the emerging marine energy industry, Iberdrola's global offshore wind business is managed from Glasgow and is currently progressing the development of offshore wind throughout the UK, Germany and France, cementing its position at the forefront of the renewable energy industry.
7. Vattenfall is one of Europe's largest generators of electricity and the largest producer of heat. The Parent Company, Vattenfall AB, is 100%-owned by the Swedish state. Vattenfall owns and operates a broad range of assets across Europe from six energy sources – biomass, coal, hydro, natural gas, nuclear and wind power. The company's main business interests are in Sweden, Germany, the Netherlands, Denmark and the UK. Vattenfall sees wind power as a cornerstone of its total energy mix and currently has over 1000 turbines installed in its core markets. In the UK, Vattenfall owns and operates Thanet, Kentish Flats, Kentish Flats Extension and Ormonde Offshore Wind Farms.
8. In December 2009, The Crown Estate Commissioners awarded EAOW exclusive rights to develop approximately 7,200MW of wind capacity within an area of sea off the coast of East Anglia identified as the East Anglia Zone. This award was given to EAOW as part of The Crown Estate's UK Round 3 Offshore Wind Licensing process. The first project to be developed within the East Anglia Zone was the East Anglia ONE project which was consented on 17th June 2014. The proposed East Anglia THREE project is the second project to be developed in the East Anglia Zone.

1.1.3 Role of National Policy Statements in the Decision Making Process

9. Three National Policy Statements (NPS) are of relevance to the proposed East Anglia THREE project.
 - NPS Overarching Energy (EN-1): contains a statement that there should be a presumption in favour of granting consent for projects that are in accordance with the relevant NPSs. It specifically recognises that offshore wind is key to

meeting UK policy objectives, and provides advice on the assessment of environmental impacts of projects.

- NPS Renewable Energy Infrastructure (EN-3): defines offshore wind projects of more than 100MW as being Nationally Significant Infrastructure Projects (NSIP), and therefore covered by the remit of the Planning Act 2008. The NPS provides advice on the assessment of environmental impacts from offshore wind, and stresses the importance of careful consideration of issues relating to navigation and marine safety.
 - NPS Electricity Networks (EN-5): covers the long distance electricity transmission systems and distribution systems, as well as infrastructure such as substations.
10. The ES outlines how the proposed East Anglia THREE project complies with these NPSs to enable the Planning Inspectorate to make a planning recommendation to the Secretary of State for Energy and Climate Change, the ultimate decision maker.

1.1.4 Need for the Project

11. The Kyoto Protocol which is an international agreement that sets targets for industrialised countries to cut their greenhouse gas emissions. As a signatory of the protocol the UK is obliged help limit the causes of climate change.
12. The European Union has recently proposed a 40% cut in greenhouse gasses and that 27% of energy generation should come from renewable sources.
13. Under the Climate Change Act 2008, the UK Government set the world's first legally binding target to cut carbon and greenhouse gas emissions by 80% by 2050, compared to 1990 levels.
14. The UK is well placed to lead the deployment of offshore wind with an estimated 33% of the total European potential offshore wind resource making it one of the most globally attractive locations.
15. Key benefits of the proposed East Anglia THREE project would include:
- To help the UK in diversification and security of energy generation;
 - To make significant and rapid contributions to the national renewable energy targets;
 - Provided economic development and job creation within the UK; and
 - Create energy with very low CO² emissions per unit of electricity generated.

16. Successive governments have recognised that it is important to ensure that the UK has secure and reliable supplies of electricity as we make the transition to a low carbon economy. The Proposed East Anglia THREE project will make a large contribution to this objective by providing a green energy supply for up to 770,000 households.

1.1.5 Site Selection and Consideration of Alternatives

17. In response to the UK's energy needs, the Government embarked on a plan to identify areas of sea off the coasts of England and Wales suitable for the development of large scale offshore windfarms. The entire East Anglia Zone was put forward as a part of the third and largest round of proposed UK offshore wind developments.
18. As a consequence of this, the East Anglia Zone was identified by the Government and The Crown Estate following a Strategic Environmental Assessment. In 2009, EAOW was awarded the rights to develop this zone.
19. Within the East Anglia Zone, the location of the East Anglia THREE site was identified following a review of available environmental and technical information. Important environmental considerations included:
 - International Maritime Organisation (IMO) Deep Water Routes;
 - Oil and gas platforms and pipelines;
 - Active sub-sea cables;
 - Civil and military radar coverage and helicopter main routes;
 - Sea bed habitats (including those listed in Annex I of the Habitats Directive);
 - Seascape and visual amenity;
 - Commercial fisheries activity;
 - Fish ecology; and
 - Ornithology.
20. Technical considerations included likely wind resource and the suitability of seabed conditions.
21. EAOW also undertook assessments and consultation to identify the optimum export cable route, in terms of minimising environmental impacts and disruption. An

offshore cable corridor and onshore cable route were developed following agreement with National Grid of a connection point to the electricity network at Bramford, Suffolk.

22. The offshore cable corridor uses much of the East Anglia ONE cable corridor linking into it to the west of East Anglia ONE (Figure 1).
23. The onshore cable route was determined during the development of the East Anglia ONE project. The onshore cable route for the East Anglia ONE project was designed to be of sufficient width to place cables for two future projects. The proposed East Anglia THREE project would therefore follow the same onshore cable route as the East Anglia ONE project. From the outset (during the East Anglia ONE planning process) careful routing of the onshore electrical transmission works has set out to avoid key areas of sensitivity wherever possible.
24. EATL have carried out extensive consultation on possible routes to allow construction traffic to access the onshore cable route. These access routes use the existing road network and tracks wherever possible; however in some locations new temporary roads would be installed. Through consultation with the local communities, an initial list of 54 possible access locations was reduced to 37, with those which would cause the most disruption being removed from the project design.

1.1.6 The proposed East Anglia THREE project

25. The East Anglia THREE site is located in the southern North Sea approximately 69 kilometres (km) from Lowestoft at the nearest point to the Suffolk coast (Figure 1). The proposed East Anglia THREE project would consist of between 100 and 172 wind turbines, with a total installed capacity of up to 1,200 megawatts (MW). The wind turbines would consist of a tower, hub and blades. A diagram representing the internal working structure of a wind turbine hub is displayed in Figure 3 below.
26. When installed, the largest of the turbines under consideration would have a maximum blade tip height of 247 metres (m) above sea level. Within the windfarm there would also be up to six offshore electrical platforms (an example of which is shown in Figure 4) as well as meteorological masts and possibly an accommodation platform.
27. A diagram illustrating an example of the main project elements that would be installed for the proposed East Anglia THREE project is displayed in Figure 5. Connection to the National Grid would be made via sub-sea cables laid between the East Anglia THREE site and the landfall at Bawdsey. From the landfall the cables

would be buried along the 37km onshore cable route to a location near Bramford where a National Grid sub-station exists. As a result of the strategic approach taken by EAOW, the cables would be pulled through pre-installed ducts laid during the onshore works for East Anglia ONE, thereby substantially reducing the impacts from several projects connecting to the National Grid at the same location.

28. EATL is currently considering constructing the project in either a Single Phase or in a Two Phased approach. Under the Single Phased approach the project would be constructed in one single build period and under a Two Phased approach the project would be constructed in two phases each consisting of up to 600MW each.
29. Offshore construction of the project would begin in 2020 at the earliest and would continue for approximately three and a half years. Onshore works would start in 2020 at the earliest and last for approximately one year if built in a single phase and two years if built in two phases.
30. Once commissioned, the windfarm would operate for up to 25 years. At the end of the operational life of the proposed East Anglia THREE project, the windfarm will either be repowered (the wind turbines would be replaced or upgraded), or decommissioned. If decommissioned, this would be undertaken in accordance with the relevant legislation at that time.

Figure 3 General Internal Structure of a Wind Turbine hub.

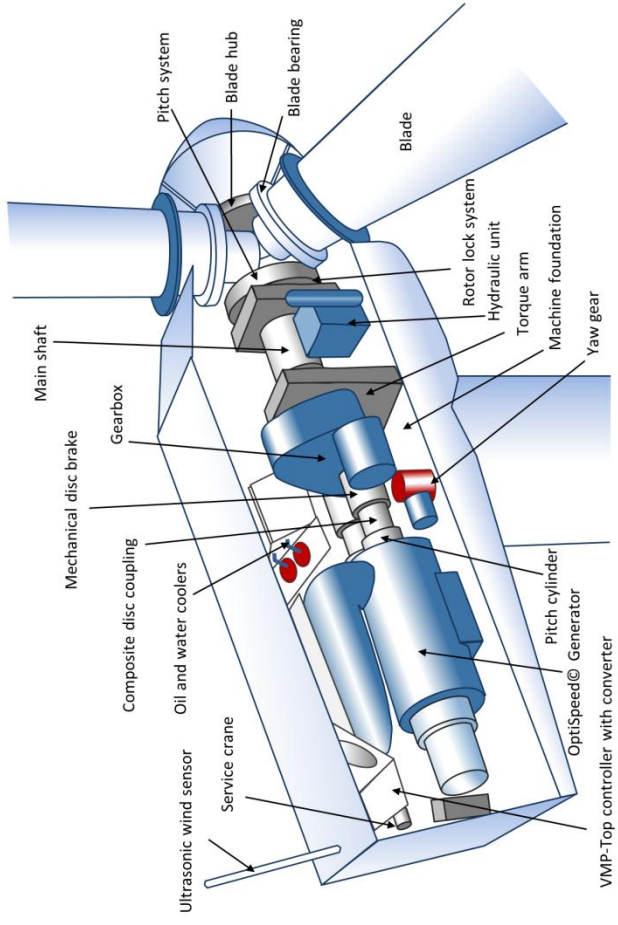
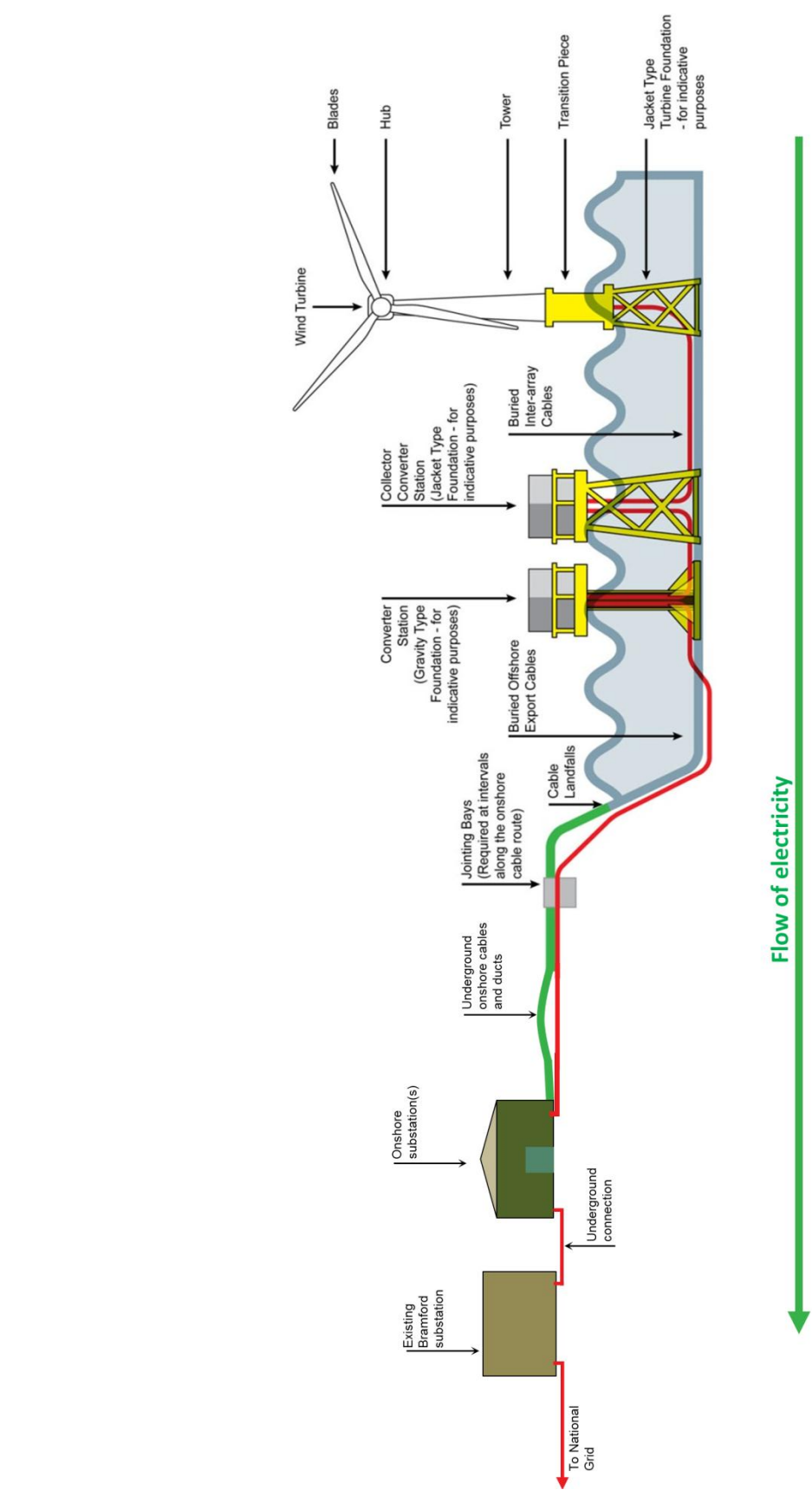


Figure 4 Offshore AC Collector Station Source: Vattenfall: Thanet Offshore Wind Farm. Ben Barden.

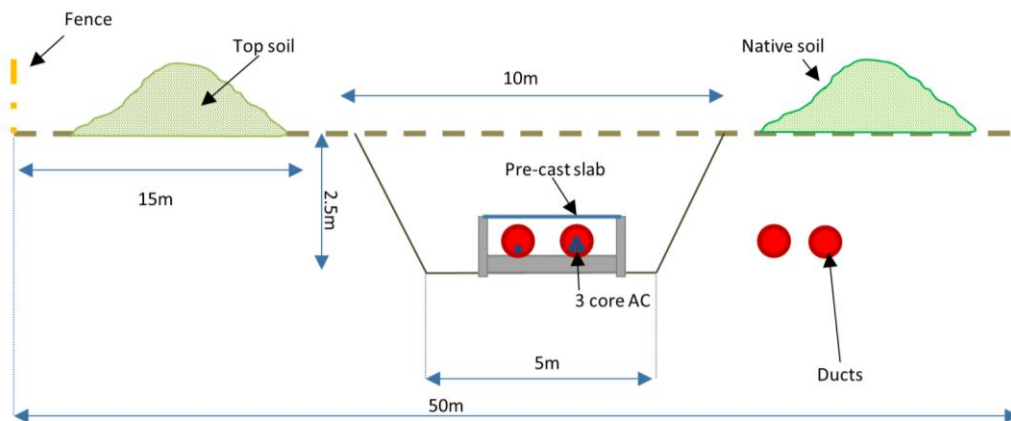


Figure 5 Diagram of a Typical Offshore Windfarm.



31. The onshore cables would be pulled through the ducts in sections joined together within jointing bays. Once the cables are joined the jointing bays would be buried using the same soil which was used to excavate the hole in which the jointing bays are positioned and the ground above would be reinstated to appear as it did prior to construction. A diagram of a jointing bay is presented in Figure 6 below.

Figure 6 Diagrammatic Representation of a Jointing Bay



32. In order to convert the electricity produced by the windfarm into a form that can be received by the National Grid a dedicated substation for East Anglia THREE will be required. Depending on whether the project is constructed in a Single or Two Phased approach one or two substations would be constructed, however the overall size of this infrastructure would be similar. An example of a typical substation is provided in Figure 7.

Figure 7 Typical Layout of a 1000MW HVDC Converter Station.



33. The following tables list the key parameters of the proposed East Anglia THREE project both offshore and onshore.

Table 1 Project Characteristics Offshore

Parameter	Characteristic
Capacity	Up to 1,200MW
Number of wind turbines	100 - 172 units
East Anglia THREE site area (offshore)	305km ²
Water depth across site	Generally less than 45m but up to 49m deep
Distance from East Anglia THREE to shore (closest point of site to Lowestoft)	69km
Maximum offshore cable corridor length	166km
Number of export cables	Up to four
Offshore cable corridor area	571km ²
Number of interconnector cables	Up to four
Individual wind turbine installed capacity	7 - 12MW
Wind turbine rotor diameter	154 – 220m
Wind turbine tip height	178 - 247m (LAT)
Minimum wind turbine blade clearance above sea level	22m (Mean High Water Springs)
Indicative minimum separation between wind turbines	In row spacing 675m
	Inter-row spacing 900m
Number of wind turbine models	Up to three
Wind turbine foundation type options	Jackets (on piles or on caissons), gravity base structures, suction caissons, monopiles
Number of meteorological masts	Up to two
Height of meteorological masts (maximum)	160m (LAT)
Meteorological mast foundation type options	Jacket (on piles or on caissons), gravity base, suction caisson or monopile
Offshore electrical platforms	Up to two HVDC converter stations and four* HVAC collector stations
Accommodation platform	One
Offshore platform foundation type options	Jacket and gravity base
Buoys	Up to 12 which could include LiDAR, wave monitoring or guard.

*Under a Single Phase approach a maximum of three collector stations would be required

Table 2 Project Characteristics Onshore

Parameter	Characteristic
Landfall location	Bawdsey
Grid connection location	Bramford substation
Export cable route length	37km
Substation compound area (hectares (ha))	3.04
Number of substations within compound	Up to two
Number of onshore export cables	Up to 12
Number of ducts	Up to four (installed by East Anglia ONE Limited)
Fibre Optic cables	Up to two

2 TOPICS CONSIDERED IN THE ENVIRONMENTAL IMPACT ASSESSMENT

34. The topics assessed through the East Anglia THREE EIA have been undertaken in accordance with the Planning Inspectorate's Scoping Opinion for East Anglia THREE Offshore Windfarm. Each of those topics have been summarised as part of this NTS. The order of topics presented in this NTS follow the layout of the ES with each topic being a chapter of the report.
35. It was agreed in the early stages of the project that several topics could be scoped out of the assessment and consequently these are not assessed within the East Anglia THREE EIA:
- Air quality during operation (offshore and onshore);
 - Airborne noise (offshore); and
 - Traffic disruption during operation.
36. Further detail on these topics, and the reasons for removing them from the assessment, can be found in the *East Anglia THREE Scoping Report*, and the *Planning Inspectorate Scoping Opinion for East Anglia THREE Offshore Windfarm*, both of which are available on the project website. The details of this website are available in section 3 of this document.

2.1 Offshore

37. The ES covers a wide range of physical, ecological, and human environmental topics for which potential impacts have been assessed. Many of these topics are related to each other and these links are highlighted within the ES.

2.1.1 Marine Physical Environment

38. The construction, operation, and decommissioning phases of the proposed East Anglia THREE project would cause a range of effects on the marine geology, oceanography and physical processes. The assessment found that the proposed East Anglia THREE project would have the potential to impact several features including two sites which have been designated for conservation, and marine sandbanks which are considered to be important habitats for marine sea bed species.
39. In general the effects of the proposed East Anglia THREE project are predicted to be small scale, localised and temporary; however, there would be potential to affect some locations further afield if the material used to protect the cables that transport the electricity from the windfarm to the shore affect movement of sediment along the sea bed. The scale of this impact may be increased if the cable protection for the

proposed East Anglia THREE project and the East Anglia ONE project is required to be placed in the same area.

40. The size of these impacts is not predicted to be large and by committing to reducing the amount of cable protection put in place as much as possible in more sensitive inshore areas, the impact would be further reduced.
41. The Marine Geology, Oceanography and Physical Processes chapter is used as a basis for some of the assessments of many of the following offshore topics.

2.1.2 Marine Water and Sediment Quality

42. A review of previous studies as well as data collected from the site of the proposed East Anglia THREE project showed that the water and sea bed in this location is mainly free from significant levels of pollution. It is clear from the data that contamination levels decrease with distance from the shore.
43. The assessment considers the impacts of the release of pollutants which may already be present within the sea bed as well as accidental releases and spills that may arise when constructing and operating the proposed East Anglia THREE project. No significant impacts on marine water and sediment quality are identified in the assessment, and through the implementation of standard measures to reduce the risk of potential pollution, all potential impacts to water and sediment quality are considered to be small scale, localised and temporary.

2.1.3 Underwater Noise and Electromagnetic Fields

44. The activity which would cause the greatest amount of underwater noise would be driving piles into the sea bed to fix the foundations on which the wind turbines would sit. Pile driving would, in essence, involve driving the foundations into the sea bed with a large hammer. Underwater noise modelling has been used to show how far the underwater noise would travel and over what areas it may cause effects to fish and marine mammals.
45. The electrical cables which would be installed as part of the proposed East Anglia THREE project could affect some sensitive marine species through the electromagnetic fields that they emit. The impacts of this are likely to be very small.

2.1.4 Sea Bed (Benthic) Ecology

46. Data from several different surveys was used to identify the species of plants and animals and the habitats that exist on the sea bed in the area of the East Anglia THREE site and offshore cable corridor. It was found that these were typical of southern North Sea sandy and gravelly habitats, with no ecologically sensitive areas identified. The impact assessment required consideration of the marine geology,

oceanography and physical processes assessment and marine water and sediment quality.

47. The features which may be impacted by the project include a number of sea bed habitats and species which are of interest due to their value as a food source to other marine species and their value to fishermen. The Outer Thames Estuary Special Protection Area, which is designed to protect the red-throated diver (a seabird), could be impacted indirectly. The reason for this is that the red-throated diver sometimes feeds on animals that live on the sea bed.
48. The effects of the proposed East Anglia THREE project on sea bed habitats and species would mostly be temporary, small scale and localised. However, EATL would carry out sea bed surveys prior to any construction activities being carried out. If these surveys found any sensitive sea bed habitats, their disturbance would be avoided as project infrastructure would be located away from them.
49. There is potential for the effects of the proposed East Anglia THREE project to act cumulatively with the effects of the East Anglia ONE project, other windfarm export cables and aggregate extraction activities. Again these impacts were assessed as being of small scale, highly localised and temporary.

2.1.5 Fish and Shellfish Ecology

50. Information from existing research on the fish and shellfish which live within the southern North Sea has been combined with surveys that have been undertaken at the East Anglia THREE site to build up a comprehensive knowledge of the fish and shellfish ecology of the area.
51. The data show that over 100 species of fish and shellfish may be present within the area. Species were taken forward for assessment based upon their ecosystem value and the value to commercial fishermen. Other species such as salmon and lamprey were also taken forward for assessment due to their conservation value. The impact assessment required consideration of the marine geology, oceanography and physical processes, marine water and sediment quality and sea bed ecology assessments.
52. The assessment concluded that the proposed East Anglia THREE project could cause a range of small scale effects to fish and shellfish ecology. The effects that have been assessed are anticipated to result in some minor impacts on some fish and shellfish populations.

2.1.6 Marine Mammal Ecology

53. To estimate how many marine mammals use the East Anglia THREE site, high resolution aerial photographs were taken monthly using low flying aeroplanes over a period of two years. These surveys recorded very low numbers of marine mammals with only three species using the East Anglia THREE site in sufficient numbers to enable them to be assessed. The species assessed were harbour porpoise, grey seal and harbour seal.
54. The impact assessment concluded that only minor impacts to marine mammals would occur as a result of the proposed East Anglia THREE project being built in isolation. However, cumulatively with other projects there exists the potential for greater impacts to occur as a result of underwater noise from pile driving. It was noted that the contribution of East Anglia THREE to this cumulative impact is very small for the species assessed due to the very low densities of these species across the East Anglia THREE site.

2.1.7 Offshore Ornithology

55. As with the marine mammals, the numbers of birds using or passing through the East Anglia THREE site were calculated using the results of aerial photography surveys. All birds observed within these surveys have been assessed with regard to their nature conservation value. Species of particular interest included kittiwakes, gannets, guillemots and razorbills.
56. The proposed East Anglia THREE project was predicted to have only minor impacts on birds when considered in isolation. However, cumulatively with other projects there exists the potential for greater impact to occur.

2.1.8 Commercial Fisheries

57. Fisheries activities of relevance to the proposed East Anglia THREE project broadly fall into two categories: Dutch beam trawling in the East Anglia THREE site; and UK static gear fisheries in the inshore areas within the offshore cable corridor. The impact assessment concluded that there would be only minor impacts to commercial fishing activity within the East Anglia THREE site. A Commercial Fisheries Working Group has been formed which includes fishermen, EAOW and fishing authorities to address potential impacts on small vessels operating close to the coast within the offshore cable corridor who mainly catch crab, whelk and lobster. Through this group it is anticipated that the scale of any impacts can be reduced by agreeing mitigation and co-existence measures.
58. There is potential for cumulative impacts to occur if the proposed East Anglia THREE project is built and all of the other potential developments, regulated activities and

conservation areas being considered are implemented. The scale and likelihood of these impacts occurring depends on how fishing vessels operate and the location and the extent of their fishing grounds relative to other potential developments. In particular it is worth noting that whilst fishing is not permitted in Dutch and Belgian offshore windfarms, it is planned that fishing activity will be permitted within the East Anglia THREE site.

2.1.9 Shipping and Navigation

59. The southern North Sea is an area of significant shipping and navigation activity for merchant vessels, ferries, fishing vessels, recreational craft, military vessels, and vessels engaged on specialist operations such as aggregate dredgers. The East Anglia THREE site is located between several shipping routes.
60. Stakeholder workshops and computer modelling were used to identify which types of vessels may be impacted by the proposed East Anglia THREE project. The assessment identified suitable ways to reduce the scale of these impacts to acceptable levels.
61. Overall, given the distances between the East Anglia THREE site and other developments, cumulative impacts are considered to be broadly acceptable. The assessment included impacts to vessels from other countries outside the UK and concluded that these would be within tolerable limits.

2.1.10 Aviation and Ministry of Defence

62. The assessment considers all forms of aviation activity including that of the Ministry of Defence, regional airports, local aerodromes, national air traffic control, the civil aviation authority and international bodies. The assessment includes consideration of effects on radar, search and rescue and helicopter traffic in both UK and overseas airspace.
63. The assessment established that, providing the proposed East Anglia THREE project was displayed properly on aviation charts, and there was adequate marking and lighting of all wind turbines consistent with UK regulations, only minor impacts would occur as a result of the construction and decommissioning phases. During the operation phase wind turbines over 193m above mean sea level would cause permanent interference on civil and military radars in parts of the East Anglia THREE site and therefore the assessment recommends that a technical solution for those radar facilities affected would be required in order to reduce the impact and allow taller wind turbines to be installed across the extent of the East Anglia THREE site.

2.1.11 Offshore Archaeology and Cultural Heritage

64. Sea bed surveys using a variety of techniques including sonar were used along with desk-based studies of existing information to determine the extent of the archaeology which exists within the East Anglia THREE site and offshore cable corridor.
65. The assessment concluded that impacts to archaeology and cultural heritage could largely be avoided if a number of steps are taken, such as the adoption of exclusion zones around wrecks and the positioning of wind turbine foundations and sub-sea cables away from any potential archaeological features.

2.1.12 Infrastructure and Other Users

66. This assessment looked at potential impacts upon other windfarm developments, cables and pipelines, oil and gas activities, marine aggregate activities and unexploded ordnance.
67. Impacts would largely be avoided as there is a requirement for industries to cooperate and operate in a safe manner. For instance, EATL would be required to undertake crossing agreements with operators of other cables and pipelines to ensure that these crossings are made safely and without damage to other infrastructure.

2.2 Onshore

68. The assessment of impacts on the onshore environment has taken account of two potential approaches for the construction of the proposed East Anglia THREE project:
 - Single Phase - a single phase (up to 1200MW installed in a single construction period); or
 - Two Phased - (two phases of up to 600MW each, with each start date separated by no more than 18 months).
69. Ducts (including all horizontal directional drilling (HDD) operations) for the onshore cables for the proposed East Anglia THREE project will be installed during the construction of East Anglia ONE. This means that for the proposed East Anglia THREE project works would include pulling cables through the pre-installed ducts, jointing of cables and construction of the substation compound. Works along the onshore cable route would therefore be limited to discrete locations where sections of cables would be joined together and where new accesses are required to get to these locations. The use of pre-installed ducts therefore greatly reduces the potential for impacts across all the onshore topics considered below.

Figure 8 Jointing bay Layout and Cable Pulling.¹



2.2.1 Geology and Ground Conditions

70. The location at which the electricity cables would come from the sea on to land is within the boundary of Bawdsey Cliffs Site of Special Scientific Interest (SSSI), although the feature for which the SSSI is designated is avoided by the proposed East Anglia THREE project works. Impacts to the landfall could occur as the cliff may be crossed with a temporary ramp required for vehicle access to the beach during construction.
71. Two confirmed historic landfill sites exist along the onshore cable route at Culpho Hall, and Tuddenham St Martin. However, with careful siting of jointing bays for connecting cables these landfill sites would be avoided.
72. A Code of Construction Practice will be produced which provides details of the measures that would be taken to reduce the construction impacts onshore. Providing this document and the procedures within it are followed correctly, only minor impacts to geology and ground conditions are predicted.

¹ Source: Photo courtesy of Prysmian Group.

This photo is representative of works that would be undertaken for the proposed East Anglia THREE project.

2.2.2 Air Quality

73. Emissions of dust and pollutants by vehicles and machinery used to install the electrical cables and construct the substation could affect local air quality. The assessment considers that it is highly unlikely that the short-term construction activities would cause noticeable or lasting impacts to air quality.

2.2.3 Water Resources and Flood Risk

74. As the proposed East Anglia THREE project would use pre-installed ducts along the entire onshore cable route avoiding the need for open cut across water bodies. In addition jointing bay construction compounds would be located a minimum of 9m away from water bodies. Therefore, impacts on water bodies would be avoided. The only potential impacts upon water bodies would be where access is required to be constructed over small streams or ditches. The crossing techniques proposed for all minor watercourses would be determined and agreed with relevant local authorities prior to construction.
75. In advance of construction the use of sustainable drainage systems at the substation would be designed in agreement with the relevant authorities to prevent surface water problems during construction and operation.

2.2.4 Land Use

76. As the proposed East Anglia THREE project would use pre-installed ducts along the entire onshore cable route direct impacts upon land use would be restricted to jointing bays where sections of cables would be pulled through and joined with one another and where new accesses are required to get to these locations.
77. The onshore electrical cables would be pulled beneath land largely agricultural in use. With the exception of the land to be used for the substation, all land and drains would be reinstated after construction thereby avoiding any lasting impacts.
78. The onshore cable route interacts with a number of public rights of way, most of which are expected to remain open during construction works. Some would be temporarily closed or diversions put in place if necessary, avoiding disturbance to users and avoiding any significant impacts.
79. A number of cable and pipeline utilities for gas, electricity, water and sewerage connections are located within the onshore cable route. EATL would identify these services prior to construction in consultation with utility providers, and undertake utility crossings or diversions in accordance with the appropriate standards for such crossings or works, avoiding potential impacts to utilities.

2.2.5 Terrestrial Ecology

80. Careful route selection has ensured that most sites designated for conservation interest have been avoided by the cable corridor.
81. As the proposed East Anglia THREE project would use pre-installed ducts along the entire onshore cable route, direct impacts upon ecology will be restricted to those areas where jointing bays would be located for pulling through and cable jointing and where new accesses are required to get to these locations. Where possible EATL would plan to undertake works at locations previously affected by the East Anglia ONE project to minimise new disturbance, for instance by taking access through small gaps in hedges which (through agreement with local authorities) would not have been reinstated by East Anglia ONE (but would be reinstated as part of the works for the proposed East Anglia THREE project).
82. The assessment considers that impacts would be minor for most features; with impacts on some features being increased if the construction was undertaken using the Two Phased approach. Direct habitat loss could occur at the landfall and substation during construction. With the exception of ground upon which the substation is constructed, habitats would be reinstated after construction.

2.2.6 Onshore Ornithology

83. Surveys commissioned by East Anglia THREE Limited have been conducted during the bird breeding season and during the winter months for respective species. The surveys along with a search of other publically available information has identified that breeding Cetti's warbler, marsh harrier, non-breeding brent goose, avocet and other waterbirds associated with the Deben Estuary should be the focus of the impact assessment.
84. Minor disturbance impacts are predicated to marsh harrier, brent goose and the other wildfowl and waders during construction.
85. The assessment identified ways in which any impacts to birds could be reduced. This included the exclusion of noisy work around the Deben Estuary between November and February to reduce impacts to brent geese.

2.2.7 Onshore Archaeology and Cultural Heritage

86. There is potential for archaeological sites or artefacts from the prehistoric period through to the modern day to be present within the onshore cable route. Impacts to an individual asset could be permanent and irreversible in nature. As the proposed East Anglia THREE project would use pre-installed ducts along the entire onshore cable route, direct impacts upon archaeology will be restricted to those areas where

sections of cables would be joined and where new accesses are required to get to these locations. With the use of identified mitigation, no significant impacts are predicted.

87. East Anglia THREE Limited would commit to a Written Scheme of Investigation which would allow any archaeological features or deposits to be confirmed, and, where they would be impacted, allow for their preservation. This would reduce the scale of any archaeological impact.
88. Potential effects to the setting of a heritage asset were only identified at the substation location and this can be reduced by using vegetation to hide it from view.
89. Although there would be some overall cumulative impact on the Historic Landscape Character of the area and historic hedgerows, this is considered to be small scale.

2.2.8 Noise and Vibration

90. No impacts from vibration effects have been identified in the assessment. Impacts from noise have been identified arising from construction works in some locations. However, following the adoption of measures designed to reduce these noise levels, impacts would only be very small.
91. The only sources of noise during the operation of the proposed East Anglia THREE project are those from the substation. The substation is located away from houses and buildings, and EATL are committed to developing the onshore substation to ensure operational noise is minimised below the level at which it could be considered significant.

2.2.9 Traffic and Transport

92. The assessment for the proposed East Anglia THREE project was based on projections of background levels of traffic for 2020, with transport requirements determined through a comprehensive design study. Features that may be impacted by the proposed East Anglia THREE project were then identified in accordance with national guidance. A study area was screened to identify routes that could be potentially impacted by traffic associated with the construction and operation of the project.
93. The traffic requirements have been calculated with regards to an access strategy that has been adopted for the project after three stages of consultation conducted during 2014 and 2015. The strategy seeks to manage the traffic impact through a Traffic Management Plan and Travel Plan which would be formulated prior to construction. The assessment concluded that only minor impacts would occur

during the construction phase using the controls laid out in the Traffic Management Plan and Travel Plan.

94. No significant impacts were identified for the operational phase. Decommissioning impacts are dependent upon the decommissioning strategy; however, it is anticipated that the impacts during decommissioning would be similar to those identified for construction, although these are likely to be of lower scale.

2.3 Project Wide Topics

2.3.1 Socio-Economics

95. The chapter includes a socio-economic and tourism policy review and baseline profile and an impact assessment of the tourism and recreation impacts, as well as a socio-economic impact assessment of the onshore construction elements of the proposed East Anglia THREE project. An impact assessment of the offshore construction elements has also been completed.
96. No significant tourism and recreation impacts are predicted as a result of the proposed East Anglia THREE project, and its associated offshore and onshore electrical infrastructure. Tourism and recreation receptors will experience minimal visual impacts and only temporary physical obstruction, noise and traffic impacts.
97. The project would provide beneficial but not significant employment impacts during construction and operation.

2.3.2 Seascape, Landscape and Visual Amenity

98. The majority of effects on the landscape would typically be short term, localised and reversible. Only at the substation would there be long-term impacts; these would be reduced to short term by the effects from planting of screening vegetation.
99. Careful selection of the location of the onshore cable route and the substation has ensured that sensitive landscapes and landscape features have largely been avoided. Existing landscape features, such as the woodland around the substation, have been used to best effect. The provision for additional planting, which would supplement the existing woodland, has been made and would collectively screen almost every aspect of the substation.

3 CONCLUSIONS

100. For all offshore topics the assessments conclude that the proposed East Anglia THREE project would not result in significant impacts. In many cases this is the result of careful site selection of the East Anglia THREE site and offshore cable corridor to avoid impacts altogether. Where any potentially significant impacts have been identified, mitigation has been proposed to reduce the impacts. Potentially significant cumulative impacts have been identified for marine mammals, however the contribution by the proposed project is minimal and it is considered that this assessment is highly precautionary. With regard to offshore birds, potentially significant cumulative impacts have only been identified for kittiwake.

101. For all onshore topics the assessments conclude that the proposed East Anglia THREE project would not result in significant impacts, in the majority of cases. Again the site selection, particularly of the onshore cable route, resulted in many potential impacts being avoided completely. East Anglia THREE Limited will implement mitigation complementary to that agreed for the East Anglia ONE project, which will ensure that impacts are below the level that would be considered significant under the relevant technical guidance and standards.

4 CONTACT US

102. This document provides a Non-Technical Summary of the Environmental Impact Assessment for East Anglia THREE. If you wish to see more detailed information, the Scoping Report and the Planning Inspectorate Scoping Opinion for the proposed East Anglia THREE project together with the full ES are available online at the following link:

<http://infrastructure.planningportal.gov.uk/projects/eastern/east-anglia-three-offshore-wind-farm/>

103. If you have any further questions on the Environmental Impact Assessment process and areas we have considered please feel free to get in touch:

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The Non-Technical Summary Ends Here

East Anglia
Offshore Wind

