East Anglia
Offshore Wind

VATTENFALL

SCOTTISHPOWER
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East Anglia THREE

Non-Technical Summary

Preliminary Environmental Information

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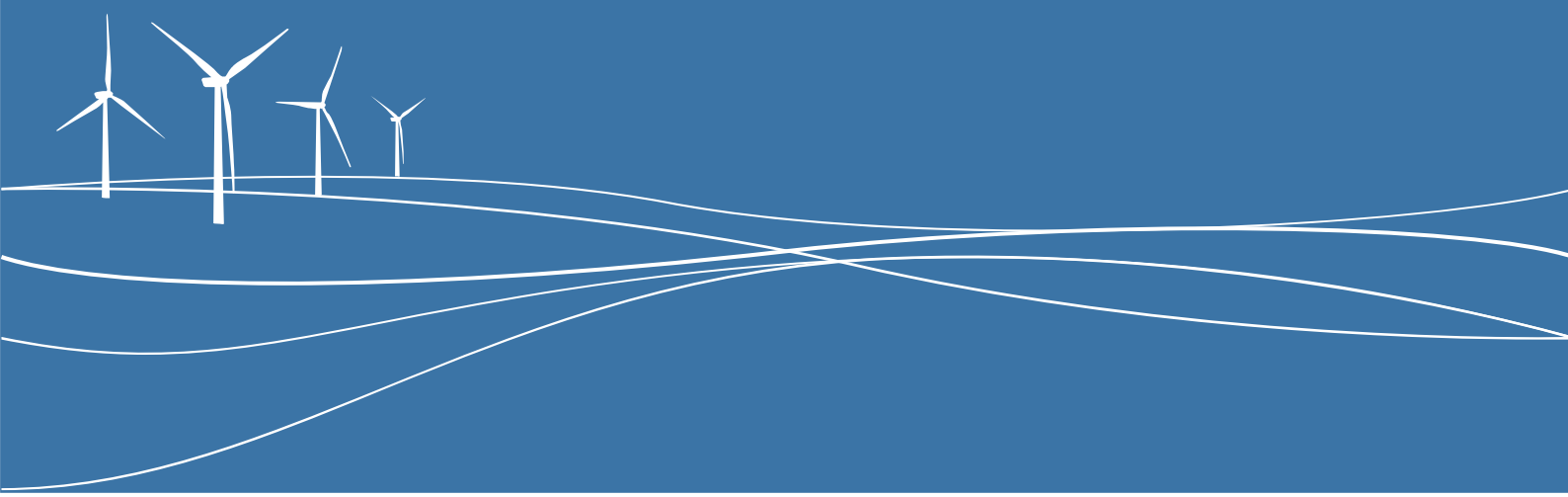

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Table of Contents

1 INTRODUCTION

1. This Non-Technical Summary presents the findings of the Preliminary Environmental Impact Report (PEIR) for offshore and onshore environmental factors considered for the proposed East Anglia THREE Offshore Windfarm project. The project is being proposed by East Anglia THREE Limited, a subsidiary of East Anglia Offshore Wind Limited. East Anglia Offshore Wind Limited is a joint venture between ScottishPower Renewables and Vattenfall Wind Power Limited. Where possible the use of technical language has been avoided.

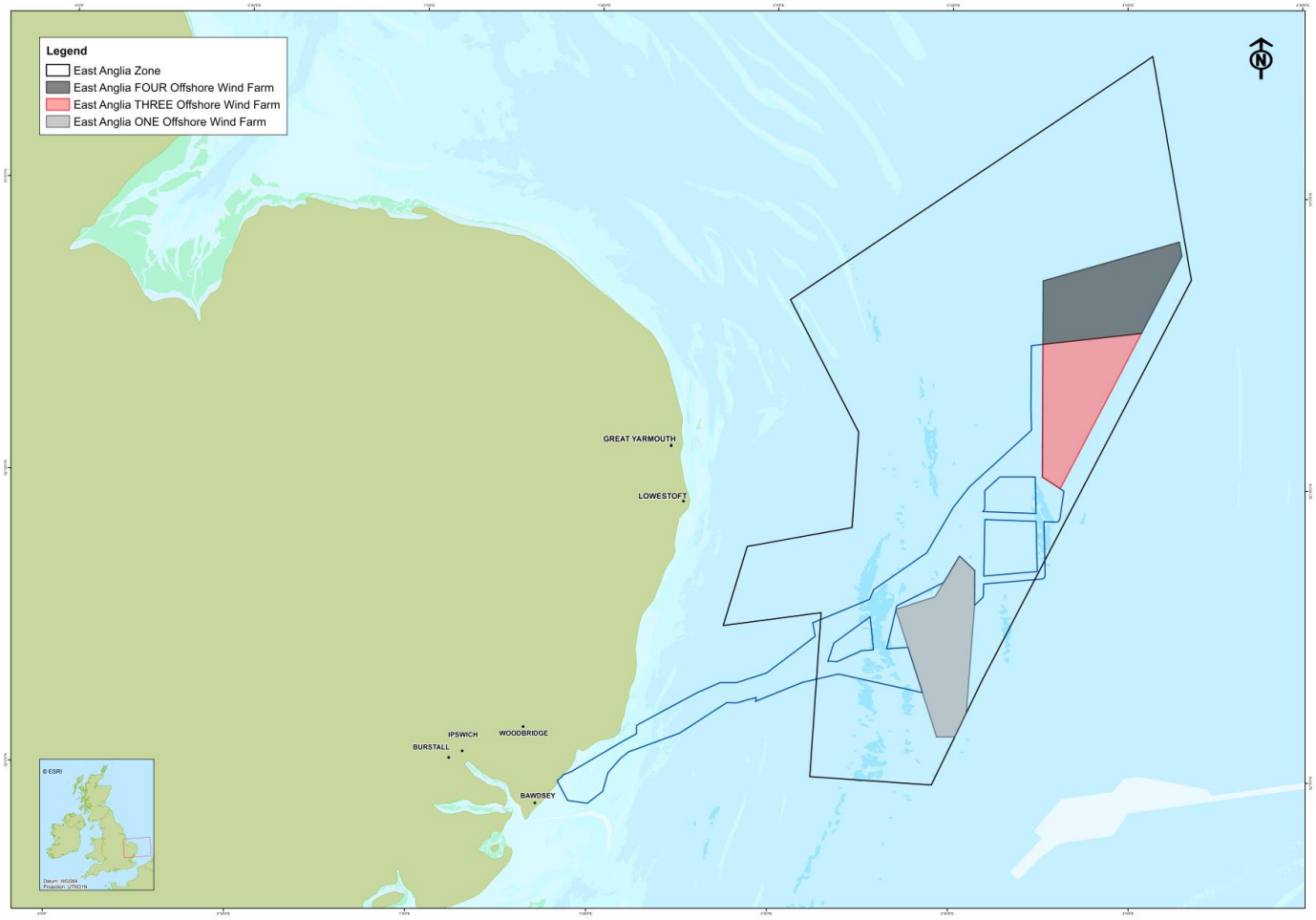
2. East Anglia Offshore Wind Limited (EAOW) has a Zone Development Agreement with The Crown Estate to develop up to 7.2 gigawatts (GW) of wind capacity off the coast of East Anglia, in the East Anglia Zone. The East Anglia Zone will be developed as a number of individual windfarms, depending on each securing the relevant consents and approvals.

3. The first project to be brought forward in the East Anglia Zone was the East Anglia ONE Offshore Windfarm Project (East Anglia ONE). The DCO application for this was submitted in November 2012 and a decision is currently awaited from the Secretary of State.

4. The proposed East Anglia THREE project and East Anglia FOUR project comprise the second phase of development for the Zone. The proposed East Anglia THREE project is the first of these projects to be brought forward. The proposed East Anglia FOUR project will be subject to a separate DCO application in 2015. The projects above and the Zone are indicated in Figure 1.

5. This document relates to the PEIR for the proposed East Anglia THREE project. The environmental factors considered below have all been assessed in accordance with the Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 (the EIA Regulations). This document reports on the progress of the EIA to date. The final results of this EIA will be published in an Environmental Statement (ES) which will accompany the application for consent for East Anglia THREE.

Figure 1: Location of East Anglia ONE Offshore Windfarm, East Anglia THREE Offshore Windfarm and East Anglia FOUR Offshore Windfarm, within the East Anglia Zone, and the offshore cable corridor.



2 THE PROPOSED EAST ANGLIA THREE OFFSHORE WINDFARM

6. The East Anglia THREE site is located in the southern North Sea approximately 69 kilometres (km) from its nearest point to the port of Lowestoft on the East Anglian coast. The proposed 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 have a maximum tip height of 247 metres (m) above lowest astronomical tide. Within the windfarm there would also be several collector and converter stations as well as meteorological masts and potentially an accommodation platform.

7. The proposed project would be connected to the National Grid via sub-sea cables going from the site to the landfall at Bawdsey in Suffolk. From the landfall the cables would be buried along a 37km onshore cable route to a new converter station, built next to the existing National Grid sub-station at Bramford. Onshore works would start in 2020. Offshore construction of the project would begin in 2019 and would continue for up to two and a half years.

8. The location of the onshore cable route for East Anglia THREE was determined during the development of the East Anglia ONE Offshore Windfarm. The onshore cable route for the East Anglia ONE project was designed to be sufficient to place cables for two future projects. East Anglia THREE would therefore follow the same onshore cable route as the proposed East Anglia ONE project. From the outset (during the development of the East Anglia ONE project) careful routeing of the onshore electrical transmission works set out to avoid key areas of sensitivity wherever possible.

3 TOPICS CONSIDERED IN THE ENVIRONMENTAL IMPACT ASSESSMENT

9. The following topics have been assessed through the EIA for the proposed East Anglia THREE project, in accordance with the Planning Inspectorate's Scoping Opinion for the East Anglia THREE Offshore Windfarm. A list of topics that have been removed from the assessment requirement in accordance with the Scoping Opinion can be found in Section 3.5 below.

10. The order of topics presented below follows the layout of the PEIR with each topic being a chapter of the report.

11. Feedback from the publication of the PEIR will be used to further inform the assessments for the final ES, which will be published in November 2014.

3.1 Offshore

12. The PEIR 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 have been highlighted within the sections below.

3.1.1 Marine Physical Environment

13. 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.

14. In general the effects of the proposed project are predicted be small scale, localised and temporary, however, there would be a potential an impact upon the 'East Anglia' coastline and a site in which has been designated to protect bird species. These impacts could occur because the material used to protect the cables that transport the electricity from the windfarm to the shore may 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, East Anglia ONE and East Anglia FOUR projects is required to be placed in the same area.

15. The Marine Geology, Oceanography and Physical Processes, chapter is key to the assessments of many of the following offshore topics.

3.1.2 Marine Water and Sediment Quality

16. A review of previous studies as well as data collected from the East Anglia THREE site and offshore cable corridor showed that the water and sea bed is generally free from high levels of pollution. The data also show that contamination levels decrease with distance offshore.

17. The assessment considers the impacts of disturbing pollutants which may already be present within the sea bed as well as accidental releases and spills that may arise when building and operating the proposed East Anglia THREE project. No significant impacts on marine water and sediment quality are identified in the assessment and best practice procedures will be put in place to avoid any accidental releases or spills.

3.1.3 Underwater Noise, Vibration and Electromagnetic Fields

18. The activity which would cause the greatest amount of underwater noise would be pile driving the foundations on which the wind turbines would sit. Pile driving would involve knocking large cylinders of metal into the sea bed with a large hammer. Modelling has been used to show how far the underwater noise would travel and at what distances it may cause effects to fish and marine mammals.

19. The electrical cables which would be installed as part of the proposed East Anglia THREE project could affect some marine species through the electromagnetic fields that they emit. The impacts of this are likely to be very small.

3.1.4 Sea Bed (Benthic) Ecology

20. Data from several different surveys were used to identify the species of plants and animals and the habitats that exist on the sea bed in the area of the proposed East Anglia THREE project. It was found that these were typical of southern North Sea sandy and gravelly habitats, with no ecologically sensitive areas identified.

21. 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. Potential impacts on the Outer Thames Estuary Special Protection Area, which is designated to protect the red-throated diver (a seabird), were also considered as the red-throated diver feeds on animals that live on the sea bed.

22. Due to the small footprint of the proposed project, the effects on sea bed habitats and species would mostly be small scale and localised. East Anglia THREE Limited would, however, 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 by not placing anything on the seabed in their vicinity.

23. There is potential for the effects of the proposed East Anglia THREE, East Anglia FOUR and East Anglia ONE projects, other windfarm export cables and aggregate extraction activities to combine to increase the scale of impacts caused by the East

Anglia THREE export cables. Again these impacts were assessed as being of small scale at worst and localised.

3.1.5 Fish and Shellfish Ecology

24. 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 and the offshore cable corridor to build up a comprehensive knowledge of the area.

25. The data show that over 100 species of fish and shellfish may be present within the area. Species were taken forward for assessment due to 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.

26. The assessment concluded that the effects on fish and shellfish would mostly be small scale and localised.

3.1.6 Marine Mammal Ecology

27. To estimate how many marine mammals use the East Anglia THREE site, high resolution photographs were taken using low flying aeroplanes. These surveys recorded very low numbers of marine mammals with only three species using the site in sufficient numbers to enable them to be assessed. The species assessed were harbour porpoise, grey seal and harbour seal.

28. 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, taking account of other project in the region, there exists the potential for combined impacts to occur as a result of underwater noise. It was noted that the contribution of the proposed East Anglia THREE project to this combined impact is very small in the case of harbour porpoise, grey seal and harbour seal due to the very low densities of these species across the East Anglia THREE site.

3.1.7 Offshore Ornithology

29. The numbers of birds using or passing through the East Anglia THREE site were also calculated using from the results of aerial photography surveys. All birds observed within these surveys have been assessed with regards to their nature conservation value. Species of particular interest include species of gull as well as gannets, guillemots and razorbills.

30. The proposed East Anglia THREE project was predicted to have only minor impacts on birds when considered on its own. However, the assessment of East Anglia THREE with other potential projects, found that together they may have greater

impacts. It is currently unclear how many birds would be displaced or may collide with wind turbines across all proposed projects in the North Sea. As a result a firm conclusion on the prediction of the scale of this impact cannot be made at this stage and this will be discussed further in the final ES.

3.1.8 Commercial Fisheries

31. Fisheries activity in the East Anglia THREE site is largely Dutch beam trawling, with UK static gear fisheries more dominant in the inshore areas. The impact assessment concluded that there would be only minor impacts to commercial fishing activity within the East Anglia THREE site as, unlike with Dutch and Belgian offshore windfarms, fishing will be allowed within the site once it is operational. The greatest impact would likely be felt by fishermen from the UK operating small vessels close to the coast. A Commercial Fisheries Working Group has been formed which includes fishermen, East Anglia THREE Limited and fishing authorities. Through this group it is anticipated mitigation measures can be agreed with the aim of reducing the scale of any impacts.

There is a 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 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.

3.1.9 Shipping and Navigation

32. The southern North Sea is an area of significant shipping and navigation activity including: 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.

33. Stakeholder workshops and computer modelling have been used to identify which types of vessels may be impacted by the proposed East Anglia THREE project. The assessment has identified suitable ways to reduce the scale of these impacts to acceptable levels.

34. 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 vessel from other countries outside of the UK and concluded that these would be within tolerable limits.

3.1.10 Aviation and Ministry of Defence

35. The assessment has considered all forms of aviation interest including that of the Ministry of Defence, regional airports, local aerodromes, national air traffic control, the civil aviation authority and international bodies. The assessment covered effects on aviation radar systems and the physical effect of the offshore windfarm in both UK and overseas airspace.

36. The assessment established that, providing the proposed East Anglia THREE project is displayed properly on aviation charts, and that there is 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. The assessment also concluded that during the operation phase, wind turbines could cause interference on civil and military radars and that a technical solution for this may be required.

3.1.11 Offshore Archaeology and Cultural Heritage

37. A review of previous studies was used, alongside data collected from sea bed surveys, to determine the extent of the archaeological features which exist within the East Anglia THREE site and the offshore cable corridor.

38. 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 turbine foundations and electrical cables away from any archaeological features.

3.1.12 Infrastructure and Other Users

39. This assessment looked at potential impacts upon the following activities in the area: other windfarm developments; cables and pipelines; oil and gas activities; and, marine aggregate activities.

40. Co-operation with other industries would largely avoid impacts. For instance, East Anglia THREE Limited will be required to undertake crossing agreements with operators of other cables and pipelines to ensure that these crossing are made safely and without damage to other infrastructure.

3.2 Onshore

41. The onshore cable route and converter station are collectively referred to as the 'onshore electrical transmission works'. The assessment of impacts on the onshore environment has taken account of two potential scenarios for the installation of the onshore electrical transmission works:

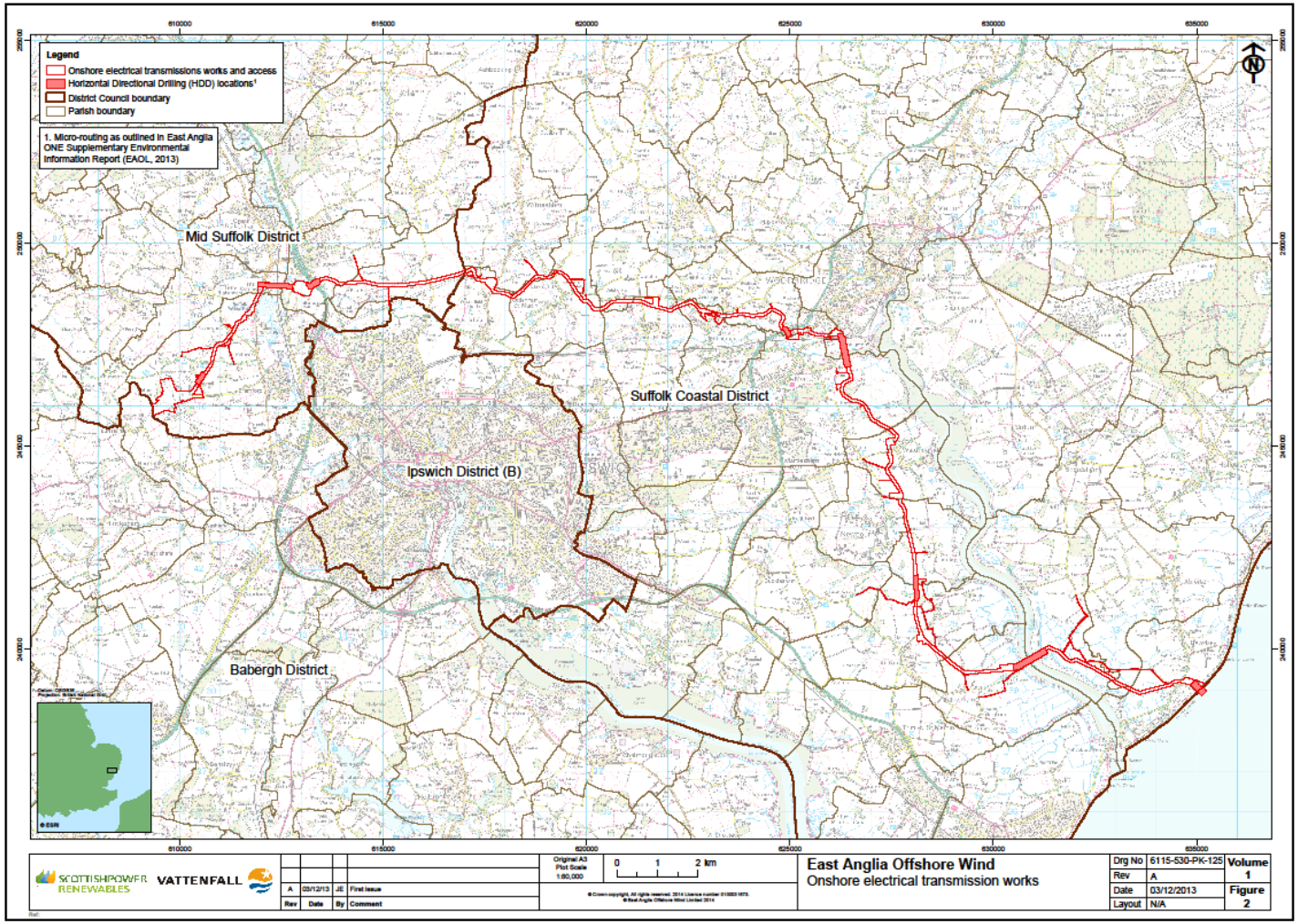
- Scenario 1: East Anglia THREE cables pulled through pre-installed ducts; or
- Scenario 2: cables for East Anglia THREE installed in new trenches (which would need to be dug as part of the installation), with additional ducts installed in which cables for the future East Anglia FOUR project could be pulled through at a later date.

42. The sections below set out the worst case impacts associated with the onshore electrical transmission works, usually associated with Scenario 2. Full detail on impacts under both Scenarios is given in the accompanying PEIR.

43. In either scenario, the majority of impacts identified are temporary and localised. As such, in terms of cumulative impacts, the key potential impacts would arise from the combination of the proposed East Anglia THREE project with East Anglia ONE and the proposed East Anglia FOUR project.

44. The onshore cable route and converter station locations are shown in Figure 2.

Figure 2: The onshore cable route and converter station location.



3.2.1 Geology and Ground Conditions

45. The location at which the electricity cables would come from the sea on to land is within the Bawdsey Cliffs Site of Special Scientific Interest, though avoiding the feature for which the SSSI is designated. Impacts to this site could occur as the area may be crossed with a temporary ramp to give construction vehicle access to the beach.

46. Three landfill sites exist along the onshore cable route, located at Culpho Hall, Bamford Dairy and Tuddenham St Martin. A Code of Construction Practice would be produced which provides details of the measures required to reduce the construction impacts onshore, for instance provision of hygiene facilities and safe storage of contaminated materials. Adherence to the Code of Construction Practice would ensure any impacts to geology and ground conditions would be minor.

3.2.2 Air Quality

47. The impact of potential emissions of dust and pollutants by vehicles and machinery used to install the electrical cables was assessed in terms of air quality. It is highly unlikely that the short-term construction activities would cause noticeable or lasting impacts to air quality.

3.2.3 Water Resources and Flood Risk

48. Impacts to major watercourses such as the River Deben, Kirton Creek, Martlesham Creek and the River Gipping would be avoided. These locations would be crossed using the technique of horizontal directional drill (HDD), whereby a hole is drilled under the river and the electrical cables or ducts are pulled through.

49. In general, only minor impacts on watercourses would occur as a result of the installation of the East Anglia THREE electrical cables. A Flood Risk Assessment will also be undertaken for the final ES.

3.2.4 Land Use

50. The onshore cable route would largely cross land in agricultural use. With the exception of the land at the converter station (which would be subject to particular landscaping provisions) all land and drains would be reinstated to former condition after construction, avoiding any lasting impacts.

51. Where the onshore cable route crosses public rights of way and cycle routes, the majority of these would be subject to temporary diversion, thus reducing disturbance to users and any significant impacts.

52. The onshore cable route would also cross a number of cables and pipelines related to domestic services for gas, electricity, water and sewerage connections. East Anglia Three Limited would identify services on the ground 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.

3.2.5 Ecology

53. Careful route selection has ensured that the majority of sites designated for conservation interest have been avoided.

54. There could be impacts on a minor scale to woodland scrub, trees and arable land. These impacts would be the result of temporary disturbance and localised habitat loss. With the exception of those at the converter station location (which would be subject to specific landscaping and ecological provisions), all habitats would be reinstated to their former condition after construction.

55. A targeted site visit will be undertaken prior to the ES being finalised and the impact assessment will be updated with any new findings from this visit.

3.2.6 Onshore Ornithology

56. Surveys commissioned by East Anglia THREE Limited have been conducted in the bird breeding season and in the winter. These surveys, along with a search of any other available information, have identified the presence in the area of breeding Cetti's warbler and marsh harrier and non-breeding brent goose, avocet and other waterbirds associated with the Deben Estuary.

57. Minor disturbance impacts are predicated to marsh harrier, brent goose and the other wildfowl and waders. The assessment has identified ways in which any impacts to birds could be reduced, including the restriction of noisy work around the Deben Estuary between November to February to reduce impacts to brent geese.

3.2.7 Onshore Archaeology and Cultural Heritage

58. 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.

59. 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.

60. Potential effects to the setting of a heritage asset were identified only at the converter station location. These visual impacts would be reduced through the use of landscaping at the converter station site.

61. Although there would be some overall cumulative impact on the Historic Landscape Character of the area and historic hedgerows this would be small scale.

3.2.8 Noise and Vibration

62. Impacts arising from construction works in some locations were identified. However, following the adoption of measures designed to reduce noise levels, impacts would only be very minor. Further detail on such measures is given within the PEIR, and includes for instance, the use of acoustic screens/noise barriers.

63. The only source of noise during operation of the project would be from the converter station. East Anglia THREE Limited would commit to limiting operational noise from the converter station to a particular threshold at key receptors (this threshold is explained in more detail within the PEIR). This would ensure that noise levels as heard at local residences and work places would be within acceptable limits.

3.2.9 Traffic and Transport

64. Only minor traffic related impacts would occur during the construction phase, provided the mitigation measures set out in PEIR are adopted. Key mitigation measures are the agreement of a Traffic Management Plan, Access Management Plan and Travel Plan with the relevant planning authority prior to construction. Outline versions of these Plans would be submitted with the Environmental Statement for the project.

65. There would be no significant traffic related impacts during 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, albeit at a lower level.

66. At this stage (PEI), there is insufficient information available with regards to the traffic and transport impacts of both the proposed Sizewell C nuclear power station and the proposed Ipswich Northern Fringe housing development to allow for an informed assessment of the potential cumulative impact. East Anglia THREE Limited recognises the sensitivity of the local area to traffic impacts and will update this assessment after further consultation. This update will inform the final ES for the proposed East Anglia THREE project.

3.3 Project Wide Topics

3.3.1 Socio-Economics

67. The socio-economic impacts of the proposed East Anglia THREE project have been considered both in terms of potential effects on local tourism and recreation economy. The full impact assessment will be made in the final ES.

68. The socio-economic impacts are likely to be beneficial and relate to workers coming into the area during the onshore construction phase.

3.3.2 Seascape, Landscape and Visual Amenity

69. Careful selection of the location of the cable route and the converter station has ensured that sensitive landscapes and landscape features have largely been avoided. It has also used existing landscape features, such as the existing woodland around the converter station, to best effect.

70. The majority of effects on the landscape would typically be short term, localised and reversible. Only at the converter station would there be long-term impacts, and these would be reduced by suitable additional landscaping and planting.

3.4 Conclusions

71. For all offshore topics the assessments conclude that the proposed East Anglia THREE project on its own would not result in significant impacts. In many cases this is the result of sensitive siting of the East Anglia THREE site and offshore cable corridor to avoid impacts altogether. Potentially significant impacts have been identified for marine mammals in combination with other projects in the region; however the contribution by the proposed project is minimal. With regard to offshore birds, it is currently unclear how many birds would be affected when considering all the proposed projects in the North Sea. This will be discussed further in the final ES.

72. For onshore topics the assessments conclude that, for the majority of receptors, the proposed East Anglia THREE project would not result in significant impacts. Again the site selection, particularly of the onshore cable route, resulted in many potential impacts being avoided completely, for example impacts on the majority of protected sites. East Anglia THREE Limited has committed to implementing mitigation measures in line with those agreed for the proposed East Anglia ONE project to ensure that impacts are minimised.

73. The assessment presented is, as far as possible at this stage, a draft ES and for the offshore elements updates to be made for the final ES will be limited to those

resulting from feedback to the PEI consultation. With regard to onshore topics, section 3.2 identifies where additional information is expected from third parties or where some data gathering is required. The final ES will therefore update these assessments and incorporate any changes resulting from consultation.

3.5 Topics removed from the assessment

74. Having considered the following topics, it was agreed that they could be scoped out of the assessment:

- Air quality during operation (offshore and onshore);
- Airborne noise (offshore); and
- Traffic disruption during operation.

75. 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 4 of this document.

4 CONTACT US

76. This document provides a Non-Technical Summary of the Preliminary Environmental Information Report for East Anglia THREE. If you wish to see more detailed information, the full East Anglia THREE Preliminary Environmental Information Report, Scoping Report and the Planning Inspectorate Scoping Opinion for East Anglia THREE are available online at the following link:

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

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

- Visit our project website: http://eastangliathree.eastangliawind.com/
- Email: eastangliathree@eastangliawind.com
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