East Anglia TWO Offshore Windfarm

Chapter 31

Conclusions

Environmental Statement
Volume 1

Applicant: East Anglia TWO Limited
Document Reference: 6.1.31
SPR Reference: EA2-DWF-ENV-REP-IBR-000923 Rev 01
Pursuant to APFP Regulation: 5(2)(a)

Author: Royal HaskoningDHV
Date: October 2019
Revision: Version 1

Prepared by:	Checked by:	Approved by:
Paolo Pizzolla Digitally signed by Paolo Pizzolla Date: 2019.10.07 16:55:37 +01'00'	Julia Bolton Digitally signed by: Julia Bolton Date: 2019.10.08 10:43:34 Z	Helen Walker Digitally signed by: Helen Walker Date: 2019.10.08 11:42:40 Z

Revision Summary				
Rev	**Date**	**Prepared by**	**Checked by**	**Approved by**
01	08/10/2019	Paolo Pizzolla	Julia Bolton	Helen Walker

Description of Revisions			
Rev	**Page**	**Section**	**Description**
01	n/a	n/a	Final for Submission

Table of Contents

Glossary of Acronyms

AEZ	Archaeological Exclusion Zones
ALO	Agricultural Liaison Officer
AONB	Area of Outstanding Natural Beauty
BBPP	Breeding Bird Protection Plan
CIA	Cumulative Impact Assessment
CAA	Civil Aviation Authority
CFWG	Commercial Fisheries Working Group
CoCP	Code of Construction Practice
DCO	Development Consent Order
DML	Deemed Marine License
EIA	Environmental Impact Assessment
ES	Environmental Statement
ESS	Environmental Stewardship Scheme
ETG	Expert Topic Group
FSA	Formal Safety Assessment
GCR	Geological Conservation Review
GEART	Guidelines for the Environmental Assessment of Road Traffic
HDD	Horizontal Directional Drilling
HRA	Habitat Regulations Assessment
MAA	Military Aviation Authority
MCA	Maritime Coastguard Agency
MMO	Marine Management Organisation
MoD	Ministry of Defence
NATS	National Air Traffic Service
NERL	NATS En-Route Plc
NRA	Navigational Risk Assessment
NSL	Nates Services Limited
PEIR	Preliminary Environmental Information Report
SAC	Special Area of Conservation
SIP	Site Integrity Plan
SMP	Soils Management Plan
SMS	Safety Management System
SNS	Southern North Sea
SPA	Special Protected Area
SSSI	Site of Special Scientific Interest
SuDS	Sustainable Drainage Systems
UK	United Kingdom
WSI	Written Scheme of Investigation

Glossary of Terminology

Applicant	East Anglia TWO Limited.
Cable sealing end compound	A compound which allows the safe transition of cables between the overhead lines and underground cables which connect to the National Grid substation.
Cable sealing end (with circuit breaker) compound	A compound (which includes a circuit breaker) which allows the safe transition of cables between the overhead lines and underground cables which connect to the National Grid substation.
Construction consolidation sites	Compounds associated with the onshore works which may include elements such as hard standings, lay down and storage areas for construction materials and equipment, areas for vehicular parking, welfare facilities, wheel washing facilities, workshop facilities and temporary fencing or other means of enclosure.
Construction operation and maintenance platform	A fixed offshore structure required for construction, operation, and maintenance personnel and activities.
Development area	The area comprising the onshore development area and the offshore development area (described as the 'order limits' within the Development Consent Order).
East Anglia TWO project	The proposed project consisting of up to 75 wind turbines, up to four offshore electrical platforms, up to one construction, operation and maintenance platform, inter-array cables, platform link cables, up to one operational meteorological mast, up to two offshore export cables, fibre optic cables, landfall infrastructure, onshore cables and ducts, onshore substation, and National Grid infrastructure.
East Anglia TWO windfarm site	The offshore area within which wind turbines and offshore platforms will be located.
European site	Sites designated for nature conservation under the Habitats Directive and Birds Directive, as defined in regulation 8 of the Conservation of Habitats and Species Regulations 2017 and regulation 18 of the Conservation of Offshore Marine Habitats and Species Regulations 2017. These include candidate Special Areas of Conservation, Sites of Community Importance, Special Areas of Conservation and Special Protection Areas.
Evidence Plan Process (EPP)	A voluntary consultation process with specialist stakeholders to agree the approach to the EIA and the information required to support HRA.
Horizontal directional drilling (HDD)	A method of cable installation where the cable is drilled beneath a feature without the need for trenching.
HDD temporary working area	Temporary compounds which will contain laydown, storage and work areas for HDD drilling works.
Inter-array cables	Offshore cables which link the wind turbines to each other and the offshore electrical platforms, these cables will include fibre optic cables.
Jointing bay	Underground structures constructed at intervals along the onshore cable route to join sections of cable and facilitate installation of the cables into the buried ducts.

Landfall	The area (from Mean Low Water Springs) where the offshore export cables would make contact with land, and connect to the onshore cables.
Link boxes	Underground chambers within the onshore cable route housing electrical earthing links.
Meteorological mast	An offshore structure which contains metrological instruments used for wind data acquisition.
Mitigation areas	Areas captured within the onshore development area specifically for mitigating expected or anticipated impacts.
Marking buoys	Buoys to delineate spatial features / restrictions within the offshore development area.
Monitoring buoys	Buoys to monitor *in situ* condition within the windfarm, for example wave and metocean conditions.
National electricity grid	The high voltage electricity transmission network in England and Wales owned and maintained by National Grid Electricity Transmission
National Grid infrastructure	A National Grid substation, cable sealing end compounds, cable sealing end (with circuit breaker) compound, underground cabling and National Grid overhead line realignment works to facilitate connection to the national electricity grid, all of which will be consented as part of the proposed East Anglia TWO project Development Consent Order but will be National Grid owned assets.
National Grid overhead line realignment works	Works required to upgrade the existing electricity pylons and overhead lines (including cable sealing end compounds and cable sealing end (with circuit breaker) compound) to transport electricity from the National Grid substation to the national electricity grid.
National Grid overhead line realignment works area	The proposed area for National Grid overhead line realignment works.
National Grid substation	The substation (including all of the electrical equipment within it) necessary to connect the electricity generated by the proposed East Anglia TWO project to the national electricity grid which will be owned by National Grid but is being consented as part of the proposed East Anglia TWO project Development Consent Order.
National Grid substation location	The proposed location of the National Grid substation.
Natura 2000 site	A site forming part of the network of sites made up of Special Areas of Conservation and Special Protection Areas designated respectively under the Habitats Directive and Birds Directive.
Offshore cable corridor	This is the area which will contain the offshore export cables between offshore electrical platforms and landfall.
Offshore development area	The East Anglia TWO windfarm site and offshore cable corridor (up to Mean High Water Springs).
Offshore electrical infrastructure	The transmission assets required to export generated electricity to shore. This includes inter-array cables from the wind turbines to the offshore electrical platforms, offshore electrical platforms, platform link cables and export cables from the offshore electrical platforms to the landfall.

Offshore electrical platform	A fixed structure located within the windfarm area, containing electrical equipment to aggregate the power from the wind turbines and convert it into a more suitable form for export to shore.
Offshore export cables	The cables which would bring electricity from the offshore electrical platforms to the landfall. These cables will include fibre optic cables.
Offshore infrastructure	All of the offshore infrastructure including wind turbines, platforms, and cables.
Offshore platform	A collective term for the construction, operation and maintenance platform and the offshore electrical platforms.
Onshore cable corridor	The corridor within which the onshore cable route will be located.
Onshore cable route	This is the construction swathe within the onshore cable corridor which would contain onshore cables as well as temporary ground required for construction which includes cable trenches, haul road and spoil storage areas.
Onshore cables	The cables which would bring electricity from landfall to the onshore substation. The onshore cable is comprised of up to six power cables (which may be laid directly within a trench, or laid in cable ducts or protective covers), up to two fibre optic cables and up to two distributed temperature sensing cables.
Onshore development area	The area in which the landfall, onshore cable corridor, onshore substation, landscaping and ecological mitigation areas, temporary construction facilities (such as access roads and construction consolidation sites), and the National Grid Infrastructure will be located.
Onshore infrastructure	The combined name for all of the onshore infrastructure associated with the proposed East Anglia TWO project from landfall to the connection to the national electricity grid.
Onshore preparation works	Activities to be undertaken prior to formal commencement of onshore construction such as pre–planting of landscaping works, archaeological investigations, environmental and engineering surveys, diversion and laying of services, and highway alterations.
Onshore substation	The East Anglia TWO substation and all of the electrical equipment within the onshore substation and connecting to the National Grid infrastructure.
Onshore substation location	The proposed location of the onshore substation for the proposed East Anglia TWO project.
Platform link cable	Electrical cable which links one or more offshore platforms. These cables will include fibre optic cables.
Safety zones	A marine area declared for the purposes of safety around a renewable energy installation or works / construction area under the Energy Act 2004.
Scour protection	Protective materials to avoid sediment being eroded away from the base of the foundations as a result of the flow of water.
Transition bay	Underground structures at the landfall that house the joints between the offshore export cables and the onshore cables.

This page is intentionally blank.

31 Conclusions

31.1 Introduction

1. The Applicant is seeking a Development Consent Order (DCO) for the proposed East Anglia TWO project.

2. The proposed East Anglia TWO project is being developed by East Anglia TWO Limited (the Applicant) and would have a direct positive impact as it will have the capacity to provide the equivalent of 1% of the UK's annual energy demand, (domestic, commercial and industrial). The proposed East Anglia TWO project will contribute approximately 4% of the UK's current cumulative deployment target for 2030 (Committee on Climate Change 2018), this will make a significant contribution to the UK's renewable and overall energy need as set out in National Policy Statement (NPS) EN-1, to fulfilling future increasing demand for renewable energy and delivering on the UK Government's recent commitment to achieving net zero greenhouse gasses emissions by 2050.

3. A detailed site selection process has been undertaken in order to reduce and mitigate the potential adverse impacts of the proposed East Anglia TWO project as far as practicable. This is detailed further in ***Chapter 4 Site Selection and Assessment of Alternatives***. A comprehensive description of the proposed East Anglia TWO project is given in ***Chapter 6 Project Description***.

4. The Environmental Statement (ES) covers a wide range of physical, ecological and human environmental receptors for which the baseline environment has been defined and potential impacts have been assessed against this baseline. The methodology for the Environmental Impact Assessment (EIA) is detailed in ***Chapter 5 EIA Methodology*** and detailed further in each technical chapter (***Chapters 7 to 30***). Where an impact assessment methodology, for a certain receptor, deviates from the standard methodology outlined in ***Chapter 5 EIA Methodology***, this is explained in the relevant technical chapter.

5. Consultation is a key feature of the EIA process, and continues throughout the lifecycle of a project, from its initial stages through to consent and post-consent. To date, consultation on the proposed East Anglia TWO project has been through the use of Expert Topic Group (ETG) meetings and the publication of both the East Anglia TWO Scoping Report (SPR 2017) and the Preliminary Environmental Information Report (PEIR) (SPR 2019). Further details of consultation can be found in ***Chapter 5 EIA Methodology***.

6. A summary of feedback received from ETGs, the Scoping Report (SPR 2017) and PEIR (SPR 2019) is presented in an appendix to each technical chapter, including details of how the feedback has been taken account of within each chapter. In addition, ongoing public consultation has been conducted through a series of Public Information Days (PIDs) and Public Meetings. PIDs have been held throughout Suffolk in November 2017, March 2018, June / July 2018 and February / March 2019. A series of stakeholder engagement events were also undertaken in October 2018 as part of phase 3.5 consultation. Details of the consultation phases are discussed further in ***Chapter 5 EIA Methodology***. These PIDs provide an opportunity for local stakeholders to be informed about the proposed East Anglia TWO project, provide feedback and raise any concerns. A summary of relevant public consultation is provided in each technical chapter where appropriate.

7. For each topic this chapter provides a summary of offshore, onshore and wider project topics as they are presented in each technical chapter of the ES. The following sections provide an overview of the datasets used in the assessment, an overview of the receptors relevant to that topic and a summary of the potential impacts associated with the construction, operation and decommissioning of the proposed East Anglia TWO project. Unless specified, the significances of effect stated in this chapter relate to the residual impact. Where appropriate, mitigation measures have been referenced and may include embedded mitigation and best practice measures or additional mitigation applied to reduce significant impacts to acceptable levels (see ***Chapter 5 EIA Methodology***). Cumulative and transboundary impacts are also detailed in the summary section of each technical chapter, where applicable.

8. It should be noted that the East Anglia ONE North offshore windfarm project (the proposed East Anglia ONE North project) is also in the application stage. The proposed East Anglia ONE North project has a separate DCO process which has been submitted at the same time as the proposed East Anglia TWO project. The assessments presented in the ES consider the cumulative impact of the proposed East Anglia TWO project with the proposed East Anglia ONE North project.

31.2 Offshore

9. The ES covers a wide range of offshore physical and ecological receptors in respect of the marine environment, for which potential impacts have been assessed. Inter-relationships are a significant component of most offshore assessments and these linkages are highlighted below.

10. The offshore Cumulative Impact Assessment (CIA) was conducted against other windfarm developments, marine aggregate dredging, oil and gas installations, and marine disposal activities for example. The CIA in the first instance

considered a number of these projects, which were ultimately screened down to those applicable, due to either spatial or temporal overlap with the proposed East Anglia TWO project. Further details on the inclusion of specific projects are found in each technical chapter.

31.2.1 Chapter 7 Marine Geology, Oceanography and Physical Processes

11. The construction, operation and decommissioning phases of the proposed East Anglia TWO project could cause a range of effects on marine geology, oceanography and physical processes. The magnitude of these effects has been assessed using expert judgement, drawing from a wide evidence base that includes project-specific geophysical surveys and existing and project-specific numerical modelling. Detailed site selection took into consideration the sensitivity of the stretch of coast between Sizewell and Thorpeness to coastal erosion. Further detail can be found in ***Chapter 4 Site Selection and Assessment of Alternatives***.

12. The receptor groups that have been specifically identified in relation to marine geology, oceanography and physical processes are the sensitive 'East Anglia' coast, the 'Norfolk' Natura 2000 site, the 'Suffolk' Natura 2000 site, and nearby 'non-designated sand banks'. These receptor groups are shown in ***Figure 7.1*** and are based on work carried out for the former East Anglia Zone Zonal Environmental Appraisal (ZEA) (ABPmer 2012). Potential impacts upon the Orford Offshore Marine Conservation Zone (MCZ) were scoped out.

13. Changes in suspended sediment concentrations and changes in sea bed level due to foundation and offshore cable installation as well as changes to the tidal, wave and sediment transport regimes due to the presence of offshore cable protection have been assessed against the above-mentioned receptors. The effects that have been assessed are anticipated to result in impacts of no greater than **minor adverse** to **negligible** significance because they are located remotely from the zones of influence of potential effects and no impact pathways were identified. In general, the effects of the proposed East Anglia TWO project on marine geology, oceanography and physical processes receptor groups will be small scale, localised and temporary.

14. No significant cumulative impacts have been identified on the marine geology, oceanography and physical processes receptor groups between the proposed East Anglia TWO project and other nearby marine developments and activities.

15. Following modelling and review of physical processes in the southern North Sea, no transboundary impacts have been identified on the marine geology, oceanography and physical processes receptor groups located within other EU

member states. Therefore, there are no significant transboundary impacts for marine geology, oceanography and physical processes.

16. The marine geology, oceanography and physical processes assessment does not rely on other topics however it should be noted that this chapter is key to the assessments of many of the following offshore topics.

31.2.2 Chapter 8 Marine Water and Sediment Quality

17. This chapter discusses the existing marine water and sediment quality within the vicinity of the offshore development area. The assessment used data collected as part of survey work undertaken for other projects in the former East Anglia Zone to provide a robust baseline. Additionally, to inform the baseline for sediment quality along the offshore cable corridor, a site specific survey was carried out in 2018.

18. A review of existing data and site specific survey data has determined that existing sediment and water quality throughout the offshore development area is generally good and typical of the region. Information in relation to concentrations of contaminants in sediments does not record significantly elevated levels.

19. The impact assessment has taken into account the general requirements of key European and national legislation and policy concerning environmental quality standards for chemical contaminants and guideline values to determine sediment quality. The impacts on water quality were also assessed.

20. No significant impacts on marine water and sediment quality have been identified in the assessment, and through the implementation of the embedded mitigation (such as following a Marine Pollution Contingency Plan and using biodegradable oils and lubricants), all potential impacts are considered to be no greater than **minor adverse** during the construction phase and no greater than **negligible** significance during the operational phase.

21. There are no cumulative impacts associated with marine water and sediment quality, as impacts are localised to within 1km of the area where the construction works are taking place. There is therefore no pathway for the impacts to act cumulatively with any other projects.

22. There is no scope for transboundary impacts for marine water and sediment quality due to the small scale and localised nature of effects. Therefore, there are no significant transboundary impacts for marine water and sediment quality.

23. Changes to water quality have the potential to affect ecological receptors and are therefore considered in the relevant chapters (i.e. ***Chapter 9 Benthic Ecology, Chapter 10 Fish and Shellfish Ecology,*** and ***Chapter 11 Marine Mammals***).

31.2.3 Chapter 9 Benthic Ecology

24. Site specific data sets from the former East Anglia Zone (2010), East Anglia ONE offshore cable corridor (2011) and East Anglia THREE windfarm site and offshore cable corridor (2013) surveys were combined and analysed to undertake this assessment. Site specific geophysical, contaminant and grab surveys were also undertaken in 2017, covering the East Anglia TWO windfarm site and offshore cable corridor to inform the assessment. The effects associated with marine physical processes identified in ***Chapter 7 Marine Geology, Oceanography and Physical Processes*** and ***Chapter 8 Marine Water and Sediment Quality*** also inform the impact assessment for benthic ecology.

25. The predominant habitats are sands and gravels and these determine the communities which are present. The benthic communities found within the offshore development area are considered broadly typical of those that exist within the former East Anglia Zone and wider southern North Sea. Species abundance and diversity are broadly in keeping with that of the former East Anglia Zone.

26. The receptors that have been identified include a number of benthic habitats and species of interest due to the wider ecosystem value, and the value to commercial fishermen. Two habitats listed under Annex 1 of the EC Habitats Directive were identified within the offshore cable corridor and the East Anglia TWO windfarm site: *Sabellaria spinulosa* reef and vegetated shingle (at the landfall location). It should be noted that any impacts on vegetated shingle are avoided by the commitment to use a Horizontal Directional Drilling (HDD) technique at the landfall location, therefore removing any impact on the protected habitat.

27. The effects of the proposed East Anglia TWO project would mostly be temporary, small scale and localised and are anticipated to result in impacts of **negligible** or **minor adverse** significance for all three phases of development. No additional mitigation measures, other than those which form part of the embedded mitigation, are suggested. The Applicant is committed to micro-siting around *Sabellaria* reef where practicable and in line with best practice guidance. Due to the transient nature of *Sabellaria* reef there is a high chance that any areas identified in surveys to date will have moved or changed size by the time construction is due to begin in 2024. Therefore, it is believed there is limited benefit in identifying localised mitigation measures at this stage. Pre-construction geophysical surveys will be undertaken to identify the potential areas of *Sabellaria* reef, any areas to be avoided (i.e. by micrositing of cable routes and wind turbine foundations) will then be agreed with the Marine Management Organisation (MMO) in consultation with Natural England and secured within the DCO through the Offshore In Principle Monitoring Plan (document reference 8.13) and post-consent through the Design Plan.

28. There is potential for cumulative impacts to occur during construction and operation of the proposed East Anglia TWO and East Anglia ONE North projects, and during operation of the East Anglia TWO and East Anglia ONE project (currently under construction). These impacts were assessed as being no greater than **minor adverse** and highly localised and temporary.

29. Due to the small scale and localised nature of effects, transboundary impacts are highly unlikely to occur. Therefore, with agreement from consultees, transboundary impacts for benthic ecology were scoped out of the assessment. Therefore, there are no transboundary impacts for benthic ecology.

30. The benthic ecology chapter informs the assessment of ***Chapter 10 Fish and Shellfish Ecology***.

31.2.4 Chapter 10 Fish and Shellfish Ecology

31. Numerous existing data sources have been used to characterise the species of fish and shellfish that could be impacted by the proposed East Anglia TWO project. This data shows that over 100 species of fish and shellfish may be present within the area. Of these species, only those which were considered to have potential to be impacted upon were taken forward for assessment.

32. The receptors that have been identified include a number of species of interest due to ecosystem value and the value to commercial fishermen. Other species such as salmon and lamprey were taken forward for assessment due to their conservation value. The impact assessment required consideration of marine geology, oceanography and physical processes, marine water and sediment quality, underwater noise and electromagnetic fields (EMF), benthic ecology, and commercial fisheries assessments.

33. The effects that have been assessed are anticipated to result in impacts of **negligible** or **minor adverse** significance to all receptors, with a **minor beneficial** impact to commercially targeted fish stocks due to changes in fishing activity. No additional mitigation measures, other than those which form part of the embedded mitigation, are considered necessary.

34. As with the benthic assessment most impacts are localised, small scale and temporary and therefore pathways for cumulative impacts are limited. The key cumulative impacts which were considered with regard to fish ecology were from underwater noise, largely from piling for other offshore windfarms. Given the distance of the proposed East Anglia TWO project from other offshore windfarms, there is no pathway for cumulative impact upon the identified receptors as noise footprints do not overlap.

35. No transboundary impacts were identified.

36. Changes to fish and shellfish ecology have the potential to affect ecological receptors and are therefore considered in the relevant technical chapters (***Chapter 11 Marine Mammals***, ***Chapter 12 Offshore Ornithology*** and ***Chapter 13 Commercial Fisheries***).

31.2.5 Chapter 11 Marine Mammals

37. Marine mammals were recorded as part of the high resolution aerial surveys conducted for 24 months over the East Anglia TWO windfarm site and within a 4km buffer around the East Anglia TWO windfarm site. The site specific surveys recorded very low numbers of marine mammals, such that only three species occurred in numbers sufficient to justify assessment. The species assessed were harbour porpoise, harbour seal and grey seal. The assessment also used data collected from previous surveys from the former East Anglia Zone and other windfarm projects in the southern North Sea to form a robust baseline.

38. The impact assessment required consideration of potential increases in underwater noise, vessel collision risk and changes to prey resource. During the construction phase there is the potential for significant impacts on various marine mammal receptors prior to the application of mitigation. These include:

- Physical and auditory injury resulting from the underwater noise associated with UXO clearance; and
    - Permanent auditory injury (PTS) (Harbour porpoise and Grey seal)
- Physical and auditory injury resulting from underwater noise during piling
    - PTS from Cumulative Sound Exposure Level (Harbour porpoise and Grey seal).

39. At a project level, the residual impacts from the proposed East Anglia TWO project are assessed as **negligible** to **minor adverse** during the three phases of development, due to the implementation of embedded mitigation, such as piling soft start and ramp up, as well as additional mitigation that would be implemented through a Marine Mammal Mitigation Protocol (MMMP) and a Southern North Sea (SNS) Special Area of Conservation (SAC) Site Integrity Plan (SIP) (each for both UXO clearance and piling) , draft and in principle versions respectively of which have been submitted with the DCO application (document references 8.14 and 8.17).

40. There is potential for cumulative impacts with other offshore windfarms as a result of underwater noise from pile driving, potential changes to the availability of prey and increased chance of vessel interaction.

41. The cumulative assessment includes a significant amount of uncertainty, especially in consideration of which other offshore windfarms could be pile driving at the same time as the proposed East Anglia TWO project. In dealing with uncertainty in the cumulative assessment a precautionary worst case approach has been taken. It should be noted however that this approach is likely to result in an overestimate of predicted impacts on receptors. During the construction phase there is the potential for significant cumulative impacts. This includes disturbance from all possible noise sources during construction and piling at East Anglia TWO on grey seal prior to the application of mitigation. Once mitigation (to be developed and agreed through the MMMP and the SIP) has been applied, this and all other cumulative impacts, are assessed as being of **minor adverse** significance for the three species assessed.

42. The highly mobile nature of marine mammal species considered in this assessment means that there are potential transboundary impacts for each receptor. These transboundary impacts are already considered in the main assessment, as the impacts for all species have been based on the relevant management units and reference populations, and are highlighted within the chapter as such. Therefore, there are no significant transboundary impacts for marine mammals.

43. The potential for adverse effects on the SNS SAC in relation to Habitat Regulations Assessment (HRA) are considered further in the Information to Support Appropriate Assessment Report (document reference 5.3)

31.2.6 Chapter 12 Offshore Ornithology

44. Site specific aerial surveys of the proposed East Anglia TWO windfarm site (and within a 4km buffer) were conducted between November 2015 and April 2016, September 2016 and October 2017, and May to August 2018, to complete 24 months of site-specific data available for the assessment. The results of these surveys have been used to estimate the abundance and assemblage of birds using or passing across the area.

45. All birds observed within these surveys have been considered with regard to their nature conservation value and sensitivity. Species of particular interest included red-throated diver, kittiwake, guillemot, razorbill, gannet and lesser black-backed gull and herring gull.

46. During the construction phase of the proposed East Anglia TWO project, no impacts have been assessed to be greater than **minor adverse** significance for any bird species. Similarly, no individual species is subject to an impact of greater than **minor adverse** significance from the potential effects of the proposed East Anglia TWO project during the operational lifetime.

47. Displacement effects on red-throated divers would not create impacts of more than **minor adverse** significance during any biological season, and displacement effects on gannets, guillemots and razorbills would be of **negligible** significance.

48. The risk to birds from collisions with wind turbines from the proposed East Anglia TWO project alone is assessed as no greater than **minor adverse** for all species when considered for all biological seasons against the most appropriate population scale and species' avoidance rates. Impacts from the decommissioning of the proposed East Anglia TWO project are expected to be similar to those construction impacts but lower in magnitude of effect.

49. A CIA screening exercise identified that, in the construction and decommissioning phases, there was no potential for cumulative disturbance and displacement impacts or indirect impacts through effects on habitats and prey species and therefore these impacts were screened out of the CIA.

50. During operation the potential for cumulative disturbance and displacement and collision risk impacts was identified. The cumulative collision risk impact and displacement impact assessment follows the tiered approach in its presentation of mortality predictions for the identified projects. The risk to birds from cumulative collisions with wind turbines across all windfarms, and cumulative displacement effects, are both assessed as no greater than **minor adverse** for all species.

51. Regarding potential for transboundary cumulative impacts, there is clearly potential for collisions and displacement at windfarms outside UK territorial waters. However, the spatial scale and hence seabird reference population sizes for a transboundary assessment would be much larger. Therefore, the inclusion of non-UK windfarms is highly likely to reduce the cumulative impact assessed for each species, therefore it is considered that the CIA provides a precautionary assessment of the likely impacts for each species.

52. The potential for adverse effects on Special Protection Areas (SPAs) including the Outer Thames Estuary SPA, Greater Wash SPA, Alde-Ore Estuary SPA, Flamborough and Filey Coast SPA, Breydon Water SPA and Ramsar Site, Broadland SPA and Ramsar Site and North Norfolk Coast SPA and Ramsar Site in relation to HRAs are considered further in the Information to Support Appropriate Assessment Report (document reference 5.3).

31.2.7 Chapter 13 Commercial Fisheries

53. Various datasets were used to characterise the baseline and assess the potential impacts of the proposed East Anglia TWO project on commercial fisheries receptors, including UK MMO fisheries statistics, surveillance sightings, satellite

tracking data and landings data from various EU countries (including the Netherlands, Belgium, Denmark, and France). The effects associated with ***Chapter 10 Fish and Shellfish Ecology*** and ***Chapter 14 Shipping and Navigation*** inform the assessment for commercial fisheries.

54. Fisheries activities most sensitive to the proposed East Anglia TWO project impacts include UK vessels (trawling and using static fishing methods), Dutch vessels (beam trawling and seine netting) and Belgian vessels (beam trawling, otter trawling and seine netting). Target species include both demersal and pelagic fish.

55. There is the potential for significant impact on the UK local inshore fleet in general due to the temporary loss or restricted access to fishing grounds, however, closure of the offshore development area to fisheries will be localised to temporary safety zones and the East Anglia TWO windfarm site will be open to fisheries during operation. If necessary, appropriate mitigation would be established through the Commercial Fisheries Working Group (CFWG). Therefore, the construction impact of a temporary loss of fishing grounds will be no greater than **minor adverse** significance.

56. All other impacts predicted during each phase of the proposed East Anglia TWO project range from **negligible** to **minor adverse**.

57. There is a potential for cumulative impacts to occur on the commercial fisheries receptors identified in the vicinity of the proposed East Anglia TWO project if all of the other potential developments, regulated activities and conservation areas being considered are implemented. The likelihood of significant impacts occurring, however, depends largely on the operational practices of a given fleet and location and the extent of fishing grounds. These parameters must be considered in relation to other potential offshore windfarms, other installed infrastructure, regulated activities and conservation measures and the timing of their construction phases, activities and implementation. Following this assessment, resulting cumulative impacts are predicted to range from **negligible** to **moderate adverse** significance. There is the potential for moderate impacts due to the cumulative loss or restricted access to fishing grounds, however the contribution of the proposed East Anglia TWO project to the overall cumulative impact would be minimal.

58. The assessment covers other member states' fleets within the main impact assessment, therefore transboundary impacts are not considered separately. Transboundary impacts relate mainly to potential impacts upon Dutch and Belgian activities.

31.2.8 Chapter 14 Shipping and Navigation

59. Summer and winter shipping surveys were undertaken in 2017 and 2018 to inform the impact assessment. A Navigation Risk Assessment (NRA) (***Appendix 14.2***) has been undertaken for the proposed East Anglia TWO project and this informs the EIA. The NRA includes the required Formal Safety Assessment (FSA) to meet Maritime and Coastguard Agency (MCA) guidance for all phases of the proposed East Anglia TWO project, as well as an assessment of cumulative effects.

60. The southern North Sea is an area of significant shipping and navigation activity. Shipping activity in the vicinity of the East Anglia TWO windfarm site includes the passage of merchant vessels, ferries, fishing vessels, recreational craft, military vessels, and vessels engaged on specialist operations such as aggregate dredgers. The East Anglia TWO windfarm site is located between several shipping routes and buffers between the site boundary and these routes have been identified through consultation with relevant stakeholders to minimise potential disruption and risks to vessel safety.

61. Shipping and navigation impacts have been assessed using the International Maritime Organization FSA process, as required by the MCA. The approach is broadly similar to that used for the wider EIA (see ***Chapter 5 EIA Methodology***), however impact significance is categorised under the FSA approach as “no impact/no perceptible effect”; “broadly acceptable”; “tolerable (with or without mitigation)” or “unacceptable”. Further information on the methodology for assessing shipping and navigation impacts is provided in ***section 14.4.1*** of ***Chapter 14 Shipping and Navigation***.

62. Through the implementation of embedded mitigation and ‘best practice’ such as the use of safety zones during construction, as well as lighting and marking of offshore infrastructure to comply with appropriate standards, the impacts of the proposed East Anglia TWO project are deemed to range from **no perceptible effect** to **broadly acceptable** throughout the three phases of development. An Outline Navigational Monitoring Strategy (document reference 8.18) has been submitted with the DCO application which details the method for both construction and post construction shipping surveys to validate the NRA, as secured in the draft DCO.

63. Cumulative impacts with commercial vessels in terms of routeing and safe navigation will be no greater than **tolerable** and **broadly acceptable** for the construction and operational phase respectively of the proposed East Anglia TWO project.

64. Transboundary impacts for shipping and navigation receptors include vessels routeing from the UK to the Netherlands, Belgium and Denmark that may be impacted by projects within both UK waters and transboundary waters. Given the international nature of shipping this is covered by the CIA.

65. Consideration of the conclusions of this impact assessment is required within ***Chapter 13 Commercial Fisheries*** and ***Chapter 17 Infrastructure and Other Users***.

31.2.9 Chapter 15 Civil and Military Aviation and Radar

66. The aviation interests considered of relevance to the proposed East Anglia TWO project include those of the UK Civil Aviation Authority (CAA), Ministry of Defence (MoD), regional airports, local aerodromes and National Air Traffic Service (NATS) (that currently comprises NATS En-Route plc [NERL] and NATS Services Limited [NSL]), other UK aviation stakeholders and, where necessary, overseas authorities. The assessment includes a description of the potential effects on aviation activities with respect to effects on radar and physical effects in both UK and overseas airspace.

67. The aviation industry is highly regulated and subject to numerous mandatory standards, checks and safety requirements. The sensitivity and magnitude of the impact on operations can only be identified by the appropriate aviation organisation conforming to the Risk Classification Scheme used to quantify and qualify the severity and likelihood of a hazard occurring. The Risk Classification Scheme is a fundamental element of an aviation organisation's Safety Management System (SMS), which must be acceptable to, and approved by, the UK CAA or the Military Aviation Authority (MAA), as appropriate. As such, for the purposes of the Aviation and Radar assessment, no detailed grading has been made of the magnitude of the impact or sensitivity of the receptor on the basis that any potential reduction in aviation safety cannot be tolerated. Instead, definitions of basic significance have been identified. Specific methods of this assessment are given in ***section 15.4*** of ***Chapter 15 Civil and Military Aviation and Radar***.

68. Radar modelling was conducted to assess the impact on the Cromer and Trimingham primary surveillance radars (PSRs) and general Air Traffic Services (ATSs). During the operational stage of the proposed East Anglia TWO project there is potential for major significant impacts (in the absence of mitigation) due to wind turbines causing permanent interference on civil and military radar with the magnitude of change varying depending on the model of wind turbine used in the assessment (i.e. 250 or 300m). The assessment found that mitigation would be required if the windfarm design, shows a probability of detection (Pd) of the wind turbines above the system threshold levels that would allow the wind

turbine blades to be presented on PSR displays. It is anticipated that during the operational life of East Anglia TWO, the MoD and NATS will procure "next generation" PSRs which should not require the application of mitigation measures to allow them to provide an appropriate surveillance picture in the presence of wind turbines. Following the application of additional mitigation, the residual impact is considered to be **not significant**.

69. There is the potential for major significant cumulative impacts on MoD - TPS-77 at Trimingham, NATS - Raytheon ASR-10SS at Cromer and ATS due to wind turbines causing a permanent interference on civil and military radar. However, the Applicant is content that technical or design mitigation measures can be put in place that would reduce the impact significance to **not significant.** .

31.2.10 Chapter 16 Marine Archaeology and Cultural Heritage

70. The existing offshore and intertidal archaeological baseline has been established through a desk-based assessment and a review of various site specific geophysical survey data sets collected for the former East Anglia Zone in 2010 and site specific surveys conducted in 2017.

71. The impact assessment for this technical chapter built on the marine geology, oceanography and physical processes assessment in relation to understanding likely effects from sediment transport and morphological effects on the sea bed, which may have indirect impacts upon archaeological receptors.

72. During construction, operation and decommissioning there is the potential for significant impacts on various archaeological receptors prior to the application of mitigation. These include:

- Direct impact to known heritage assets (wrecks and anomalies A1), A3 wrecks, additional anomalies (A2); and
- Direct impact to potential heritage assets (*In situ* prehistoric, maritime or aviation sites).

73. Impacts upon known archaeological receptors will be avoided due to site selection or appropriate mitigation in the form of Archaeological Exclusion Zones (AEZs) and will therefore be of **negligible** significance. There is potential for impacts on potential archaeological receptors (i.e. those as yet unidentified) and impacts to site preservation conditions from drilling fluid breakout, however, the significance of any effects can be reduced by adherence to appropriate mitigation strategies to **minor adverse**. The proposed approach to archaeological mitigation and investigations to be undertaken pre-construction are detailed in the Outline Written Scheme of Investigation (WSI) (document reference 8.6) which has been submitted as part of the DCO application. Perceptions of historic

character will remain unchanged or will result in a potential beneficial change. Construction impacts to potential heritage assets will be no greater than **minor adverse**. Operational impacts will also be no greater than **minor adverse**. Impacts from the decommissioning of the proposed East Anglia TWO project are expected to be similar to those construction impacts but lower in magnitude.

74. In terms of cumulative impacts, mitigation measures will be put in place for all projects to avoid impacts on known archaeological receptors and suitable protocols established for dealing with potential archaeological receptors, resulting in **no impact** and **minor adverse** impacts respectively.

75. While the impacts upon potential archaeological receptors are essentially adverse, the benefits associated with mitigation geared towards chance discoveries (i.e. the accumulation of archaeologically interpreted data and an overall contribution to a greater understanding of the offshore archaeological resource) represents a positive cumulative effect that cannot be discounted.

76. Transboundary impacts are unlikely to occur due to the localised nature of disturbance and limited pathway for impacts on transboundary assets. Therefore, there are no significant impacts for offshore archaeology and cultural heritage.

31.2.11 Chapter 17 Infrastructure and Other Users

77. This assessment used data sources and considered offshore windfarm projects, oil and gas activity, marine aggregate extraction, marine disposal sites, military exercise areas (note military aviation is addressed in ***Chapter 15 Civil and Military Aviation and Radar***), telecommunications and electricity cables, pipelines and EDF Energy's Sizewell B nuclear power station infrastructure.

78. Potential impacts would largely be avoided as there is a requirement for industries to cooperate and operate in a safe manner. For example, the Applicant will be required to enter into crossing or proximity agreements with operators of other cables and pipelines to ensure that these crossings are made safely and without damage to other infrastructure. It is therefore predicted that there will be **minor adverse** impacts upon other users.

79. Agreements with operators would be sought following submission of the DCO application and ongoing consultation with developers would be undertaken.

80. There would be no pathways for cumulative impact (therefore **no cumulative impact**) as all other parties (i.e. another windfarm operator) that interact with the same receptor will also need to demonstrate no impact (i.e. through avoidance) or agree mitigation with the operators. Transboundary impacts are taken into consideration in the project alone assessment.

31.3 Onshore

81. The ES covers a wide range of onshore physical, ecological and human receptors in respect of the onshore environment, for which potential impacts have been assessed for construction and operation phases of the proposed East Anglia TWO project. Decommissioning impacts are expected to be no worse than those construction impacts but lower in magnitude and will therefore not be explicitly discussed in the following sections.

82. Given that the majority of impacts identified are temporary and localised within the area of the onshore infrastructure, the key cumulative impacts arise from the construction of the proposed East Anglia ONE North project. The two projects share the same landfall and onshore cable corridor and the onshore substations are co-located and connect into the same National Grid substation.

83. Further information regarding the proposed construction scenarios for the proposed East Anglia TWO project and proposed East Anglia ONE North project is given within each onshore technical chapter. The CIA of the proposed East Anglia TWO and proposed East Anglia ONE North projects is summarised within each technical chapter and the assessment itself is provided as an appendix to each technical chapter. The worst case scenario of each impact from this CIA is then carried through to the main body of the CIA which considers other developments which have been screened into the onshore CIA assessment.

84. The CIA in the first instance assessed a number of projects, which were ultimately screened down to those applicable, due to either spatial or temporal overlap with the proposed East Anglia TWO project. As a result of this process the Sizewell C New Nuclear Power Station and the Sizewell B Power Station Complex are included within the onshore CIA, along with East Anglia ONE North as described above. The full list of projects for consideration has been developed in consultation with the Local Planning Authority.

85. No transboundary impacts are considered for the onshore assessments as the onshore development area is not located in proximity to any international boundaries and are therefore not considered further within the following sections.

31.3.1 Chapter 18 Ground Conditions and Contamination

86. This assessment included a review of historic land use activities (using publicly available data sources) and current ground conditions within the onshore development area. The majority of the onshore development area is located in agricultural land, and although this presents potential for pollution in relation to current agricultural activities (for example fertiliser run-off), significant contamination is not expected. There is no evidence of historic contamination within the onshore development area.

87. The impact assessment considered the potential for contamination leaks and spills from the construction phase of the proposed East Anglia TWO project, potential for existing contaminant release during any onshore works and impacts on groundwater quality and mineral resources availability. An Outline Code of Construction Practice (OCoCP) (document reference 8.1) has been submitted with the DCO application, as secured under the requirements of the draft DCO, which provides details of the industry best practice measures that would be undertaken to reduce potential construction impacts onshore. The final CoCP will be produced post-consent, prior to construction and will be in line with the OCoCP.

88. The proposed East Anglia TWO project is predicted to have only **minor adverse** impacts in relation to ground conditions and contamination during the construction phase of the proposed East Anglia TWO project. Operational phase impacts were scoped out of the assessment as agreed in the Scoping Report (SPR 2017) and presented in the PEIR (SPR 2019).

89. Cumulative impacts with the proposed East Anglia ONE North project will not result in any construction impacts greater than those considered in the proposed East Anglia TWO project alone assessment. The same embedded and additional mitigation measures will be applied to the proposed East Anglia TWO and proposed East Anglia ONE North projects. Given that the onshore development area does not overlap with the likely development areas of Sizewell C New Nuclear Power Station or Sizewell B Power Station Complex, and that any cumulative impacts would be highly localised, cumulative impacts are not anticipated to be greater than those assessed cumulatively for the proposed East Anglia TWO and East Anglia ONE North projects. Therefore, there are no significant impacts for ground conditions and contamination.

31.3.2 Chapter 19 Air Quality

90. An assessment was carried out using air quality diffusion tube monitoring data collected by East Suffolk Council (2018) within the onshore development area. The assessment was further informed by pollution maps provided by the Department of Environment, Food and Rural Affairs (Defra). These data sources established a robust baseline of existing air pollution levels.

91. The air quality assessment considered the potential impacts associated with dust and construction traffic emissions in relation to both human and ecological receptors, during the onshore construction phase. Operational phase impacts were scoped out of the assessment, as agreed in the Scoping Opinion (Planning Inspectorate 2017) and presented in the PEIR (SPR 2019), and therefore they have not been considered.

92. In accordance with air quality guidance, a suite of best-practice embedded mitigation measures have been identified (such as dampening down the running track during dry periods to minimise dust generation), which are commensurate with the level of dust risk of the construction activities. These are detailed further within the OCoCP (document reference 8.1) submitted with this DCO application. An Air Quality Management Plan (AQMP) will be developed as part of the final CoCP that will be produced post consent to discharge the requirements of the DCO. The AQMP will further detail control measures to manage dust and emission during construction works. With the implementation of the embedded mitigation measures, dust impacts can be considered to be **not significant**. Road traffic emissions during the construction phase are also considered to be **not significant**. The assessment concludes that it is highly unlikely that the short-term construction activities associated with the proposed East Anglia TWO project would cause noticeable or lasting impacts to air quality.

93. Cumulative impacts with the proposed East Anglia ONE North project will not result in significant impacts because the combined construction activity would not increase the magnitude of effect. The same embedded and additional mitigation measures will be applied to the proposed East Anglia TWO and proposed East Anglia ONE North projects.

94. The Sizewell B Power Station Complex is not scoped into the air quality CIA because there will be no overlap in the peak construction period with the proposed East Anglia TWO and proposed East Anglia ONE North projects. There is the potential for cumulative impacts with the Sizewell C New Nuclear Power Station. However, Stage 4 consultation document published by EDF Energy does not contain sufficient information in terms of a freight management strategy to facilitate a quantitative assessment, therefore it is unable to be incorporated into the proposed East Anglia TWO project CIA and a qualitative assessment was instead conducted. Therefore, the quantitative CIA considered the proposed East Anglia TWO and proposed East Anglia ONE North projects. Embedded mitigation measures and additional mitigation measures during construction, mean that cumulative impacts are anticipated to be **not significant**. Therefore, there are no significant impacts for air quality.

31.3.3 Chapter 20 Water Resources and Flood Risk

95. This assessment included a review of publicly available datasets from the Environment Agency and Internal Drainage Boards (including several flood risk data sets) and was further informed by a site specific geomorphological walkover survey of the Hundred River which was undertaken in July 2018 (***Appendix 20.5***). The combination of data sources used to inform the assessment gives a high degree of certainty to the predictability of the impact assessment.

96. A Flood Risk Assessment (FRA) was also produced and is included as ***Appendix 20.3***. A Water Framework Directive (WFD) assessment was also conducted and is included as ***Appendix 20.4***.

97. The assessment was categorised by three main surface water drainage catchments: Hundred River, Leiston Beck and Friston Watercourse. Impacts were also assessed against the single body of groundwater (Waveney and Suffolk East Chalk and Crag) which underlays the onshore development area and the coastal fringe, which the landfall location and a small part of the eastern edge of the onshore cable corridor are located in.

98. The impact assessment considered potential impacts upon receptors including direct disturbance of water bodies, increased sediment input to watercourses, accidental release of contaminants and changes to surface water runoff and flood risk. Of these impacts, the following had the potential for significant impacts prior to mitigation during construction:

- Direct disturbance of surface water bodies (Hundred River);
- Increased sediment supply (Hundred River and Friston watercourse);
- Increased sediment supply (Friston Water Course);
- Accidental release of contaminants (Hundred River; Friston Watercourse and Groundwater); and
- Changes to surface water runoff and flood risk (Hundred River and Friston watercourse).

99. A suite of embedded mitigation measures are proposed to manage impacts on water resources and flood risk. These will include the development of a Surface Water and Drainage Management Plan (SWDP), Pollution Prevention Response Plan and Flood Management Plan (FMP), all of which will be developed as part of the final CoCP that will be produced post consent to discharge the requirements of the DCO and will include, as a basis, the use of construction best practice. Following consultation and engineering design work, attenuation ponds (as part of the sustainable drainage system (SuDS)) will be included at the onshore substation and National Grid substation to provide sufficient attenuation to enable discharge at greenfield runoff rates into the closest watercourse or sewer connection. The attenuation ponds will be designed to attenuate flows up to the 1:200 year event at the onshore substation and 1:100 year event at the National Grid substation, including an allowance for climate change. All assessed impacts for water resources and flood risk associated with the construction and operation phases of the proposed East Anglia TWO project are no greater than **minor adverse** significance.

100. Cumulative impacts with the proposed East Anglia ONE North project will not result in any impacts of greater significance than those considered in the proposed East Anglia TWO project alone assessment. The same embedded and additional mitigation measures will be applied to the proposed East Anglia TWO and proposed East Anglia ONE North projects.

101. Cumulative impacts with other developments have potential to arise in the Leiston Beck catchments with the Sizewell B Power Station Complex project, and both the Leiston Beck catchment and Hundred River catchment with the Sizewell C New Nuclear Power Station project. Given that the Sizewell B Power Station Complex and Sizewell C New Nuclear Power Station are both subject to an EIA and therefore similar mitigation will be used, cumulative impacts are not anticipated to be greater than those assessed cumulatively for the proposed East Anglia TWO and East Anglia ONE North projects. Therefore, there are no significant impacts for water resources and flood risk.

31.3.4 Chapter 21 Land Use

102. The land use assessment included a review of current land use practices within the onshore development area, informed by publicly available data sources and consultation with the Applicant's land agents. The combination of data sources used to inform the assessment gives a high degree of certainty to the predictability of the impact assessment.

103. The onshore development area crosses land of Agricultural Land Classifications (ALC) Grade 2-4 and 38.9% of the land within the onshore development area is covered by an Environmental Stewardship Scheme (ESS). Several different soil types and various utilities (both high value receptors) are crossed by the onshore development area.

104. The assessment considers the potential impacts of the proposed East Anglia TWO project on drainage, agricultural land, natural resource, ESS and utilities.

105. Mitigation measures include the use of an Agricultural Liaison Officer (ALO), ensuring agricultural field drains are maintained, and employing best practice measures through a Soils Management Plan (SMP) which will be produced post-consent as part of the final CoCP. Provided mitigation measures are in place, predicted impacts will be of no greater than **minor adverse** significance for the construction and operational phases of the proposed East Anglia TWO project. The onshore development area does not cover any areas of common land and therefore has **no impact** (above or below ground) on common land, including Thorpeness Common.

106. Cumulative impacts with the proposed East Anglia ONE North project result in impacts no greater than **minor adverse** significance. The same embedded and additional mitigation measures will be applied to the proposed East Anglia TWO and proposed East Anglia ONE North projects.

107. Given that the onshore development area does not overlap with the development areas of the Sizewell C New Nuclear Power Station or Sizewell B Power Station Complex, and that both projects are subject to EIA and are therefore anticipated to adopt mitigation strategies which seek to avoid, reduce or offset their impacts, the projects have not been taken forward into the CIA for land use and agriculture. Therefore, residual significant impacts are no greater than for the proposed East Anglia TWO and proposed East Anglia ONE North projects.

31.3.5 Chapter 22 Onshore Ecology

108. The impact assessment for onshore ecology included a review of data sources (including publicly available habitat and protected species records) and was further informed by extensive habitat and species-specific field surveys. Field surveys included an Extended Phase 1 Habitat Survey, and additional Phase 1 addendum, which were undertaken in April 2018 and March 2019 respectively. Species specific surveys included great crested newt, water vole, otter and bat surveys. Impacts were assessed for a number of ecological receptors, including designated sites, flora and fauna. The combination of data sources used to inform the assessment gives a high degree of certainty to the predictability of the impact assessment.

109. Site selection has endeavoured to ensure that designated sites (both statutory and non-statutory) are avoided by the onshore development area. However, The Sandlings SPA and Leiston to Aldeburgh Site of Special Scientific Interest (SSSI) fall within the onshore development area boundary. The site selection process has minimised the extent of this overlap and the proposed East Anglia TWO project has retained the option of utilising HDD as a crossing technique. When considering using an open cut methodology for crossing the Sandlings SPA, the Applicant has committed to a reduced onshore cable route working width of 16.1m (reduced from 32m) within the Sandlings SPA for a length up to 300m depending on the detailed design when crossing the Sandlings SPA, thereby minimising habitat loss.

110. During the construction phase there is the potential for significant impacts on various ecological receptors prior to the application of mitigation. These include:

- Impacts to Designated Sites (Sandlings SPA);
- Hedgerows;
- Watercourses and Ponds;

- Badgers (and suitable foraging habitats);
- Bats (roosting, couniting and foraging bats);
- Great Crested Newts (aquatic and terrestrial habitats); and
- Reptiles (common reptile species and suitable habitats).

111. Species specific construction impacts have been assessed with respect to embedded mitigation including receptor specific measures where required (e.g. for badgers and bats). The majority of impacts that have been assessed are not significant and are no greater than **minor adverse** significance. Significant residual impacts will remain after mitigation for bats (during the construction phase) due to potential loss of roosting and foraging habitat. Replacement habitat will be managed and maintained to ensure the bat population will persist and monitoring of the population will be undertaken to assess the success of any mitigation where possible, as detailed in the Outline Landscape and Ecological Management Strategy (OLEMS) (document reference 8.7) submitted with this DCO application. This significant impact to the bat population will be short term and temporary. This temporary magnitude of effect will further reduce (to negligible) over time as hedgerows fully recover. As such, this represents a temporary residual impact of moderate adverse significance, reducing to **minor adverse** significance within 3-7 years once hedgerows have fully recovered.

112. Operational impacts would no greater than **minor adverse** significance and would be restricted to disturbance from maintenance activity impacts at the onshore substation and National Grid infrastructure and therefore are localised in nature. Operational lighting at the onshore substation and National Grid substation will only be in operation when maintenance visits are being conducted. During these periods, the lighting used will be designed to conform with best practice guidance to minimise disturbance to light-sensitive species.

113. Cumulative impacts with the proposed East Anglia ONE North project will be no greater than for the proposed East Anglia TWO project alone impacts, for the construction and operation phase. The same embedded and additional mitigation measures will be applied to the proposed East Anglia TWO and proposed East Anglia ONE North projects.

114. There is potential for cumulative impacts with the Sizewell C New Nuclear Power Station and Sizewell B Power Station Complex projects. The overlap in construction traffic on Sizewell Gap Road may result in increases in dust, noise, vibration and artificial light and therefore there is potential for an indirect disturbance impact in the construction phase only. However, through the implementation of mitigation proposed for the proposed East Anglia TWO and proposed East Anglia ONE North projects, and with similar measures anticipated

for the Sizewell C New Nuclear Power Station and Sizewell B Power Station complex, no cumulative impacts of greater significance than those anticipated for the proposed East Anglia TWO project and proposed East Anglia ONE North project are expected.

31.3.6 Chapter 23 Onshore Ornithology

115. Several phases of site specific ornithology surveys were conducted to inform the assessment: wintering bird surveys (February – March 2018 and November 2018 – March 2019) and two seasons of breeding bird surveys (April – August 2018 and May – August 2019). Results from these surveys up to and including June 2019 have been included in the assessment presented in this ES. Species specific surveys were also conducted for the nightjar and hobby in the summers of 2018 and 2019 as these species are key to the designation of the Sandlings SPA. Additionally, the assessment was further informed by historic data sources, including an extensive historic bird count data set (2009 – 2017) obtained from the RSPB. The combination of data sources used to inform the assessment gives a high degree of certainty to the predictability of the impact assessment.

116. The Sandlings SPA and Leiston to Aldeburgh SSSI fall within the onshore development area boundary where the onshore cable route crosses a narrow area of this designated site. These designated sites are important areas of habitat for several bird species of nature conservation importance: barn owl, Cetti's warbler, Dartford warbler, marsh harrier, nightjar, nightingale, turtle dove, woodlark and yellow wagtail. The Applicant will not undertake onshore cable route construction works to cross the Sandlings SPA / Leiston – SSSI within the SPA/SSSI boundary or within 200m of the SPA/SSSI boundary during the breeding bird season unless otherwise agreed with Natural England that bird breeding activities within 200m of the SPA/SSSI crossing works area have ceased. The timing of this seasonal restriction will be based on monitoring information provided by the Ecological Clerk of Work (likely to be mid-February to end of August). Further details are provided in the OLEMS (document reference 8.7) submitted with this DCO application. The OLEMS additionally details further habitat management mitigation measures, such as scrub management at field margins. This will be confirmed post-consent through the production of the EMP to discharge a requirement of the DCO.

117. The potential for habitat loss and disturbance during the construction phase of the proposed East Anglia TWO project was assessed for the bird species listed above (and marsh warbler and Bewick's swan), along with potential noise and light disturbance during the operational phase associated with the onshore substation and National Grid infrastructure.

118. Mitigation measures include incorporating a Breeding Bird Protection Plan (BBPP) which will highlight the risks to breeding birds and detail measures to ensure the protection of their nests. Further detail on the content of the BBPP is provided in the OLEMS (document reference 8.7) submitted with this DCO application. The final BBPP will be produced post-consent to discharge the requirements of the DCO. Species specific mitigation includes the provision of a turtle dove feeding area throughout the construction phase of the proposed East Anglia TWO project along the onshore cable rote sections 1 and 2. Provided mitigation measures are in place, the proposed East Anglia TWO project is predicted to have no greater than **minor adverse** impacts in relation to onshore ornithology in both the construction and operational phases.

119. Cumulative impacts with the proposed East Anglia ONE North project will not result in any impacts of greater significance than those considered in the proposed East Anglia TWO project alone assessment. The same embedded and additional mitigation measures will be applied to the proposed East Anglia TWO and proposed East Anglia ONE North projects.

120. Given that the onshore development area is in close proximity (1.4km) to the Sizewell C New Nuclear Power Station and Sizewell B Power Station Complex there is potential for cumulative impacts during the construction phase. Based on the available Sizewell C New Nuclear Power Station and Sizewell B Power Station Complex information (baseline surveys), there is the potential for cumulative impacts on the following IOFs: marsh harrier, barn owl and Cetti's warbler. These species have been taken forward into the CIA. Given the mitigation proposed by the Sizewell C New Nuclear Power Station and Sizewell B Power Station Complex projects, cumulative impacts are not anticipated to be greater than those assessed cumulatively for the proposed East Anglia TWO and East Anglia ONE North projects. Therefore, there are no significant impacts for onshore ornithology.

121. The potential for adverse effects on the Sandlings SPA are considered further in relation to HRA in the Information to Support Appropriate Assessment Report (document reference 5.3).

31.3.7 Chapter 24 Onshore Archaeology and Cultural Heritage

122. The impact assessment included review of archaeological and cultural heritage assets, informed by data sources, site visits and a walkover survey. Subsequent site visits were undertaken with the Heritage Steering Group (HSG) to inform the assessment of the setting of heritage assets presented as ***Appendices 24.7*** and ***24.8*** to this chapter. A geophysical survey across the majority of the onshore development area further informed the assessment on buried archaeological

assets. The combination of data sources used to inform the assessment gives a high degree of certainty to the predictability of the impact assessment.

123. An additional suite of pre-consent field surveys, including trial trenching, has been commissioned by the Applicant. The results of these pre-consent surveys will ultimately serve to inform and contribute to the development of post consent mitigation strategies in relation to the archaeological and cultural heritage resource.

124. The onshore development area has undergone an extensive site selection process to avoid direct physical impacts on designated heritage assets from the outset. Indirect impacts to designated and non-designated heritage assets, associated with change in the setting of the asset, may occur as a result of the construction or operational phases of the proposed East Anglia TWO project. There is the potential for significant impacts during construction on various assets prior to the application of mitigation. These include

- Direct physical impact on (permanent change to) buried archaeological remains;
- Direct physical impact on (permanent change to) above ground archaeological remains and heritage assets; and
- Impact on potential geoarchaeological / paleoenvironmental remains, potentially indicative of former land surfaces.

125. The assessment concluded that only changes in setting due to the operation of the proposed East Anglia TWO project would be of sufficient duration to merit more detailed assessment. Eight designated assets (all Listed Buildings) were identified where change in setting caused by the operational onshore infrastructure could lead to material harm to their significance. Mitigation such as sympathetic screening planting, together with appropriate boundary reinforcement through hedges and hedge trees, around the onshore substation and National Grid substation has sought to reduce the magnitude of this change. Impacts on the setting of these Listed Buildings range from no impact to moderate adverse (for two of the eight receptors). Further detail is provided in ***Appendix 24.7***.

126. A screening exercise has been undertaken for settings impacts to designated and non-designated coastal heritage assets in relation to the East Anglia TWO windfarm site. No coastal assets have been identified for further settings assessment.

127. There is potential for archaeological sites or artefacts from the prehistoric period through to the modern day to be present within the onshore development area and these remains may range in value and sensitivity from low to high. The proposed East Anglia TWO project has submitted an Outline WSI (onshore) (document reference 8.5) with this DCO application. Prior to construction commencing, the final WSI (based upon the Outline WSI (onshore)) will be agreed with the relevant regulators to discharge the requirements of the DCO. This will inform further decisions regarding the subsequent archaeological mitigation strategy so that the historic environment resource can be safe-guarded in a manner that is both appropriate and proportionate to the significance of the archaeological remains identified and present. This would result in impacts of **minor adverse** or **negligible** significance in both construction and operational phases of the proposed East Anglia TWO project in relation to buried archaeological remains.

128. Cumulative impacts with the proposed East Anglia ONE North project will not result in any impacts of greater significance than those considered in the proposed East Anglia TWO project alone assessment. The same embedded and additional mitigation measures will be applied to the proposed East Anglia TWO and proposed East Anglia ONE North projects. Given that the onshore development area is in close proximity (1.4km) of the Sizewell C New Nuclear Power Station and Sizewell B Power Station Complex, there is potential for cumulative impact in terms of setting to designated assets and potential also for direct (physical) impacts to below ground archaeological remains at a landscape scale. However, as the Sizewell C New Nuclear Power Station and Sizewell B Power Station Complex projects are likely to be subject to the same level of regulator/curator requirements, and also having a range of mitigation options open and available to them of a similar nature to the proposed East Anglia TWO and East Anglia ONE North projects, cumulative impacts are not anticipated to be greater than those assessed cumulatively for the proposed East Anglia TWO and East Anglia ONE North projects.

31.3.8 Chapter 25 Noise and Vibration

129. The assessment of noise and vibration was based on traffic movements, consideration of the traffic and transport impact assessment and baseline measurements of the existing ambient noise level were required to be taken at locations considered representative of the Noise Sensitive Receptors (NSRs) that had the potential to be affected by the construction and operation of the proposed East Anglia TWO project.

130. The impact assessment considered potential construction impacts arising from construction noise, traffic noise and construction vibration. Embedded mitigation measures include the production of a OCoCP (document reference 8.1), which

has been submitted with this DCO application, and the post-consent production of a Construction Phase Noise and Vibration Management Plan, as secured under the requirements of the draft DCO, which will be agreed with the relevant regulators prior to the start of construction, Working hours are 7am to 7pm Monday to Friday and 7am to 1pm on Saturday with no work proposed for Saturday afternoon (from 1pm) or Sundays and Bank Holidays, except in the event of specific time critical activities. Construction phase noise and vibration impacts are anticipated to be no greater than **minor adverse.**

131. The only sources of noise during the operation of the proposed East Anglia TWO project alone are those from the onshore substation. The equipment required at the National Grid substation for operation does not include components which would contribute any significant noise contributions in the area and is therefore not considered further within the operational assessment. Further detail is provided in the chapter. The Applicant will provide a final design of the onshore substation which will not exceed the operational noise limit of 34dB $L_{Aeq\ 5\ min}$ during the night time at the NSRs. This is secured through a requirement of the draft DCO. Noise reduction technologies and potential design approaches have been considered and there are many proven mitigation options that, through the detailed design process, can be combined to create a design that will adhere to the required noise limits. The operational noise impact is therefore anticipated to be of no greater than **minor adverse** significance at all NSRs.

132. Cumulative impacts with the proposed East Anglia ONE North project will not result in any impacts of greater significance than those considered in the proposed East Anglia TWO project alone assessment because the combined construction activity would not increase the magnitude of effect. The same embedded and additional mitigation measures will be applied to the proposed East Anglia TWO and proposed East Anglia ONE North projects. During the operational phase, the proposed East Anglia TWO and proposed East Anglia ONE North projects will be required to provide a final design which will not exceed the operational noise limit of 34dB $L_{Aeq\ 5\ min}$, as secured through a requirement in the draft DCO.

133. Moving into the CIA with other developments, the Sizewell B Power Station Complex is not scoped into the noise CIA because there will be no overlap in the peak construction period with the proposed East Anglia TWO and proposed East Anglia ONE North projects. The Sizewell C New Nuclear Power Station was also scoped out of the noise and vibration CIA because the Sizewell C New Nuclear Power Station project will be subject to an EIA, therefore site-specific measures will mitigate noise associated with that project will be implemented. Therefore, there are no significant impacts for noise and vibration.

31.3.9 Chapter 26 Traffic and Transport

134. The assessment included a review of data sources (including collisions and traffic count data) and was supported by site visits in 2018 and 2019 to provide information with regard to the existing baseline highway network. The combination of data sources used to inform the assessment gives a high degree of certainty to the predictability of the impact assessment.

135. In accordance with national guidance (Guidelines for the Environmental Assessment of Road Traffic (GEART)) a study area was identified, baseline conditions established, and sensitive receptors within the study area identified. The study area was screened to identify routes that could be potentially impacted by the proposed East Anglia TWO projects' traffic generation. Sensitive receptors were assessed for the effects of severance, pedestrian amenity, road safety and driver delay. There is the potential for significant impacts during construction on various receptors prior to the application of mitigation. These include:

- Amenity (Link 4 and Link 6);
- Highway safety (Cluster 3 (links 2, 3 and 6));
- Diver Delay (Capacity) (Junction 1 and Junction 3); and
- Driver Delay (highway Geometry) (The roundabout junction of the A1094 and B1122 at Aldeburgh).

136. The Applicant's strategy for construction phase traffic and travel management is outlined in the Outline Access Management Plan (OAMP), Outline Construction Traffic Management Plan (OCTMP) and Outline Travel Plan (OTP) submitted with this DCO application (document references 8.10, 8.9 and 8.11, respectively). Final versions of these plans will be submitted post-consent, in consultation with the relevant regulator, to discharge the requirements of the DCO. Mitigation also included some traffic routes being avoided altogether. For example, all HGV traffic would be required to travel via the A1094 or B1122 from the A12 and no traffic would be permitted to travel via alternative routes. No HGV traffic would be permitted to travel through Leiston or Coldfair Green/Knodishall or on the B1121 past Friston or Sternfield. No HGVs to travel via the B1353 towards Thorpeness as all construction traffic for the landfall would access the landfall location via Sizewell Gap. Vehicles would then travel south on a temporary haul road to the landfall location. Employee movements would also be managed using measures outlined in the OTP. The assessment concluded no residual significant impact was identified for the construction phase, with all impacts being at either **minor adverse** or **negligible** levels.

137. **No significant impacts** were identified for the operational phase due to the minimal traffic associated with operation and maintenance activities.

138. Cumulative impacts with the proposed East Anglia ONE North project will not result in any impacts of greater significance than those considered in the proposed East Anglia TWO project alone assessment because the combined construction activity would not increase the magnitude of effect. The same embedded and additional mitigation measures will be applied to the proposed East Anglia TWO and proposed East Anglia ONE North projects.

139. Moving into the CIA with other developments, the Sizewell B Power Station Complex is not scoped into the transport CIA because there will be no overlap in the peak construction period with the proposed East Anglia TWO and proposed East Anglia ONE North projects. The Sizewell C New Nuclear Power Station was scoped into the CIA for construction phase impacts as the construction traffic associated with Sizewell C New Nuclear Power Station will travel on some of the same road links as the proposed East Anglia TWO and proposed East Anglia ONE North projects. There is the potential for cumulative impacts with the Sizewell C New Nuclear Power Station. However, Stage 4 consultation document published by EDF Energy does not contain sufficient information in terms of a freight management strategy to facilitate a quantitative assessment, therefore it is unable to be incorporated into the proposed East Anglia TWO project CIA and a qualitative assessment was instead conducted. Therefore, the quantitative CIA considered only the proposed East Anglia TWO and proposed East Anglia ONE North projects.

31.3.10 Chapter 27 Human Health

140. An assessment was conducted to inform the human health chapter including an assessment of scientific literature and data sources such as census data to inform baseline conditions. The human health effects that were considered included: construction and operational noise, air quality, exposure to contaminated land, employment during construction and operation, and exposure to EMF during operation.

141. The onshore development area is largely comprised of agricultural land and has been sited away from population centres and sensitive receptors where possible, thus the potential number of receptors has been reduced through site selection and the proposed East Anglia TWO project design.

142. With the implementation of the mitigation measures identified within the separate topics (such as measures to minimise construction noise and to minimise the risk of dust generation), there are not predicted to be any significant effects to human health receptors for both the construction and operational phases of the proposed East Anglia TWO project.

143. The buried cable systems will produce EMFs. Public Health England (PHE) has produced guidelines identifying EMF thresholds above which there is the potential for human health effects. The Applicant's policy is to only design and install equipment that is compliant with the relevant exposure limits (the UK Government's Code of Practice on Compliance). As such, the conclusion of the assessment is that there would be **no effect** to population health due to EMFs during operation.

144. Cumulative impacts with the proposed East Anglia ONE North project on human health will not be significant because the combined construction activity would not increase the magnitude of effect. The same embedded and additional mitigation measures will be applied to the proposed East Anglia TWO and proposed East Anglia ONE North projects. The cumulative impacts with Sizewell C New Nuclear Power Station and Sizewell B Power Station Complex has concluded that predicted impacts will be of no greater than **minor adverse** for older people, people with exiting poor health or those living in deprivation, all other impacts have been assessed as not significant. Therefore, there are no significant impacts for human health.

31.4 Wider Project

31.4.1 Chapter 28 Offshore Seascape, Landscape and Visual Amenity

145. The Seascape, Landscape and Visual Impact Assessment identifies and assesses the significance of changes resulting from the East Anglia TWO windfarm site to both the seascape/ landscape as an environmental resource in its own right, and on people's views and visual amenity. Following Section 42 feedback to the PEIR, the Applicant investigated the potential to reduce the East Anglia TWO windfarm site area to reduce the magnitude of effect on onshore receptors. The revised design presented in this ES therefore represents a reduction in the geographic extent of the East Anglia TWO windfarm site, whilst maintaining its generation capacity. This change has resulted in a reduced lateral spread of the East Anglia TWO windfarm site, concentrated grouping of the wind turbines and an increased distance offshore, which is particularly relevant to the effects on the northern part of the Area of Outstanding Natural Beauty (AONB).

146. The majority of seascape, landscape and visual receptors would experience effects which would be **not significant** during construction, due to the short term nature of the impact caused by the construction of the proposed East Anglia TWO project.

147. Significant operational effects are relatively contained geographically, to the narrow coastal edges of the Suffolk coast, such that significant effects that occur are specific to a particular area, and are not widespread. The closest viewpoints (32.5km from the East Anglia TWO windfarm site) represent the worst case

likelihood of visibility for the wind turbines. At these locations, the wind turbines are likely to only be visible to the public 33% of the time (under excellent visibility conditions). As receptors move further from the East Anglia TWO windfarm site, the percentage likelihood of wind turbine visibility decreases. For example, at the furthest viewpoint surveyed (53.5km from the East Anglia TWO windfarm site), likelihood of visibility for the wind turbines is only 15% (under excellent visibility conditions).

148. The East Anglia TWO offshore development area fits within the existing seascape character and will not change the overall character of the offshore waters seascape, given the existing influence of existing offshore windfarms in this seascape and the geographic area of significant effect. Impacts from the decommissioning of the proposed East Anglia TWO project are expected to be similar to those construction impacts but lower in magnitude.

149. No physical attributes that contribute to the special qualities of the AONB will be changed as a result of the construction and operation of the offshore infrastructure. The East Anglia TWO windfarm site, due to its location at some distance outside the AONB, only impacts on the perception of certain special qualities and these are aspects of landscape and scenic quality, relative wildness and tranquillity. The effect resulting from the East Anglia TWO windfarm site is assessed as **significant** (but of medium, rather than high magnitude) on the perception of specific landscape, scenic and relative wildness qualities that derive from changes to views from the AONB out to sea from geographically focused areas along the immediate coastal edges of the AONB where these panoramic, long distances views offshore are an aspect of some of the special qualities.

150. Cumulative impacts were assessed against the proposed East Anglia ONE North project and other existing offshore windfarms. In comparison to the proposed East Anglia TWO project alone assessment, the CIA resulted in effects of no greater significance and the effects that were identified were impacting the same receptors as the proposed East Anglia TWO project alone assessment. The revised site boundary of the East Anglia TWO windfarm site has reduced the cumulative landscape and visual effects. This is primarily due to the increase in open sea horizon or ‘gap’ between the East Anglia TWO and East Anglia ONE North windfarm sites; which increases the legibility of each as a windfarm in its own right (rather than visually merging to form one larger array).

31.4.2 Chapter 29 Landscape and Visual Impact Assessment

151. The Landscape and Visual Impact Assessment (LVIA) identifies and assesses the significance of changes resulting from the onshore infrastructure to the landscape as an environmental resource in its own right, and on views and visual amenity.

152. The LVIA demonstrated that any significant effects would occur in relatively contained areas only, with the majority of landscape and visual receptors either undergoing non-significant effects or no effect.

153. In respect of the landfall location, significant effects would occur only during the construction phase, with no significant effects during the operational phase as infrastructure will be buried below ground and there will be no above ground infrastructure.

154. In respect to the onshore cable route, significant operational effects remain north of Fitches lane. These significant impacts will be mitigated in some way through the establishment of heathland habitat and the partial reinstatement of woodland, at the end of the construction phase.

155. In terms of the onshore substation and National Grid infrastructure, significant effects will occur during the construction phase however these will be short-term and temporary. During operation, potentially significant impacts at the onshore substation and National Grid infrastructure would be largely contained within the local landscape. **Significant** operational (15 years post construction with mitigation) visual effects would be experienced at Friston Church (Viewpoint 2), Friston, Grove Road (Viewpoint 4), Public Right of Way near Moor Farm (Viewpoint 5), Saxmundham Road (Viewpoint 8), Aldeburgh Road (Viewpoint 9), Friston Area A (comprising Viewpoints 1, 2 and 4) and Friston Area C (comprising Viewpoint 9). The mitigation landscape planting includes areas of fast growing woodland species as this will provide the height required, as well as the density, to ensure effective screening and appropriate boundary reinforcement through hedges and hedge trees to reinforce landscape character boundaries which have been actively promoted in the landscape character assessment. Further details of the proposed planting regime are provided in an Outline Landscape Mitigation Plan presented as a figure as part of the OLEMS (document reference 8.7) submitted with this DCO application. A Landscape Management Plan will be produced post-consent in consultation with the relevant regulators to discharge the requirements of the DCO.

156. Cumulative effects with the proposed East Anglia ONE North project are assessed as causing potentially significant cumulative impacts with the proposed East Anglia TWO project during construction and operation. Significant construction impacts would be experienced at viewpoints surrounding Friston and these impacts would be short term and temporary. **Significant** operational visual cumulative effects would be experienced at the same viewpoints as for the proposed East Anglia TWO project alone.

157. Moving into the CIA with other developments, the Sizewell B Power Station Complex is not scoped into the LVIA CIA due to the nature of the works and the lack of inter-visibility with the onshore substation and National Grid infrastructure. The CIA with Sizewell C New Nuclear Power Station identified significant cumulative impacts in terms of both visual and landscape effects during the construction phase. There is no inter-visibility between the Sizewell C New Nuclear Power Station and the proposed East Anglia TWO project. Therefore, there is no cumulative effect identified with the operational phases of Sizewell C New Nuclear Power Station.

31.4.3 Chapter 30 Tourism, Recreation and Socio-Economics

158. This chapter introduces the impacts associated with the proposed East Anglia TWO project which may potentially affect the local tourism, recreation and socio-economics. This assessment is based upon a review of data sources, including employment statistics and tourism information.

159. There is the potential for tourism and recreation impacts to occur in the short term to local features during construction due to noise, traffic and general construction presence however due to the localised and short term nature of these impacts they will be of **negligible** significance.

160. Construction impacts resulting from increased expenditure and employment in the area during the construction of the proposed East Anglia TWO project are predicted to be of **major beneficial** and **moderate beneficial** significance respectively.

161. Operationally, the creation of full time employment opportunities will have a **major beneficial** impact. The long term impacts on tourism will be of **negligible** significance.

162. Cumulative impacts with the proposed East Anglia ONE North project result in **major** to **moderate beneficial** employment impacts during both construction and operation phases and no significant adverse impacts. CIA with the Sizewell C New Nuclear Power Station and Sizewell B Power Station Complex project and other offshore windfarm projects (Norfolk Vanguard, Norfolk Boreas and Hornsea Project 3) concluded that there would be **major beneficial** cumulative impacts to short-term and long-term and employment.

31.5 Conclusions

163. Using a robust and comprehensive impact assessment across a number of topics, the Applicant has sought to identify where there is potential for impacts and, through mitigation, design and management, sought to avoid those impacts occurring. This is reflected in the extensive suite of documentation, submitted with this DCO application, which would control and manage the construction phase of the proposed East Anglia TWO project, as have effectively been implemented on other projects of this scale.

164. All but one of the offshore technical assessments conclude that the proposed East Anglia TWO project will not result in significant impacts. In many cases this is a result of the sensitive siting of the East Anglia TWO windfarm site and offshore export cable corridor to avoid adverse impacts. Where any potentially significant impacts have been identified, mitigation has been proposed to reduce the residual impact to not significant. One moderate adverse impact is identified in ***Chapter 13 Commercial Fisheries*** due to the cumulative loss or restricted access to fishing grounds, however the contribution of the proposed East Anglia TWO project to the overall cumulative impact would be minimal.

165. For the onshore topics, sensitive selection alongside embedded and additional topic specific mitigation, as appropriate, will deliver a project that avoids the vast majority of the potential impacts assessed within the ES. The assessments conclude that the proposed East Anglia TWO project will not result in significant impacts once appropriate mitigation has been implemented, with the following exceptions.

166. Temporary moderate adverse impacts having been identified in ***Chapter 22 Onshore Ecology*** due to the precautionary approach taken in the assessment the impact on bats of potential losses of roosting and foraging habitat during the construction phase. These will reduce to not significant impacts over the long term (3-7 years).

167. Potentially significant beneficial impacts were identified in ***Chapter 30 Tourism, Recreation and Socio-Economics*** in terms of short and long term employment during construction and operation.

168. Some potentially significant impacts have been identified in ***Chapter 24 Onshore Archaeology and Cultural Heritage*** for two receptors due to changes in setting during the operational phase of the proposed East Anglia TWO project. Sympathetic screening planting, together with appropriate boundary reinforcement through hedges and hedge trees, around the onshore substation and National Grid substation has sought to reduce the magnitude of this change.

169. The main residual significant effects are the residual operational landscape and visual effects associated with the coastal views of the East Anglia TWO windfarm site and the onshore substation and National Grid infrastructure, as detailed in ***Chapter 28 Offshore Seascape, Landscape and Visual Amenity*** and ***Chapter 29 Landscape and Visual Impact Assessment*** respectively. Mitigation has sought to reduce the magnitude of this change as far as practicable.

170. Positive impacts from the proposed East Anglia TWO project, such as direct employment and supply chain job creation are long term, and aligned with the UK Government's Clean Growth Strategy to help to boost productivity and grow and decarbonise the economy of the East of England and the UK as a whole.

171. The proposed East Anglia TWO project would make a significant contribution to the achievement of the UK's national renewable energy targets and to the UK's contribution to global efforts to reduce the effects of climate change. The proposed East Anglia TWO project has the potential to make a substantial contribution to UK 2030 energy targets by meeting 4% of the UK's current cumulative electricity supply deployment target for 2030 (CCC 2018). Moreover, the proposed East Anglia TWO project would have a direct positive impact by providing up to 900MW of renewable energy, securing renewable energy supply for up to 800,000 UK households. The proposed East Anglia TWO project would reduce carbon emissions and contribute to the economy by providing socio-economic and other benefits that should be taken into account under NPS and other UK Government policies and legislation.

31.6 References

ABPmer (ABP Marine Environmental Research Ltd). (2012). *East Anglia Offshore Wind Zonal Environmental Appraisal Report. Appendix G – Physical Processes Baseline and References.*

Committee on Climate Change (CCC) (2018) An Independent Assessment of the UK's Clean Growth Strategy. Available at: https://www.theccc.org.uk/wpcontent/uploads/2018/01/CCC-Independent-Assessment-of-UKs-Clean-GrowthStrategy-2018.pdf Accessed 10th July 2018.

Planning Inspectorate (2017) Scoping Opinion: Proposed East Anglia TWO Offshore Windfarm [Online]. Available: https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010078/EN010078-000067-EAN2%20-%20Scoping%20Opinion.pdf Accessed 26th September 2019.

SPR (2017) East Anglia TWO Offshore Windfarm Scoping Report [Online]. Available: https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010078/EN010078-000059-EAN2%20-%20Scoping%20Report.pdf Accessed 26th September 2019.

SPR (2019) East Anglia TWO Offshore Windfarm Preliminary Environmental Information Report [Online]. Available: https://www.scottishpowerrenewables.com/pages/ea_two_phase_4_consultation.aspx Accessed 26th September 2019.

This page is intentionally blank