East Anglia ONE North Offshore Windfarm

Appendix 6.1

Project Description East Anglia ONE North and East Anglia TWO Cumulative Project Descriptions

Preliminary Environmental Information
Volume 3
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Glossary of Acronyms

CCS	Construction Consolidation Sites
CIA	Cumulative Impact Assessment
DCO	Development Consent Order
ES	Environmental Statement
HDD	Horizontal Directional Drilling
HE	Health England
LVIA	Landscape and Visual Impact Assessment
MW	Megawatt
NGET	National Grid Electricity Transmission
PEIR	Preliminary Environmental Information Report
ZTV	Zone of Theoretical Visibility

Glossary of Terminology

Applicant	East Anglia ONE North Limited.
Construction consolidation sites	Compounds which will contain laydown, storage and work areas for onshore construction works. The HDD construction compound will also be referred to as a construction consolidation site.
Development area	The area comprising the Proposed onshore development Area and the Offshore Development Area
East Anglia ONE North project	The proposed project consisting of up to 67 wind turbines, up to four offshore electrical platforms, up to one offshore 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.
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	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.
Jointing bay	Underground structures constructed at regular 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 or above ground cabinets next to the cable trench housing electrical earthing links.
Mitigation areas	Areas captured within the Development Area specifically for mitigating expected or anticipated impacts.
National Grid infrastructure	A National Grid substation, connection to the existing electricity pylons and National Grid overhead line realignment works which will be consented as part of the proposed East Anglia ONE North 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 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 ONE North project to the national electricity grid which will be owned by National Grid but is being consented as part of the proposed East Anglia ONE North project Development Consent Order.
National Grid substation location	The proposed location of the National Grid substation.
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 and two fibre optic cables.
Proposed onshore development area	The area in which the landfall, onshore cable corridor, onshore substation, 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 ONE North project from landfall to the connection to the national electricity grid.
Onshore substation	The East Anglia ONE North substation and all of the electrical equipment within it.
Onshore substation location	The proposed location of the onshore substation for the proposed East Anglia ONE North project.
Transition bay	Underground structures at the landfall that house the joints between the offshore export cables and the onshore cables.

6 .1 East Anglia ONE North and East Anglia TWO Cumulative Project Descriptions

1. The proposed East Anglia TWO project is also in the pre-application phase. The proposed East Anglia TWO project will have a separate DCO application but is working to the same programme of submission as the proposed East Anglia ONE North project. The two projects will share the same landfall location, onshore cable route, National Grid infrastructure; and the two onshore substations will be co-located.

2. The proposed East Anglia ONE North project CIA will therefore initially consider the cumulative impact with the East Anglia TWO project and National Grid infrastructure against two different construction scenarios (i.e. construction of the two projects simultaneously and sequentially). The realistic worst case scenario of each impact is then carried through to the main body of the CIA assessment which considers other developments which are in close proximity to the proposed East Anglia TWO project.

3. The two construction scenarios assessed are:

   - Scenario 1 - the proposed East Anglia ONE North project and proposed East Anglia TWO project are built simultaneously; and
   - Scenario 2 - the proposed East Anglia ONE North project and the proposed East Anglia TWO project are built sequentially.

4. Under Scenario 2, it is intended that the construction of the proposed East Anglia TWO project will be progressed prior to commencing construction of the proposed East Anglia ONE North project.

5. Scenario 2 assumes that when permission is granted, the proposed East Anglia TWO project will be constructed as soon as permission is granted. The proposed East Anglia ONE North project will leave the largest possible gap (between the reinstatement of the proposed East Anglia TWO project and start of construction for the proposed East Anglia ONE North project) to begin construction within the consent period.

6. ***Table A6.1*** compares the East Anglia ONE North project in isolation (as described in ***Chapter 6 Project Description section 6.7)*** with construction Scenario 1 and construction Scenario 2.

Table A6.1 Comparison between Scenarios for the proposed East Anglia ONE North and East Anglia TWO projects cumulative assessment

Parameter	East Anglia ONE North only	Scenario 1: East Anglia ONE North and East Anglia TWO constructed concurrently	Scenario 2: East Anglia ONE North and East Anglia TWO constructed sequentially
Landfall			
Number of cables	Up to 8 (6 export and 2 spare / fibre optic)	Up to 16 (12 export and 4 spare / fibre optic)	
Number of transition bays	2	4	
Site description	Same site description (see ***Chapter 6 Project Description section 6.6.1***)		
Temporary roads assessment (methodology)	Same methodology (see ***Chapter 6 Project Description section 6.6.2***)		
Horizontal Directional Drilling (methodology)	Same methodology (see ***Chapter 6 Project Description section 6.6.3.1***)		
Transition bays (methodology)	Same methodology (see ***Chapter 6 Project Description section 6.6.3.2***)		
Construction traffic and plant (not movements) (methodology)	Same methodology (see ***Chapter 6 Project Description section 6.6.3.3***)		
Lighting (methodology)	Same methodology (see ***Chapter 6 Project Description section 6.6.3.4***)		
Workforce (methodology)	Sam methodology (see ***Chapter 6 Project Description section 6.6.3.5***)		
Programme	Same programme (see ***Chapter 6 Project Description section 6.9.1***)		Up to 20 months for East Anglia TWO and up to 20 months for East Anglia ONE North later
Reinstatement (methodology)	Same methodology (see ***Chapter 6 Project Description section 6.6.3.6***)		
Operation and maintenance (methodology)	Same methodology (see ***Chapter 6 Project Description section 6.6.4***)		
Decommissioning (methodology)	Same methodology (see ***Chapter 6 Project Description section 6.6.5***)		

Parameter	East Anglia ONE North only	Scenario 1: East Anglia ONE North and East Anglia TWO constructed concurrently	Scenario 2: East Anglia ONE North and East Anglia TWO constructed sequentially
Cable Route			
Site description	Same description (see ***Chapter 6 Project Description section 6.7.1***)		
Cables and ducts	Same description (see ***Chapter 6 Project Description section 6.7.2.1***)		
Cable jointing and jointing bays	Two jointing bays per location, approximately 36 jointing bays.	Four jointing bays per location, approximately 72 jointing bays.	
Installation of cables	The cables for East Anglia ONE North would be installed in two parallel trenches with sand and originally excavated backfill, where suitable. In all there would be six power cables and two fibre-optic cables.	The cables for the proposed East Anglia ONE North project would be installed in two parallel trenches with sand and originally excavated backfill, where suitable. In all there would be six power cables and two fibre-optic cables. In addition, two parallel trenches would be excavated, or ducts installed for the proposed East Anglia TWO project. In total, four trenches would be excavated, each laid with two ducts, or cables laid directly. This would total six power cables and two fibre-optic cables for the proposed East Anglia TWO project and six power cables and two fibre-optic cables East Anglia ONE North project.	
Preparation of the working width	Construction activities would be undertaken within a temporarily fenced strip of land, known as the working width, which would generally be no wider than 32m.	Construction activities would be undertaken within a temporarily fenced strip of land, known as the working width, which would generally be no wider than 64m.	Construction activities would be undertaken within a temporarily fenced strip of land, known as the working width, which would generally be no wider than 32m. Assuming that the proposed East Anglia TWO project is constructed first, then the proposed East Anglia ONE North project would also have a similar working width (32m), with a cumulative width of 64m.
Reduced working width	A reduced working width of 16.10m is proposed at woodland and	A reduced working width of 27.1m is proposed at woodland and	A reduced working width of 16.10m is proposed at woodland and

Parameter	East Anglia ONE North only	Scenario 1: East Anglia ONE North and East Anglia TWO constructed concurrently	Scenario 2: East Anglia ONE North and East Anglia TWO constructed sequentially
	hedgerows classified as important due to ecological, cultural heritage or landscape criteria	hedgerows classified as important due to ecological, cultural heritage or landscape criteria.	hedgerows classified as important due to ecological, cultural heritage or landscape criteria. Assuming the proposed East Anglia TWO project is constructed first, then the proposed East Anglia ONE North project would also have a similar reduced working width of 16.10m, with a cumulative width of 32.2m.
Pre-construction works (methodology)	Same methodology (see ***Chapter 6 Project Description section 6.7.3.2***)		
Topsoil stripping (methodology)	Same methodology (see ***Chapter 6 Project Description section 6.7.3.5***)		
Temporary roads (methodology)	Same methodology (see ***Chapter 6 Project Description section 6.7.3.6***)		
Cable delivery (methodology)	Same methodology (see ***Chapter 6 Project Description section 6.7.3.8***)		
Cable pulling and installation (methodology)	Same methodology (see ***Chapter 6 Project Description section 6.7.3.9***)		
Special crossings	For medium scale HDD (at the SSSI and SAC crossing point), a typical working area of approximately 70m x 100m, or variations of these dimensions, would be required at the HDD rig site to accommodate the drilling rig itself, as well as ancillary equipment, offices, working facilities and storage of bentonite (drilling fluid), water and drill pipes. At the exit side of each crossing an area of approximately 70m x 100m	Special crossings would match that as described in ***Chapter 6 Project Description section 6.7.3.10*** with the exception that for medium scale HDD (at the SSSI and Special Area of Conservation (SAC) crossing point), a typical working area of approximately 70m x 195m, or variations of these dimensions, would be required at the HDD rig site to accommodate the drilling rig itself, as well as ancillary equipment, offices,	Special crossings would match that as described in ***Chapter 6 Project Description section 6.7.3.10*** with the exception that for medium scale HDD (at the SSSI and SAC crossing point), a typical working area of approximately 70m x 100m, or variations of these dimensions, would be required at the HDD rig site to accommodate the drilling rig itself, as well as ancillary equipment, offices, working facilities and storage of bentonite

Parameter	East Anglia ONE North only	Scenario 1: East Anglia ONE North and East Anglia TWO constructed concurrently	Scenario 2: East Anglia ONE North and East Anglia TWO constructed sequentially
	would be required to encompass the exit pit and the mud storage tanks.	working facilities and storage of bentonite (drilling fluid), water and drill pipes. At the exit side of each crossing an area of approximately 70m x 195m would be required to encompass the exit pit and the mud storage tanks.	(drilling fluid), water and drill pipes. At the exit side of each crossing an area of approximately 70m x 100m would be required to encompass the exit pit and the mud storage tanks. At a later date, the second project (the proposed East Anglia ONE North project) would use similar dimensions for special crossings.
Temporary works (methodology)	Same methodology (see ***Chapter 6 Project Description section 6.7.3.11***)		
Construction traffic and plant	An initial assessment of the number of vehicle movements required (for the delivery of equipment, and personnel) associated with the construction of the cable route per separate construction section has been estimated at approximately an average of 150 movements per day for Section 1, 95 movements per day for Section 2, 75 movements per day for Section 3, and 65 movements per day for Section 4.	For construction traffic and plant, an initial assessment of the number of vehicle movements required (for the delivery of equipment, and personnel) associated with the construction of the cable route per separate construction sections has been estimated at approximately an average of 175 movements per day for Section 1, 120 movements per day for Section 2, 90 movements per day for Section 3, and 80 movements per day for Section 4.	An initial assessment of the number of vehicle movements required (for the delivery of equipment, and personnel) associated with the construction of the cable route per separate construction sections has been estimated at approximately an average of 150 movements per day for Section 1, 95 movements per day for Section 2, 75 movements per day for Section 3, and 65 movements per day for Section 4. The proposed East Anglia ONE North project would have similar approximate movements per day.
Lighting (methodology)	Same methodology (see ***Chapter 6 Project Description section 6.7.3.13***)		

Parameter	East Anglia ONE North only	Scenario 1: East Anglia ONE North and East Anglia TWO constructed concurrently	Scenario 2: East Anglia ONE North and East Anglia TWO constructed sequentially
Workforce	The total number of construction employees required has been estimated at approximately an average of 40 construction personnel associated with Section 1 of the onshore cable route, 25 personnel per day for Section 2, 25 personnel per day for Section 3, and 25 personnel per day for Section 4.	Construction workforce would match that as described in *section 6.9.3.13* with the exception that the total number of construction employees required has been estimated at approximately an average of 45 construction personnel associated with Section 1 of the onshore cable route, 30 personnel per day for Section 2, 25 personnel per day for Section 3, and 25 personnel per day for Section 4. The estimated programme would remain as outlined in *section 6.9.3.13*	The total number of construction employees required has been estimated at approximately an average of 40 construction personnel associated with Section 1 of the onshore cable route, 25 personnel per day for Section 2, 25 personnel per day for Section 3, and 25 personnel per day for Section 4. The proposed East Anglia ONE North project would have similar personnel per day.
Reinstatement (methodology)	Same methodology (see ***Chapter 6 Project Description section 6.7.3.17***)		
Operation and maintenance (methodology)	Same methodology (see ***Chapter 6 Project Description section 6.6.4***)		
Decommissioning (methodology)	Same methodology (see ***Chapter 6 Project Description section 6.6.5***)		
Substation(s)			
Onshore substation infrastructure	The proposed East Anglia TWO project onshore substation would be located within a single compound, with up to maximum dimensions of 190m (width) x 190m (length) x up to 18m (height) for external electrical equipment, or up to 15m (height) for the tallest building.	The proposed East Anglia ONE North onshore substation is a duplication of the proposed East Anglia TWO onshore substation as outlined in ***Chapter 6 Project Description section*** *Error! Reference source not found.* and ***Table 6.28***, that would be located immediately adjacent to the East Anglia TWO onshore substation.	

Parameter	East Anglia ONE North only	Scenario 1: East Anglia ONE North and East Anglia TWO constructed concurrently	Scenario 2: East Anglia ONE North and East Anglia TWO constructed sequentially
National Grid substation infrastructure	The National Grid substation would be located within a single compound, with up to maximum dimensions of 140m (width) x 325m (length) x up to 13m (height) for the tallest building.	Only one National Grid substation is required for the proposed East Anglia TWO and East Anglia ONE North projects. The two SPR onshore substations would share the National Grid infrastructure and connection to the overhead lines (as per ***Chapter 6 Project Description section 6.7.9***). The Applicant's preferred arrangement of all three substations is shown in ***Figure 6.5***.	
Site establishment and laydown	East Anglia ONE North: up to maximum of 1 CCS x 190m x 90m plus the 190m x 190m footprint of the onshore substation.	East Anglia ONE North and East Anglia TWO: up to maximum of 3 CCS x 190m x 90m plus the 190m x 190m footprint of the onshore substations.	
Pre-construction activities (methodology)	Same methodology (see ***Chapter 6 Project Description section 6.7.8.2***)		
Temporary fencing (methodology)	Same methodology (see ***Chapter 6 Project Description section 6.7.8.4***)		
Grading and earthworks (methodology)	Same methodology (see ***Chapter 6 Project Description section 6.7.8.6***)		
Surface water drainage (methodology)	Same methodology (see ***Chapter 6 Project Description section 6.7.8.7***)		
Foul drainage (methodology)	Same methodology (see ***Chapter 6 Project Description section 6.7.8.8***)		
Foundations (methodology)	Same methodology (see ***Chapter 6 Project Description section 6.7.8.10***)		
Buildings (methodology)	Same methodology (see ***Chapter 6 Project Description section 6.7.8.9***)		
Installation works (methodology)	Same methodology (see ***Chapter 6 Project Description section 6.7.8.12***)		
Lighting (methodology)	Same methodology (see ***Chapter 6 Project Description section 6.7.8.14***)		

Parameter	East Anglia ONE North only	Scenario 1: East Anglia ONE North and East Anglia TWO constructed concurrently	Scenario 2: East Anglia ONE North and East Anglia TWO constructed sequentially
Workforce (methodology)	Same methodology (see ***Chapter 6 Project Description section 6.7.8.15***)		
Programme	For an outline programme for the construction of the onshore substation see ***Chapter 6 Project Description section 6.9.3***. For National Grid substation and overhead line see ***Chapter 6 Project Description section 6.9.4*** and ***section 6.9.5***.	For an outline programme for the construction of the onshore substation see ***Chapter 6 Project Description section 6.9.3***. For National Grid substation and overhead line see ***Chapter 6 Project Description section 6.9.4*** and ***section 6.9.5***.	The outline programme for the construction of the proposed East Anglia TWO project onshore substation matches that as described in ***Chapter 6 Project Description section 6.9.3***. The outline programme for the construction of the proposed East Anglia ONE North project onshore substation would be duplicated at a later date. The PEIR assessment assumes full reinstatement of the first project before construction of the second project begins. For National Grid substation and overhead line see ***Chapter 6 Project Description section 6.9.4*** and ***section 6.9.5***.
Operation (methodology)	Same methodology (see ***Chapter 6 Project Description section 6.7.11***)		
Decommissioning (methodology)	Same methodology (see ***Chapter 6 Project Description section 6.7.12***)		