

**The Great Grid Upgrade**

Sea Link

# Preliminary Environmental Information Report

Volume: 2

Part 4 Offshore Scheme

Appendix 4.12 A Description of Other Projects

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# Sea Link

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## 4.12.A Description of other Projects

### 4.12.A.1 Introduction

4.12.A.1.1 This appendix provides a description of other projects which have been identified to be taken through to the short list of the inter-project cumulative effects assessment of the Offshore Scheme. It provides a description of the other projects including their location and boundary as well as information on construction timescales.

4.12.A.1.2 This appendix should be read in conjunction with:

- **Volume 1, Part 4, Chapter 12, Offshore Scheme Inter-Project Cumulative Effects;** and
- **Volume 2, Appendix 1.5.A Cumulative Effects Assessment Methodologies.**

4.12.A.1.3 This appendix is supported by the following Figures:

- **Volume 3, Figure 4.12.A.1 The locations of the Sizewell C Nuclear Power Station Offshore Works.**
- **Volume 3, Figure 4.12.A.2 The proposed offshore cable route of the Neuconnect interconnector.**
- **Volume 3, Figure 4.12.A.3 The proposed offshore cable route of the Gridlink interconnector.**
- **Volume 3, Figure 4.12.A.4 The proposed offshore export cable route of the North Falls Offshore Windfarm.**
- **Volume 3, Figure 4.12.A.5 The proposed offshore export cable route corridor and array area for the East Anglia One North Offshore Windfarm.**
- **Volume 3, Figure 4.12.A.6 The proposed offshore export cable route corridor and array area for the East Anglia Two Offshore Windfarm.**
- **Volume 3, Figure 4.12.A.7 The proposed offshore export cable route corridor and array area for the East Anglia Three Offshore Windfarm.**
- **Volume 3, Figure 4.12.A.8 The proposed landfall locations of the Nautilus offshore interconnector.**
- **Volume 3, Figure 4.12.A.9 The proposed offshore export cable route corridor for Five Estuaries offshore windfarm.**
- **Volume 3, Figure 4.12.A.10 The proposed landfall locations of the LionLink (previously Eurolink) offshore interconnector.**
- **Volume 3, Figure 4.12.A.11 The proposed location of the Hanson aggregate marine Ltd area 528/2.**

## 4.12.A.2 Sizewell C Nuclear Power Station

### Description

- 4.12.A.2.1 A proposed expansion of the Sizewell nuclear license site north of Sizewell B Nuclear Power Station. This will accommodate two new European pressurised reactors (EPR) with a 3.2GW electricity generation capacity (Ref 4.1). This will provide electricity for 6 million homes (Ref 4.2).
- 4.12.A.2.2 The project is currently jointly run between Électricité de France (EDF) and the UK Government after buying out China General Nuclear Power Group (CGN's) 50% stake in Sizewell C (Ref 4.3). Consequently, the land will be jointly owned by EDF and the UK Government with the new development consisting of nuclear and conventional islands, cooling water pumphouses, ancillary buildings, marine and terrestrial works, and infrastructure (Ref 4.4). Currently there are three parts of this development that could result in inter-project cumulative effects with the Offshore Scheme, which are the proposed sea defences, a temporary jetty and cooling water system. A description of each is provided in the following sections.

### Sea Defences

- 4.12.A.2.3 A collection of coastal sea defences 14m above sea level on the coast adjacent to the Sizewell C Nuclear Power Station. These will help protect the development from storm surges and extreme weather events (Ref 4.4).

### Temporary Jetty

- 4.12.A.2.4 A temporary jetty will be installed adjacent to the Sizewell complex during the construction phase of the Sizewell C Nuclear Power Station Development (Ref 4.4). This will help facilitate the transport of construction materials to the construction site minimising the number of Heavy Goods Vehicle (HGV) on the highway network. The jetty will also potentially assist the movement of excavated peat and alluvium from the construction site to Wallasea Island, Essex (Ref 4.4).

### Cooling Water System

- 4.12.A.2.5 The Cooling Water System is required as a heat sink so that Sizewell C Nuclear Power Station condensers do not overheat. This will require three water intakes 3 km offshore from the Sizewell C site and three water outfalls between 0.8- 3 km offshore (Ref 4.4). These will intake water and release filtered heated water into the marine environment post cooling as a heat sink. This process will occur via sub seabed horizontal tunnels (Ref 4.5). The Cooling Water System will be accompanied by a filtering debris recovery pit and fish return tunnels (Ref 4.5).

### Location and Boundary

- 4.12.A.2.6 The Sizewell C site is situated immediately north of the Sizewell B site, approximately 3.5 km north of Thorpeness village and will cover an area of 32 ha (Ref 4.4). The Sizewell C offsite works are located approximately 5 km north-northeast of the Suffolk landfall.

## Sea Defences

- 4.12.A.2.7 Sea Defences will be located immediately adjacent to the development on the coastal, eastern edge of the development (Ref 4.4).

## Temporary Jetty

- 4.12.A.2.8 The temporary jetty will be connected to the development immediately adjacent to Sizewell C Nuclear Power Station. The specific grid co-ordinates of the jetty are not currently available (Ref 4.4).

## Cooling System

- 4.12.A.2.9 The input cooling pipelines will be located 3 km offshore east of the development intersecting the Sizewell Bank and Dunwich Bank, 1.5 km offshore. The outfall pipelines are located 0.3 - 8 km offshore (Ref 4.4). The specific locations for both input and outfall pipelines are shown on **Figure 4.12.A.1**
- 4.12.A.2.10 The boundary for all offshore developments at Sizewell C is 5.38 km north east of the Offshore Scheme.

## Developmental and Construction Timeframes

- 4.12.A.2.11 The Development Consent Order (DCO) application for Sizewell C was made by the Secretary of State on the 20 July 2022 (Ref 4.6). Construction is due to commence in 2024 with a duration of 9 -15 years. This DCO is valid for five years.

## 4.12.A.3 NeuConnect Interconnector

### Description

- 4.12.A.3.1 A proposed 1.4GW capacity offshore multipurpose interconnector (MPI) project (Ref 4.7) from Wilhemshaven, Germany to the Isle of Grain, Kent developed by Meridam, Allianz Capital and Kansai Electric Power (Ref 4.8 and Ref 4.9). This project aims to be the first energy connection between the UK and Germany in order to transfer electricity between the two countries and increase grid capacity for increased electricity demand and supply from offshore wind assets (Ref 4.9). The offshore aspects of this development that have the potential to result in inter-project cumulative effects with the Offshore Scheme are the High Voltage Direct Current (HVDC) subsea cable and cable landfall location (Ref 4.10).

### HVDC Subsea Cable

- 4.12.A.3.2 A 720 km HVDC subsea cable through British, German and Dutch Exclusive Economic Zones (EEZs) within a 500 m cable corridor (Ref 4.10). The cable bundle with a capacity of 1.4GW will consist of two cables and a “piggybacked” fibre optic cable for cable monitoring and communication purposes (Ref 4.10). The cable will be trenched at a depth of 1.5m to 2m beneath the seabed to minimise cable damage. This will be undertaken using jet trenching or cable ploughs (Ref 4.10). Additional cable protection may be used if necessary.

### **Landfall Location**

- 4.12.A.3.3 The HVDC subsea cable will make landfall with the UK coastline at the Isle of Grain, Kent. Horizontal Directional Drilling (HDD) will be utilised to drill 800m long ducts beneath the intertidal zone (Ref 4.10). The transition between onshore trenching and the HDD duct will be aided a 20m x 10m Transition Joint Pit (TJP) and three trenches in the lower intertidal zone (Ref 4.10).

### **Location and Boundary**

- 4.12.A.3.4 The location of the Proposed Project is shown on **Figure 4.12.A.2**. The NeuConnect HVDC subsea cable crosses the Offshore Scheme at approximately Latitude: 51.794717, Longitude: 1.780703.

### **Developmental and Construction Timeframes**

- 4.12.A.3.5 The offshore licence for the British EEZ was issued by the Marine Management Organisation (MMO). Construction currently planned to commence in 2023 with full operation in 2028 (Ref 4.7). This construction timeline is currently on schedule with the production of the offshore cabling having started in October 2022.

## **4.12.A.4 Gridlink Interconnector**

### **Description**

- 4.12.A.4.1 A proposed 1.4 GW capacity offshore MPI project from Dunkerque, France to Kingsnorth, Kent developed by iCON Infrastructure LLP (Ref 4.11). It aims to transfer energy between UK and France providing electricity to 2.2 million homes (Ref 4.11). Additionally, it aims to improve grid capacity for increases in offshore wind electricity generation (Ref 4.11). The offshore, coastal, and intertidal components of the project will consist of a HVDC cable and landfall location.

### **HVDC Subsea Cable**

- 4.12.A.4.2 The 140 km HVDC subsea cable will connect the British and French landfall locations. Approximately 108 km of the HVDC cable will pass through the British EEZ (Ref 4.12). The subsea cables will be laid within a 30 m installation corridor within a wider 500 m cable corridor and is subject to Crown Estate licensing.
- 4.12.A.4.3 The subsea cables will be 150 mm in diameter utilising steel wire armouring for protection (Ref 4.12). The cable bundle will consist of two cables and a fibre optic cable for monitoring of the cable. This bundle will aim to be buried in a trench to a minimum depth of 2 m (Ref 4.12). The cable will be laid using a combination of mechanical trenchers and jetting trenchers for finer benthic substrates. Additional cable protection may be used if necessary.

### **Landfall Location**

- 4.12.A.4.4 A landfall point will be located at Kingsnorth on the Medway Estuary (Ref 4.12). HDD will be utilised at the landfall for 700 m beneath the intertidal and coastal zone (Ref 4.12). This will aim to preserve intertidal mudflats and sea defences on the cable route. A TJP will be installed to connect the subsurface onshore HVDC cable and subsea offshore HVDC cables (Ref 4.12).



## Location and Boundary

### HVDC Subsea Cable

- 4.12.A.4.5 The proposed 140 km Gridlink MPI project is illustrated on **Figure 4.12.A.3**. The Gridlink HVDC subsea cable crosses the Offshore Scheme at approximately Latitude: 51.37973 , Longitude: 1.570192.

## Developmental and Construction Timeframes

- 4.12.A.4.6 The offshore licence for the British EEZ was issued by the Marine Management Organisation (MMO) in May 2022. Construction is currently planned to commence at the end of 2023 and operational at the end of 2026 (Ref 4.13).

## 4.12.A.5 North Falls Offshore Windfarm

### Description

#### North Falls Offshore Wind Array

- 4.12.A.5.1 The main Offshore Wind Array will be located off the Essex and Suffolk coastline developed by Scottish and Southern Electricity Networks (SSE) and Rheinisch-Westfälische Elektrizitätswerk (RWE) (Ref 4.14). The wider array will be split over two separate arrays cumulatively consisting of 71 wind turbine generators across a 150 km<sup>2</sup> area (Ref 4.15). The maximum wind turbine height will be 397 m above Mean High Water Spring (MHWS) and will be supported by either monopile, pin pile, suction caisson, or Gravity Base Structure foundations (Ref 4.16).

#### HVAC Export Cables

- 4.12.A.5.2 Four 55 km subsea High Voltage Alternating Current (HVAC) export cables from the southern array to the Essex coast between Frinton- on- Sea and Clacton- on-Sea (Ref 4.16). The cables will be buried at a minimum depth of 0.5 m to 3 m beneath sand or gravel benthic substrate. Cable burial will be undertaken at water depths between 5 m and 59 m (Ref 4.16). Additional cable protection may be used if necessary.
- 4.12.A.5.3 Each export cable bundle will be comprised of three, 310 mm diameter, 400 kV HVAC cables and a fibre optic cable for monitoring purposes (Ref 4.16).

#### Array Cables

- 4.12.A.5.4 The two arrays will use 228 km of HVAC array cables connecting the wind turbines to the Offshore Substation Platforms (OSPs) (Ref 4.16). These cables will be comprised of three, 220 mm diameter HVAC cables. The voltage of these cables will vary between 33 to 132 kV based on specific function (Ref 4.16). The specific routing of these cables is yet to be determined.

#### Offshore Substation Platforms (OSPs)

- 4.12.A.5.5 Two OSPs will be constructed to transfer the electricity generation from each wind turbine to the main export cables (Ref 4.16). The wind turbines and the OSPs will

be connected by array cables (Ref 4.16). The specific location and dimensions of the OSPs are not currently available.

#### **Repair and maintenance platform.**

- 4.12.A.5.6 A repair and maintenance platform will be constructed to help with the continued operation of the platform (Ref 4.16). The specific location and dimensions of the platform are not currently available.

### **Location and Boundary**

- 4.12.A.5.7 The North Falls Offshore Windfarm is in the Outer Thames Estuary divided into 2 separate arrays adjacent to the Greater Gabbard Array (Ref 4.16):
- Northern Array: 20.9 km<sup>2</sup> and 12 nm from the coastline; and
  - Southern Array: 128.6 km<sup>2</sup> and 20.3 nm from the coastline.
- 4.12.A.5.8 The subsea export cable will make landfall between Clacton-on-Sea and Frinton-on-Sea, Essex to the north of the Margate and Long Sands SAC and Kentish Knock East MCZ (Ref 4.16).
- 4.12.A.5.9 The location of the project is shown on **Figure 4.12.A.4**. The subsea export cable crosses the Offshore Scheme approximately between the following northern boundary Latitude: 51.783148, Longitude: 1.774197, Latitude: 51.78203, Longitude: 1.781248, and the following southern boundary Latitude: 51.77409, Longitude: 1.771973, Latitude: 51.77293, Longitude: 1.778997.

### **Developmental and Construction Timeframes**

- 4.12.A.5.10 The Scoping Report was submitted to the Planning Inspectorate in July 2022 with non-statutory consultation closed on the 9 December 2022 (Ref 4.17). The DCO application is currently proposed to be submitted to Planning Inspectorate at the end of 2023 or the beginning of 2024 with construction commencing in 2025 (Ref 4.17). Commercial operation of the array and associated infrastructure is scheduled by 2030 (Ref 4.17).

## **4.12.A.6 East Anglia ONE North Offshore Windfarm**

### **Description**

#### **East Anglia ONE North Array**

- 4.12.A.6.1 A proposed 208 km<sup>2</sup> wind farm developed by Scottish Power Renewables (SPR) consisting of 67 turbines with a combined electricity generation capacity of 800 MW, an extension of the existing East Anglia ONE array (Ref 4.18). It is part of the East Anglia Hub which includes three arrays off the coast of Suffolk (Ref 4.19).
- 4.12.A.6.2 Each wind turbine being 300 m above the Lowest Astronomical Tide (LAT) and will use either 3-4 leg jackets on piles or suction caissons, monopiles or Gravity Base structures as foundations and will be placed between 33 m to 67 m deep (Ref 4.20).

### **HVAC Export Cable**

- 4.12.A.6.3 A 54.4 km HVAC will make landfall at Thorpeness, in East Suffolk. The cable will be buried at a depth of 0.5 m to 5 m in the seabed by jet trenching or mechanical trenching (Ref 4.20). Additional cable protection as well as boulder clearance and sandwave levelling may be required along the cable corridor as necessary (Ref 4.20). Additional cable protection may be used if necessary.
- 4.12.A.6.4 A fibre optic cable will be laid alongside the main export cable for cable monitoring (System Control and Data Acquisition) (Ref 4.20).

### **Platform Link and Array Cables**

- 4.12.A.6.5 A network of HVAC array cables will link the wind turbines to the electrical platforms for eventual transport to the export cable (Ref 4.20). The cumulative length of the array cables is yet to be determined.

### **Offshore Electrical Platforms**

- 4.12.A.6.6 Four electrical platforms will be installed with steel jacket foundations. These will include a variety of facilities and equipment including (Ref 4.20):
- Repair and maintenance platform;
  - Accommodation Platform;
  - Fuel and generators;
  - Craneage;
  - Potential helipad; and
  - Auxiliary power supply and transformers.

### **Meteorological Mast**

- 4.12.A.6.7 A 15 m to 20 m meteorological mast will be erected to monitor weather conditions for optimal operation of the array (Ref 4.20). The mast will use either jackets on piles, jackets on suction caissons, Gravity Base structures, suction caissons and monopiles for foundations to the seabed (Ref 4.20).
- 4.12.A.6.8 Along with the array the offshore aspect of the project includes (Ref 4.20):
- Four offshore converter platforms with associated subsea array cables to connect the array to the converter platforms;
  - A maintenance and repair platform; and
  - A 37.7 km of subsea export cable corridor connecting the array to the landfall near Thorpeness, East Suffolk.

### **Location and Boundary**

- 4.12.A.6.9 The array site is situated 37.7 km from the Suffolk coastline and is situated south of the Ulysses 2 sub-sea cable and north of the existing East Anglia ONE array (Ref 4.20). It is also demarcated by shipping route constraints to the east and west of the array (Ref 4.20).

- 4.12.A.6.10 The subsea export cable travels 37.7 km to the landfall between Sizewell and Thorpeness north of the Southwold Oil Transshipment Area and East Anglia TWO array (Ref 4.20).
- 4.12.A.6.11 The location of the project is shown on **Figure 4.12.A.5**. The East Anglia ONE cable corridor is located approximately 0.36 km north-east of the Offshore Scheme with the export cable located at a distance of approximately 1.8 km.

## Developmental and Construction Timeframes

### The DCO application was approved by the Secretary of State on the 31 March 2022 (

- 4.12.A.6.12 Ref 4.21). Construction is due to commence in 2023 and finish in 2026 (Ref 4.20). Currently the project's planned operational lifespan is 25 years until 2051 (Ref 4.20).

## 4.12.A.7 East Anglia TWO Offshore Windfarm

### Description

#### East Anglia TWO Wind Array

- 4.12.A.7.1 A proposed 255 km<sup>2</sup> wind farm developed by Scottish Power Renewables (SPR) consisting of 75 turbines (Ref 4.22). Each turbine will have an electricity generation capacity of 19 MW and 22 m high above MHWS (Ref 4.23). The foundations will either use 3-4 leg jackets on piles or suction caissons, monopiles of Gravity Base structures and be placed between 33 m to 67 m deep (Ref 4.23).

#### HVAC Export Cable

- 4.12.A.7.2 Two 57 km HVAC subsea export cable corridors connecting the array to the landfall near Thorpeness, East Suffolk will be installed (Ref 4.23). The cable will be buried at a depth of 0.5 m to 5 m in the seabed by jet trenching or mechanical trenching (Ref 4.23). Additional cable protection as well as boulder clearance and sandwave levelling may be required along the cable corridor is necessary (Ref 4.23). Additional cable protection may be used if necessary.
- 4.12.A.7.3 A fibre optic cable will be laid alongside the main export cable for cable monitoring (System Control and Data Acquisition) (Ref 4.23).

#### Platform Link and Array Cables

- 4.12.A.7.4 A network of HVAC array cables will link the wind turbines to the electrical platforms for eventual transport to the export cable (Ref 4.23). The cumulative length of the array cables is yet to be determined.

#### Offshore Electrical Platforms

- 4.12.A.7.5 Four electrical platforms will be installed with steel jacket foundations. These will include a variety of facilities and equipment including (Ref 4.23):
- Repair and maintenance platform;

- Accommodation platform;
- Meteorological station;
- Fuel and generators;
- Cranes;
- Potential helipad; and
- Auxiliary power supply and transformers.

## Location and Boundary

- 4.12.A.7.6 The array site is situated 50 km from the Suffolk coastline at Sizewell, Suffolk and is situated south of the Outer Thames Estuary SPA and approximately 10 km west of the existing East Anglia ONE array (Ref 4.23). It is also demarcated by shipping route constraints and the existing Galloper Wind Farm to the south of the array (Ref 4.23).
- 4.12.A.7.7 The subsea export cable travels 32 km to the landfall between Sizewell and Thorpeness. There are two existing cable corridors: the northern corridor travels north of the Southwold Oil Transshipment Area, whereas the southern cable corridor travels south of this transshipment area, with potential to share the export cable corridor for East Anglia ONE North (Ref 4.23).
- 4.12.A.7.8 The location of the project is illustrated on **Figure 4.12.A.6**. The East Anglia TWO cable corridor is located approximately 0.36 km north-east of the Offshore Scheme with the export cable located at a distance of approximately 1.5 km.

## Developmental and Construction Timeframes

- 4.12.A.7.9 The DCO application was approved by the Secretary of State on the 31 March 2022 along with the East Anglia ONE North array (Ref 4.24). Construction on the project is planned for 2025 with completion in 2030 (Ref 4.22). Once completed the development will be in operation for 25 years until 2055 (Ref 4.22).

## 4.12.A.8 East Anglia THREE Offshore Windfarm

### Description

#### East Anglia THREE Wind Array

- 4.12.A.8.1 A proposed 370 km<sup>2</sup> wind farm developed by Scottish Power Renewables (SPR) and Vattenfall consisting of 120 to 240 wind turbines with a combined electricity generation capacity of 1200MW (Ref 4.25). It is part of the East Anglia Hub which includes three arrays off the coast of Suffolk, with the East Anglia THREE array being 79 km from Lowestoft, Suffolk (Ref 4.26). All wind turbines are located in a water depth of 35 m to 45 m with the tip of the turbine blade 245 m above LAT (Ref 4.26). Each turbine will be secured with weather jacket on piles, tripods on piles, Gravity Base structures, suction caissons or monopiles foundations (Ref 4.26). Specific foundation designs will be decided later as the development progresses.

### **HVDC Export Cables**

- 4.12.A.8.2 Four offshore, HVDC export cables will make landfall at Bawdsey, Suffolk (Ref 4.26). Cumulatively the four offshore export cables will travel up to 140 km in length with the cable corridor's footprint covering up to 550 km<sup>2</sup> (Ref 4.26).
- 4.12.A.8.3 The four export cables will run as two pairs of cables with each cable being 150 mm in diameter. Each cable will be three cable cores, cross- linked polyethylene (XLPE) design with a capacity of 300- 600 kV along with a fibre optic cable for cable monitoring (Ref 4.26). Additional cable protection as well as boulder clearance and sandwave levelling may be required along the cable corridor is necessary (Ref 4.26).

### **Offshore Collector and Converter Platforms**

- 4.12.A.8.4 Three Offshore Collector platforms will bring together electricity generated by the wind turbines for transport to the Converter Stations (Ref 4.26). The Collector Stations will accommodate power transformers, switchgear, control systems and neutral earthing resistors (Ref 4.26).
- 4.12.A.8.5 Electricity will be transported to two converter stations where the HVAC electricity in the array cable is converted to HVDC for the export cables. All platforms will use either jacket on piles, tripods on piles, Gravity Base structures, suction caissons or monopiles foundations (Ref 4.26). The Converter Station will cover an area of 2.85 ha above the sea surface (Ref 4.26). The Converter Station will accommodate power transformers, switching devices, switchgear, cooling systems, DC equipment and AC/DC converters (Ref 4.26).

### **Array Cables**

- 4.12.A.8.6 Twelve HVAC cables will link the collector stations and converter stations offshore for eventual transport via the HVDC export cable (Ref 4.26). Each cable is a three cable cores, XLPE designed with a 260 mm diameter with a capacity of 275 kV. Each cable bundle will have a fibre optic cable for cable monitoring (Ref 4.26).

### **Offshore Substation Platforms**

- 4.12.A.8.7 The Offshore Substation Platform will accommodate additional equipment for the continued operation of the array (Ref 4.26). This will include:
- Accommodation facilities for offshore workers;
  - Generators and fuel supplies;
  - Craneage;
  - Meteorological equipment;
  - Helipad; and
  - Auxiliary power supply systems and transformers.
- 4.12.A.8.8 All platforms will use steel jacket foundations given the greater size relative to the wind turbines (Ref 4.26).

## Location and Boundary

- 4.12.A.8.9 The array will be located 79 km from the Suffolk coastline across a 370km<sup>2</sup> area (Ref 4.26). The location of the Project is shown on **Figure 4.12.A.7**. The East Anglia THREE export cable corridor crosses the Offshore Scheme approximately between the following northern boundary Latitude: 52.089414, Longitude: 1.661804, Latitude: 52.092125, Longitude: 1.669532 and southern boundary Latitude: 52.062225, Longitude: 1.661399, Latitude: 52.064483, Longitude: 1.670803.

## Developmental and Construction Timeframes

- 4.12.A.8.10 The DCO application was approved by the Secretary of State on the 7 August 2017 (Ref 4.27). Construction on the project commenced in July 2022 and is scheduled to be completed by 2026 (Ref 4.26). Once completed the development will be in operation for 25 years until 2051 (Ref 4.26).

## 4.12.A.9 Nautilus Offshore Interconnector

### Description

- 4.12.A.9.1 A 1.4 GW capacity MPI connecting Belgium with the Suffolk Coast being developed by National Grid (Ref 4.28). The aim will be to increase transfer in offshore wind electricity generation and improve grid capacity in both countries to achieve this. The offshore aspect of the development includes (Ref 4.29):
- Subsea HVDC cable connecting the Belgian landfall with the UK landfall in Suffolk; and
  - Offshore HVDC converter platform.
- 4.12.A.9.2 National Grid currently holds a connection agreement on the Isle of Grain in Kent as part of its development portfolio and they are currently investigating if this could be a potential location for Nautilus.

## Location and Boundary

- 4.12.A.9.3 The proposed location of the project is shown on **Figure 4.12.A.8**. The Nautilus potential routing options at the Suffolk landfall currently overlap with the Offshore Scheme (Ref 4.28). Whilst the landfall could be shared at this landfall, the marine cables are unlikely to cross. Should the Nautilus landfall move to Kent, that there will be a crossing in marine waters, but the location of that crossing is currently unknown (Ref 4.28).

## Developmental and Construction Timeframes

- 4.12.A.9.4 Non statutory consultation and community engagement closed in October 2021 (Ref 4.28) with assessments and engineering to support the relevant consents currently underway.

## 4.12.A.10 Five Estuaries Offshore Windfarm

### Description

#### Five Estuaries Wind Array

- 4.12.A.10.1 A proposed 149 km<sup>2</sup> wind farm jointly developed by RWE 37 km off the Suffolk Coast. The array consists of 79 turbines with a combined electricity generation capacity of 50 GW (Ref 4.31). Each turbine will be between 397 m high above MHWS with a 337 m rotor diameter tip to tip. Turbines will be anchored by either monopile, suction bucket monopile, pin piled or Gravity Base monopile foundations (Ref 4.31).

#### HVAC Export Cables

- 4.12.A.10.2 Four separate 92.5 km subsea HVAC export cables will be routed from the array to the Essex coast near Clacton- on- Sea (Ref 4.31). Each cable will be buried at a minimum depth of 0.5 m to 3 m using mechanical trenching or jet trenching disturbing 12 m of seabed around the cable trench (Ref 4.31). Additional cable protection will be used if necessary.
- 4.12.A.10.3 The cable bundle itself will comprise of three, 400 kV cables along with a fibre optic cable for cable monitoring. It will use XLPE in the cable design (Ref 4.31).

#### Array Cables

- 4.12.A.10.4 A cumulative length of 228 km of HVAC array cables will be used to link the wind turbines to OSP for eventual transport to the export cable (Ref 4.31). These will likewise be buried 0.5 m to 3 m into the seabed disturbing 6 m of seabed either side of the cable (12 m overall) (Ref 4.31).
- 4.12.A.10.5 The cable bundle will comprise of three, 220 mm diameter cables and a fibre optic cable for cable monitoring purposes (Ref 4.31).

#### Offshore Substation Platforms (OSPs)

- 4.12.A.10.6 Two OSPs will be installed to transfer the electricity generated from the turbines and transported to the OSP by the array cables to the export cables. The OSP platform be 195m above the LAT and 12,500 m<sup>2</sup> in area (Ref 4.31).

#### Repair and maintenance platform.

- 4.12.A.10.7 A repair and maintenance platform will be constructed (Ref 4.31). The specific location and dimensions of the platform are not currently available.

### Location and Boundary

- 4.12.A.10.8 The Five Estuaries Offshore Windfarm is divided into a northern and southern array. The northern array is immediately east of the Outer Gabbard Bank and the southern array is immediately east of Galloper Bank (Ref 4.31). The two arrays are separated by the Lobourg Channel and connected by a subsea array cable (Ref 4.31).



- 4.12.A.10.9 The export cable will be routed 92.5 km to landfall at Clacton-on-Sea, Essex immediately north of Gunfleet Bank and Long Sand Bank (Ref 4.31).
- 4.12.A.10.10 The location of the project is illustrated on **Figure 4.12.A.9**. The Five Estuaries export cable crosses the Offshore Scheme between the following northern boundary Latitude: 51.799118, Longitude: 1.777566, Latitude: 51.798434, Longitude: 1.784941 and southern boundary Latitude: 51.7764692, Longitude: 1.7725573, Latitude: 51.7758955, Longitude: 1.7797464.

## Developmental and Construction Timeframes

- 4.12.A.10.11 The scoping and non-statutory consultation phase has already been completed in October 2021. Subsequent statutory consultation was concluded on the 12 May 2023 with the Preliminary Environmental Information Report (PEIR) expected by Q4 of 2023 (Ref 4.32). The DCO application is scheduled to be submitted to Planning Inspectorate by winter 2023. Construction is due to commence in 2025 with full operation in 2030 under the current schedule (Ref 4.32).

## 4.12.A.11 LionLink Offshore Interconnector

### Description

- 4.12.A.11.1 Formally known as Eurolink, a 1.8GW MPI connecting the Netherlands and the UK developed by National Grid. The aim will be to increase transfer in offshore wind electricity generation and improve grid capacity in both countries to achieve this (Ref 4.33). This aims to advance key National Grid and UK Government goals including transitioning to Net Zero by 2030, enhancing energy security and affordability (Ref 4.33). The offshore aspect of the development includes:
- Subsea HVDC connecting the Belgian landfall with the UK landfall in Suffolk; and
  - Offshore HVDC converter platform (Ref 4.33).

### Location and Boundary

- 4.12.A.11.2 The location of the project is illustrated on **Figure 4.12.A.10**. The LionLink routing options at the Suffolk landfall currently overlap with the Offshore Scheme (Ref 4.34). Whilst the landfall could be shared at this location, the marine cables are unlikely to cross due to the direction this cable will be coming from (Ref 4.34).

## Developmental and Construction Timeframes

- 4.12.A.11.3 Non statutory consultation and community engagement closed on the 18 December 2022. As of October 2022, National Grid aims to submit the DCO application to Planning Inspectorate in December 2024 (Ref 4.35). Construction will be due to commence in 2027 with the final connection date being in 2029 under the current schedule (Ref 4.35).

## 4.12.A.12 Hanson Aggregate Marine Ltd Area 528/2

### Description

- 4.12.A.12.1 An application and option area for the exploration and extraction of marine aggregates (Ref 4.36).

### Location and Boundary

- 4.12.A.12.2 The option area is 47.37 km<sup>2</sup> and is located immediately outside the Thames Estuary and next to the 9.66 km fishing limit. Boundaries encompassing the following Degrees and Decimal Minutes (DDM) co-ordinates as published by the Crown Estate (Ref 4.36).
- 4.12.A.12.3 The location of the project is illustrated on **Figure 4.12.A.11**. The option area is located 0.1 km east of the Offshore Scheme.

### Development and Construction Timeframes

- 4.12.A.12.4 The application for this site was submitted in 2017, with a commencement date of 01 August 2017, and an end date of 31 July 2023.

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National Grid plc  
National Grid House,  
Warwick Technology Park,  
Gallows Hill, Warwick.  
CV34 6DA United Kingdom

Registered in England and Wales  
No. 4031152  
[nationalgrid.com](http://nationalgrid.com)