

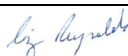
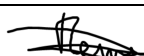

Project Title	Dogger Bank Offshore Wind Farm
Date	18/11/21

# Dogger Bank Offshore Wind Farm

## Dogger Bank C Decommissioning Programme

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## Glossary of Acronyms

BEIS	Department for Business, Energy and Industrial Strategy
BMAPA	British Marine Aggregate Producers Association
Cefas	Centre for Environment Fisheries and Aquaculture Science
DBA	Dogger Bank A
DBB	Dogger Bank B
DBC	Dogger Bank C
DCO	Development Consent Order
dML	Deemed Marine Licence
EIA	Environmental Impact Assessment
ES	Environmental Statement
HAT	Highest Astronomical Tide
HRA	Habitats Regulations Assessment
HVAC	High Voltage Alternating Current
HVDC	High Voltage Direct Current
JNCC	Joint Nature Conservation Committee
LAT	Lowest Astronomical Tide
MMO	Marine Management Organisation
OFTO	Offshore Transmission Owner
OSP	Offshore Substation Platform
RCBC	Redcar and Cleveland Borough Council
RoC	Review of Consents
SAC	Special Area of Conservation
SIP	Site Integrity Plan
SOWF	Sofia Offshore Wind Farm
SPA	Special Protection Area
WTG	Wind Turbine Generator

## Glossary of Terminology

Bizcos	Project 2 Bizco and Project 3 Bizco are collectively referred to as 'Bizcos'. Projco 3 and SOWFL are the current registered names of the undertakers referred to as Bizco 2 and Bizco 3 (respectively) in the DCO, and that have the benefit of the DCO.
Condition	Refers to a Condition set out in Part 2 of the deemed Marine Licence 1 (generation assets) and Part 2 of the deemed Marine Licence 3 (transmission assets).
Contractor	An individual or business in charge of carrying out construction work.
Development Consent Order	The DCO is a statutory instrument granted by the Secretary of State to authorise the construction and development of Nationally Significant Infrastructure Projects. The DCO relating to this Project (as amended) grants development consent for two offshore wind farms in the Dogger Bank, offshore electrical transmission infrastructure from the wind farms to a shared landfall point between Redcar and Marske-by-the-Sea and onshore electrical transmission infrastructure located in the Borough of Redcar and Cleveland.
Dogger Bank Wind Farm	Comprises three wind farms; Dogger Bank A, Dogger Bank B and Dogger Bank C.
Dogger Bank A	Dogger Bank A Offshore Wind Farm (formerly known as Dogger Bank Creyke Beck A Offshore Wind Farm) which is being developed as part of the Dogger Bank Windfarm as a joint venture partnership by Equinor, SSE Renewables and ENI.
Dogger Bank B	Dogger Bank B Offshore Wind Farm (formerly known as Dogger Bank Creyke Beck B Offshore Wind Farm) which is being developed as part of the Dogger Bank Windfarm as a joint venture partnership by Equinor, SSE Renewables and ENI.
Dogger Bank C	The Project (formerly known as Dogger Bank Teesside A Offshore Wind Farm), which is being developed as part of the Dogger Bank Windfarm as a joint venture partnership by Equinor and SSE Renewables.
Inter-array cables	Offshore cables which link the wind turbines to each other and the offshore substation platform.
Landfall	Where the offshore cables come ashore between Redcar and Marske-by-the-Sea.
Offshore Export Cable Corridor	The corridor within which the offshore export cable route will be located extending from the Wind Farm Site to mean high water springs at the Landfall.
Offshore Export Cable Route	This is the area which will contain the offshore export cables within the Offshore Export Cable Corridor between offshore substation platform and landfall.
Offshore Transmission Infrastructure	The transmission assets required to export generated electricity to shore, extending from the offshore substation platforms at the Wind Farm Site to the transition joint bay at the landfall and including the offshore substation

	platform and export cables from the offshore substation platform up to the landfall.
Order Limits	The limits shown on the work plans within which the authorised project may be carried out. The offshore Order Limits relate to the offshore works plans and the intertidal works plans within which the authorised scheme may be carried out (the Wind Farm Site and the Offshore Export Cable Corridor).
The Project	The Dogger Bank C Offshore Wind Farm (formerly known as Dogger Bank Teesside A), consisting of up to 200 wind turbines, up to seven offshore platforms, inter-array platforms, platform link cables, up to five meteorological stations, up to two offshore export cables, fibre optic cables, landfall infrastructure, onshore cables and ducts, onshore substation, and National Grid infrastructure.
Requirement	Refers to a Requirement set out in Part 3 (requirements) of Schedule 1 of the DCO; and a reference to a numbered Requirement is a reference to the Requirement set out in the paragraph of the same number in that Part.
Sofia Offshore Wind Farm	Sofia Offshore Wind Farm (formerly known as Dogger Bank Teesside B) which is being developed by Sofia Offshore Wind Farm Limited.
Wind Farm Site	The area within the Order Limits in which all wind turbines, inter-array cables and the offshore substation platform will be located.

## Executive Summary

- 1 Dogger Bank Offshore Wind Farm Project 3 Projco Limited is a Joint Venture between SSE Renewables and Equinor, which has been set up to take forward the development of Dogger Bank C. Consent was granted for the Project in February 2015 under The Dogger Bank Teesside A and B Offshore Wind Farm Order 2015 (S.I. 2015/1592) (as amended) (the DCO).
- 2 The DCO grants development consent for construction, operation and maintenance of two offshore wind farms, Dogger Bank C (formerly known as Teesside A) (the Project) and Sofia Offshore Wind Farm (formerly known as Teesside B), as well as certain Shared Works. The DCO grants development consent for up to 200 wind turbine generators, each fixed to the seabed by monopile, multi leg or gravity base foundations. The DCO additionally grants four deemed Marine Licences for the marine licensable activities, including the deposit of substances and articles and the carrying out of works involved in the construction and operation of the wind farms and associated development.
- 3 Onshore construction works commenced in May 2021, with offshore works at the landfall due to commence in March 2023 and the main offshore works commencing in 2024. The operational lifetime of Dogger Bank C is expected to be at least 25 years, with the possibility for further extension at the end of this period. At the time of decommissioning, the Project will be decommissioned in accordance with the legislation and guidance that is available at that time.
- 4 In conjunction with complying with relevant legislation on decommissioning, Dogger Bank Wind Farm is committed to decommissioning the Project with minimal environmental impact. This will be achieved by restoring the site to as close to the original state as is reasonably possible. Data collected from pre-decommissioning surveys, alongside the results of relevant monitoring that has been undertaken to assess the effects of the construction and operation of the Project will be presented to the relevant authorities to inform the decommissioning requirements and methodologies.
- 5 Towards the end of the Project's operational life, a decision will be made as to whether the operational lifetime of the Project can be extended for example, by repowering. This option could postpone the decommissioning phase. When it is determined that the Project has reached the end of its operational lifetime, this Decommissioning Programme and the Environmental Statement issued in 2014 will be reviewed and updated as necessary to enable the appropriate licences to be obtained.
- 6 This Decommissioning Programme provides preliminary information on the proposed methods and approaches to decommissioning the offshore installations (as required by the Energy Act 2004, as amended). As changing circumstances and technological advancements are expected over the Project's lifetime, these proposals are subject to continuous updates during the development and operational phases.



## 1 Introduction

7 The Dogger Bank Teesside A and B Offshore Wind Farm Order 2015 (S.I. 2015/1592) (the DCO) was made on 4 August 2015 and came into force on 26 August 2015. It has subsequently been amended by:

- The Dogger Bank Teesside A and B Offshore Wind Farm Amendment Order 2019 (S.I. 2019 No. 669);
- The Dogger Bank Teesside A and B Offshore Wind Farm Amendment Order 2020 (S.I. 2020 No. 851);
- The Dogger Bank Teesside A and B Offshore Wind Farm Amendment (No. 2) Order 2020 (S.I. 2020 No.1389);
- The Dogger Bank Teesside A and B Offshore Wind Farm Amendment Order 2021 (S.I. 2021 No. 39); and
- The Dogger Bank Teesside A and B Offshore Wind Farm Amendment (No. 2) Order 2021 (S.I. 2021 No. 71).

8 The DCO (as amended) grants development consent for two offshore wind farms in the Dogger Bank, offshore electrical transmission infrastructure from the wind farms to a shared landfall point between Redcar and Marske-by-the-Sea and onshore electrical transmission infrastructure located in the Borough of Redcar and Cleveland.

9 The DCO grants development consent for Dogger Bank C (formerly known as Teesside A) (Project A) (herein referred to as Dogger Bank C, DBC or the Project) and Sofia Offshore Wind Farm (Sofia) (formerly known as Teesside B) (Project B), as well as certain Shared Works. Dogger Bank C together with Dogger Bank A and Dogger Bank B (formerly Creyke Beck A and Creyke Beck B) forms the Dogger Bank Wind Farm.

10 Dogger Bank C is being developed as a joint venture partnership by Equinor and SSE Renewables. Dogger Bank Offshore Wind Farm Project 3 Projco Limited (Projco 3) and Sofia Offshore Wind Farm Limited (SOWFL) have the benefit of the DCO. Projco 3 and SOWFL are the current registered names of the undertakers referred to as Bizco 2 and Bizco 3 (respectively) in the DCO, and that have the benefit of the DCO.

11 Alongside the DCO, four deemed marine licences (dMLs) were granted. Two of these dMLs relate to Dogger Bank C, one relating to electricity generation assets (WTGs and interarray cables), and one relating to offshore transmission assets (including offshore substation platforms (OSP) and export cables). The dMLs are in:

- Schedule 8 – Marine Licence 1: Project A Offshore (Generation – Works No. 1A and 2T) (dML 1) (as varied); and
- Schedule 10 – Marine Licence 3: Project A Offshore (Transmission – Works No. 2A, 3A and 2T) (dML 3) (as varied).

12 Dogger Bank C will comprise 87 WTGs which will be installed on monopile substructures



and will be linked to an OSP via subsea inter-array cables. The OSP, which will house both the offshore converter station and the offshore substation, will convert the power from HVAC to HVDC. This will then be exported via an offshore export cable (approximately 265 km long) from the wind farm site to the landfall north of Marske-by-the-Sea. From the landfall power will be exported via a HVDC electrical cable (approximately 7 km long) to a new onshore converter station at Lackenby. From the new onshore converter station, the power will be carried via a HVAC cable (approximately 2 km long) to the existing National Grid Lackenby substation.

13 In considering the Decommissioning Programme, the Project has sought to adhere to the following key principles:

- Safety for all at all times;
- Consideration of the rights and needs of legitimate users of the sea;
- Minimise environmental impact by having regard to the best practicable environmental option;
- Promote sustainable development;
- Adhere to the Polluter Pays Principle;
- Maximise the reuse of materials;
- Commercial viability; and
- Practical integrity.

14 This Decommissioning Programme is informed and supported by the existing environmental assessment for the consented Project, namely the Environmental Statement (ES) (Forewind, 2014) and Habitats Regulations Assessment (DECC, 2015). This programme will be subject to regular reviews every 5 years and updated, as appropriate, throughout the lifecycle of the Project to reflect changes to regulatory requirements, changing circumstances and to incorporate any improvements in knowledge and understanding of the decommissioning process and impacts on the marine environment, as well as any changes to the approach on decommissioning. Consultation with interested parties will be undertaken following updates to this programme, as necessary. Prior to decommissioning it is expected that a detailed environmental assessment will be undertaken to support the marine licence application for the decommissioning activities.

## **1.1 Purpose of this Document**

15 The expected operational lifetime of the Project is at least 25 years, depending on conditions during the Project's lifecycle. Towards the end of the expected operational lifetime a decision will be undertaken as to whether ongoing operation is feasible. This decision could extend the Project's lifecycle and subsequently postpone the decommissioning phase. At the end of its lifetime, the Wind Farm will be decommissioned to restore the site to its original condition as far as possible.

16 This Decommissioning Programme is being submitted to BEIS to discharge DCO, Schedule 1, Part 3, Requirement 15 which states:

*‘15.— (1) No Project A offshore works may commence until a decommissioning programme for the Project A offshore works in compliance with any notice served on Bizco 2 by the Secretary of State under section 105(2) of the 2004 Act<sup>4</sup> has been submitted to the Secretary of State for approval.*

*(1A) No Project B offshore works may commence until a decommissioning programme for the Project B offshore works in compliance with any notice served on Bizco 3 by the Secretary of State under section 105(2) of the 2004 Act has been submitted to the Secretary of State for approval.*

*(2) Each decommissioning programme submitted must accord with the principles set out in the outline decommissioning statement.”*

- 17 Dogger Bank C received notice under section 105(2) of the Energy Act 2004 requiring a Decommissioning Programme to be prepared and submitted to BEIS before offshore construction commences.

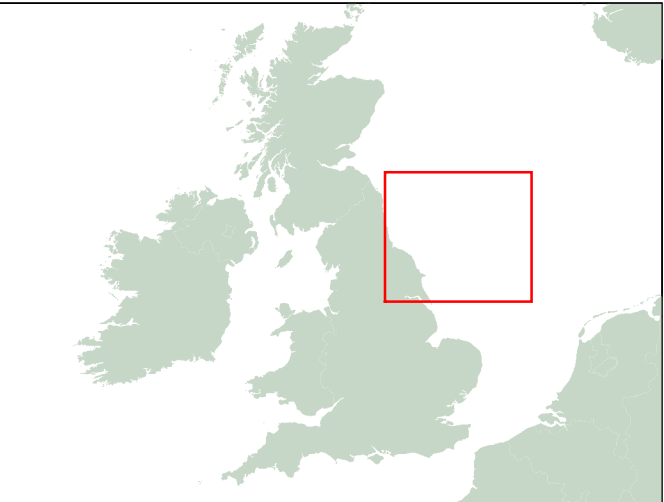
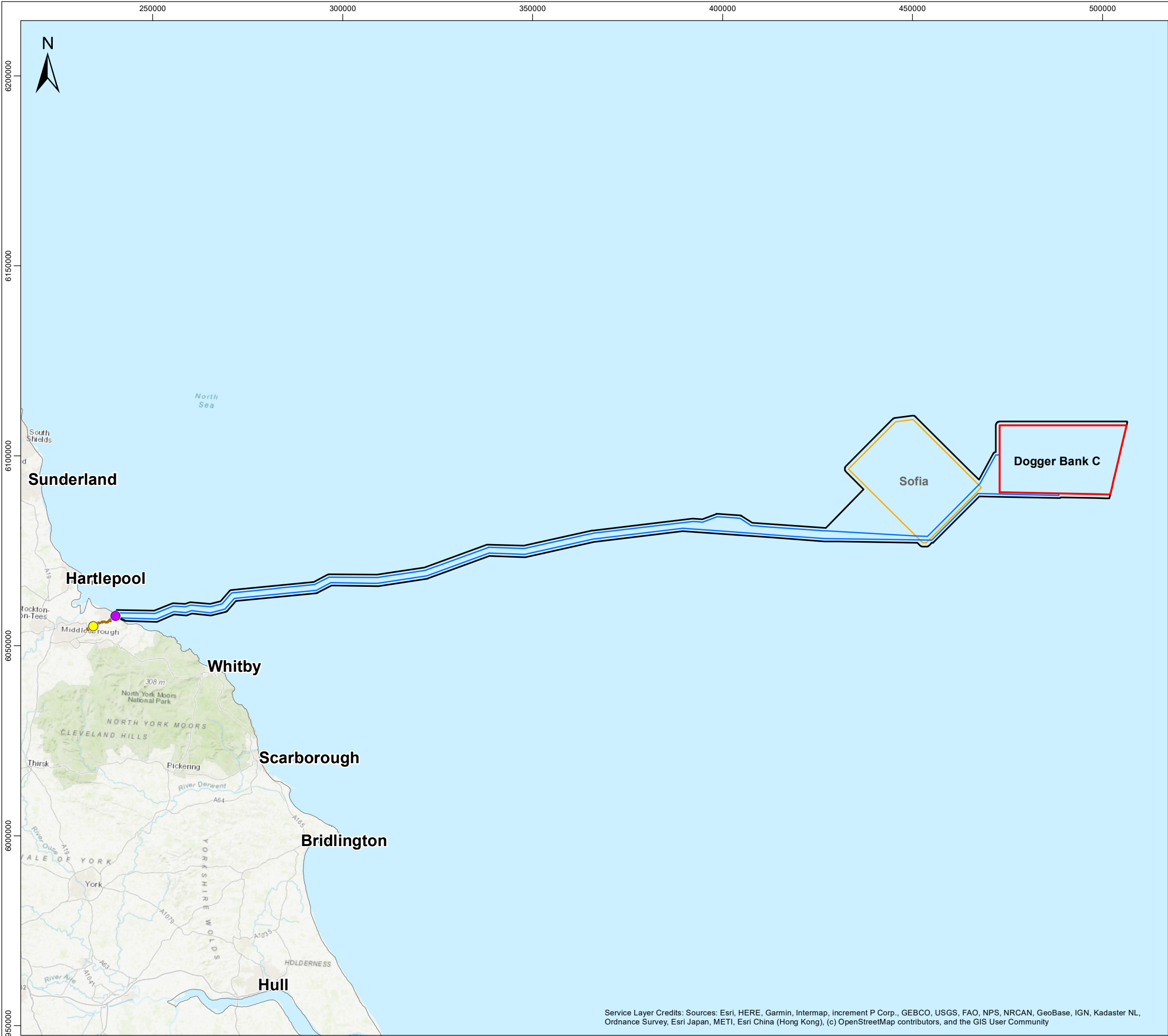
## 2 Background Information

### 2.1 Location

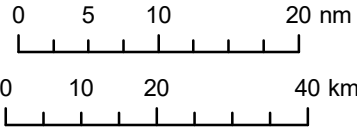
- 18 Dogger Bank C is located in the Southern North Sea and is approximately 195 kilometres (km) from shore at its closest point and covers an area of 593 square kilometres (km<sup>2</sup>). The offshore export cable, which runs from the offshore substation platform to the landfall, is 265 km in length.
- 19 From the landfall power will be exported via a HVDC electrical cable (approximately 7 km long) to a new onshore converter station at Lackenby. From the new onshore converter station, the power will be carried via a HVAC cable (approximately 2 km long) to the existing Lackenby National Grid substation. The location is shown in **Figure 2.1**.

### 2.2 Project Design and Background

- 20 Based on the detailed design the offshore infrastructure (i.e. below MHWS) for Dogger Bank C will comprise the following:
- Up to 87 offshore wind turbines with a rotor diameter of 220 m, a tip height of up to 315 m above Highest Astronomical Tide (HAT) on a monopile foundation with a diameter of up to 9 m;
  - One offshore substation on a jacket foundation installed with pin piles;
  - ~224 km Inter-array cables connecting turbines with the offshore substation; and
  - One export cable system.



- Legend**
- Dogger Bank C
  - Dogger Bank C Export Cable Corridor
  - Sofia
  - DCO Order Limits - offshore
  - DCO Order Limits - onshore
  - Converter Station Location
  - Landfall Location



Data Source:

Drawing Title

## DOGGER BANK C PROJECT OVERVIEW

Rev	Date	Remarks	Drwn	Chkd
00	18/10/2021	First issue	PR	ER
01	11/11/2021	Feature updates	MM	LR

Drawing Number

### DB-M-MISC-0004-01

Scale	Plot Size	Datum	Projection
1:1,000,000	A3	WGS84	UTM31N

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## DOGGER BANK WIND FARM

Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

## 2.3 Site characteristics

- 21 This section provides a brief summary of some of the key characteristics of the offshore aspects of the Project, including the Wind Farm Site and Offshore Export Cable Route and is structured around the environmental attributes identified in the BEIS 2019 guidance on what should be included.
- 22 The information is included in **Table 2.1** and is summarised from the ES (Forewind, 2014) and HRA (DECC, 2015) but has been updated where appropriate, for example to include details of nature conservation sites designated since consent was granted. As outlined in **Section 6**, the information in this section will be reviewed and updated based on any surveys undertaken prior to decommissioning activities taking place.

**Table 2.1: Summary of the Dogger Bank C site characteristics**

Offshore Physical Environment	
Bathymetry and Metocean Conditions	<p>The Wind Farm Site has a minimum water depth of just below 20 m and up to a maximum of 35 m below Lowest Astronomical Tide (LAT). The Offshore Export Cable Route lies within an area of water depths ranging up to 80 m below LAT. Despite this variation, the slopes are generally gentle.</p> <p>There is a predominance of granular surface sediments across the Wind Farm Site, with slightly gravelly sand dominating and with smaller patches of gravel and areas where the underlying geology is exposed. The gravel and sandy gravel are predominately found in north-south orientated 'strips' corresponding with deeper valleys in the bathymetry. Along the Offshore Export Cable Corridor, the seabed is dominated by sand with patches of gravel.</p> <p>The mean neap tidal range is approximately 2.3 m, the mean spring tidal range is 4.6 m, and the maximum (astronomical) tidal range is 5.5 m. Peak tidal current speeds over Dogger Bank are generally 0.1-0.3 metres per second (m/s) during mean neap tides and 0.2-0.4 m/s during mean spring tides.</p> <p>A programme of geophysical investigation and monitoring has been developed in the Geophysical Survey Plan and submitted to the MMO for approval (as per Condition 21(2)(b) of dML1 and 21(2)(b) of dML3).</p>
Seabed Conditions	<p>The marine subtidal and intertidal habitats recorded across the wind farm site and offshore export cable route are typical for the central North Sea, with a range of biotopes recorded that the EIA grouped into seven Valued Ecological Receptors (VERs) based on the sensitivity of the various biotopes.</p> <p>Some of the subtidal benthic habitats correspond to the Annex I habitat "sandbanks slightly covered by seawater at all times" and lie within the boundary of the Dogger Bank SAC. The main benthic characterisation survey (carried out by Gardline in 2012) identified the potential for</p>



	Annex I geogenic (cobble) reef habitat to exist within the Offshore Export Cable Route.
<b>Human Environment</b>	
Infrastructure and Other Users	<p>Given the offshore location of Dogger Bank C, there are no other nearby offshore wind farm projects (other than those currently proposed on Dogger Bank i.e. Dogger Bank A and B and Sofia Offshore Wind Farm) and limited other infrastructure. The closest other offshore wind farm in operation or under construction is in the Round 3 Hornsea Zone, 112 km from the southern boundary of Dogger Bank C. In addition, following bidding for the Round 4 UK Offshore Wind Leasing which took place in Q1 2021, RWE were awarded two sites within the Dogger Bank approximately 110 km from the North east coast of England. These sites are situated approximately 50 km from Dogger Bank C.</p> <p>There are several gas fields located around the Project, with the Cygnus complex the closest. The Cygnus Bravo unmanned satellite wellhead platform is located approximately 25 km from the Project and the Alpha complex approximately 43 km from the Project boundary. Within the Project boundary there is one well that is plugged and abandoned located to the south of the northern boundary of Dogger Bank C. There are a variety of oil and gas licenced areas within and in the vicinity of the site. Since the Project was granted consent, the 30<sup>th</sup> Round of Oil and Gas licencing (awards confirmed in Q2 2018) licensed a number of blocks which were in proximity to the Project and offshore export cable route. Further to this, the Oil and Gas Authority (OGA) ran the 31<sup>st</sup> licensing round in Q2 2018 and the 32<sup>nd</sup> Offshore Licensing Round in Q3 2019 (licences under the 32<sup>nd</sup> Round were awarded in September 2020). The outcome from the Oil and Gas Licencing Rounds that have taken place since the Project gained consent demonstrates there will be several blocks that will overlap the Offshore Export Cable Route.</p> <p>Within the boundaries of the Wind Farm Site there are no subsea cables or pipelines. The Offshore Export Cable Route crosses three active gas pipelines. These are the SEAL pipeline operated by Shell UK Ltd, the Langed pipeline operated by Gassco, and the Breagh pipeline operated by Ineos UK SNS Ltd.</p> <p>In addition the Offshore Export Cable Route crosses two out of service BT cables – the UK-Denmark-4 and the Marske-Sandvik. The latter is in the nearshore area. It is anticipated that sections of these cable will be recovered (i.e. removed and disposed of) at the crossing point as required. Any cut cable ends shall be handled and left on the seabed as per International Cable Protection Committee (IPCP) Recommendation No 1 “Management of Redundant &amp; Out of Service Cables”.</p>
Commercial Fisheries	<p>Within both the Wind Farm Site and Offshore Export Cable Route, fishing vessels from the UK, the Netherlands, Denmark, Germany, Belgium, Norway, France and Sweden target several commercial species of fish and shellfish including sandeel, plaice, sole, whelks, lobster and crab. A variety of fishing methods are utilised including</p>

	<p>beam trawling, otter trawling and seine netting at the wind farm site, with potting, dredging for scallops, otter trawling and static netting used along the offshore export cable route. Up until relatively recently, activity was confined to mobile methods targeting finfish species, predominantly plaice and soles, with a pattern of low levels of fishing effort being recorded. The past few years has however seen a progressive increase in potting activity on the Dogger Bank, including in areas within the boundaries of Dogger Bank C.</p> <p>The peripheral areas to the east of the wind farm site and both north and south of the Offshore Export Cable Route as it approaches and passes the Dogger Bank B wind farm site are particularly important for sandeel fishing, whilst the highest concentrations of potting activity for lobster and crab occurs adjacent to Bridlington and to the south of the Offshore Export Cable Route.</p>
Shipping and Navigation	<p>Common vessel types include commercial vessels including commercial fishing. Recreational activity is limited due to the distance offshore. Limited vessels transit through the Wind Farm Site given its location to the northeast of the Dogger Bank therefore relatively small deviations are necessary to avoid the Project.</p> <p>The DCO contains a number of conditions relating to shipping and navigation including those associated with approval of turbine layouts and offshore management of safe navigation including compliance with Marine Guidance Note (MGN) 543<sup>1</sup> (as per DCO Requirement 13, Conditions 12 and 16 (a) of dML1 and condition 18 and 15 of dML 1 and dML 3) and submission of an Aids to Navigation Management Plan (as per Condition 16(h) and 13(h) of dML1 and dML3).</p> <p>An Aids to Navigation Management Plan will be submitted once the relevant information is available from the wider Project to inform these documents. No issues are anticipated with sign off of these documents.</p>
Military Activities and Civil Aviation	<p>Potential military receptors include exercise and training areas utilised by the British armed forces and other defence interests, military radar systems and military airfields. Civil aviation considers impacts upon search and rescue helicopters, offshore helicopter operations, shore-based communication, navigation and surveillance infrastructure, weather radars, airports and civilian aircraft. Given the distance offshore, there is no mechanism for impacts upon military and civilian communication, navigation and surveillance infrastructure, the military low flying system, civilian and military aerodromes and weather radar.</p>
<p><b>Nature Conservation Designations</b> (based on those considered in the Appropriate Assessment during consenting of the Project, or any newly consented sites that may need consideration)</p>	
Special	A likely significant effect (LSE) could not be ruled out for the following

<sup>1</sup> Current MGN in force is MGN 654, compliance with MGN 654 is tracked through the Search and Rescue checklist.

Protection Areas (SPAs)	<p>sites and features, and therefore they were considered in the appropriate assessment for the Project:</p> <ul style="list-style-type: none"> <li>• Farne Islands SPA for Common Guillemot, Atlantic Puffin and Black-Legged Kittiwake.</li> <li>• Flamborough and Filey Coast SPA (of which Flamborough Head and Bempton Cliffs SPA is now a part of) for Common Guillemot, Black-Legged Kittiwake, Razorbill and Northern Gannet.</li> <li>• Forth Islands for Atlantic Puffin, Northern Gannet, Black-Legged Kittiwake, Common Guillemot Razorbill and Northern Fulmar.</li> <li>• Fowlsheugh SPA for Black-legged kittiwake.</li> </ul>
Special Areas of Conservation (SACs)	<p>An LSE could not be ruled out for the following site and feature:</p> <ul style="list-style-type: none"> <li>• Dogger Bank SAC for sandbanks which are slightly covered by sea water at all times.</li> </ul> <p>The windfarm site and a short length of the export cable route lies within the boundary of the SAC.</p> <p>The Southern North Sea SAC has now been designated for harbour porpoise. The Dogger Bank C array site does not overlap with this SAC.</p> <p>A Review of Consents (RoC) was carried out as a requirement of the Habitats Regulations to determine if Dogger Bank C would have an effect on the new Southern North Sea SAC. The RoC concluded that all consents reviewed will not have an adverse effect of the Southern North Sea SAC, provided modifications are made to some deemed Marine Licences. The modifications include a condition requiring the submission and approval of a SNS Site Integrity Plan (SIP). Under the dML 1 condition 16(i) and dML 3 condition 13(j) a Site Integrity Plan (SIP) must be produced prior to the commencement of any noise generating construction. A short length of the export cable route lies within the boundary of the SAC.</p>

### 3 Items to be Decommissioned

23 This section of the Decommissioning Programme contains details of the items which will require decommissioning, in particular the WTGs, foundations, OSP, export cable, inter-array cables and scour protection. At the time of writing, some design details such as exact locations of infrastructure (e.g. due to micro-siting to avoid environmental and engineering constraints) are not finalised. These details will be updated in future revisions of this Decommissioning Programme.

#### 3.1 Generation Assets (non-OFTO)

##### 3.1.1 Wind Turbines

24 Up to 87 WTGs, each with a capacity of 14 MW (up to 14.7MW in ambient temperatures less than 10 degrees C), will be installed for Dogger Bank C. A 12 MW GE Haliade-X Prototype Turbine can be seen in **Figure 3.2** below. The towers will be assembled from



three sections bolted together, with internal service platforms and ladders. The rotor diameter will be 220 m with a nacelle positioned on top of the tower section, containing the generator, transformers and other equipment. To enable maintenance and emergency access, there will be a heli-hoist platform on top of the nacelle. Each turbine consists of the following components:

- A tubular steel tower;
- A nacelle on top of the tower; and
- A three-blade rotor, with each blade 107 m in length.



**Figure 3.1: Image of GE Haliade-X 12MW Prototype Turbine**

### 3.1.2 *Wind turbine foundations*

25 Each turbine will be installed on top of a monopile foundation which will be up to 9.0 m in diameter. A transition piece connected to the top of the monopile will house the HV

switchgear and associated equipment and allow personnel to access the turbine tower for maintenance. The monopiles range in mass from 900 Tonne (T) – 1400 T, with a length varying from 50 m – 75 m (indicative monopile drawing is provided in **Figure 3.2** below). The Transition pieces will be approximately 540 T and 27 m tall.

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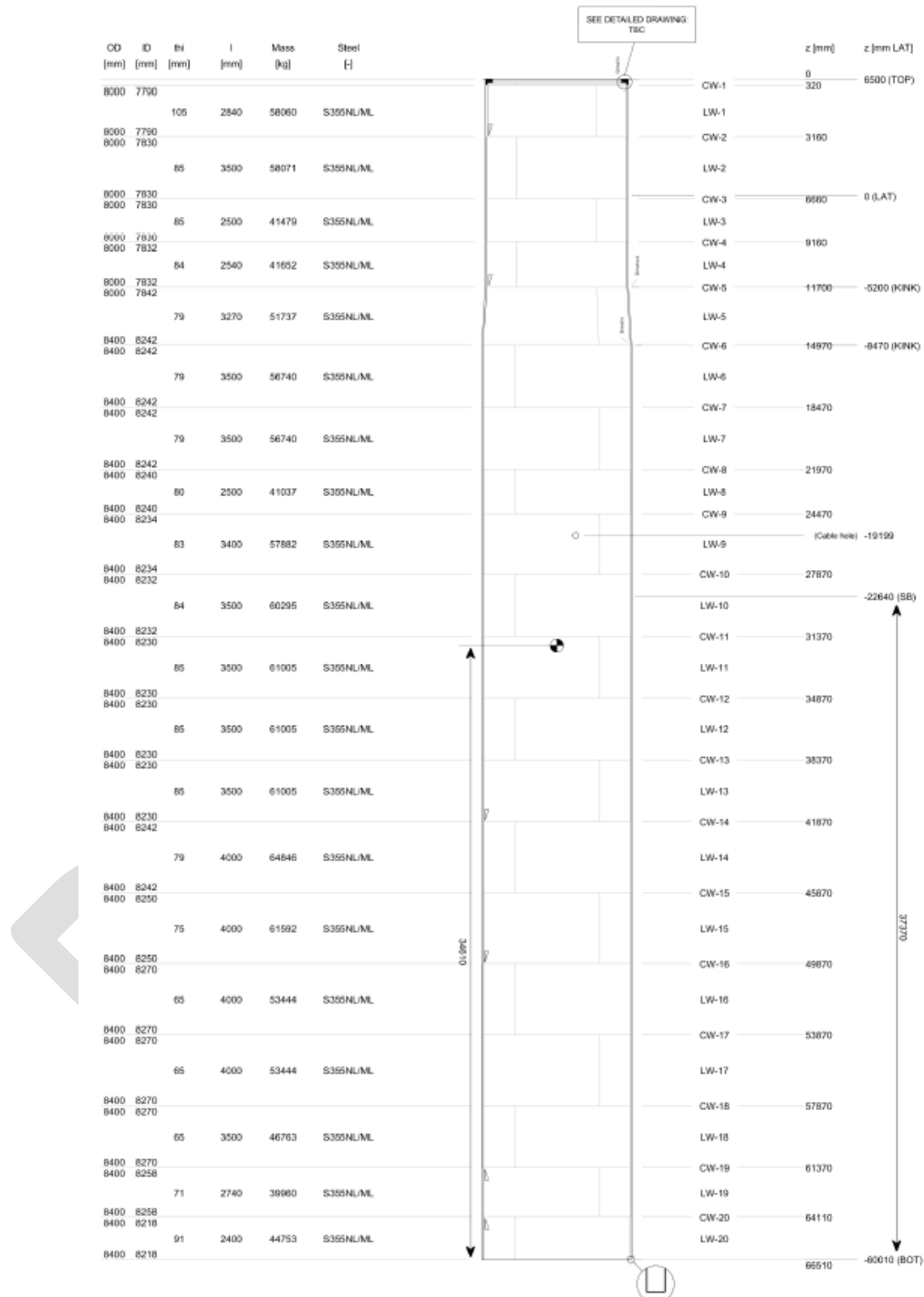


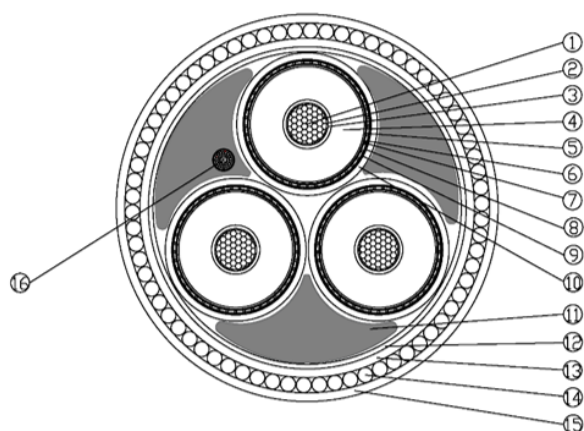
Figure 3.2 - Indicative Monopile Drawing

### 3.1.3 Inter-Array Cables

- 26 There will be between 209 km and 224 km of 66kV inter-array cables per project to link the WTGs and the OSP. All the inter-array cables shall be pulled in to the OSP through pre-installed J-tubes or to the WTG foundations through a monopile entry hole.
- 27 The inter-array cables will be three-core composite cables with aluminium round compacted conductors, XLPE (cross-linked polyethylene) insulation, copper wire screen aluminium polyethylene laminated tape, polyethylene sheath, PPY (poly propylene yarn), galvanised steel wire armour, PPY and with one interstitial optical fibre cable embedded in the extruded fillers. These components as well as a cross-section of the cable is included in **Figure 3.3**.

#### AL/XLPE/CWS/ALPE/PPY/SWA/PPY 38/66 (72.5) kV

Three-core composite submarine cable with aluminium round compacted conductors, XLPE insulation, copper wire screen aluminium polyethylene laminated tape, polyethylene sheath, PPY, galvanized steel wire armour, PPY with one interstitial optical fibre cable



#### Cable Structure:

- 1 - Aluminium round compacted class 2 according to IEC 60228, longitudinally water sealed by special water-blocking compound.
- 2 - Semiconducting tape applied with overlap
- 3 - Conductor non-metallic extruded screen: Extruded semiconducting compound
- 4 - Insulation: XLPE water-tree retardant according to IEC 60840
- 5 - Core non-metallic extruded screen: Extruded semiconducting compound bonded to outer surface of insulation.
- 6 - Semiconducting waterblocking tape(s) applied with overlap.
- 7 - Metallic screen: Copper wires helically applied over each individual core
- 8 - Semiconducting waterblocking tape(s) applied with overlap.
- 9 - Radial watertightness: AL/PE laminated tape of 0.2 mm nominal thickness bonded to PE core sheath, longitudinally applied with overlap.
- 10 - Sheath: HDPE type ST7 and an extruded semiconducting compound serving as electrode for the DC voltage test of the sheath. Sheath colour: Black
- 11 - Extruded PVC profile fillers at the outer interstices between cores in order to give the cable a circular cross-section.
- 12 - Binding tape(s) helically applied with overlap. (manufacturer's option)
- 13 - One layer of polypropylene yarns of 2 mm approximate thickness.
- 14 - Armour consisting of one layer of helically applied bitumen compound coated galvanized round steel wires of grade 34, class according to EN 10257-2
- 15 - Two layers of polypropylene yarns with total approximate thickness of 3.0 mm. Over the inner (first) layer bitumen compound is applied. Also, the outer (second) layer shall consist of black and yellow polypropylene yarns as to form a helical yellow stripe.
- 16 - One armoured optical unit of 16 mm approximate diameter that consists of a stainless steel tube, PE inner sheath, galvanized steel wire armour and PE overshath

**Figure 3.3: Detailed information on the inter-array cables that will be in place**

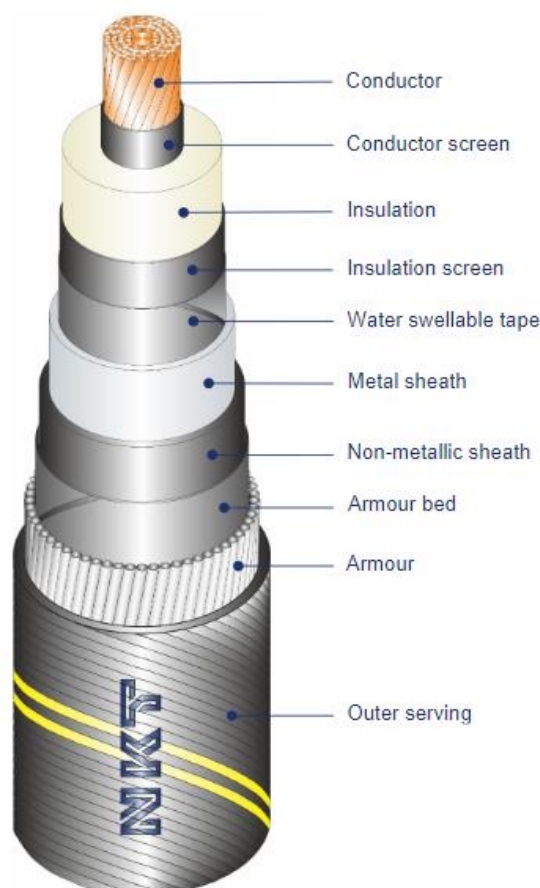
### 3.1.4 Scour and Cable Protection

- 28 The need and design of any scour and/or cable protection has not yet been determined. Should such protection be required, the final design concept shall depend on the ground conditions, as well as the scour and environmental assessments. Once the need and amount of protection has been determined, and the associated decommissioning requirements are understood, this Decommissioning Programme will be updated with this information.

## 3.2 Offshore Transmission Assets

### 3.2.1 Export Cables

29 Two offshore HVDC export cables with voltage of 320 kVDC, one circuit (2 cables), consisting of - single core copper, cross linked polyethylene (XLPE) insulation, lead sheath, and steel wire armour (SWA) with a cross sectional area 1700 mm<sup>2</sup> will run approximately 263 km to the landfall between Redcar and Marske-by-the-Sea, North Yorkshire where they will continue 7 km with the onshore HVDC export cables towards the onshore converter station. Figure 3.4 shows a typical offshore HVDC cable. Further from the onshore converter stations the export cables continues 2 km with two HVAC cable circuits towards National grid substation at Lackenby and connects to the transmission grid. The "HVAC cable circuit" is 400 kV and consists of two parallel 3-phase circuits where each of the cables are of 2500 mm<sup>2</sup> copper, i.e. 6 x 2500.



**Fig. 3.4 Typical offshore HVDC cable**

### 3.2.2 Offshore Substations

30 Dogger Bank C will have one OSP which will comprise of a typical topside installed on a jacket foundation secured to the seabed with four pin piles (**Figure 3.5**). The DBC OSP design comprises a combined HVDC and collector substation which houses the HVDC

transmission equipment for onward power transmission to the shore, the 66 kV array interface equipment and associated step up transformers. The platform is designed as a Normally Unmanned Installation (also referred to as Normally Unattended Installation, NUI). The generation assets are connected to the HVDC platform through HVAC inter array cables. These cables are routed in dedicated J-tubes and then connected to the transmission system from 66 kV switchgear through HVDC converter to the DC export cable connections (with associated equipment). Two outgoing DC export cables (+/-) are routed from the dedicated 320 kV DC terminations to the hang-off areas and into each of export J-tubes and out into the seabed.

### 31 Dogger Bank C platform key figures:

- Mean Sea Level (MSL) is 23-24 m.
- Key figures Topside (at present):
  - Size: 76 x 50.6 m (including walkways)
  - Height: 36.26 m (including cast node)
- Key figures jacket (at present):
  - Size: 45 x 45 m (including mudmats)
  - Height: 44.5 m



**Figure 3.5: A representative image of an offshore platform, similar to the one that will be used for Dogger Bank C.**



## 4 Proposed Decommissioning Measures

32 This section describes the proposed measures to decommission the component elements of the Project. As described above, given the construction of Dogger Bank C has yet to take place, some detail is subject to final design, for example confirmation of the built locations of cables and where scour protection has been placed. Nevertheless, the following sections present the anticipated decommissioning methods. The decommissioning techniques outlined in this section are based on those which are currently available. It is anticipated that decommissioning methods and the technology available for offshore wind farms will develop during the lifetime of this Project, and therefore this Decommissioning Programme will be reviewed and updated in light of any new approaches that may be more appropriate than those presented below.

### 4.1 Planned Phasing/Integration

33 Dogger Bank Wind Farm will liaise with other offshore wind farm developers and / or OFTOs in the vicinity of the Dogger Bank Projects to identify and evaluate any potential opportunities for synergies or economies of scale through decommissioning facilities at the same time. If any opportunities are identified these will be discussed and agreed with the relevant authorities at the time of decommissioning and this document will be updated accordingly.

### 4.2 Guiding Principles for Decommissioning

34 The proposed approach to decommissioning has been developed based on the following principles, which are also set out in section 1 paragraph 13:

- Safety for all at all times;
- Consideration of the rights and needs of legitimate users of the sea;
- Minimise environmental impact by having regard to the best practicable environmental option, the option which provides the most benefit or least damage to the environment as a whole, in both the long and short term;
- Adhere to the Polluter Pays Principle;
- Maximise the reuse of materials;
- Commercial viability; and
- Practical integrity.

35 Alongside these, Dogger Bank Wind Farm has considered the UK's commitments under the United Nations Convention for the Law of the Sea (UNCLOS), International Maritime Organisation (IMO) standards and the work of the Convention of the Protection of the Marine Environment of the North-East Atlantic (OSPAR).

36 Based on these principles and commitments the proposed approach for decommissioning is that:

1. All structures above the seabed are removed i.e. wind turbines, offshore platforms and foundations above the seabed; and
2. Cables and lower sections of foundations which are beneath the seabed are left *in situ*.



- 37 This approach has been chosen to minimise the disturbance of the seabed from decommissioning whilst ensuring that there is no risk to the safety of other users or that the materials will become exposed at any future time. The environmental impact of fully removing foundations is anticipated to be significant, considering the force required to remove foundations from the seabed, and any sediment and/or rocks that would be removed at the same time. Based on current knowledge, there is not a vessel that would be able to exert the required force to essentially pull the foundations out from the seabed. As such, the complete removal of foundations is considered technically unfeasible at present. Based on this, removal of the foundations to approximately 1 m the seabed is considered the most suitable option for decommissioning the monopiles based on current understanding of the technology available.
- 38 This approach will be subject to consultation at the time of decommissioning to determine and agree the best approach to, and review survey information on, cable burial. This will be based, at the time of decommissioning, on the 'Comparative Assessment Framework' which is set out in the decommissioning guidance for the Oil and Gas sector which would assess the potential decommissioning options and which is the most appropriate based on a number of criteria.
- 39 Components to be left *in situ* following decommissioning will adhere to the standards set out by the IMO which requires consideration of:
- Any potential effect on the safety of surface or subsurface navigation, or of other uses of the sea;
  - The rate of deterioration of the material and its present and possible future effect on the marine environment;
  - The potential effect on the marine environment, including living resources;
  - The risk that the material will shift from its position at some future time;
  - The costs, technical feasibility, and risks of injury to personnel associated with removal of the installation or structure; and
  - The determination of a new use or other reasonable justification for allowing the installation or structure or parts thereof to remain on the seabed.
- 40 Considering these principles, it is anticipated that the complete removal of the cables will require a large number of operations, likely involving divers or other heavy equipment. This process would require significantly more vessel time with the operations potentially resulting in a higher risk of injury, due to increased working days at sea.
- 41 Complete removal of the cables would remove all obstructions from within the seabed, and therefore any related potential risks to other users of the sea in the longer-term. However, the cables are anticipated to be and remain buried at a target depth of 1 m over the lifetime of the Project; a depth at which the cables are considered to be of low risk to other users of the sea. Therefore, if during the 25-year lifetime of the Project, the cables do not become exposed, it would be unlikely that they become exposed following decommissioning and the risk to other users from the cables would remain low.

- 42 In relation to the environment, it is extremely likely that the benthic habitats covering the cables would have recovered fully during the 25-year period. As such, removing the cables at the end of their lifetime may prove to be more environmentally damaging than leaving them in situ during decommissioning.
- 43 Based on this review from a technical, environmental and safety impacts perspective, leaving the cables in situ is considered to be the most suitable option for the decommissioning of the inter-array and export cables at this time.
- 44 The decommissioning of structures will also be undertaken in accordance with the following legislation and guidance:
- Decommissioning of Offshore Renewable Energy Installations under the Energy Act 2004: Guidance notes for Industry, BEIS, March 2019;
  - Guidelines and Standards for the Removal of Offshore Installations and Structures on the Continental Shelf and in the Exclusive Economic Zone, International Maritime Organisation (IMO), 19th October 1989;
  - Guidance Notes. Decommissioning of Offshore Oil and Gas Installations and Pipelines. BEIS, 2018;
  - OSPAR Guidance on Environmental Consideration for Offshore Wind Farm development, 2008;
  - United Nations Convention on the Law of the Sea (UNCLOS), 1982;
  - The Conservation of Habitats and Species Regulations (as amended) 2010;
  - Hazardous Waste Regulations 2005;
  - Marine and Coastal Access Act 2009;
  - The Water Resources Act 1991;
  - The disposal or recovery of waste on land, principally under Part II of the Environmental Protection Act 1990, other legislation relating to the carriage and transfer of waste and, where appropriate, the Hazardous Waste Regulations 2005; and relevant health and safety legislation;
  - London Convention 1972 and the 1996 Protocol, relating to the prevention of marine pollution by dumping of wastes;
  - Construction (Design and Management) Regulations (CDM) 2015;
  - Appropriate H&S Regulations;
  - MGN 654 and its annexes for Offshore Renewable Energy Installations (OREIs) - Guidance on UK Navigational Practice, Safety and Emergency Response; in particular Annex 4 which addresses risk mitigation for all phases of the project including decommissioning, and Annex 5 which addresses the SAR considerations;
  - UK Marine Policy Statement;
  - East Inshore/Offshore Marine Plans; and
  - The Emergency Response and Co-operation Plan (ERCoP) (which will be developed before construction / installation works start). A separate ERCoP will also be developed

specifically for decommissioning prior to any decommissioning activities commencing.

- 45 Furthermore, all vessels that will be engaged during decommissioning will comply with all relevant maritime safety legislation.

### 4.3 Pre-Decommissioning

- 46 Before decommissioning commences, detailed reviews of the regulations and Environmental Impact Assessment (EIA) requirements will be undertaken to ensure the correct consents and licences are obtained. Further consultation will be carried out with local and statutory bodies to agree the approach. Synergies will be identified and established where possible, such as sharing of onshore facilities and guard vessels. Disposal facilities will be identified and developed if necessary, in collaboration with specialist industrial recyclers.

- 47 It will be ensured that appropriate navigational marking and aids to navigation are in place prior to decommissioning activities commencing. Relevant consultation will take place to establish the requirements relating to aids to navigation prior to works starting. It is also recognised that any assets proposed to be left in situ may also need to be marked, depending on risk to mariners.

### 4.4 Decommissioning Measures

#### 4.4.1 Generation Assets (Non-OFTO)

- 48 Responsibility for the decommissioning of these assets will remain with the generator for the lifetime of the project.

##### 4.4.1.1 Wind Turbines

- 49 Dismantling of the 87 WTGs will be undertaken as a reverse of the installation process. The WTGs will be shut down, electrically isolated and made ready for dismantling prior to arrival of the crane vessel on site. Blades, nacelles and towers will be disassembled using a jack-up crane vessel.

- 50 Cables will be pre-cut at selected positions to allow the WTG components to be separated..

##### 4.4.1.2 Monopiles and Transition Pieces

- 51 It is likely the transition pieces will be uncoupled from the monopiles by removing the bolts. The transition piece will then be lifted off and sea-fastened on a barge. An integrated lifting tool will then be lowered and engaged in the monopile whilst the pile is cut using an automated cutting tool. After cutting, the monopile would then be lifted and placed horizontally on a barge to be transported to an onshore facility for decommissioning. The monopile cut is made at a depth below the seabed surface so that no danger to fishing and shipping vessels will occur. Seabed surveys will dictate the depth below the seabed at which the monopile will be cut, but this is likely to be approximately 1 m below the seabed. It is recognised that drilling may be required for the installation of the WTG foundations at the time of construction, if the ground conditions are unsuitable for piling, although this is unlikely. If drilling does take place, drill disposal mounds will occur aside the foundation locations. These mounds will be monitored as part of the post-construction benthic monitoring, which is a condition of Marine Licence 1, relating to the generation assets of the Project. The results of these monitoring surveys will be used to inform any decommissioning related measures.

## 4.4.1.3 Inter-Array Cables

52 It is expected that after the Project's lifetime, the most practical environmental option which will minimise disturbance to the seabed, will be to leave the cables *in situ* where they have remained buried. Any exposed cables will be removed. Following decommissioning there will be exposure of cable ends at the foundation locations and OSP. These cable ends will be weighted and deposited on the seabed to be reburied.

## 4.4.2 OFTO Assets

53 Once operational, these assets will be transferred to the OFTO along with the responsibility for decommissioning.

### 4.4.2.1 Offshore Substation

54 Decommissioning of the OSP will involve a vertical lift strategy from a suitable crane vessel onto a specially designed vessel barge. Dismantling of the substation will take place onshore, as far as practicable, to allow for maximum reuse of materials and minimise the risks to the marine environment.

55 Following topside removal, the jacket pin piles will be removed in the same way as the WTG foundations, i.e. cut approximately 2 m above the seabed to allow removal of the jacket foundation and then cut below the seabed level for removal of the pin piles with the remaining foundations left in the seabed buried. The jackets will be removed as one piece and taken back to shore for dismantling.

### 4.4.2.2 Offshore Export Cable

56 The Offshore Export Cable will be smaller in diameter than the inter-array cables. Similar to the inter-array cables, if it has remained buried during the operational phase and surveys demonstrate that still to be the case, then it will be left *in situ*. This will minimise the impact on the marine environment as the seabed will have recovered from installation, and removal of the buried cable will cause unnecessary impacts. It's expected that any exposed cable will be removed, with the cut ends being weighted and reburied where it attaches to already buried cables however the approach for any proposed removal of sections of the Offshore Export Cable would ultimately be the responsibility of the OFTO and will be determined in discussion with relevant parties at a later stage.

## 4.5 Waste Management

57 Waste management will be carried out in accordance with the relevant legislation at the time of decommissioning. The waste hierarchy will be followed with reuse being considered first, followed by recycling, incineration with energy recovery and lastly disposal.

58 After offloading from the decommissioning vessels, the materials will be transported by road to a processing area, where they will be broken down into suitable sizes for recycling or disposal. It is assumed that:

- Carbon steel would be reduced to manageable sizes and sold as scrap;
- Copper wire would be removed from the WTGs and transformers, and sold as scrap; and
- Glass reinforced plastic would be recycled. It is anticipated that the current practice of

disposing to landfill will not be acceptable at the time that Dogger Bank C is decommissioned.

59 A Waste Management Plan will be produced prior to decommissioning commencing.

## **5 Environmental Impact Assessment**

60 An EIA for the Project was completed and submitted as part of the DCO application in 2014. This EIA included an assessment of the potential environmental impacts of the project during construction, operation and decommissioning. **Table 5.1** summarises the predicted impacts from the decommissioning phase.

**Table 5.1: Environmental Impact Assessment Results**

<b>Topic</b>	<b>Magnitude of Impact</b>
Designated Sites	No impact to minor adverse
Marine and Intertidal Ecology	Negligible to minor adverse
Fish and Shellfish Ecology	Negligible to minor adverse
Marine Mammals	Negligible to minor adverse
Ornithology	Negligible to minor adverse
Commercial Fisheries	Negligible to minor adverse
Shipping and Navigation	As low as reasonably practicable
Aviation, Military Activities and Communications	None anticipated
Marine and Coastal Archaeology	No impact to negligible
Seascape and Visual Character	Negligible to minor adverse
Other Marine Users	Negligible to minor adverse

61 The Project will commission environmental studies to provide updated data as part of the decommissioning consenting process. The decommissioning environmental assessments to be carried out will supersede and replace the assessments presented in the original ES (where relevant) and will incorporate up to date information of both the environment in and around the Project site and the decommissioning proposals.

62 The decommissioning environmental assessments will identify potential impacts arising from the programme and, if any are considered significant, will propose appropriate mitigation measures. In addition, pre, during and post decommissioning monitoring



programmes may also be considered appropriate and, where these are identified, will be developed in partnership with the appropriate regulatory bodies.

63 A post-decommissioning hydrographic survey will be undertaken for the consented areas, including the export cable corridor, following the Post-Construction Hydrographic Survey Guidelines in MGN 654.

64 The management and monitoring of cables left in situ (inter-array cables and export cables) will be considered at the time of decommissioning, based on guidance at the time as well as lessons learnt from the decommissioning of oil and gas platforms and other offshore wind farms. Relevant and interested parties will be consulted during this process.

## **6 Consultations with Interested Parties**

65 Throughout the development of Dogger Bank C, close and detailed consultation has been undertaken at a national and local level. This consultation will continue throughout the Project's lifecycle where necessary or required.

66 This Decommissioning Programme will be consulted on with the following stakeholders:

- Chamber of Shipping;
- Joint Nature Conservation Committee;
- Maritime and Coastguard Agency;
- National British Marine Aggregate Producers Association (BMAPA);
- National Federation of Fishermen's Organisations;
- Natural England;
- PD Teesport Limited Harbour Authority;
- North Eastern Inshore Fisheries and Conservation Authority;
- Trinity House;
- Marine Management Organisation;
- The Environment Agency
- Historic England
- UK Hydrographic Office
- Association of British Ports
- Redcar and Cleveland Borough Council
- The Crown Estate; and
- Royal Yacht Association.

67 The Decommissioning Programme will be made available to the general public through the Dogger Bank website. Following consultation, a summary of the comments and actions

taken following receipt of any comments will be provided as an appendix to this document. This will be updated as necessary following any reviews and updates to the Decommissioning Programme through the Project's lifetime.

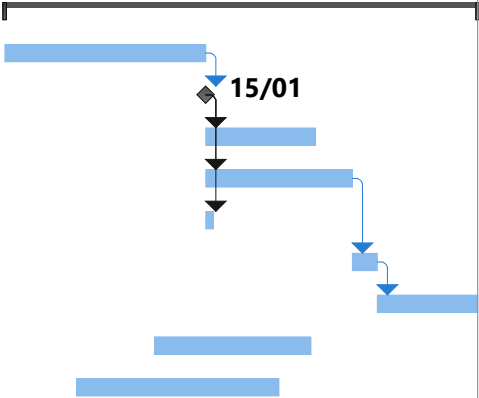
## **7 Costs and Financial Security**

- 68 Cost and financial security information is confidential and will be provided to BEIS as a separate document.

## **8 Proposed Decommissioning Schedule**

- 69 A full decommissioning schedule will be provided prior to decommissioning setting out the detailed programme for consultation with the relevant authorities. It is currently expected that the earliest date that decommissioning would commence would be at year 25 after commissioning of the Project, however this may be postponed subject to any potential extension of the project's operational lifetime. A final review of this Decommissioning Programme would start at least two years prior to the start of decommissioning.
- 70 It is anticipated that the decommissioning phase could last up to two years, however this duration will not be finalised until closer to the time of decommissioning. As such, the programme provided is only indicative at this stage.



ID	Task Name	Duration	Start	Finish	2049	2050	2051	2052	2053	2054	2055
1	<b>Dogger Bank C Decommissioning Programme</b>	<b>1715 days</b>	<b>Thu 01/04/49</b>	<b>Wed 27/10/55</b>							
2	Pre-decommissioning surveys & environmental assessments	728 days	Thu 01/04/49	Mon 15/01/52							
3	Vessel mobilisation/ demobilisation	0 days	Mon 15/01/52	Mon 15/01/52							
4	Removal of WTGs at Dogger Bank C	399 days	Tue 16/01/52	Fri 25/07/53							
5	Removal of foundations at Dogger Bank C	532 days	Tue 16/01/52	Wed 28/01/54							
6	Removal of offshore substation	28 days	Tue 16/01/52	Thu 22/02/52							
7	Seabed clearance and restoration	91 days	Thu 29/01/54	Thu 04/06/54							
8	Post-decommissioning surveys	364 days	Fri 05/06/54	Wed 27/10/55							
9	Onshore decommissioning / disposal / waste / management	567 days	Tue 02/05/51	Wed 02/07/53							
10	Decommissioning management	732 days	Fri 01/04/50	Mon 20/01/53							

Project: PB9446-RHD-ZZ-XX-PR-PM-0045\_Dogger Bank C Decomissioning Programme  
Date: Tue 06/04/21  
Rev: A

TaskMilestone ◆

Summary

## 9 Seabed Clearance

- 71 Following the completion of decommissioning activities, a seabed clearance campaign, where necessary, will commence to ensure that the Dogger Bank C site has been cleared. The survey will enable identification and recovery of any debris located on the seabed which may have arisen from activities related to either the operation of the wind farm or decommissioning process which may pose a risk to navigation. An independent survey company will complete the surveys and the results of these will be provided to the relevant regulatory body for review.
- 72 The required survey area would be determined during the decommissioning phases, taking into account good practice at the time. It is anticipated that the survey extent would focus around the foundation locations, as it is assumed that the inter-array and Offshore Export Cables will be left in-situ.

## 10 Restoration of the Site

- 73 Following completion of the decommissioning works, the site will be returned as far as practically possible back to its original pre-construction state. This commitment applies to both the Wind Farm Site and the Offshore Export Cable Route. The focus of the restoration works will include ensuring that the foundations are cut below the seabed and are adequately covered so as not to pose a risk to safety and that cable ends are adequately buried. The detail and specific decommissioning methods will be agreed in consultation with the necessary regulatory authorities prior to decommissioning.

## 11 Post-Decommissioning Monitoring, Maintenance and Management of the Site

- 74 The requirement for post-decommissioning monitoring will be agreed in advance with the relevant authorities at the time of decommissioning based on the latest guidance. However, it is expected that this will include a post-decommissioning survey, as per the information provided in Section 9: Seabed Clearance, to ensure no residual elements of the wind farm are exposed (e.g. foundations or cables). Ongoing monitoring surveys at regular intervals following decommissioning will also be considered and discussed with the relevant authorities at the time of decommissioning. The need for these will be dependent on the approach taken to decommissioning and the residual risk from any assets that remain in-situ. The post decommissioning survey report will be shared with The Crown Estate and discussions will be held with The Crown Estate (and any other interested parties) at the time of decommissioning in line with the terms of the relevant lease agreements and BEIS Decommissioning Guidance, including any arrangements with respect to management of residual liabilities. These arrangements will be set out in the final programme at the time of decommissioning.
- 75 A Marine Licence will be applied for from the Marine Management Organisation to undertake decommissioning activities, as these activities are not covered under the Project's current licences. A new DCO is not required for decommissioning activities. It is at this stage that the specific details of the methods and details of any monitoring will be agreed with the relevant authorities and their consultees.

## 12 Abandonment and Decay

76 Article 12 of the DCO requires Dogger Bank Wind Farm to address the possibility of abandonment and decay within their Decommissioning Programme. This was included in the DCO to ensure that the funds required in relation to abandonment and decay are secured through the Decommissioning Programme. This relates to Article 12: Offshore works: abandonment, decay or removal of the DCO which states:

### ***Project A Offshore works: abandonment, decay or removal***

*12.—(1) Where the Project A offshore works or any part of them are abandoned or allowed to fall into decay, the Secretary of State may, following consultation with Bizco 2 issue a written notice requiring Bizco 2 at its own expense—*

*(a) to repair and restore or remove the Project A offshore works or any part of them; and*

*(b) to restore the site of the Project A offshore works or any part of it to a safe and appropriate condition, having regard to any requirement that appears to the Secretary of State to be relevant, within an area and to such an extent as may be specified in the notice.*

*(2) Where the Project A offshore works or any part of them are removed (other than in accordance with paragraph (1)), the Secretary of State may, following consultation with Bizco 2 and the relevant statutory nature conservation body, issue a written notice requiring Bizco 2 at its own expense to restore the site of the Project A offshore works or any part of it to a safe and appropriate condition, having regard to any requirement that appears to the Secretary of State to be relevant, within an area and to such an extent as may be specified in the notice.*

*(3) Nothing in this article limits the Secretary of State's power under Chapter 3 of Part 2 of the 2004 Act (decommissioning of offshore installations).*

77 Dogger Bank Wind Farm has addressed this within the cost and financial security information which has been provided to BEIS separately<sup>2</sup> and for avoidance of doubt confirm that an acceptable form of financial security as set out within the 2019 Guidance will be put in place. It should also be noted that Dogger Bank Wind Farm is fully committed to operating the wind farm for the duration of its operational life and carrying out the decommissioning of the site in a responsible manner, based on the guidance at the time.

78 Ongoing maintenance will be carried out on the components of the wind farm for the duration of their lifetime, which will allow any faults in the assets (which could over time lead to decay) to be identified and rectified. The detailed proposals for the inspection and maintenance of the wind farm throughout operation will be included within the post-construction maintenance plan which requires to be submitted to the MMO for approval no later than 4 months prior to commissioning, in accordance with relevant conditions of the dML's. The post construction maintenance plan will be subject to regular update throughout the operational period in line with the dML's. As the wind farm will be subject to a rigorous ongoing maintenance programme the potential for decay of any of the assets is considered extremely unlikely. However if it is deemed that any specific mitigation is

<sup>2</sup> Note for consultees – this has not been provided as yet to BEIS but will be provided following the consultation exercise.

needed in the unlikely event of the decay of any assets or any of the offshore works require decommissioning prior to the end of the proposed operational life, this would be undertaken in line with the post construction maintenance plan and any applicable decommissioning and marine licensing processes at that time.

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**13 References**

Department of Business, Energy & Industrial Strategy (BEIS) 2019. Decommissioning of Offshore Renewable Energy Installations Under the Energy Act 2004. Guidance notes for industry (England and Wales). March 2019.

Department of Energy and Climate Change (DECC), 2015. Record of the Habitats Regulations Assessment undertaken under Regulation 61 of the Conservation of Habitats and Species Regulations 2010 (as amended) and Regulation 25 of the Offshore Habitats Regulations for an application under the Planning Act 2008 (as amended).

Forewind 2014. Dogger Bank Teesside Environmental Statement. 2014.

Seawatch Foundation. 2008. Cetaceans of eastern and south-east England. Regional fact sheets. Available at <http://www.seawatchfoundation.org.uk/fact-sheets.php>

## Appendix 1 – Summary of Consultation Responses and Actions Taken

**Table A 1 Consultation Responses**

Consultee	Summary of issues raised	Action taken
-	To be completed following consultation	-

## **Appendix 2 – Consultation Responses**

This section will include copies of the consultation responses once received

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