Dudgeon and Sheringham Shoal Offshore Wind Farm Extensions

Preliminary Environmental Information Report

Volume 1

Chapter 1 - Introduction

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Acronyms

AC	Alternating Current
AfL	Agreement for Lease
BEIS	Department for Business, Energy and Industrial Strategy
CCC	Committee on Climate Change
DCO	Development Consent Order
DEP	Dudgeon Extension Project
EIA	Environmental Impact Assessment
ES	Environmental Statement
EU	European Union
GW	Gigawatts
HVAC	High-Voltage Alternating Current
IEMA	Institute of Environmental Management and Assessment
IPCC	International Panel on Climate Change
MW	Megawatts
NSIP	Nationally Significant Infrastructure Project
PEIR	Preliminary Environmental Information Report
SEP	Sheringham Shoal Extension Project
TCE	The Crown Estate
UK	United Kingdom

Glossary of Terms

The Applicant	Equinor New Energy Limited
Array cables	Cables which link the wind turbine generators to the offshore substation platforms.
Dudgeon Offshore Wind Farm Extension site	The Dudgeon Offshore Wind Farm Extension offshore wind farm boundary.
The Dudgeon Offshore Wind Farm Extension Project (DEP)	The Dudgeon Offshore Wind Farm Extension site as well as all onshore and offshore infrastructure.
Landfall	The point on the coastline at which the offshore export cables are brought onshore and connected to the onshore export cables.
Onshore export cables	The cables which would bring electricity from the landfall to the onshore substation. 220 – 230kV
Offshore export cables	The cables which would bring electricity from the offshore substation platform(s) to the landfall. 220 – 230kV
Sheringham Shoal Offshore Wind Farm Extension site	Sheringham Shoal Offshore Wind Farm Extension offshore wind farm boundary.
The Sheringham Shoal Offshore Wind Farm Extension Project (SEP)	The Sheringham Shoal Offshore Wind Farm Extension site as well as all onshore and offshore infrastructure.
Transition joint bay	Connects offshore and onshore export cables at the landfall. The transition joint bay will be located above mean high water

1 INTRODUCTION

1.1 Purpose of this Document

1. This document is the Preliminary Environmental Information Report (PEIR) for the proposed Dudgeon Extension Project (hereafter DEP) and Sheringham Shoal Extension Project (hereafter SEP).
2. The purpose of the PEIR is to provide preliminary environmental information to allow stakeholders to develop an informed view of the impacts of the development, as required by The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (the EIA Regulations 2017).
3. This PEIR describes the potential environmental impacts associated with DEP and SEP including the associated infrastructure both onshore and offshore. It considers impacts associated with the construction, operation, maintenance and decommissioning phases.
4. The PEIR has been produced to support public and stakeholder consultation under Sections 42 and 47 of the Planning Act 2008. Feedback from this consultation will be taken into consideration and, where relevant, will be used to inform the final design of DEP and SEP and the scope of the final impact assessment which will be presented in the Environmental Statement (ES). The ES will be submitted as part of an application for a Development Consent Order (DCO) as required under Section 37 of the Planning Act 2008. Further detail on the legislative context for DEP and SEP is provided in **Chapter 3 Policy and Legislative Context**.
5. An Environmental Impact Assessment (EIA) Scoping Report for DEP and SEP was submitted to the Planning Inspectorate on 8th October 2019 (Royal HaskoningDHV, 2019). The Scoping Opinion was received on 18th November 2019 (The Planning Inspectorate, 2019) and has informed the development of the PEIR.

1.2 Background

6. The existing Dudgeon and Sheringham Shoal Offshore Wind Farms are owned by different partners, with Equinor New Energy Limited (hereafter Equinor[1]) being the only partner with ownership in both projects. In 2018 The Crown Estate (TCE) invited developers to bid for extensions to operational offshore wind farms.
7. Equinor applied, on behalf of the partners in the operational Dudgeon and Sheringham Shoal Offshore Wind Farms, for an Agreement for Lease (AfL) for the extension of these two wind farms. An acceptance letter from TCE was received in September 2019 and AfLs were signed in April 2020 for DEP and August 2020 for SEP. Equinor is leading on the development work for both DEP and SEP, and Equinor will be the named Applicant.
8. When operational, DEP and SEP combined would have the potential to generate renewable power for 820,000 United Kingdom (UK) homes from up to 32 wind turbines at DEP and up to 24 wind turbines at SEP.

[1] It should be noted that the DCO will have two named undertakers, one for each Nationally Significant Infrastructure Project – [Scira Extension Limited] and [Dudgeon Extension Limited]. It is these two companies which are parties to the two AfLs with TCE.

9. Electricity will flow from the wind turbines via subsea array cables to offshore substation/s. There will be up to two offshore substations, located to optimise the length of the array and export cables. If two are constructed, there will be one substation located in each wind farm extension area with up to two interlink cables between them. If one is constructed, array cables will connect DEP to an offshore substation located in SEP. At the offshore substations, the generated power will be transformed to a higher alternating current (AC) voltage. The generated power will be exported through two export cables, in two separate trenches, to a landfall in Weybourne on the North Norfolk coast. At the landfall location the offshore export cables will meet and be joined up with the onshore export cables in a transition joint bay.

10. From there, the onshore export cables travel approximately 60km inland to a high voltage alternating current (HVAC) onshore substation near to the existing Norwich Main substation. The onshore substation will be constructed to accommodate the connection of both DEP and SEP to the transmission grid.

11. A full description of DEP and SEP is provided in **Chapter 5 Project Description**.

1.3 The Applicant and the Project Team

12. Equinor is part of Equinor ASA, which is an international energy company present in more than 30 countries. It employs 22,000 people globally and 650 in the UK. It is the UK's largest supplier of both crude oil and natural gas, meeting more than 25% of the UK energy demand and produced with one of the lowest carbon footprints in crude oil and natural gas production in the industry. As a broad energy company, Equinor is committed to long term value creation in a low carbon future and targeting carbon neutral operations globally by 2030. Equinor ASA is building a material position in renewable energy, already powering more than one million European homes from its four offshore wind farms in the UK and Germany.

13. Equinor ASA has invested over £1bn in the UK offshore renewables sector and has 749 Megawatts (MW) in operational offshore wind farms that provide renewable power for more than 750,000 UK homes.

14. Royal HaskoningDHV is an environmental and engineering consultancy with considerable expertise in offshore renewable energy and has been commissioned as the consultant to lead the EIA for DEP and SEP. Royal HaskoningDHV has provided environmental, development and consenting support on over 14GW of renewable energy projects across 27 UK offshore wind farms. Their EIA activities and ESs are accredited by the Institute of Environmental Management and Assessment (IEMA) under the EIA Quality Mark Scheme. This demonstrates Royal HaskoningDHV's commitment to ensuring EIA is undertaken to a high quality and in accordance with best practice.

1.4 Purpose of the Projects

15. Climate change is a global issue and is one of the main challenges of our time. This is recognised in Equinor's Annual Sustainability Report which acknowledges the findings of the International Panel on Climate Change (IPCC) that human activities contribute to global warming through the release of carbon emissions into the atmosphere in the form of carbon dioxide, methane and other greenhouse gases. According to the IPCC's two special reports of 2019, global temperature rise has already reached 1°C above the pre-industrial level. The consequences of climate change include an increase in the frequency and severity of extreme weather events, such as tropical storms and droughts and the melting of glacier and polar ice caps. The ability of the land and ocean to sustain humanity has already been damaged due to climate change. Latest predictions, based on 'business-as-usual' greenhouse gas concentration scenarios, predict that global air temperatures could rise by up to 5°C above pre-industrial levels by 2100 (USGCRP, 2017).

16. Equinor recognise the need to transform the world's energy systems and wish to be an active player in this change by reducing emissions and investing in renewable energy to provide low carbon solutions to customers to help accelerate decarbonisation. Generating and harnessing energy from low carbon renewable sources, including offshore wind, is one of the solutions available to substantially reduce carbon emissions. It will also help to address the challenge of meeting an increasing energy demand using a sustainable, balanced energy portfolio.

17. The UK has made an ambitious commitment to bring all greenhouse gas emissions to net-zero by 2050, an increase from the 1990 target of an 80% reduction by 2050 (Department for Business, Energy and Industrial Strategy (BEIS), 2019a). According to recent advice from the Committee on Climate Change (CCC, 2019), the UK may need at least 75GW of operating offshore wind farms to reach the new legally binding net-zero greenhouse gas emissions target by 2050. There is currently 10GW of offshore wind in operation in UK waters, 10GW committed (under construction or with government support on offer) and a further 15GW in development (TCE, 2020).

18. The Offshore Wind Sector Deal signed by the UK Government in March 2019 (BEIS, 2019b) anticipated offshore wind contributing up to 30GW of capacity by 2030, however this ambition has since been lifted to 40GW by 2030. DEP and SEP will contribute to the Government's vision of 40GW of offshore wind by 2030. As such they will make a significant contribution to the achievement of the (UK) decarbonisation targets and to the global mitigation of climate change. The generation of low carbon, renewable energy will also help to reduce the UK's reliance on imported energy and to improve energy security. Further detail is provided in **Chapter 2 Need for the Project** and **Chapter 3 Policy and Legislative Context**.

1.5 Consent and EIA Process

19. A number of potential consenting strategies have been considered for DEP and SEP, with the most appropriate approach being identified as a single application for development consent addressing both wind farm extensions and associated transmission infrastructure. Applying a single planning process and DCO application will allow consistency in the approach to assessment, consultation and examination and increased transparency for a potential compulsory acquisition process.

20. The overall objective of the EIA process is to identify potentially significant adverse impacts resulting from a project, allowing them to be avoided or minimised where possible, as well as identifying any potential beneficial impacts.

21. DEP and SEP will each have a capacity of over 100 Megawatts (MW) and are therefore each above the threshold to be considered as Nationally Significant Infrastructure Projects (NSIPs) under the Planning Act 2008. The EIA Directive is transposed into English law for NSIPs by the EIA Regulations 2017 (the EIA Regulations). An EIA must be undertaken in support of applications for development consent of NSIPs.

22. In 2019 the Government introduced regulations to ensure that, following the withdrawal of the UK from the European Union (EU), legislation concerning the environment continues to operate effectively. These include the Environment (Amendment, etc.) (EU Exit) Regulations 2019 and the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019.

23. This PEIR sets out the preliminary findings of the EIA that will be finalised and reported within the ES supporting the application for development consent. The assessment methodology that has been applied to the development of the PEIR is explained in further detail in **Chapter 6 EIA Methodology**.

24. Whilst DEP and SEP will be the subject of a single DCO application (with a combined EIA process and associated submissions), each Project will be assessed individually so that mitigation is specific to each (where appropriate). As such, the assessments will cover the possibility that one or the other (but not both) projects are developed, as well as both DEP and SEP being developed, either concurrently or sequentially. The EIA will consider the appropriate realistic worst-case scenario associated with the different potential construction approaches and present the results accordingly.

1.6 The PEIR Structure

25. This document covers DEP and SEP including both the offshore and onshore development areas. It comprises three volumes:

- Volume 1: PEIR Chapters (chapter list shown in **Table 1.1**);
- Volume 2: Figures;
- Volume 3: Appendices; and
- Non-Technical Summary.

Table 1.1: PEIR Volume 1 Chapter List

Section	Chapters	Title
Introductory	Chapter 1	Introduction
	Chapter 2	Need for the Project
	Chapter 3	Policy and Legislative Context
	Chapter 4	Site Selection and Assessment of Alternatives
	Chapter 5	Project Description
	Chapter 6	EIA Methodology
	Chapter 7	Technical Consultation
Offshore	Chapter 8	Marine Geology, Oceanography and Physical Processes
	Chapter 9	Marine Water and Sediment Quality
	Chapter 10	Benthic and Intertidal Ecology
	Chapter 11	Fish Ecology
	Chapter 12	Marine Mammal Ecology
	Chapter 13	Offshore Ornithology
	Chapter 14	Commercial Fisheries
	Chapter 15	Shipping and Navigation
	Chapter 16	Offshore Archaeology and Cultural Heritage
	Chapter 17	Aviation and Radar
	Chapter 18	Petroleum Industry and Other Marine Users
Onshore	Chapter 19	Onshore Ground Conditions and Contamination
	Chapter 20	Water Resources and Flood Risk
	Chapter 21	Land Use, Agriculture and Recreation
	Chapter 22	Onshore Ecology and Ornithology
	Chapter 23	Onshore Archaeology and Cultural Heritage
	Chapter 24	Air Quality

Section	Chapters	Title
	Chapter 25	Noise and Vibration
	Chapter 26	Traffic and Transport
Wider Scheme Aspects	Chapter 27	Seascape and Visual Impact Assessment
	Chapter 28	Landscape and Visual Impact Assessment
	Chapter 29	Socio-Economics and Tourism
	Chapter 30	Health
	Chapter 31	Transboundary

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