Sheringham Shoal and Dudgeon Offshore Wind Farm Extension Projects

Environmental Statement

Volume 1

Chapter 1 - Introduction

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Prepared by:	
Royal HaskoningDHV	
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Glossary of Acronyms

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

Glossary of Terms

DEP North array area	The wind farm array area of the DEP Offshore Wind Farm Extension site located to the north of the existing Dudgeon Offshore Wind Farm.
DEP South array area	The wind farm array area of the DEP Offshore Wind Farm Extension site located to the south of the existing Dudgeon Offshore Wind Farm.
Dudgeon Offshore Wind Farm Extension Project	The Dudgeon Offshore Wind Farm Extension onshore and offshore sites including all onshore and offshore infrastructure.
Dudgeon Offshore Wind Farm Extension site	The Dudgeon Offshore Wind Farm Extension offshore lease area.
Infield cables	Cables which link the wind turbine generators to the offshore substation platform(s).
Interlink cables	Cables linking two separate project areas. This can be cables linking: 1) DEP South and North wind farm sites 2) DEP South array area and SEP 3) DEP North array area and SEP 1 is relevant if DEP is constructed in isolation or first in a phased development. 2 and 3 are relevant where both SEP and DEP are built.
Landfall	The point on the coastline at which the offshore export cables are brought onshore and connected to the onshore export cables.
Offshore export cables	The cables which would bring electricity from the offshore substation platform(s) to the landfall. 220 – 230kV
Offshore substation platform	A fixed structure located within the wind farm area, containing electrical equipment to aggregate the power from the wind turbine generators and convert it into a more suitable form for export to shore.
Onshore export cables	The cables which would bring electricity from the landfall to the onshore substation. 220 – 230kV
Onshore substation	Compound containing electrical equipment to enable connection to the National Grid.
Sheringham Shoal Offshore Wind Farm Extension Project (SEP)	The Sheringham Shoal Offshore Wind Farm Extension onshore and offshore sites including all onshore and offshore infrastructure.
SEP offshore site	The Sheringham Shoal Offshore Wind Farm Extension consisting of the SEP wind farm site and offshore export cable corridor (up to mean high water springs).
The Applicant	Equinor New Energy Limited. As the owners of SEP and DEP, Scira Extension Limited (SEL) and Dudgeon Extension Limited (DEL) are the named undertakers that have the benefit of the Development Consent Order. References in this document to

	obligations on, or commitments by, 'the Applicant' are given on behalf of SEL and DEL as the undertakers of SEP and DEP.
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 Environmental Statement (ES) for the proposed Sheringham Shoal Offshore Wind Farm Extension Project (SEP) and Dudgeon Offshore Wind Farm Extension Project (DEP).
2. The purpose of the ES is to provide the decision-maker, stakeholders and all interested parties with the environmental information required to develop an informed view of any likely significant effects resulting from the development, as required by The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (the EIA Regulations).
3. This ES describes the potential environmental impacts associated with SEP and DEP including the associated onshore and offshore infrastructure. It considers impacts associated with the construction, operation, maintenance and decommissioning phases.
4. An Environmental Impact Assessment (EIA) **Scoping Report** (document reference 6.4) for SEP and DEP was submitted to the Planning Inspectorate on 8th October 2019 (Royal HaskoningDHV, 2019). A **Scoping Opinion** (document reference 6.4) was received on 18th November 2019 (The Planning Inspectorate, 2019) and this ES is based on that Opinion as required by Regulation 14 of the EIA Regulations.
5. This ES also builds upon and updates the information previously provided within the Preliminary Environmental Information Report (PEIR) for SEP and DEP, which was made available for consultation in April 2021 under Sections 42, 47 and 48 of the Planning Act 2008 and Regulation 13 of the EIA Regulations. Feedback from this consultation has been taken into consideration and, where relevant, used to inform the design of SEP and DEP and the impact assessment presented in this ES.
6. This ES is 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 SEP and DEP is provided in **Chapter 2 Policy and Legislative Context.**

1.2 Background

7. The existing Sheringham Shoal and Dudgeon Offshore Wind Farms (SOW and DOW) are owned by different partners, with Equinor New Energy Limited 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.
8. Equinor New Energy Limited (hereafter the Applicant) applied, on behalf of the partners in the operational SOW and DOW, 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. The Applicant is leading on the development work for both SEP and DEP.

9. As owners of SEP and DEP, Scira Extension Limited (SEL) and Dudgeon Extension Limited (DEL) are the named undertakers that have the benefit of the DCO. References throughout the Environmental Statement chapters and appendices to obligations on, or commitments by, 'the Applicant' are given on behalf of SEL and DEL as the undertakers of SEP and DEP.

10. When operational, SEP and DEP combined would have the potential to generate renewable power for around 785,000 United Kingdom (UK) homes from up to 23 wind turbines at SEP and up to 30 wind turbines at DEP.

11. Electricity will flow from the wind turbines via infield cables to offshore substation platform(s). There will be up to two offshore substations with one in SEP and one in DEP North array area, located to optimise the length of the offshore cables. Interlink cables will link the separate project areas. At the offshore substation(s), the generated power will be transformed to a higher alternating current (AC) voltage. The power will be exported through up to 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 transition joint bays.

12. 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 SEP and DEP to the national transmission grid.

13. A full description of SEP and DEP is provided in **Chapter 4 Project Description**.

1.3 The Applicant and the Project Team

14. Equinor New Energy Limited is part of Equinor ASA, which is an international energy company present in more than 30 countries. The company employs 22,000 people globally, and over 650 in the UK. As a broad energy company, Equinor is committed to long term value creation in a low carbon future and aims to reach net zero emissions globally by 2050.

15. Equinor has been operating in the UK for over 35 years. It is the UK's leading energy provider and supports the UK economy by investing billions in crucial energy infrastructure, working with over 700 suppliers across the country.

16. In the UK, Equinor currently powers around 750,000 homes through its three wind farms; SOW and DOW, and the world's first floating offshore wind farm, Hywind Scotland which is partnered with Batwind, the world's first battery for offshore wind.

17. 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 SEP and DEP. Royal HaskoningDHV has provided environmental, development and consenting support on over 14GW of renewable energy projects across 30 UK offshore wind farms. Royal HaskoningDHV's 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 Project Vision and Need Case

18. The **Project Vision** (document reference 9.27) sets out the overall strategy toward developing SEP and DEP, with the ambition to deliver both projects with an integrated transmission system at the core of the strategy. The **Project Vision** (document reference 9.27) sets out the Project Objectives and Design Objectives which are fundamental to the overall framework within which the Applicant has sought to develop the projects.

19. It is the project vision that "The Sheringham Shoal and Dudgeon Offshore Wind Farm Extension Project will double the generation capacity of the existing assets by 2030, making a meaningful contribution to the UK's offshore wind and decarbonisation targets.

20. As a result of our long-term presence in Norfolk, Equinor has identified the need to take a coordinated approach to the development of the two projects, to minimise impacts on local communities and to maximise benefits for the area. As a result of this coordinated planning, the Project has proposed utilising a shared transmission asset through Norfolk, and has been selected as a Pathfinder project in coordinated offshore transmission development under the UK Government's Offshore Transmission Network Review. The design of the shared transmission asset will enhance the environment and create lasting value for local people and communities in Norfolk".

21. Section 4 of the **Planning Statement** (document reference 9.1) sets out the need case for SEP and DEP. It describes the key benefits of the project as:

- Climate benefits – delivering renewable energy in response to climate change;
- Employment, skills and investment value benefits; and
- Environmental, biodiversity and place benefits.

22. The coordinated approach to developing SEP and DEP has resulted in additional benefits; a single planning process and DCO application is intended to provide for consistency in the approach to the assessment, consultation and examination, as well as increased transparency for a potential compulsory acquisition process and a lower overall burden on all stakeholders engaging in the process, compared to two parallel applications.

23. Further detail is provided in the **Project Vision** (document reference 9.27), ES **Chapter 2 Policy and Legislative Context** (document reference 6.1.2) and the **Planning Statement** (document reference 9.1).

1.5 Consent and EIA Process

24. 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.

25. EIA is required under the terms of European Union (EU) Directive 2011/92/EU (as amended by Directive 2014/52/EU) on the assessment of the effects of certain public and private projects on the environment (the EIA Directive). In 2019 the Government introduced regulations to ensure that, following the withdrawal of the UK from the 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.

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

27. As such, this ES identifies the potential significant environmental impacts of SEP and DEP and any necessary mitigation measures and is submitted to support the application for development consent. The assessment methodology that has been applied to the development of the ES is explained in further detail in **Chapter 5 EIA Methodology**.

28. Whilst SEP and DEP are the subject of a single DCO application (with a combined EIA process and associated submissions), the assessment considers both projects being developed in isolation, sequentially and concurrently, so that mitigation is specific to each development scenario. The project development scenarios considered for SEP and DEP are described further in **Chapter 4 Project Description**. The EIA considers the appropriate realistic worst-case scenario associated with the different development scenarios and presents the results accordingly.

1.6 The ES Structure

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

- Volume 1: ES Chapters (chapter list shown in **Table 1-1**);
- Volume 2: Figures;
- Volume 3: Appendices;
- Volume 4: Scoping Report and Scoping Opinion;
- Volume 5: Schedule of Mitigation; and
- Non-Technical Summary.

Table 1-1: ES Volume 1 Chapter List

Section	Chapters	Title
Introductory	Chapter 1	Introduction
	Chapter 2	Policy and Legislative Context
	Chapter 3	Site Selection and Assessment of Alternatives
	Chapter 4	Project Description
	Chapter 5	EIA Methodology
Offshore	Chapter 6	Marine Geology, Oceanography and Physical Processes
	Chapter 7	Marine Water and Sediment Quality
	Chapter 8	Benthic and Intertidal Ecology
	Chapter 9	Fish and Shellfish Ecology
	Chapter 10	Marine Mammal Ecology
	Chapter 11	Offshore Ornithology
	Chapter 12	Commercial Fisheries
	Chapter 13	Shipping and Navigation
	Chapter 14	Offshore Archaeology and Cultural Heritage
	Chapter 15	Aviation and Radar
	Chapter 16	Petroleum Industry and Other Marine Users
Onshore	Chapter 17	Onshore Ground Conditions and Contamination
	Chapter 18	Water Resources and Flood Risk
	Chapter 19	Land Use, Agriculture and Recreation
	Chapter 20	Onshore Ecology and Ornithology
	Chapter 21	Onshore Archaeology and Cultural Heritage
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Wider Scheme Aspects	Chapter 25	Seascape and Visual Impact Assessment
	Chapter 26	Landscape and Visual Impact Assessment
	Chapter 27	Socio-Economics and Tourism
	Chapter 28	Health
	Chapter 29	Transboundary Impacts Summary

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