

1 INTRODUCTION

1.1 THE APPLICATIONS

1. This Environmental Statement (ES) has been prepared to accompany the consent applications to construct, operate and decommission the Beatrice Offshore Wind Farm (the Wind Farm) and associated offshore electricity transmission works (OfTW), together referred to as “the Project” (Figure 1.1). This ES reports the findings of the Environmental Impact Assessment (EIA) which has been carried out to assess the likely significant effects of the Project on the environment. The consent applications to be submitted are as follows and are discussed in further detail in Section 3: Legislation and Consenting Requirements of this ES.
 - Applications under Section 36 and 36A of the Electricity Act 1989; and
 - Marine Licence applications under the Marine (Scotland) Act 2010 and Marine and Coastal Access Act 2009.
2. The consent applications will be determined by the Scottish Ministers, acting through Marine Scotland Licensing Operations Team (MS-LOT).
3. An ES relating to the onshore transmission works associated with the Project is being prepared and will be submitted to the relevant authorities.

1.2 THE APPLICANT

4. In May 2008 the Crown Estate invited expressions of interest from companies wishing to develop commercial wind farms in Scottish territorial waters. Following the tender and selection process, in February 2009 SSE Renewables and SeaEnergy Renewables (now Repsol Nuevas Energias UK Limited) was awarded exclusivity by the Crown Estate to develop the Beatrice Offshore Wind Farm in Scottish territorial waters, off the east Caithness coastline. SSE Renewables and SeaEnergy Renewables (now Repsol Nuevas Energias UK Limited) then created a joint venture company to develop the Beatrice Offshore Wind Farm. The joint venture company is called ‘Beatrice Offshore Wind Farm Limited’ (BOWL) and 75% of its share capital is held by SSE Renewables Holdings (UK) Limited and 25% is held by Repsol Beatrice Limited (a wholly owned subsidiary of Repsol Nuevas Energias UK Limited). BOWL signed an Agreement for Lease with the Crown Estate in July 2011. The full lease with the Crown Estate will be entered into once the necessary statutory consents and permissions have been obtained and prior to construction commencing.
5. **SSE Renewables** is the renewable energy development division of SSE (Scottish and Southern Energy plc). It is responsible for the development and construction of onshore and offshore wind farms in the UK, Ireland and Europe, as well as developing hydro and marine projects. SSE is the UK's leading generator of renewable energy with over 2,450 megawatts (MW) of renewable electricity generation capacity. SSE is the second largest generator in the UK with a total electricity generation capacity of 11,290 MW. In partnership with Talisman, SSE developed and owns the two existing wind turbines adjacent to the Beatrice oil platforms known as the Beatrice demonstrator project (10 MW). In association with

joint venture partners, SSE is already constructing 876 MW of offshore wind farm capacity in the UK (Greater Gabbard and Walney). In addition to this, SSE has secured the Crown Estate rights for the possible development of additional offshore wind farm assets later in the decade with a potential total capacity of up to 4.8 GW, including Beatrice Offshore Wind Farm.

6. **Repsol Nuevas Energías UK (Repsol)** was formed following Repsol FVP's purchase of 100 % of SeaEnergy Renewables Limited in June 2011. The Repsol development team includes members of the team which conceived, developed and delivered the Beatrice Wind Farm Demonstrator Project, the world's first deep water wind farm development. Repsol has development rights for a total of 1,190 MW of generating capacity in the United Kingdom.

1.3 PURPOSE AND STRUCTURE OF THIS ENVIRONMENTAL STATEMENT

7. This ES comprises the following volumes:

- Non Technical Summary (NTS);
- Environmental Statement Volume 1a and b: Main Text;
- Environmental Statement Volume 2: Figures;
- Environmental Statement Volume 3: Seascape, Landscape and Visual Assessment Figures; and
- Environmental Statement Volume 4a and b: Technical Annexes.

8. The Volume 1 ES Main Text is structured as follows:

- Sections 1 to 6 provide an overview of the Project in terms of the legislative, planning and consenting process and requirements including details of consultation undertaken and site selection and consideration of alternatives;
- Section 7 provides a full description of the Project, and outlines construction and decommissioning methodologies;
- Section 8 describes relevant designated sites and the process by which they have been considered in the ES;
- Sections 9 to 20 present the topic specific EIAs for the Wind Farm element of the Project, including identification of potential effects, assessment of likely significant effects, proposed mitigation measures, subsequent residual effects and an assessment of cumulative effects; and
- Sections 21 to 29 present the topic specific EIAs for the OfTW element of the Project, including consideration of potential effects, assessment of likely significant effects, proposed mitigation measures, subsequent residual effects and an assessment of cumulative effects; and
- Section 30 describes other relevant infrastructure and marine uses in the Moray Firth not covered elsewhere in the ES.

9. The ES is accompanied by the following:

- A cover letter;
- Planning and Policy Statement;
- Pre-Application Consultation Report; and

- Non Technical Summary.
10. Information to Inform an Appropriate Assessment will be submitted separate to the ES. Likely significant effects on ecological receptors are addressed in terms of EIA requirements throughout this ES.

1.4 THE EIA TEAM

11. The ES co-ordination and EIA team is summarised in Table 1.1 and includes technical experts from a number of specialist consultancies as well as input from BOWL.

Table 1.1 EIA Team

Topic Area	Organisation Responsible
EIA Team	
EIA co-ordination and management	Arcus Renewable Energy Consulting Ltd (Arcus) Environmental Resources Management (ERM)
Introduction, Climate Change and Marine Policy, Legislation and Consenting, EIA Methodology, Consultation	ERM Arcus
Site Selection and Consideration of Alternatives	BOWL ERM J P Kenny
Project Description	BOWL Arcus
Airborne noise	ERM
Other issues	ERM SSE Arcus
Physical processes and geomorphology	ABP marine environmental research (ABPmer)
Underwater noise	Subacoustech
Benthic and epibenthic ecology	Centre for Marine and Coastal Studies (CMACS)
Fish and shellfish ecology	Brown and May Marine Ltd
Commercial fisheries	Brown and May Marine Ltd
Ornithology	RPS Group PLC
Marine mammals	RPS Group PLC
Shipping and navigation	Anatec
Seascape, Landscape and visual environment	LDA Design
Marine archaeology and cultural heritage	Headland Archaeology
Aviation and MOD	SSE Helios Osprey Consulting
Socio economics, recreation and tourism	SQW

Topic Area	Organisation Responsible
EIA Baseline Survey and Support	
Boat based ornithology surveys	Institute of Estuarine Coastal Studies (IECS) University of Plymouth RPS Group PLC
Marine mammal baseline data collection	Sea Mammal Research Unit Limited (SMRU) University of Aberdeen Institute of Estuarine Coastal Studies (IECS)
Planning and environmental legal advice	Dundas and Wilson
Metocean surveys	Partrac
Geotechnical Surveys and Site Investigation	Senergy Survey and Geoenineering Fugro Geoconsulting Limited Gardline
Geophysical surveys	Osiris Projects Gardline
Engineering design and drawings	J P Kenny
Collaboration and Data Share with Moray Offshore Renewables Ltd	
Physical processes and geomorphology, Underwater noise, Benthic ecology, Fish and shellfish ecology, Commercial fisheries, Ornithology, Marine mammals, Shipping and navigation, Marine archaeology and cultural heritage, Aviation and MOD.	

1.5 THE PROJECT

12. The Project comprises three key elements which are defined and described in Table 1.2.

1.5.1 DEFINITION OF TERMS

13. For the purposes of the EIA and this ES the definitions in Table 1.2 have been used.

Table 1.2 Definition of Terms

Term	Definition
BOWL	Beatrice Offshore Windfarm Limited (BOWL), the body submitting the applications for the Project.
The Project	The offshore development proposal in its entirety, including the Wind Farm and the Offshore Transmission Works.
The Project Boundary	The Project Boundary includes the Wind Farm Site and the OfTW Corridor i.e. the whole area to which the consent applications relate (Figure 1.1).
Beatrice Offshore Wind Farm (the Wind Farm)	The Wind Farm comprises a number of key elements including the wind turbines, inter-array cabling and meteorological masts.
The Wind Farm Site	The area within which the Wind Farm will be located (Figure 1.2).
Offshore Transmission Works (the OfTW) Site	The OfTW includes the approximate 65 km length of the route of the cable required to connect the Wind Farm to the Grid. This covers the cable route from the offshore substation platform(s) (OSPs) to the Mean High Water Springs (MHWS) at the landfall

Term	Definition
	west of Portgordon on the Moray coast. The OfTW may contain the OSPs depending on the Offshore Transmission Owner's arrangements. For the purposes of this ES the OSPs are assessed in the Wind Farm topic sections. The OSPs will however form part of the Marine License application for the OfTW.
The OfTW Corridor	The area within which the OfTW cable will be located (Figure 1.2).
Onshore Transmission Works (OnTW)	All components and operations for the onshore elements. The EIA of these elements is being reported in a separate ES and is subject to a separate consent application.

1.5.2 THE WIND FARM

14. The Wind Farm Site is located approximately 25 km south south-east of Wick, Caithness. The Wind Farm Site boundary is, at its closest point, 13.5 km from the coastline (Figure 1.1).
15. The total development area is approximately 131.5 km² and sits at the north westernmost point of the Smith Bank. The two existing Beatrice demonstrator turbines are located approximately 11 km to the south west of the Wind Farm site (Figure 1.1). The existing unmanned Jacky oil platform is located adjacent to the south west of the site and the existing Beatrice B, A and C oil platforms are located approximately 5, 10 and 14 km south west of the site, respectively.
16. The Wind Farm will have an installed capacity of up to 1,000 MW and will comprise up to 277 three-bladed horizontal axis wind turbines. The wind turbines will be secured to the seabed and a network of electricity cables, known as the inter-array cables, will be required to connect the wind turbines to Offshore Substation Platforms (OSPs). Up to three OSPs will be required to collect the electricity generated by the wind turbines. Up to three meteorological masts will be constructed and will be located at the edge of the Wind Farm Site and up to three metocean buoys will be anchored to the seabed within the Wind Farm Site to gather data on the wave and tidal regime throughout the lifetime of the Project.
17. The wind turbines will be designed to operate for a minimum period of 25 years. The future of the site will be determined towards the end of the operational life of the turbines and the Wind Farm could be repowered, refurbished and reconditioned or decommissioned. A decommissioning plan will be prepared and submitted to the Department of Energy and Climate Change (DECC) for approval prior to construction of the Project.

1.5.3 OFFSHORE TRANSMISSION WORKS

18. The Wind Farm requires an electricity export cable to run from the Wind Farm and connect it to the Grid. The cable route from the Wind Farm to the MHWS at the landfall to be located west of Portgordon, forms the OfTW. To enable this connection approximately 65 km of subsea cable is required to be laid between the Wind Farm and the landfall (Figure 1.2).

1.5.4 ONSHORE TRANSMISSION WORKS

19. The OnTW constitutes the underground cable to be laid between the Mean Low Water Springs (MLWS) at the landfall near Portgordon and the Grid connection point at Blackhillock near Keith, and a new substation which is required to connect into the Grid. This new substation is in addition to the existing substation at Blackhillock. The EIA for the OnTW will be reported within a separate ES.