

## Seascape, landscape and visual

The Wind Farm site is located approximately 13.5 km from the coastline of Caithness, at its closest point.

A computer generated Zone of Theoretical Visibility (ZTV) has been produced. This identifies locations within a 40 km radius study area of the Wind Farm where it may be theoretically possible to see the turbines or offshore substations.

The ZTV indicates the offshore turbines could be visible from locations along the Caithness coast, however due to the distance this is likely to only be the case in clear weather conditions.

The areas where the Wind Farm may be visible lies within the Moray Firth, but also encompass an area of the Highlands landscape. This land is mainly made up of the Caithness and Sutherland coast and hinterland.

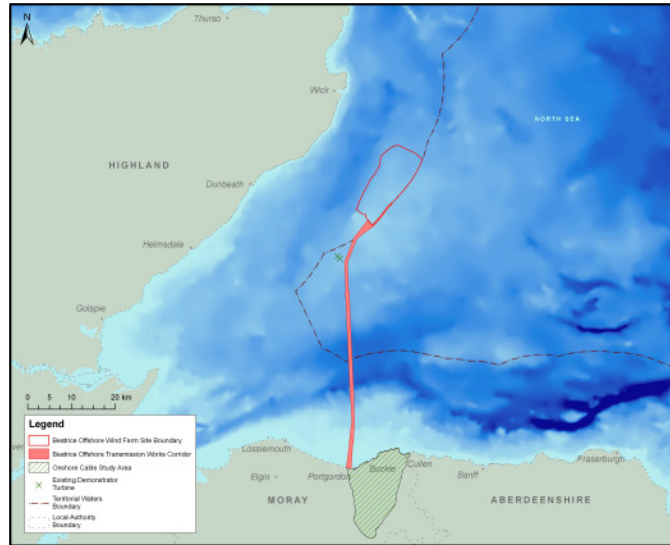
## Marine mammals

The Moray Firth area is known for its presence of marine mammals. The main species known to visit the area of the Wind Farm include: bottlenose dolphins, harbour porpoise, minke whale, common dolphin, risso's dolphin, white-beaked dolphin, harbour (or common) seal and grey seal.

Marine mammals are sensitive to underwater noise and therefore construction techniques will be carefully assessed and adopted to reduce potential noise impacts. One measure is to have marine mammal observers on board construction vessels. The observer will indicate to the operatives when sensitive species are within a certain range of the vessel and measures will be put in place to stop/delay/control noisy activities.



*Bottlenose dolphin*



*Site Location*

## Get in touch

Whether formal or informal, your views and opinions about the proposed offshore wind farm, even at this early stage, are welcome and valued. If you have any comments, queries or views about the proposals please feel free to contact BOWL at the address below.

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Digital copies of the Environmental Scoping Report are available from the project website at: [www.sse-beatrice.com](http://www.sse-beatrice.com)



# Beatrice

## Offshore Windfarm Ltd

### INFORMATION LEAFLET

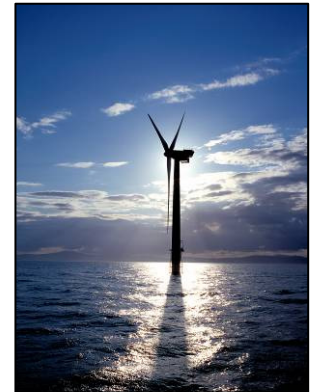
Beatrice Offshore Windfarm Limited (BOWL) is a joint venture partnership formed between SSE Renewables (75%) and Repsol Nuevas Energias UK (25%) (formerly SeaEnergy Renewables).

SSE Renewables is responsible for the development of SSE's renewable energy projects across Europe. SSE is the leading generator of renewable energy in the UK, with over 2,450 Megawatt (MW) of renewable energy projects consented.

Repsol Nuevas Energias UK (Repsol) was formed following Repsol's purchase of 100% of SeaEnergy Renewables Limited in June 2011. It has development rights for a total of 1,190 MW in the United Kingdom, equivalent to a third of the offshore wind capacity currently installed worldwide.

## What is it we propose?

The Wind Farm site is located in the Outer Moray Firth on the north-western point of the Smith Bank. The site is adjacent to the world's first deep water wind farm development – the two-turbine (10 MW) Beatrice Demonstrator Project. The Beatrice Demonstrator turbines are owned and were developed by SSE and Talisman. The turbines have been operational since 2007.



Building on the success of the Beatrice Demonstrator Project, we are proposing to develop an offshore Wind Farm which will generate up to 1,000 MW of renewable energy, enough to power over 796,000 homes.

## What are the key components?

The proposed Wind Farm will have a maximum of 142 to 227 turbines, depending on turbine size. The offshore components of the Wind Farm will include the following.

- Turbines (tower, nacelle, blades and hub).
- Turbine substructures and foundations.
- Up to three offshore electricity substations.
- Electricity cables at the site connecting the turbines to the substations.
- Up to three meteorological masts.
- Wave measuring equipment.

In order that the electricity generated can reach the centres of demand the Wind Farm will need to be connected to the national electricity grid. We have a grid connection agreement with National Grid which allows us to connect into the existing electricity network at Blackhillock, near Keith, Moray.

The electricity transmission will require the following.

Offshore Transmission Works:

- Approximately 65 km of subsea cable.

Onshore Transmission Works:

- Approximately 20 km of onshore underground cable.
- A new substation nearby the existing substation at Blackhillock.

## Where is it?

This site is 13.5 km from the Caithness coastline and is 19 km long and 9 km wide. The existing Beatrice Demonstrator turbines are located 11 km to the south west of the site, and Jacky oil platform is adjacent to the southern boundary. The proposed Moray Firth Round 3 offshore wind farm zone is located directly to the east.

## The need for this project?

UK renewable energy policy centres around two key factors.

- Reduction of CO<sub>2</sub> emissions to tackle climate change.
- Security of energy supply.

There are a number of government targets set to try and achieve this.

- UK Government target of generating 15% of energy from renewable sources by 2015 and 20% by 2020.
- The Scottish Government's target of generating the equivalent of 100% of Scotland's gross annual electricity consumption from renewable sources by 2020.

## Wind Farm design

A final site layout has not yet been developed. Therefore the consent will allow for flexibility to define the layout of the Wind Farm once detailed design has been undertaken. An Environmental Impact Assessment (EIA) is being carried out and will be submitted as part of the application. The EIA will consider a number of scenarios and indicative layouts to ensure every possible significant impact has been assessed.

The final layout will have a generating capacity of up to 1000 MW. In order to achieve this maximum capacity a number of turbine scenarios are being considered, including up to 277 turbines of 3.6 MW capacity, and up to 142 turbines of 7 MW capacity.

## Construction timeline

There will be a lot of activity in the sea during the construction phase. Construction could potentially start in 2014 and continue to 2018. Offshore construction is likely to be carried out 24 hours a day when weather and sea conditions permit.

The wind turbines will be designed to operate for a period of 25 years. After this time the Wind Farm could be decommissioned, or continue operating and be upgraded. If the project was to be decommissioned, towards the end of the project life a Decommissioning Plan will be prepared and submitted to Marine Scotland for approval.



Wind turbine installation

## Construction methods

The vessels used during the construction phases will range from small crew vessels, transporting workmen on and offshore, to large specialist installation vessels. During the construction phases these vessels could be based at a port within the Moray Firth area, or it is possible they could sail with the components from another location within the UK or Europe. Whilst construction is taking place there will be safety zones created to make sure both construction vessels and other users of the sea can navigate safely.



Substructure being towed to site

## Offshore environmental impacts

BOWL is assessing the proposals from an environmental perspective. Some of the topic areas that are being considered are outlined here.

## Birds

Both the Moray Firth and East Caithness Cliffs Special Protection Areas (SPAs) are sites of European importance for certain sea birds and wildfowl. It is therefore required by law that BOWL assess whether the proposed Wind Farm would have an impact on these sites and the species important to them. The key bird species BOWL has assessed include; Fulmar, Kittiwake, Great black-backed gull, European storm-petrel, Gannet arctic tern, European shag, Guillemot, Great skua, Arctic skua, Herring gull, Scooty shearwater, Pink-footed goose, Greylag goose, Barnacle goose.



Kittiwake