Who are we?

Beatrice Offshore Windfarm Limited (BOWL) is the joint venture partnership formed between SSE Renewables (75%) and SeaEnergy Renewables (25%).

In February 2009 we were awarded an exclusivity agreement by The Crown Estate to develop the Beatrice Offshore Wind Farm in Scottish Territorial Waters.

SSE Renewables is responsible for the development and construction of Scottish and Southern Energy’s (SSE) renewable energy projects across the UK, Ireland and Continental Europe. SSE is the UK’s leading generator of renewable energy with over 2,300 Megawatts (MW) of renewable electricity generation capacity.

SeaEnergy Renewables Limited (SERL) is made up of members of the team which conceived, developed and delivered the world’s first deep water wind farm development - the Beatrice demonstrator project (10MW) - which is owned by Talisman Energy and SSE and located in the Outer Moray Firth.

What are we proposing?

Where is it?
The Beatrice Offshore Wind Farm site is located as follows.
- On the north-western most point of the Smith Bank in the Outer Moray Firth.
- Approximately 13.5km from the Caithness coastline.
- This site is approximately 19km long and 9km wide.

There are a number of features located nearby.
- The existing Beatrice demonstrator turbines 11km to the south west.
- The existing Jacky oil platform is located just outside the site to the south west.
- The proposed Moray Firth Round 3 offshore wind farm zone is located directly to the east.

What is it?
If we use the same turbines as the existing 5MW demonstrator turbines the Beatrice site could accommodate approximately 184, giving a generating capacity of 920MW. Key statistics of these turbines include the following.
- A hub height of approximately 88m above sea level.
- A blade tip height of approximately 150m.

At this early stage of the project we are still developing the best method for fixing the turbines to the seabed. They may be similar to the Beatrice demonstrator turbines which had piled jacket foundations with an open lattice substructure, but we are also considering other options that have been used elsewhere such as monopiles and gravity based structures.

What are the key components?
The wind farm will comprise the following.
- Turbines (tower, nacelle, rotors and hub).
- Turbine sub-structure and foundations.
- Electricity cables at the site.
- Offshore electricity substations.
- Cable connection to a mainland substation.
- Maintenance and operational facilities on the mainland.
Why are we doing this?

Renewable Energy Policy
UK renewable energy policy centres around two key factors.
- Reduction of CO₂ 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 Climate Change Act commits Scotland to cut carbon emissions by 42% from 1990 levels by 2020 and by at least 80% by 2050.

Offshore Wind Development
There are a number of Scottish Government and UK Government policies and statements which promote the development of offshore wind in the Moray Firth. In the 2006 Scottish Government report 'Matching Renewable Electricity Generation and Demand' the Outer Moray Firth has been identified as a region able to accommodate offshore wind development.

What is the timetable?

Key activities that we have undertaken so far, and our anticipated timetables going forward, are shown below.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Timescale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exclusivity agreement received from The Crown Estate</td>
<td>February 2009</td>
</tr>
<tr>
<td>Environmental Scoping Report submitted to Marine Scotland</td>
<td>March 2010</td>
</tr>
<tr>
<td>Agree on approach and scope of Environmental Impact Assessment with the Government and consultees</td>
<td>Summer 2010</td>
</tr>
<tr>
<td>Undertake baseline surveys and Environmental Impact Assessment</td>
<td>Ongoing until Autumn 2011</td>
</tr>
<tr>
<td>Public exhibitions</td>
<td>Summer 2010</td>
</tr>
<tr>
<td>Submit completed application and Environmental Statement for Statutory Consent and Licenses</td>
<td>Autumn/Winter 2011</td>
</tr>
<tr>
<td>Consent potentially granted</td>
<td>Anticipated Autumn/Winter 2012</td>
</tr>
<tr>
<td>Construction commencing</td>
<td>Anticipated 2014/2015</td>
</tr>
<tr>
<td>Fully operational</td>
<td>Anticipated 2017/2018</td>
</tr>
</tbody>
</table>

Who are we consulting?

We are committed to consulting with all interested parties. We have already consulted with many statutory and non-statutory groups and organisations. The public is another key consultee.

We are keen to listen to the views of all these groups and individuals and welcome any feedback. Keeping stakeholders informed of our plans as they develop, and receiving comments as part of this consultation process, is another key aim. We plan to hold a further series of public exhibitions next year around the time we submit our application(s) for consent, which we expect to do in Autumn/Winter 2011.

If you have any comments, queries or views about our proposals please feel free to communicate these with us here today or get in touch with us via our website www.sse-beatrice.com. Digital copies of the Environmental Scoping Report are also available to download on our website.
**Beatrice Offshore Wind Farm**

**What are we doing?**

**Consenting**

There are certain consents that must be obtained for any offshore wind generating site in Scottish waters. These are set out below.

It should be noted that, since Beatrice Offshore Windfarm Limited’s (BOWL) application(s) are not anticipated to be submitted until 2011, it is likely that the applications will pass through a new consenting framework. The new consenting framework is currently in preparation.

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**Environmental Impact Assessment (EIA)**


BOWL will employ a variety of specialist consultants to help refine the final site layout and to assess the final proposals from an environmental perspective. The topic areas that will be considered in the EIA are listed below. Some of these may warrant more detailed assessment and modelling than others.

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<table>
<thead>
<tr>
<th>Legislation</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity Act 1989 – Section 36</td>
<td>For offshore wind power generating stations within UK territorial waters adjacent to Scotland as defined in The Scottish Adjacent Waters Boundaries Order 1999.</td>
</tr>
<tr>
<td>Food and Environment Protection Act 1985 – Section 5</td>
<td>For depositing substances or articles in the sea or tidal waters below Mean High Water Springs (MHWS) around Scotland including the temporary placement of construction materials and/or disposal of dredged material etc.</td>
</tr>
<tr>
<td>Coastal Protection Act 1949 – Section 34</td>
<td>Restriction of works detrimental to navigation under or over the seashore lying below the level of MHWS.</td>
</tr>
</tbody>
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**Physical Environment**

- Coastal Processes: Seabed Geology
- Air Quality: Noise and Vibration
- Traffic and Transport

**Biological Environment**

- Seabed Marine Life: Plankton
- Fish Ecology: Marine Mammals
- Ornithology

**Human Environment**

- Landscape, Seascape and Visual: Archaeology and Cultural Heritage
- Aviation and Military Operations: Shipping and Navigation
- Commercial Fisheries: Salmon and Sea Trout
- Oil and Gas Operations: Pipelines and Cables / Seabed Infrastructure
- Socio – Economics
The Environmental Impact Assessment (EIA) covers many tasks and activities, some of which have already commenced. Seabird surveys and seabed investigations have already been undertaken for example, but the main assessment will not be undertaken until the wind farm design is more developed. Some example of what specialists will be assessing are provided on this board. The Environmental Scoping Report for the project, which was submitted to Marine Scotland in March 2010, goes into more detail on all of the topics being assessed.

Landscape, Seascape and Visual

There is potential that there will be landscape and visual impacts during construction and operation of the wind farm. It will be important to assess the impacts and this will be undertaken through the EIA process. To do this we will undertake a full Landscape, Seascape and Visual Impact Assessment as part of the EIA. For this we will follow all available good practice guidance.

We will prepare a Zone of Theoretical Visibility map which will be computer generated. This will illustrate areas from where the turbines may be visible and will also inform the assessment.

Computer generated visualisations will be prepared to assist in the assessment. The assessment will consider the following.

- Visual impact of construction and operation of the wind farm on sensitive receptors and landscape/seascape character.
- Cumulative impact of the wind farm when combined with impact from other infrastructure including other wind farms.
- Impact on sites designated for landscape interest including National Scenic Areas and historic sites and buildings.

Marine Mammals

Potential impacts on marine mammals are a key consideration for the Beatrice Offshore Wind Farm project. Species forming the focus of the impact assessment include bottlenose dolphin and grey seal.

We will gather the following data for use in the impact assessment.
- Species present, seasonality and annual differences.
- The density of animals at the proposed site.
- The likelihood of exchange between local Special Areas of Conservation (SACs) and the proposed wind farm site.
- The likelihood of exchange between the proposed wind farm site and other relevant development sites (cumulative effects).

The following impacts will be assessed.
- The likely impacts on animals using the proposed wind farm site and on the conservation status of local Special Area of Conservation.
- Potential impacts from construction or operation (and from other activities occurring concurrently in the area).

Commercial Fisheries

An impact assessment of the proposed wind farm upon Moray Firth commercial fishing operations will be undertaken by a specialist fisheries consultant.

We know that there are a number of different types of commercial fishing (dredging, trawling, potting) undertaken in the area. We have already commenced the consultation process with the industry.

The existing fisheries baseline will be estimated using catch data alongside Vessel Monitoring Systems and data from a number of sources.
Construction and Operation Overview

Construction
The construction timetable is likely to run for approximately three years. Access to the offshore construction area will be required all year round, and during the main construction phases we expect that 24 hour working will be required.

There are a number of construction techniques that could be employed to install the wind farm components and these will be appraised during the course of the design development and EIA process. As an example, one technique could include assembling key components onshore and transporting these assembled parts to site for installation.

Various construction phases will be required and a typical programme would involve the following elements.

- Seabed preparation work if required.
- Substations and subsea cables installed.
- Construction vessels moved into position to begin foundation works.
- Key turbine components assembled onshore and transported to site.
- Turbines erected.
- Testing and commissioning undertaken.

During construction there will be a number of specialist vessels undertaking construction operations. These are likely to include a large construction vessel which may also be assisted by a number of specialist support vessels.

Operation
The Beatrice Offshore Wind Farm would be available for operation 24 hours a day, 365 days a year. An ongoing programme of operation and maintenance activities would be developed and rolled out to support its operation. We anticipate that this operation and maintenance programme will result in the creation of a local service base.