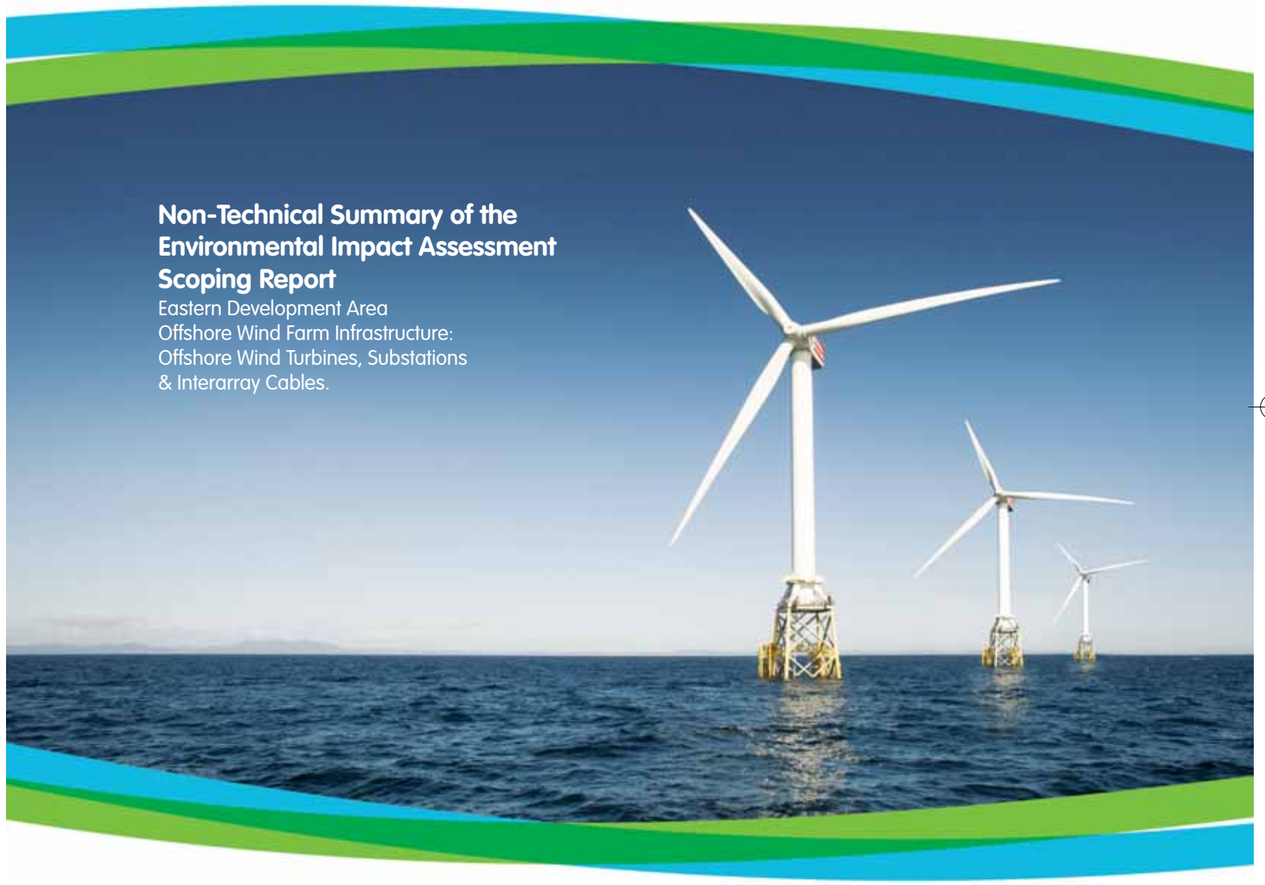
moray offshore renewables ltd

Developing Wind Energy In The Outer Moray Firth



Non-Technical Summary of the Environmental Impact Assessment Scoping Report

Eastern Development Area
Offshore Wind Farm Infrastructure:
Offshore Wind Turbines, Substations
& Interarray Cables.

edp renewables

SeaEnergy RENEWABLES

Development

Introduction to the Non Technical Summary

"The development of wind energy in the outer Moray Firth is an exciting advance for renewable energy in Scotland, and will be of interest to many people. This document is intended to provide information about the project to a wide range of stakeholders, in order to allow our proposals to be examined and considered by all of the organisations and communities who have an interest in our project. I hope that you will take part in our consultation." **Dan Finch – Project Director**

About The Non Technical Summary

This document is the Non Technical Summary (NTS) of the Environmental Impact Assessment Scoping Report for the proposed development of offshore windfarm(s) in the Eastern Development Area of the Moray Firth Round 3 Zone.

It provides an overview of the content of the Scoping Report which provides details of the proposed project (wind turbines, offshore sub-station(s) and inter-array cables) together with environmental information for the proposed area. The Scoping Report itself provides detailed information to allow statutory and non-statutory consultees to give their opinion on the scope of the Environmental Impact Assessment and to gather further information about any possible issues that could affect the siting of wind turbines in the Eastern Development Area.

Within the full Scoping Report, the potential impacts of the project have been identified along with potential cumulative and in-combination impacts. The surveys and studies that are anticipated to be required as part of the Environmental Impact Assessment and where possible, an outline of the scope of work for these studies has been presented.

This Non-Technical Summary is intended to provide an easily-accessible overview to encourage a broad range of stakeholders to examine our proposals. For more detail, please refer to the full Environmental Impact Scoping Report, which is available at www.morayoffshorerenewables.com or from Craig Milroy, Moray Offshore Renewables, 40 Princes St, Edinburgh.

About Moray Offshore Renewables Ltd

In 2009 Moray Offshore Renewables Limited (MORL) was formed as a joint venture company owned 75 per cent by EDP Renewables UK (EDPR) and 25 per cent by Sea Energy Renewables Moray Firth Limited (SERL).

EDPR is currently the world's third largest wind energy company, with more than 6GW of installed wind generation capacity across 8 nations, including Spain, Portugal, Poland Brazil and the USA.

Sea Energy Renewables Ltd provides unrivalled offshore development and deployment experience gained through years of successful large-scale offshore project development in the oil and gas industry; more recently its key personnel pioneered the successful Beatrice offshore wind demonstrator project in the Moray Firth.

Together we bring a strong and clear commitment to renewable energy developments, with unique deep water capabilities and a proven track record for delivery and operating at scale.

Tackling Climate Change

As a result of global warming, nations around the world are convinced of the need to reduce harmful greenhouse gas emissions, by a significant amount, quickly. Both the UK and Scottish Governments have made ambitious commitments to achieve a 20 per cent reduction in greenhouse gas emissions by 2020 compared to 1990 levels as part of the Kyoto protocol.

Conventionally, we burn coal, oil and gas to generate electricity. However, the combustion of these fuels creates carbon dioxide, and other greenhouse gases. In order to limit our production of these harmful gases, we require alternative ways to generate electricity. In 2008, 22 per cent of the electricity consumed in Scotland came from renewable sources; the Scottish Government have set a target of increasing this to 50 per cent by 2020.

In order to achieve this ambitious target within this timescale, it is necessary to use proven technologies which can reliably deliver large amounts of power.

In 2008, 22 per cent of the electricity consumed in Scotland came from renewable sources; the Scottish Government have set a target of increasing this to 50 per cent by 2020.

Development

Why Offshore Wind Energy ?

Wind energy is a sustainable and proven technology. It can be reliably deployed and operated to generate power without the need to burn fuels, and its effectiveness has been demonstrated onshore.

The seas around Scotland's shores are noted for their strong winds which can support electricity generation by wind turbines.

Although there are technical challenges in working in deeper waters of between 30 and 60m, the reward for meeting this challenge is the ability to work further from shore (in excess of 22km), where we can take advantage of the natural resources of wind, and the physical features of the available seabed.

Using deep-water expertise from the North Sea industry, we believe we will be able to develop some 1000MW – 1140MW of generating capacity. This is equivalent to the output of a conventional thermal power-station, and would therefore represent a major contribution to reducing the amount of fossil fuels required to meet our electricity demand, reducing harmful greenhouse gasses and helping to deliver national targets for renewable energy.

Why Develop The Outer Moray Firth

Moray Offshore Renewables Ltd was awarded a Zone Development Agreement for Offshore Wind Energy in the Moray Firth Round 3 Zone by The Crown Estate. We have identified two development areas within the zone; the Eastern Development Area and the Western Development Area. The Eastern Development Area has fewer constraints to offshore wind development and therefore, MORL is proposing to develop this section for offshore wind first. The future development of the Western Development Area will be the subject of a separate Environmental Impact Assessment, held at a later date.

The Moray Firth Eastern Development Area has considerable advantages for the development of wind energy:

- Approx 22km (13.5 miles) from shore
- Excellent wind resource (estimated to be 9.75m/s at 90m hub-height)
- Water depths and ground conditions suitable for jacket foundation technology – already proven in the North Sea.
- Good access suitable ports and supply chain for construction and operations
- Outside any conservation-designated area
- Outwith the 0-6nm helicopter safety zone around oil platforms
- Outwith shipping access routes to oil platforms

Project Details

This consultation is part of the process to help inform the range of issues which will be covered in the Environmental Impact Assessment. For the purposes of the Scoping Report the following assumptions about the project have been made:

- Approximately 200 turbines
- Wind turbines between 5MW and 8MW generating capacity
- Blade tip height: 158.5 m (5MW) - 182 m (8MW)
- Minimum water clearance at mean high water springs – 22 m
- Estimated rotor diameter: 125 m (5MW) – 150 m (8MW)
- Offshore substation platforms and associated sub-sea cabling to allow power to be collected for transmission to shore

It is expected that the development of the Eastern Area would provide between 1000MW and 1140MW, which would be capable of providing enough power for approximately 779,760 homes.

Getting Power Onshore

The project will require electrical infrastructure for transferring the energy generated by the wind turbines into the National Grid Transmission System (known as Offshore Transmission Operator (OFTO) infrastructure), so that it can be distributed to where it is required. The OFTO infrastructure will include offshore substations, export cable and onshore substation and under current regulatory proposals, it will be constructed and owned by the Offshore Transmission Operator.

The OFTO infrastructure will be subject to a separate Environmental Impact Assessment Scoping Report. It is anticipated that this scoping process will be undertaken in 2011 when details of the infrastructure and route are known.

The seas around the Scottish coastline are noted for their strong, consistent, reliable winds, and they offer the space necessary to develop wind generation.

Development

The Site

The Eastern Development Area was chosen for initial development following an assessment of the known spatial constraints and the suitability of the physical environment for wind turbines within the Moray Firth Round 3 zone. The physical factors influencing the choice of this area for development first include the wind resource, outside of conservation designation areas and it is outside of the aviation safety zones around oil platforms.

The known key constraints to turbine siting within the eastern development area include the use of the area by conservation protected species, use of the area by commercial fisheries, the presence of a helicopter main route, Ministry of Defence practice areas, proximity and use of airspace by civil aviation and potential for visual impacts.

In addition to oil production infrastructure (including the Beatrice demonstrator turbines), other potential developments within the outer Moray Firth include the Beatrice Offshore Wind Farm – a proposed site of 905MW which is located to the north-west of the Round 3 zone. As a result of the proximity of these existing and planned infrastructure developments, there is potential for cumulative and in-combination environmental effects to arise. In light of this potential, Beatrice Offshore Wind Limited and Moray Offshore Renewables Limited, in conjunction with The Crown Estate, have formed the Moray Firth Offshore Wind Developers Group (MFOWDG). The developers are currently collaborating in order to identify potential cumulative effects and ensure a standardised approach to future assessment as part of individual project Environmental Impact Assessments (EIAs).

Development

MORL intends to install approximately 200 x 5-8MW turbines, totalling between 1-1.14GW. It is estimated that the development of the eastern development area could produce enough power for approximately 779,760 homes. The sites have not yet been identified and this scoping process in addition to further consultation with marine stakeholders will help inform the location of the final wind farm site(s).

Wind Farm Construction

Offshore construction is likely to occur over a period of four to five years. Only limited information is available at present on the nature of the construction process, since the major parameters of the proposed development have not yet been defined in detail. Prior to construction a comprehensive Environmental Management Plan (EMP) will be implemented in consultation with statutory consultees, with a suite of complementary management plans corresponding to different aspects of the construction activity. The EMP will form a component part of the construction contract for the development, which will be tailored specifically to ensure compliance with the consent conditions for the project as well as current environmental best practice.

Project Scoping Considerations

This section has been divided into three areas and outlines the potential for impacts of the proposed development on the physical, biological and human environment.

It is proposed that a holistic approach to the EIA process be taken, which will identify the potential inter-linkages of the environmental features and the potential for "knock-on" impacts.

Physical Environment

The zone is located on the Smith Bank sandbank, where water depths range from 35m to 60m LAT (lowest astronomical tide). The wind climate controls the wave climate at the site and the sediment transport processes. The outer Moray Firth is exposed to large storm waves with long fetch waves from offshore directions. These storm waves are an important driver for sediment resuspension in an otherwise low-energy environment.

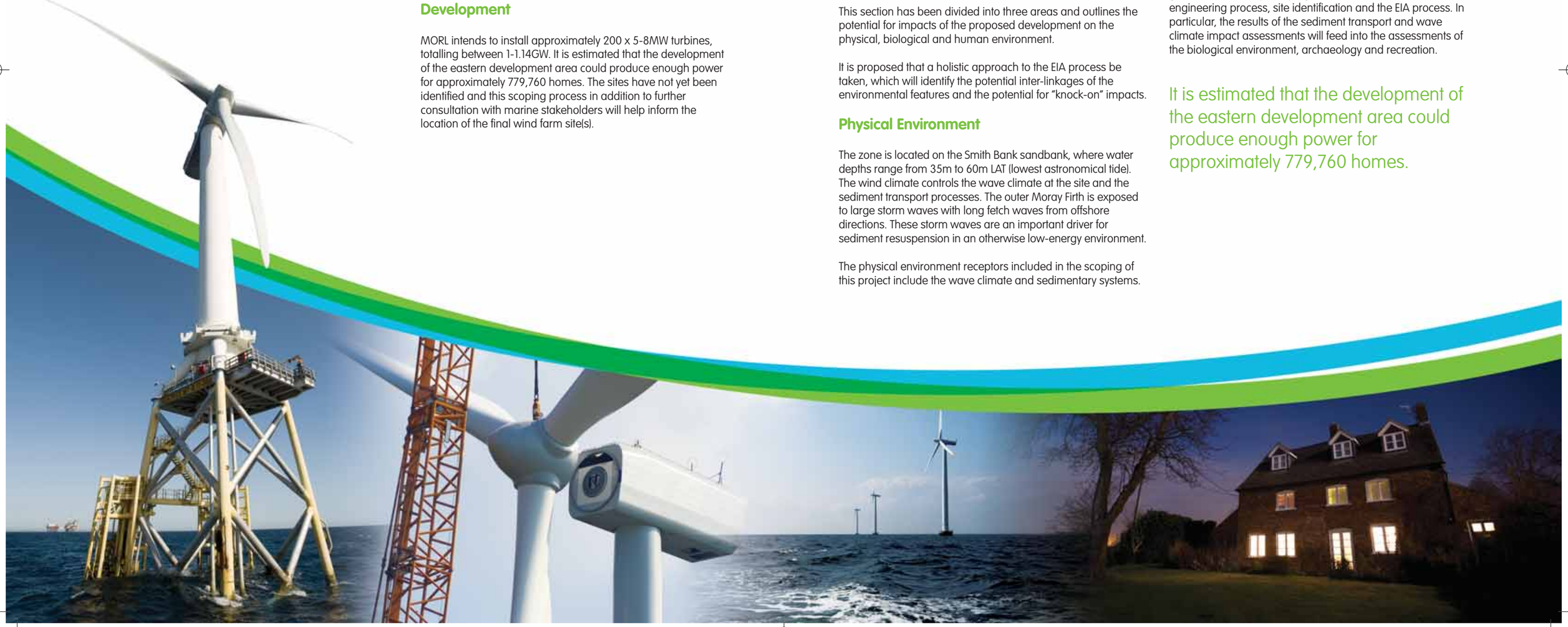
The physical environment receptors included in the scoping of this project include the wave climate and sedimentary systems.

MORL proposes to use geospatial surveys and models to define any physical environmental variations across the given area to determine the potential for impacts on these receptors.

A metocean campaign to measure wave and tidal characteristics of the site was launched in June 2010. A geophysical survey campaign was also commenced in June 2010, with the purpose of defining bathymetry, seabed sediment types, seabed features, obstructions and spatial variation of the near-surface sediments across the given area. Geotechnical surveys will also be used to establish baseline information and to ground truth the geophysical data.

The data collected during the metocean, geophysical and geotechnical survey campaigns will also be used to inform the engineering process, site identification and the EIA process. In particular, the results of the sediment transport and wave climate impact assessments will feed into the assessments of the biological environment, archaeology and recreation.

It is estimated that the development of the eastern development area could produce enough power for approximately 779,760 homes.



Biological environment

This report scopes the potential impacts on, and surveys required for, benthic ecology, fish, marine mammals, ornithology and designated sites. The methodologies and potential survey requirements for assessing cumulative effects are to be agreed with consultees as part of a future scoping exercise undertaken by the MFOWDG.

Benthic Ecology

Various surveys have been done of benthic ecology on the Smith Bank. These have indicated that the faunal groups vary with the sediment characteristics, which range from coarse sediments to mud and fine sands. In general, the mobile epifauna is characteristic of the "central" North Sea sub-group (dominated by starfish and crustaceans), whereas the diverse and abundance sessile epifauna is characteristic of the "north" North Sea sub-group (dominated by bryozoans and hydroids).

The benthic ecology receptors included in the scoping of this project includes the regional benthic community, filter and suspension feeding species and the wider trophic web.

A survey methodology to characterise the benthic community within the Eastern Development Area is to be agreed with statutory authorities but will use the results of the geophysical surveys to determine appropriate sampling areas.

Fish

The Smith Bank is a known spawning area for species such as plaice, sandeel, cod and lemon sole. Other species also use the wider Moray Firth area for spawning and nursery grounds.

Diadromous fish species within the Moray Firth area include Atlantic salmon, river and sea lamprey and twaite and Allis shad. The occurrence of these species within the Eastern Development Area is currently unknown. The occurrence of elasmobranch and electromagentic sensitive species is also unknown in the development area.

Commercial fish species within the development area include scallops, Nephrops, haddock, monkfish, squid, cod, megrim, whiting and herring among others.

The fish ecology receptors included in the scoping of this project includes the regional fish community, electromagnetic field sensitive fish, species with spawning and/or nursery grounds in the Moray Firth region and migratory fish species.

A survey methodology to characterise the fish community within the Eastern Development Area is to be agreed with statutory authorities.

Marine mammals

Species likely to be recorded in the Eastern Development Area include whales, dolphins, porpoises and seals. To date 14 species of marine mammals and two species of seals have been recorded in the Moray Firth. Some species, such as harbour seals and bottlenose dolphins are resident year round in the Moray Firth whereas other species such as common dolphin or long-finned pilot whales are only recorded during part of the year.

The regional marine mammal community is the receptor included in the scoping of this project.

A wealth of information on marine mammals is currently available for the Moray Firth region. In addition to these data, MORL are intending to undertake boat based visual studies, specialised acoustic surveys, aerial surveys, plus analysis of past photo-identification and tagging studies.

Ornithology (Birds)

The Moray Firth is host to internationally-important numbers of breeding seabirds, over-wintering waterbirds (seaducks, diving ducks, divers, grebes and waders) and is important for feeding during the spring and autumn migrations of species that breed at high latitude. Species of conservation significance that have been recorded on the Smith Bank include guillemots, fulmar, kittiwake and gull species.

The regional bird community is the receptor included in the scoping of this project.

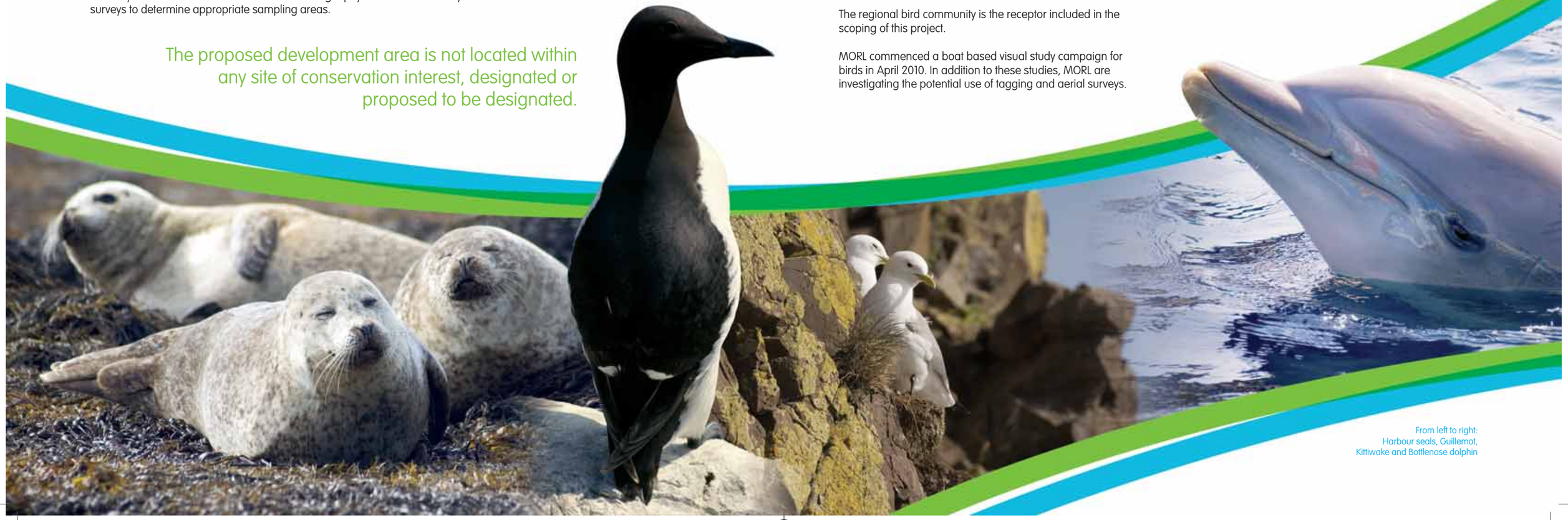
MORL commenced a boat based visual study campaign for birds in April 2010. In addition to these studies, MORL are investigating the potential use of tagging and aerial surveys.

Designated sites

The proposed development area is not located within any site of conservation interest, designated or proposed to be designated. However, the Moray Firth region contains many sites of national and international importance for wildlife, with species that may use the proposed development area for activities such as migration, feeding or resting. These sites include international Ramsar sites, European Special Protected Areas and Special Areas of Conservation, Sites of Special Scientific Importance, Internationally important bird areas and various nature reserves. Although these sites are unlikely to be impacted directly by the development of the wind turbines, indirect impacts on the sites could result from direct or indirect impacts on designating features (e.g. fish, shellfish, marine mammals or birds).

The sensitive receptors included in the scoping of this project includes those fish, shellfish, marine mammals and bird species and habitas which are designating features of designated sites. The relevant surveys to collect information on these receptors are discussed in the preceeding sections.

The proposed development area is not located within any site of conservation interest, designated or proposed to be designated.



From left to right:
Harbour seals, Guillemot,
Kittiwake and Bottlenose dolphin

Human environment

Commercial Fishing

Fisheries statistics for commercial fisheries available from the Marine and Fisheries Agency and Marine Scotland were used to develop a description of the fishing activity within the Eastern Development Area. These statistics indicate that the Fraserburgh, Buckie and Wick are the top three ports in which fish from this region are landed. Scallops, Nephrops, haddock and monkfish are the top four species landed from this area, with scallops accounting for the majority of landings. There is also a seasonal squid fishery within the region.

Further analysis of commercial fisheries in the area is proposed for the ES. The analyses will be discussed and agreed with relevant authorities.

Navigation

The North Sea is one of the busiest shipping regions in the world and is used by a variety of vessels, including cargo vessel tankers, ferries and offshore vessels. Current AIS (automatic identification system) data has been obtained in order to understand the shipping densities and movements across the outer Moray Firth. Acquiring more detailed information on all shipping traffic will form part of the navigation risk assessment in the EIA.

Civil Aviation

For this scoping assessment an initial screening exercise of the potential impacts on aviation was undertaken. The study identified that the Eastern Development Area would have potential effects on different types of radar and potential impacts on helicopter aviation. Further studies to address these impacts will be discussed with the relevant authorities.

Military aviation

The Eastern Development Area is located within an area in which turbines are likely to impact on military aviation radar. In addition, the Eastern Development Area is within two military practice areas of which one is a danger area. In response to a pro-forma enquiry, the Ministry of Defence has confirmed that unless suitable mitigation measures are agreed, they are likely to object to any development within the danger area. Consultation with the Ministry of Defence and specialist studies will be used to understand the issues.

Marine Waste Disposal, Dumping and Dredging

There are no sites for marine waste disposal or dumping or aggregate extraction within the proposed development area therefore, the potential for impacts on these stakeholders is scoped out.

Offshore Oil and Gas

The eastern development area is located within the following UKCS blocks: 12/21, 12/22, 12/23 and 12/26. There are seven extant licenses for oil exploration and production within these blocks. With the exception of plugged wells there is no oil production infrastructure within the eastern development area. However, the Beatrice and Jacky oil platforms are located to the north-west of the development area. Access to these platforms is by helicopter or vessel and routes do not pass through the eastern development area. Potential impacts to the petroleum companies are scoped out.

Subsea Cables and Pipelines

There are no known sub-sea cables or pipelines within the Eastern Development Area. However, an active telecommunications cable is present to the east of the development area. This cable has a works restriction zone which overlaps with the development area. A study will be carried out to identify any safety aspects associated with this works restriction zone.

Landscape/Seascape and Visuals

The proposed project lies approximately 22 km (approx 14 miles) offshore at its closest point. As a result it is likely to be visible from limited parts of the Caithness coastline during clement weather and as such a seascape analysis will be completed to assess the significance of potential impacts of the proposed development on the landscape, seascape and visual resources of the area. The potential impacts on the setting of historic landscapes and monuments will also be assessed.

Archaeological and Cultural Heritage

Archaeological remains that are protected include wrecks and wreckage of historical, archaeological or artistic importance. Records indicate that there are three wrecks within the Eastern Development Area. None of the wrecks identified are currently protected wrecks, known to be of archaeological significance or designated as War Graves. The EIA will investigate the potential for impacts to these archaeological features.

Marine and coastal recreation

Analysis of the number of trips made by visitors indicates that tourism is important to the Highlands and Aberdeen and Grampian regions. Within these two regions, the WDCS wildlife centre in Spey Bay was identified as one of the top visitor attractions on the Moray Firth. The Moray Firth also provides a range of recreation and amenity features, such as sailing, yachting, wild-life watching, walking and cycling. The EIA will investigate the potential for impacts to tourism and any potential impacts to recreational activities.

Socio-economics

Within the Moray Firth coastal regions of the Highlands and Aberdeen and Grampian, Inverness is the largest population centre. The public sector and tourism related employment area large employers within these regions. Manufacturing and construction are also important sectors of the workforce.

The development of offshore infrastructure can have an impact on the local economy through local spend, use of services and good and employment, as well as providing security in energy supply and educational opportunities. The EIA will investigate the potential for impacts to these receptors.

From left to right:
Harbour seals, Guillemot, Kittiwake and Bottlenose dolphin

Cumulative Impact Assessment

The methodologies and potential survey requirements by which cumulative effects will be assessed will be agreed with consultees as part of a future scoping exercise undertaken by the MFOWDG. Best practice guidelines for cumulative assessment will be followed wherever possible.

Consultation

Stakeholders and the wider public are invited to provide comments and feedback on the scoping report. In addition, information on potential spatial constraints to wind farm siting is welcomed.

The consultation period runs from 31 August to 30 November 2010. Please direct all feedback to:

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