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Seagreen Phase 1 Offshore Project Planning Statement

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INTRODUCTION

Seagreen Wind Energy Limited (Seagreen) is a joint venture between SSE Renewables plc and Fluor Limited. In 2009 The Crown Estate awarded Seagreen rights over the sea bed to construct and operate offshore wind farms in an area identified as the Firth of Forth Round 3 Zone 2 (the 'Zone').

The Zone is being developed in phases. The first phase of development is two offshore wind farms (OWF) known as Project Alpha and Project Bravo. These OWFs are being development by Seagreen with its project companies, Seagreen Alpha Wind Energy Limited (SAWEL) and Seagreen Bravo Wind Energy Limited (SBWEL) (the 'Applicants'). SAWEL and SBWEL will be the owners and operators of Project Alpha and Project Bravo respectively.

SAWEL and SBWEL have applied to the Scottish Ministers for the necessary consents to construct and operate Project Alpha and Project Bravo. They have also applied jointly for permission to construct the offshore transmission infrastructure required for the OWFs (the 'Transmission Asset Project') including the laying of the high voltage export cables within an Export Cable Route (ECR) corridor. The term 'Seagreen Project' is used in this Statement to mean Project Alpha, Project Bravo and the Transmission Asset Project. Table 1 below summarises the Applicants (SAWEL and SBWEL) proposed arrangements for consents, for the development of the Seagreen Project.

Table 1. Seagreen Project consent application

Project element	Applicant	Consent required	Consenting authority
Offshore wind farm assets			
Project Alpha (including marine licence for scour protection and cable protection (if required); meteorological masts and wave buoys)	SAWEL	Section 36 under Electricity Act 1989	Scottish Ministers supported by Marine Scotland
		Marine Licence under the Marine and Coastal Access Act 2009	Scottish Ministers supported by Marine Scotland
		Declaration under Section 36A of the Electricity Act 1989	Scottish Ministers supported by Marine Scotland
		Safety zone under Section 95 of the Energy Act 2004	Department of Energy and Climate Change (DECC)
		Decommissioning Plan under Section 105 of the Energy Act 2004	DECC
Project Bravo (including marine licence for scour protection and cable protection (if required); meteorological masts and wave buoys)	SBWEL	Section 36 under Electricity Act 1989	Scottish Ministers supported by Marine Scotland
		Marine Licence under the Marine and Coastal Access Act 2009	Scottish Ministers supported by Marine Scotland
		Declaration under Section 36A of the Electricity Act 1989	Scottish Ministers supported by Marine Scotland
		Safety zone under Section 95 of the Energy Act 2004	DECC
		Decommissioning Plan under Section 105 of the Energy Act 2004	DECC

Project element	Applicant	Consent required	Consenting authority
Transmission assets			
OFTO Assets (in and out with 12 nautical miles (NM))	SAWEL and SBWEL jointly	Marine Licences under the Marine and Coastal Access Act 2009 and Marine Scotland Act 2010	Scottish Ministers supported by Marine Scotland
		Declaration under Section 36A of the Electricity Act 1989	Scottish Ministers supported by Marine Scotland
		Safety zone under Section 95 of the Energy Act 2004	DECC
		Decommissioning Plan under Marine Licence	Scottish Ministers supported by Marine Scotland

The applications have been submitted pursuant to the requirements of the Marine (Scotland) Act 2010, the Marine and Coastal Access Act 2009 and the Electricity Act 1989. The Scottish Ministers (through Marine Scotland’s Licensing Operations Team (MS-LOT)) are required to consider the applications in accordance with the relevant tests contained in the legislation.

The purpose of this Statement is to provide an assessment of the proposed development against the relevant decision making considerations set out in the legislation and in other relevant policy documentation. This assessment draws upon the information contained in the Environmental Statement (ES) (Seagreen, 2012a) submitted with the consent applications. As well as the offshore works that are covered by the applications considered in this Statement, onshore transmission works will also be required for the Seagreen Project. These will comprise of an electricity cable landfall and transmission pit, onshore electricity transmission cables and a substation either with / or without a convertor station. All works to be carried out above Mean Low Water Springs (MLWS) are subject to the Town and Country Planning (Scotland) Act 1997 (as amended) and not the marine Acts.

The onshore works will be consented by way of a separate planning application submitted to Angus Council as the relevant Planning Authority. A separate planning statement will be submitted to Angus Council with that application.

This Statement is arranged as follows:

- an overview of the Seagreen Project;
- a brief explanation of the decision making process;
- consideration of the Seagreen Project against International, United Kingdom (UK) and Scottish Government policy requirements;
- assessment of the offshore elements of the Seagreen Project against marine planning policies and other relevant matters; and
- conclusion.

SEAGREEN PROJECT OVERVIEW

Project description

The Seagreen Project comprises all of the offshore elements of the development proposed by Seagreen including two independent OWFs (Project Alpha and Project Bravo) and the Transmission Asset Project, which includes the offshore platforms (OSPs) and export cables to transport the power generated by the OWFs to the National Electricity Grid (the 'Grid'). A full description of the Seagreen Project is provided in Chapter 5 (Project Description) of the Seagreen Phase 1 Offshore Project ES.

The main components forming each OWF project comprises of:

- a maximum of 75 wind turbine generators (WTGs) comprising supporting tower structures, nacelles and rotors with associated access arrangements;
- foundations and substructures;
- subsea array cables linking the WTGs to the OSPs;
- scour protection and cable protection (where appropriate);
- up to three meteorological masts in each project; and
- up to three wave buoys in each project.

The Transmission Asset Project infrastructure includes:

- OSPs;
- High Voltage (HV) (circa 220 kilovolts (kV) or above) subsea power cables providing inter connection between OSPs;
- HV export cables up to Mean High Water Springs (MHWS);
- cable landfall and connection to onshore infrastructure up to MHWS; and
- scour protection and cable protection (where appropriate).

EIA process

Chapter 6 (EIA Process) of the Seagreen Phase 1 Offshore Project ES sets out in detail the work that has been undertaken in accordance with the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2000 (as amended) and the Marine Works (Environmental Impact Assessment) Regulations 2007 (as amended). The ES has considered the potential environmental effects of the Seagreen Project in accordance with the requirements of these Regulations.

At this stage the detailed design of the Seagreen Project is not yet known. In accordance with the established practice of both the offshore wind industry and wider development industry the 'Rochdale Envelope' principle has been used. This approach involves setting a series of design parameters (e.g. such as maximum turbine numbers or turbine foundation types) for the development. The potential environmental impacts are assessed against these design parameters. To ensure the robustness of the assessment, a 'worst case' approach to the potential environmental impacts of the design variations is used. The use of the Rochdale Envelope principle means that the conclusions of the EIA can properly be applied to the final detailed design of the development once this is fixed.

The use of this approach has been confirmed by the courts as being in accordance with the legal requirements of the relevant EIA legislation and is endorsed by Marine Scotland (see the Marine Licensing Handbook). A full explanation of the use of the Rochdale Envelope principle is provided in Chapter 6 (EIA Process) of the Seagreen Phase 1 Offshore Project ES.

OFFSHORE LEGISLATIVE FRAMEWORK

Overview

The principal pieces of legislation against which the Seagreen Project is to be determined are:

- The Electricity Act 1989;
- The Marine and Coastal Access Act 2009;
- The Marine (Scotland) Act 2010; and
- The Energy Act 2004.

The Electricity Act 1989

Within UK offshore waters the installation of any offshore generating station with a capacity of 50MW or above requires consent under Section 36 of the Electricity Act 1989.

In considering Section 36 applications under the Electricity Act 1989, Scottish Ministers are required to have regard to a wide range of considerations. These include the desirability of preserving natural beauty (of the countryside), of conserving flora, fauna and geological or physiographical features of special interest and in protecting sites, buildings and objects of architectural, historic or archaeological interest. Also to the extent to which the applicant has complied with their duty to mitigate any effects using reasonable means.

The Marine and Coastal Access Act 2009 and Marine (Scotland) Act 2010

The Marine and Coastal Access Act 2009 (MCAA) provides the statutory basis for the marine planning system for UK offshore waters (12-200 nautical miles (NM)) and provides the statutory basis for consenting of the majority of the Seagreen Project. The UK Government has devolved responsibility for licence applications within the UK offshore waters off the coast of Scotland (commonly referred to as the Scottish Renewable Energy Zone (REZ)) to the Scottish Ministers.

Public authorities are required under Section 58 of the MCAA to take any authorisation decision “*in accordance with the appropriate marine policy documents, unless relevant considerations indicate otherwise*”. The “appropriate marine policy documents” are defined in Section 59 of the MCAA as including any Marine Policy Statement (MPS) or marine plan in effect for that area.

Within the Scottish Territorial Waters (STW) (0-12NM offshore), the Marine (Scotland) Act 2010 (MSA) applies. Section 15 of the MSA also requires that public authorities take any authorisation decision “*in accordance with the appropriate marine plans unless relevant considerations indicate otherwise*”. The “appropriate marine plans” include any National Marine Plan (NMP) or Regional Marine Plan which is in effect.

The Scottish Ministers fall within the definition of ‘public authorities’ for the purposes of these Acts and as such must consider the applications submitted under both the MCAA and the MSA in accordance with the above provisions.

MS-LOT operate the licensing of marine development on behalf of the Scottish Ministers.

Section 69 of the MCAA requires regard to be had to the following matters in determining applications for Marine Licences:

- the need to protect the environment;
- the need to protect human health;
- the need to prevent interference with legitimate uses of the sea; and
- such other matters as the Scottish Ministers consider relevant.

Equivalent provisions for licensing within STW are contained in sections 2, 3 and 27 of the MSA.

The appropriate marine policy documents and plans together with the above requirements provide the starting point for determining the applications. These are considered further below in respect of the context for Marine Planning.

Energy Act 2004

The Energy Act 2004 (EA) introduced a regime for the decommissioning of offshore energy schemes such as the Project. The EA requires a Decommissioning Programme to be submitted to the Secretary of State (DECC) for approval. There is a statutory requirement on DECC to consult with the Scottish Ministers before approving a Decommissioning Programme. Further details on decommissioning of the Project are set out in Chapter 5 (Project Description) of the ES.

Safety Zones will also be applied for during construction of the offshore elements of the Seagreen Project and potentially also during maintenance works. Safety Zones are usually granted on the basis of providing a 500m diameter working area into which other vessels are not permitted to enter. The Safety Zones for the Seagreen Project will be applied for as appropriate and limited only to those areas that are being worked in.

Onshore legislative framework

Town and Country Planning (Scotland) Act 1997

An application for planning permission for the onshore elements of the Project are to be made to Angus Council as local planning authority. This application will be made under section 28 of the Town and Country Planning (Scotland) Act 1997 (as amended) (TCP(S)A).

Section 25 of the TCP(S)A provides that the local planning authority when determining applications for planning permission must determine those applications in accordance with the statutory development plan unless material considerations indicate otherwise. Full consideration of the onshore elements of the Project against relevant policies of the development plan will be made in a separate planning statement which will be submitted in support of the onshore planning application to Angus Council.

Other statutory consents

Habitats and birds directives

EC Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (known as the Habitats Directive) is intended to protect biodiversity by requiring Member States to take measures to maintain or restore natural habitats and wild species listed in the Annexes to the Directive at a favourable conservation status. It provides for robust protection for those habitats and species of European importance.

EC Directive 2009/147/EC on the conservation of wild birds (known as the Birds Directive) provides a framework for the conservation and management of, and human interactions with wild birds in Europe. It sets broad objectives for a wide range of activities.

In Scotland the Habitats Directive is transposed into Scots law by the Conservation (Natural Habitats, & c.) Regulations 1994 (as amended) and the Conservation of Habitats and Species Regulations 2010 (in respect of s.36 consents) (together referred to as the Habitats Regulations). The provisions of the Birds Directive are implemented through the Wildlife and Countryside Act 1981 (as amended), the Habitats Regulations and the Offshore Marine Conservation (Natural Habitats & c.) Regulations 2007 (as amended), as well as other legislation related to the uses of land and sea.

Under this legislation a network of protected areas (the Natura 2000 network) has been established. These are Special Areas of Conservation (SAC), for habitats and species, and Special Protection Areas (SPA), for birds.

If there is potential for a plan or project to have a likely significant effect on a Natura 2000 site, there is a requirement for the competent authority to carry out an appropriate assessment. It is the applicant's responsibility to provide sufficient information to the competent authority to enable them to assess whether there are likely to be any significant effects and to enable them to carry out the appropriate assessment, where necessary. A stand alone Habitats Regulation Appraisal (HRA) report will be submitted which will provide all of the necessary information for the Scottish Ministers as relevant competent authority to carry out the Appropriate Assessment.

Species licensing

European marine protected species (EPS) are those listed in Annexes II and IV of the Habitats Directive. The Habitat Regulations make it an offence to kill, injure, capture or disturb marine EPS. The MSA contains similar provisions in respect of Seals. Where development is likely to affect species which are protected under the Habitats Regulations a protected species licence may be required from Scottish Natural Heritage (SNH).

DECISION MAKING PROCESS

Marine planning policy context

Scottish Ministers must have regard to the appropriate marine policy documents in deciding applications, including Marine Policy Statements and Marine Plans. The UK Marine Policy Statement (MPS) provides the framework for the development of Marine Plans across the UK which are intended to provide more detailed policy and spatial guidance at the National or Regional level. This means that decisions on activities in the UK marine area will be plan led once Marine Plans are in place.

A pre-consultation draft plan setting out the national strategic objectives for the Scottish marine area in future years was published for consultation in March 2011 covering both STW and the Scottish REZ.

The pre-consultative draft stage of plan preparation has been completed. However the plan has not progressed through any of the subsequent stages towards adoption. In accordance with Section 59 of the MCAA, the draft National Marine Plan (NMP) cannot be considered as an appropriate marine policy document until it has been adopted with the agreement of the Secretary of State. Given the very early stage in the plan preparation process reached by the NMP, and the fact it is not currently part of the decision making framework it has not been considered further in this Statement.

In the absence of a formally adopted NMP, the MPS is the only marine policy document which is in effect within the Scottish REZ and STW. All public authorities taking authorisation or enforcement decisions that affect or might affect the UK marine area must do so in accordance with the MPS unless relevant considerations indicate otherwise. Decision makers should apply the same approach whether or not a NMP is in place and as such the MPS forms the primary basis for assessment of the consent applications. This Statement therefore focuses on the key provisions of the MPS and assesses whether or not the Seagreen Project complies with these.

The MPS sets out the overarching UK vision for the marine environment together with the general principles and policy objectives that decision-makers examining applications for energy infrastructure should take into account. Energy infrastructure is one of the key activity policies within the MPS.

The UK vision for the Marine Environment is for 'clean, healthy, safe, productive and biologically diverse oceans and seas'. The high level marine objectives which set out the broad outcomes for the marine area in achieving this vision are:

- achieving a sustainable marine economy;
- ensuring a strong, healthy and just society;
- living within environmental limits;
- promoting good governance; and
- using sound science responsibly.

The marine planning process is intended to enable specific policy objectives for marine activities to be realised within a framework of economic, social and environmental considerations in order to deliver these high level marine objectives. It is recognised in the MPS that marine planning will play an important role in facilitating climate change mitigation through actions, including offshore renewables.

Decision making principles

As well as confirming that decisions should be conducted in a manner that meets requirements under relevant UK and European Union (EU) legislation, the MPS also sets out a number of high level principles that should be taken into account in taking authorisation decisions including that decisions:

- be taken using a risk-based approach that allows for uncertainty, recognising the need to use sound science responsibly as set out in the high level objectives;
- should only be taken after appropriate liaison with terrestrial planning authorities and other regulators, and in consultation with statutory and other advisors when appropriate;
- be sensitive to any potential impacts on sites of particular significance;
- take account of potential impacts of climate change mitigation and adaptation in individual applications to ensure that any appropriate adaptation and mitigation measures have been identified;
- take account of the benefits that good design (including the best use of available technologies and innovation) can deliver; and
- look to avoid and then mitigate negative impacts where possible at various stages of development, including appropriate conditions in line with legal obligations, in a manner that is proportionate to the potential impacts of the proposal under consideration. Where alternative site selection or design could mitigate negative effects whilst retaining benefits, this should be considered, where appropriate.

A number of matters are also identified (MPS 3.3.4) which require to be taken into account in determining all applications for energy infrastructure:

- the national level of need for energy infrastructure;
- the positive wider environmental, societal and economic benefits of low carbon electricity generation;
- that the renewable energy resources can only be exploited where the resource exists and where economically feasible; and
- the potential for inward investment on energy related manufacturing and deployment activity and employment opportunities and regeneration of local and national economies, supporting the objective of developing the UK's low carbon manufacturing capability.

A presumption in favour of development in the marine planning system is clearly stated (MPS 2.5.2) in order to help promote the benefits of developments which provide environmental and social benefits and drive economic development. This is an important consideration in the context of the application of a risk based approach by decision makers which allows for a degree of uncertainty.

As well as the matters which must be taken into account in considering all applications, the key issues relevant to the decision making process are also identified for specific policy objectives, including for energy infrastructure, in chapter 3 of the MPS. This Statement accordingly considers the assessment which has been carried out for the Seagreen Project, with direct reference to the policy objectives of the MPS and to the relevant matters contained in the legislation.

PLANNING ASSESSMENT

The UK and Scottish Government have identified a need for offshore wind energy generation to meet international climate change obligations and domestic targets for renewable energy. The considerable weight of International, UK and Scottish Government policies and targets which support the development of renewable energy are set out in detail in Chapter 2 (Need for the Project) of the Seagreen Phase 1 Offshore Project ES. The key themes and documents which provide the context for the consideration of the Seagreen Project are set out in the following sub-sections.

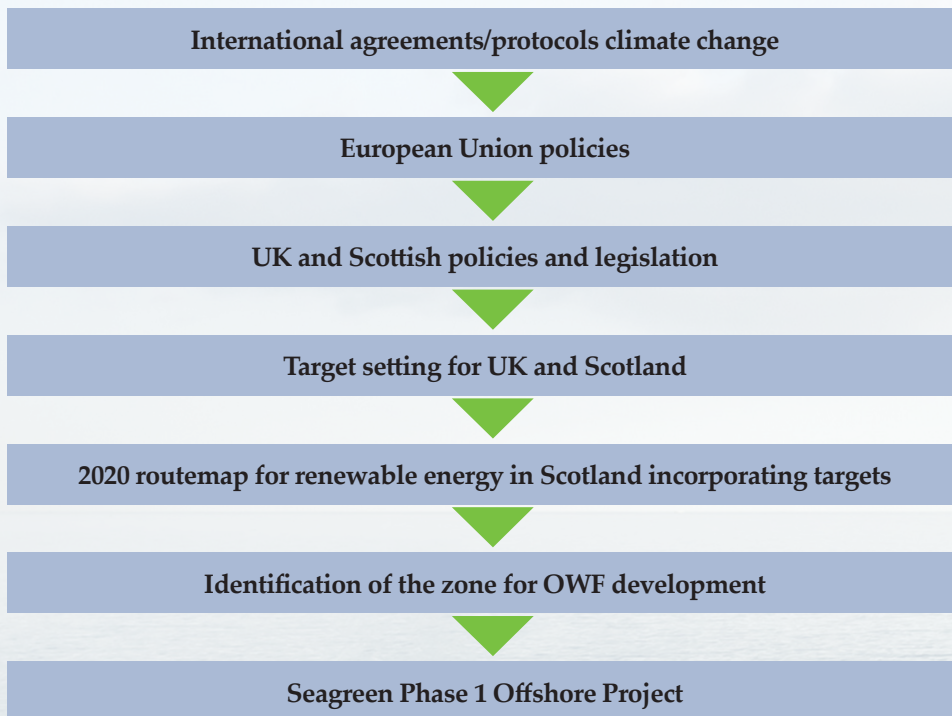
The need for the Seagreen Project

Project need is considered in the context of the following four topic areas:

- the need to combat climate change;
- the need for new energy infrastructure;
- energy security of supply; and
- maximising economic benefit.

The need to combat climate change

The main elements of the hierarchy of international and national obligations, directives and policy statements that combine to place the UK and Scotland on a legally binding path to reduce carbon dioxide (CO₂) emissions, is set out below, setting the context for the Seagreen Project within this overarching context:



At the international level the 1997 Kyoto Protocol, which was ratified by the UK in 2002, forms the highest level of international agreement on Climate Change. This is a framework which sets mandatory targets aimed at reducing greenhouse gas (GHG) emissions, such as CO₂, by an average of 5% against 1990 levels over the five year period 2008 - 2012. Under this framework, participating countries were assigned targets stipulating the maximum amount that they can emit per year over the period of commitment (2008 - 2012).

The EU Renewable Energy Directive 2009/28/EC takes into account different national potentials for renewable energies and requires each member state to adopt a national target ensured to meet the Commission's targets for energy from renewable sources. The UK has been set a target of 15% of the energy consumed in the UK to come from renewable sources by 2020 (EurActiv, 2009).

The UK Government is committed to addressing the causes and consequences of climate change and consequently has introduced the world's first long term legally binding framework to tackle climate change. The Climate Change Act 2008 sets a legally binding commitment to cut the UK's carbon emissions by 80% by 2050 and requires that limits be set on the total amount of emissions in successive five year periods (carbon budgets) against a 1990 baseline. This makes the UK the first country in the world to set such a long-term and significant carbon reduction target into law.

The Scottish Government renewables target is the most ambitious in the EU and is committed to generating an equivalent of 100% of electricity demand from renewable sources by 2020 with an aim of Scotland generating twice as much electricity as it needs (50% from renewables and 50% from conventional sources) and exporting as much as it consumes (Scottish Government, 2011a). The Scottish Government has also made legally binding commitments through the Climate Change (Scotland) Act 2009, which sets a GHG emissions target, for a reduction of 80% from 1990 levels by the year 2050.

The document 'Low Carbon Scotland: Meeting the Emissions Reduction Targets 2010 - 2022', published on March 14, 2011, outlines the measures identified to meet the emissions reduction targets established by the Climate Change (Scotland) Act 2009, over the period 2010 - 2022. By 2020 renewable electricity generation must account for at least 80% of gross electricity consumption.

The Seagreen Project would deliver up to 1 Gigawatt (GW) of low carbon and domestically sourced electricity. This in itself will make a significant contribution to helping the UK and Scotland meet its carbon reduction and renewable energy targets and is a factor which should be afforded considerable weight when determining the Seagreen Project applications. Furthermore, the Seagreen Project, as the first phase of Zone development, will play a crucial role in the delivery of up to 3.5GW of renewable energy.

The need for new energy infrastructure

The UK requires new energy infrastructure (generating capacity and transmission capacity) for the following four principal reasons, which are set out below:

- to reduce the carbon footprint of electricity generation capacity in order to achieve the 2050 climate change targets;
- to enable the transition from heat and transport being powered by fossil fuels to being powered by electricity;
- to ensure adequate supplies due to changes in the demands on transmission infrastructure and changes in the nature of generating capacity; and
- to ensure security of supply by replacing existing power stations and meeting predicted increase demand.

According to the DECC and the Office of Gas and Electricity Markets (Ofgem), generation capacity in the UK currently stands at 90.2GW (DECC & Ofgem, 2011). The Large Combustion Plant Directive will lead to closure of around 12GW of coal and oil-fired generation in the UK, which is considered too polluting by modern standards, by the end of 2015 at the latest. With regards to nuclear, DECC and Ofgem state that up to 7.1GW of existing nuclear generating capacity in the UK is reaching the end of its operational life and will have closed by 2020. This represents a potential reduction in generating capacity of 19.1GW or approximately 21% of UK generating capacity.

The 2010 Updated Energy and Emissions Projections indicate that by 2025 the UK might need around 113GW of total electricity capacity; of which, 59GW would come from new sources. This will require around 33GW from renewable sources, if renewable energy commitments are to be met (DECC, 2011).

In March 2012 the Scottish Government published their Draft Electricity Generation Policy Statement (EGPS) for consultation. The EGPS sets out the Scottish Government's plans for renewable energy and fossil fuel thermal generation in Scotland's future energy mix and shows that the target to generate the equivalent of 100% of Scotland's electricity needs from renewables, as well as more from other sources, is achievable. This followed the Renewable Energy Review which forecast a major role for renewables (alongside nuclear and Carbon Capture and Storage (CCS)) in decarbonising power, heat and transport.

The Seagreen Project will contribute significantly to the new energy infrastructure that needs to be developed to replace existing generating capacity that is reaching the end of its lifespan.

Energy security and supply

Without action the UK will become ever more reliant on imported energy sources and have greater exposure to global energy price fluctuations (DECC, 2009). In 2009, the UK Government released the Low Carbon Transition Plan White Paper which plots how the UK will meet the 34% cut in emissions on 1990 levels by 2020. Within this White Paper it was identified that by decarbonising electricity supplies the UK can greatly reduce its reliance on fossil fuels (which increasingly have to be imported). Developing a low carbon energy sector for the longer term can deliver both increased energy security for the UK and Scotland and ensure international targets for the reduction of greenhouse gas emissions are met (UK Government Renewable Energy Strategy, 2009).

The Scottish Government's Draft EGPS 2012 states:

"We must ensure that Scotland continues to have a secure energy supply throughout the transition to low carbon energy. It's possible that around a quarter of the UK's existing generating capacity will be retired over the next decade. While actions on energy demand and energy efficiency will help to reduce the need for energy, longer term demand for electricity is likely to increase as greater use is made in areas such as transport and heat. Our aim will be to meet these needs with a generation mix which is sustainable and as low in carbon emissions as possible".

The Seagreen Project will provide 1GW of renewable electricity, and is the first phase in Zone development which will deliver up to 3.5GW. Indigenous sources of energy, such as the Seagreen Project, can make a significant contribution to addressing issues surrounding energy security and to ensuring a sufficient mix of low carbon energy sources.

Maximising economic benefit

As well as helping tackle climate change and ensure binding targets are met, the UK and Scottish Government have identified the renewable energy sector as being a key contributor to the economy.

The UK Government's Renewable Energy Roadmap sets out a comprehensive action plan to accelerate the UK's deployment and use of renewable energy, to put the UK on a path to achieve the 2020 target, while driving down the cost of renewable energy over time. It also identifies that the required growth in the renewables industry to achieve targets, could more than double the number of jobs, to over half a million working in the UK renewable sector by 2020.

A Low Carbon Economic Strategy for Scotland' published in November 2010, sets the policy direction for low carbon economic opportunities in Scotland, and aims to strengthen business confidence in exploiting those opportunities. In respect of offshore wind, the Strategy states: *"The large scale development of offshore wind represents the biggest opportunity for sustainable economic growth in Scotland for a generation. It is critical that Scotland exploits the opportunities being made available by the offshore wind industry. Harnessing just one third of our offshore renewable energy potential could meet Scotland's electricity needs seven times over by 2050"* (Scottish Government, 2010a).

Scotland's Offshore Wind Route Map identifies objectives in respect of energy consents and planning and records the actions required to meet them. It also outlines the ambition for the offshore wind industry *"With 25% of Europe's offshore wind potential, the manufacturing, supply chain, job creation and training opportunities present Scotland with huge scope for sustainable economic growth"*.

The Zone is Scotland's largest R3 project (and the largest renewable energy project by generating capacity in Scotland) and is therefore integral to the Scottish Government's strategy for sustainable economic growth and maximising future economic opportunities presented by offshore wind development. The Seagreen Project will bring significant investment into both the UK and Scottish economies.

Chapter 19 (Socio-economics, Tourism and Recreation) of the Seagreen Phase 1 Offshore Project ES provides further detail on the potential benefit of the Seagreen Project to the Scottish economy and the wider UK economy.

Topic specific consideration

This section provides an assessment of the findings of the EIA against the relevant statutory and policy considerations.

The applications will be considered against the statutory test contained in the MCAA, MSA and Electricity Act 1989. Detail on these tests is set out above. Although each Act frames the test slightly differently, the general approach is the same. In essence, the Scottish Ministers are expected to consider the benefits of any proposal against its potential impacts.

This assessment adopts the approach set out in section 69 of the MCAA. This requires decision makers to consider applications against the following:

- the need to protect the environment;
- the need to protect human health;
- the need to prevent interference with legitimate uses of the sea; and
- such other matters as the Scottish Ministers consider relevant.

Whilst the approach set out in section 69 of the MCAA has been used, it is equally applicable to the text contained in schedule 9 of the Electricity Act 1989 and section 27 of the MSA.

The need to protect the environment

The following topic specific issues are considered in this section:

- marine water and sediment quality;
- physical environment;
- marine mammals;
- ornithology; and
- natural fish and shellfish.

Marine water and sediment quality

The MPS recognises that developments at sea can have adverse effects on marine waters and that there can be discharges to water and adverse ecological effects resulting from physical modifications to the water environment. It also confirms that an increase in the risk of spills and leaks of pollutants into the water environment and the likelihood of transmission of invasive non-native species, for example through construction equipment, and their impacts on ecological water quality need to be considered (MPS 2.6.4.1).

The assessment of potential impacts on the marine water and sediment environment of all aspects of the Seagreen Project (i.e. construction, operation and de-commissioning) is set out in Chapter 8 (Water and Sediment Quality) of the ES.

The ES confirms that there will be no likely significant impacts on marine water and sediment quality arising from the Seagreen Project either alone or cumulatively with other development proposals in the area.

Although no likely significant effects are predicted, Seagreen propose mitigation measures to minimise any potential impacts during all stages of the Seagreen Project. This will include consideration of scour protection as part of the detailed design and adoption of best-practice pollution prevention measures to reduce the risk of accidental spillages. The Seagreen Project de-commissioning plan will include measures to ensure potential impacts on marine water and sediment quality during this phase are minimised as far as possible.

Physical environment

The MPS identifies that foundation designs of renewable energy developments may have an adverse effect on hydro-dynamics and sediment movement, including potential scouring of sediments around the bases of turbines (MPS 3.3.24).

The nature of any potential changes to physical processes (wave and tidal regimes), bathymetry, geology, geomorphology (sea bed and coastal), and sedimentary processes (sediment transportation and deposition) that may occur due to the presence of the Seagreen Project are all assessed in Chapter 7 (Physical Environment) of the ES.

Potential impacts during construction are mainly associated with the presence of temporary static structures associated with working plan (e.g. jack-up barge). No significant impact on wave heights and

periods and tidal current velocities during the construction phase are predicted. It is expected that the hydrodynamic regime shall return to its preconstruction state upon cessation of construction activities.

The other main impact during construction considered within Chapter 7 (Physical Environment) of the ES relates to potential for an increase in elevated suspended sediment concentrations resulting from installation of conical GBS foundations. The assessment predicts no significant impacts will arise from any sediment transport and subsequent deposition on the sea bed.

The main effects during the operational phase of the Seagreen Project will relate to scour holes around bases of foundation structures, unprotective rock, and unburied sections of array cable. The use of scour protection is predicted to ensure that no significant impacts will occur as a result of this.

Impacts during the decommissioning phase are predicted to be similar to those during construction.

Marine mammals

The potential impacts of offshore wind farm development on marine mammals is recognised in the MPS. In particular, the MPS recognises that noise from developments and associated construction activities in marine areas can have adverse effects on marine mammals, but acknowledges that current understanding of the extent of impacts is limited.

An assessment of the potential impact of noise from the construction, operation and decommissioning of the Seagreen Project has been undertaken for the most commonly occurring and high value species within the study area. The results of the assessment are explained in detail in Chapter 13 (Marine Mammals) of the ES and are summarised below in order to demonstrate the key impacts on the wide range of marine mammal species which could experience effects as a result of the Seagreen Project.

The impacts of the Seagreen Project will vary between different marine mammal species. Set out below is a high level consideration of these impacts by reference to particular species.

Harbour and grey seal are the most prevalent species within the Seagreen Project area. The EIA identifies a range of potential impacts on these species. The nature of any impacts will depend on the construction methods adopted for the Seagreen Project. The impacts on harbour and grey seal are predicted to be temporary, arising during the construction phase of the Seagreen Project.

Auditory injury for all species (including harbour and grey seals) was calculated using a combination of techniques which use spatially explicit density estimates, noise model outputs and species specific dose response curves, to calculate impacts. It should be noted that as a result of novel assessment techniques, uncertainty and limited understanding of the biological effects of noise on marine mammals, that the assessment has erred on the side of conservatism, and as such results are considered to be highly precautionary. The assessment predicts that 16 harbour seals will receive auditory injury, which is approximately 3% of the East Coast Management Area (ECMA) population (522 individuals). Auditory injury on this number of harbour seals would have an impact of medium magnitude on a species considered to have medium sensitivity. Overall the impact would therefore be moderate adverse, and significant. It is predicated that a maximum of 2.5% of the ECMA population of grey seals for the worst case scenario and a maximum of 1.6% for the most likely scenario, could potentially to receive a dose of noise that would cause auditory injury from a single piling event.

As stated above, the assessment approach is considered to be conservative and as such these percentages are considered to represent an absolute worst case. Due to the small portion of the population effected, the magnitude of the impact is considered low. As a precautionary approach, grey seals sensitivity to auditory injury is given medium. Given the low magnitude and medium sensitivity, auditory injury impacts are therefore minor adverse and not significant.

In terms of behavioural disturbance, during a single pile driving event, the worst case predicted disturbance level would affect 51 harbour seal (9% of the ECMA), and 44 harbour seal (8% of ECMA) based on the most likely scenario. It is possible that behavioural disturbance would result in exclusion for only the duration of each pile driving event. In each year this would equate to 35 minutes per pile for 60 piles in the case of the most likely scenario or 55 minutes per pile for 240 piles in the worst case scenario. If disturbance is limited to the worst case scenario, pile driving would last for approximately 255 hours per year; less than 3% of the time. Grey seal are considered to have low sensitivity to behavioural disturbance from pile driving noise. Based on the number of individuals predicted to be within the area of influence, and the short, temporary duration of a single pile driving event, the impact in grey seal is considered to be negligible.

The EIA predicts a likely significant impact on harbour seals during the construction phase of the Seagreen Project. This impact is assessed of being of a medium magnitude. The assessment concludes that there will be no significant impacts on grey seals.

During the extensive boat based surveys no bottlenose dolphins were sighted in the area relevant to the Seagreen Project. However, photo-identification surveys suggest bottlenose dolphins from the Moray Firth SAC use the area between Montrose and the mouth of the River Tay. There are predicted to be no significant impacts on bottlenose dolphins in terms of physical injury, auditory injury or behavioural disturbance.

Potential effects on other cetaceans (namely harbour porpoise, minke whale and white beaked dolphin) are also considered in the ES. The assessment identifies that there are predicated to be no significant effects on any of these species.

The EIA considers the cumulative impacts arising from the construction of both Project Alpha and Project Bravo on marine mammals. The predicated level of impacts is less than the sum of the two projects considered individually. This is due to an overlap in the sound fields meaning the area of impact is less than the combined area of Project Alpha and Project Bravo. Results are presented in the below table:

Table 2. Number of each species predicted by SAFESIMM to experience auditory injury (and % of reference population)

Species	Worst case	Most likely case
Harbour porpoise	9 (<0.003%)	4 (<0.002%)
Bottlenose dolphin	0	0
Harbour seal	21 (4%)	12 (2%)
Grey seal	236 (2-4%)	131 (1-2%)

An assessment of the cumulative construction impacts of the Seagreen Project together with the proximate offshore wind farms in STW (Nearth na Gaoithe and Inch Cape) is also set out in the cumulative impact assessment in Chapter 13 (Marine Mammals) of the ES.

The engineering parameters used to determine the worst case noise outputs are at this stage based on limited engineering studies and are therefore conservative. Following further detailed design, engineering parameters will be refined and impacts are expected to be less severe than predicted within the assessment. Seagreen is committed to working with the regulators to reduce these impacts.

Significant impacts are identified for a number of species. However, within these impacts it is clear that in many cases the Seagreen Project is not the major contributor to the resulting significant impacts.

The potential impact of offshore renewable development on marine mammals is identified in the MPS and other documents, i.e. the Scottish Government's Blue Seas - Green Energy document. The policy documents also note that use of mitigation measures will be integral to sustainable development. As more fully detailed in the ES, Seagreen have adopted a range of mitigation measures within the assessment.

These include development of a Marine Mammal Mitigation Plan (MMMP) in consultation with Marine Scotland and SNH, once the final design process has been completed.

In respect of potential behavioural and auditory injury impacts on marine mammals, best practice piling methods (i.e. 'soft start', 'ramp up') will be adopted. In addition the provision of a Marine Mammal Observer and/or Passive Acoustic Monitoring (PAM) following Joint Nature Conservation Committee (JNCC) guidelines is likely to be part of the licensing requirement. This should allow for an exclusion zone around the source of pile driving of up to 500m. The use of Acoustic Deterrent Devices (ADDs), if deemed appropriate at the time of design and implementation of a mitigation plan, will be considered as a likely alternative or addition to the provision of MMOs.

At present the only technically and economically feasible installation methodologies for wind turbines require a certain amount of pile driving and although pile driving mitigations have been developed, there is currently no method suitable for jacket substructure / foundations in deep water. The possibility of a reduction in noise at source has been considered in the noise propagation modelling. At the time of writing the ES, noise reduction at source is not considered to be at a technologically advanced stage to quantify and apply in the case of this development, and no reduction in the predicted impacts is considered further.

However, there is extensive work currently under way within the industry looking into both potential noise mitigation methods for piling as well as alternative non-piled substructure / foundation solutions. Seagreen is actively involved in this process but until new evidence is presented no further mitigation can be adopted. Nearer to the time of construction the application of such methods will be considered where appropriate.

Ornithology

An intensive programme of boat based surveys was conducted between December 2009 and November 2011 covering the entire Zone, including the Project Alpha and Project Bravo sites. These were supplemented by aerial surveys. These surveys identified that a relatively high number of birds of a number of different species use the Project Alpha and Project Bravo sites. Consideration of the potential impacts on these species is an important part of the overall assessment of the impact of the Seagreen Project.

During the boat based surveys approximately 24,000 individual birds and 39 different species were identified within Project Alpha. Slightly fewer birds and species were identified within Project Bravo (20,000 individuals and 37 species). Guillemots, kittiwakes and gannets were the species identified in the highest numbers, within both OWF sites.

The number of birds using the site reflects the presence of suitable habitat for prey species (mainly sandeels), especially for those birds in the auk family, such as guillemots, puffins and razorbills.

Impacts covering a range of potentially sensitive species were assessed. Indirect effects upon birds from potential construction noise impacts (based on the worst case installation methodology of impact piling) on prey species (the key species being herring and sandeel) are predicted to have a potential moderate adverse effect on four species of bird: kittiwake, guillemot, razorbill and puffin.

Great black-backed gulls is the only species for which collision risk with the turbine blades when the windfarms are operational is predicted to have a major adverse impact for both the Project Alpha

and Project Bravo sites individually and in-combination. The Seagreen Project may also potentially impact cumulatively, with neighbouring offshore wind farms to produce major adverse collision and displacement impacts to kittiwake, gannet guillemot, razorbill, puffin, herring gull, lesser black-backed gull and great black-backed gull.

All of the impact assessments upon birds are considered to be highly precautionary and use a worst case scenario approach, therefore identifying the worst possible level of impacts that could occur. In reality the impacts are expected to be less severe. Seagreen is committed to working with the regulators to reduce these impacts.

In respect of noise impacts on prey species the use of best practice in piling (i.e. 'soft start') is assumed. Until final design options are determined including WTG array layouts; the WTG specification and supplier; substructure / foundation type and installation methodology it is not possible to establish any mitigation for potential collision impacts or barrier effects. Following detailed design, consideration will be given to micro-sting WTGs within each OWF site to avoid high density areas and reduce collision risk and to potentially establish a flight corridor to further reduce impacts.

Natural fish and shellfish

All fish caught during the benthic survey trawls were identified and their length recorded. The findings of this survey were supplemented with landing data collected by Marine Scotland. The lesser sandeel was the most numerous species caught within the seabed trawls followed by dab, goby, pogge and butterfish.

The landings data indicate that nephrops (also known as Norway lobster and langoustine), are numerous within the Project Alpha and Project Bravo sites.

The main potential impact on fish and shellfish in the area of the Seagreen Project is considered to be the noise generated from construction activities, in particular from pile driving. Sound sensitive species such as herring are likely to be particularly vulnerable to this impact and due to the fact that the Seagreen Project overlaps with a herring spawning ground, moderate adverse (both Project Alpha and Project Bravo individually) to major adverse (cumulative impacts of the whole Seagreen Project and cumulative impacts with other projects) impacts have been predicted for this species. Impacts to all other fish and shellfish species are predicted to be of either minor adverse or negligible significance.

The potential impacts to noise sensitive fish species may be reduced by adopting working practices such as soft start piling.

The use of best practice in piling (i.e. 'soft start') is assumed to mitigate noise impacts.

The need to protect human health

The following topic specific issues are considered in this section:

- seascape, landscape and visual impacts;
- archaeology and cultural heritage;
- impact on economy; and
- tourism and recreation.

Seascape, landscape and visual impacts

An appreciation of the diversity of the marine environment, including its seascapes, is part of the high level marine objective of ensuring a strong healthy and just society.

The MPS acknowledges that the impacts on seascape of activities and developments in the marine and coastal area will vary according to the type of activity, its location and its setting. It confirms that in considering the impact of an activity or development on seascape, its existing character and quality, how highly it is valued and its capacity to accommodate change specific to any development should all be taken into account (MPS 2.6.5.3). The desirability of preserving natural beauty is also a relevant consideration for Section 36 consent applications and the consideration of impacts on seascape is relevant in this regard.

The impact of the Seagreen Project on the existing landscape and seascape character together with an assessment of the visual impacts of the Seagreen Project is provided in Chapter 16 (Seascape, Landscape and Visual Amenity) of the ES. A Seascape, Landscape and Visual Impact Assessment (SLVIA) has been carried out to evaluate the likely significance of potential impacts from the proposed development on seascape, landscape and visual amenity.

The SLVIA assesses short term impacts during construction [and decommissioning], long term impacts during the operational lifetime of the Seagreen Project and any residual impacts once the development has been decommissioned and removed. Cumulative impacts caused by the Seagreen Project and in conjunction with other existing, consented and proposed offshore and onshore wind farm sites are also considered. A worst case scenario has been used for the assessment comprising the design options that provided the maximum potential visibility and the main outcomes of that assessment in relation to construction, operation and decommissioning impacts are summarised below.

At their closest point, Project Alpha is located approximately 27km and Project Bravo 38km from the coastline. Construction vessels operating within the Project Alpha and Bravo sites are unlikely to be visible from coastal foreshores and beaches along the coast during the day and as a result there will be no landscape impacts from any primary structure of either OWF as these elements are all located offshore.

The ES confirms that the only potential for direct impacts on landscape elements will be at the landfall location during the construction phase. These impacts will be short term and temporary. There will be no long term effects as a result of construction or decommissioning activities.

Due to their distance from shore, Project Alpha and Project Bravo are also predicated to have limited impacts during the operational phase.

Potentially significant impacts for Project Alpha have been predicted at only two out of eight viewpoints (Beach Road, Kirkton, St Cyrus and Braehead of Lunan) which are located between 32km and 35km from Project Alpha. No significant impacts have been predicted at any of the other viewpoints. For Project Bravo minor (not significant) impacts, where the turbines will not be a substantial feature of the view, are predicted at four out of seven viewpoints located between 43km and 50km away. No impact is predicted at the remaining three viewpoints.

Potentially significant impacts on a limited number of settlements within 35km are predicted from Project Alpha. However impacts will only occur where the turbines are clearly visible from properties with an existing open sea views. Even on a worst case assessment, this is predicted to be less than 50% of days in a year. Settlements located beyond 35km are not predicted to experience any significant impacts. All ten of the residential visual receptors are located over 41km from Project Bravo and only minor visual impacts are anticipated at elevated coastal settlements. No impact is predicted on foreshore or lower level settlements.

The most sensitive marine receptor in the study area is the Category A Listed Bell Rock Lighthouse which is located approximately 28km south-west of Project Alpha. No significant impact is predicted on the visual setting and amenity of the Bell Rock Lighthouse and the SLVIA confirms that views from the Arbroath Signal Tower to the lighthouse will not be affected.

While the OWF's will be visible from a limited number of viewpoints for part of the year, they will not be prominent in views. Significant impacts on seascape are predicted within only two of the nine regional seascape units considered as part of the assessment. The most significant construction impacts arise from the lighting associated with night time working which will be mitigated by existing lighting including from within nearby settlements. All predicted construction impacts are temporary, reversible and will be experienced for a short duration.

Overall it is considered that the limited significance of potential impacts can be satisfactorily accommodated within the existing seascape and that the seascape, landscape and visual impacts resulting from the development do not conflict with the policy objectives of the MPS.

Archaeology and cultural heritage

Regard must be had to protection of sites, buildings and objects of architectural, historic or archaeological interest in assessing applications for Section 36 consent. The protection of cultural heritage assets can also be considered to be covered by the need to protect the environment under the Marine Acts.

The MPS recognises that heritage assets are a finite and often irreplaceable resource which can be vulnerable to a wide range of human activities and natural processes. The historic environment of coastal and offshore zones is identified as a unique aspect of our cultural heritage which should be conserved through marine planning (MPS 2.6.6.2)

The potential impacts associated with the Seagreen Project upon cultural heritage assets are fully considered in Chapter 15 (Archaeology and Cultural Heritage) of the ES. Potential impacts on designated wrecks, scheduled monuments and maritime losses such as wrecks, aircraft and their associated debris and submerged archaeology have all been considered in the assessment. A strategy is also proposed to mitigate any such impacts.

The ES confirms that there are no Designated Wrecks or other cultural heritage assets with legal designations within the Seagreen Project site boundary. A number of sites have been identified which have potential to be associated with wreckage or submerged cultural heritage remains together with sites which have been positively verified as wreck remains. The ES confirms that further investigation including pre-construction surveys will be necessary to confirm the nature and characteristics of these identified sites.

Potential for direct and indirect impacts on archaeological and cultural heritage assets arises during construction and operation of the Seagreen Project. Potential for direct impacts during construction are from works for installation of components and infrastructure and deployment of jack-up legs and anchoring of vessels.

A precautionary approach will be adopted during construction in the ES through establishment of temporary exclusion zones of 50m around the sites to prevent invasive activities and micro siting of infrastructure to avoid any direct impacts. The ES also proposes that a Written Scheme of Investigation (WSI) and Protocol for Archaeological Discoveries (PAD) be prepared to mitigate construction effects in the event of any unexpected archaeological discoveries during installation.

Subject to the appropriate mitigation the residual impacts of the Seagreen Project on sites of archaeological interest during construction and operation is predicted to be of negligible significance.

The operational phase for the Transmission Asset Project may also result in impacts on sites of cultural heritage interest from the anchoring of maintenance vessels and associated activities. The potential for indirect effects of the transmission asset infrastructure on archaeology and cultural heritage assets has also been considered. For areas of the ECR where the cable is buried there are considered to be no significant effects. Where the cable is surface laid and protected with rock berms or mattresses, there is the potential for indirect impacts due to changes in the sediment regime, particularly within the intertidal or shallow nearshore zone. However as the need for cable protection in these zones is unlikely the potential for significant residual impacts is accordingly considered to be of negligible significance.

Impact on economy

The MPS clearly states that one of the key issues which requires to be considered by decision makers is the economic impact of a proposal and confirms that the potential for inward investment on energy related manufacturing and deployment activity and employment opportunities must be taken into account in determining all applications for energy infrastructure.

Chapter 19 (Socio-economics, Tourism and Recreation) of the ES provides an assessment of the economic impacts of the Seagreen Project. It confirms that the level of investment required to deliver the Seagreen Project has potential to give rise to a positive impact on the economy at a local, regional and national scale of major significance.

The overall potential economic benefit of the Seagreen Project has been calculated in terms of Gross Value Added (GVA) and number of construction and O&M jobs which could be generated. In terms of GVA the Seagreen Project has potential to contribute between £80 million and £321 million to the Scottish economy which is assessed as significant within the ES. In terms of employment the Seagreen Project has been assessed as having potential to create up to 7,196 jobs in Scotland during the construction phase and a further 200 operational jobs.

This potential level of job creation has been assessed as having both direct short and long term beneficial impacts for the economy.

Tourism and recreation

The MPS recognises that the sea can provide a variety of tourism and recreational opportunities and includes a requirement for decision makers to consider the potential impacts of tourism and recreation in the marine environment (MPS 3.11.5)

The direct impacts associated with the Seagreen Project on tourism and recreation have been assessed within the ES to be limited to those associated with the construction phase of the export cable. While the construction works may prevent access to the beach and sea for safety reasons they would be limited in scope to the area within the ECR corridor and would not prevent access to the neighbouring beach areas. It is relevant to note that there is restricted access to the beach to the south of the ECR corridor as a result of Ministry of Defence (MOD) activity. The restriction of access as a result of construction works would be for a temporary period only and once completed would result in no permanent change to any tourism or recreation receptor as a result of the burial of the cable below the surface.

Indirect impacts are associated with the impact on the setting views gained from tourist and recreation attractions and viewpoints. The effects on seascape from a range of receptors including golf links, beaches, paths and cycle networks, tourist facilities and seaview vantage points has been assessed within the ES. The ES notes that many of the receptors are located in excess of 35km from any operational turbines and will experience limited visibility. The assessment concludes that the significance of impacts are all either minor or negligible and therefore not significant. The ES also provided a review of recently published

survey results with regard to the perception of wind farms by visitors and tourist in the UK. This confirms that there is no evidence to suggest that a view of a wind farm has a detrimental impact on visitors.

The ES has considered the potential impacts on relevant tourism and recreation activities and it is concluded that no significant adverse impacts will be experienced as a result of the Seagreen Project.

The need to prevent interference with legitimate uses of the sea

The following topic specific issues are considered in this section:

- commercial fishing;
- shipping and navigation;
- defence and national security;
- marine dredging and disposal; and
- aggregate extraction.

Commercial fishing

In considering marine licence applications decision makers must have regard to the need to prevent interference with legitimate uses of the sea.

The MPS also recognises that Renewable energy developments can potentially have adverse impacts on marine fish primarily through construction noise, may displace fishing activity and have direct or indirect impacts on other users of the sea (MPS 3.3.24).

Early engagement with local fishermen through public consultation meetings and through regular dialogue has resulted in a high level of understanding of the fishing activity within the Seagreen Project site and the surrounding area (Seagreen, 2012b). This has been supplemented with fisheries landings and effort data which has been provided by the Marine Management Organisation (MMO).

Using this data it has been possible to identify that the main fisheries currently existing within the Seagreen Project are dredging for scallops, trawling or netting for haddock, and trawling for squid; of these the scallop fishery is the largest in terms of value. Important crab and lobster fisheries using fixed gear also exist close to the shore within the export cable route corridor.

During construction and decommissioning fishing vessels are likely to be excluded from parts of the Seagreen Project area. Rights of navigation around individual WTGs will be extinguished during the operational life of the OWFs. This will result in minor (not significant) impacts on commercial fishing, with a potential moderate impact identified in respect of scallop fishing that takes place in and around the export cable route.

In line with natural fish and shellfish resource assessment a major adverse impact on herring has been assessed at both project and cumulative level during construction.

It has been predicted that the operational stage of the Seagreen Project will act cumulatively with other wind farms to produce moderate adverse impacts to the squid and scallop fisheries which currently use the area. Significant moderate adverse impacts have also been assessed with regards to safety, displacement and interference with fishing vessels.

It is proposed that a regional Working Group is established to facilitate future engagement of the fishing industry by FTOWDG. This will likely include representatives of all the fishing activities identified in the Forth and Tay area, FTOWDG developers, Marine Scotland and The Crown Estate.

Shipping and navigation

The high level marine objectives set out within the MPS include that the coast, seas, oceans and their resources are safe to use and that there is equitable access for those who want to enjoy the coast, seas and their resources. The MPS requires that decision makers should take into account and seek to minimise any negative impacts on shipping activity, freedom of navigation and navigational safety and ensure that their decisions are in compliance with international maritime law.

The results of a Navigational Risk Assessment (NRA) carried out in relation to commercial, recreation and fishing vessels during the construction, operation and decommissioning phases of the development are included within Chapter 15: Shipping and Navigation of the ES.

The NRA involved the collection of data on use of the area by shipping, a hazard identification workshop and shipping operator consultation.

Shipping activity was recorded using vessel Automatic Identification System transmission. Radar track data was also recorded for a summer and winter period from two site specific, vessel based surveys. Overall a relatively low level of commercial, fishing and recreational vessel activity was recorded during maritime surveys. During the construction phase the ES confirms that there will be an increased level of vessel activity within the sites which could lead to an increase in collision risk in the area. Rolling construction safety zones will be in place up to 500m from the construction activities and it is expected that vessels will deviate around these. The low traffic levels and available room for deviations around construction works together with the temporary nature of the impact during construction results in an overall minor (not significant) impact for all types of vessels.

It is also recognised that commercial vessels will be displaced from their regular routes due to the presence of wind farm components and infrastructure during the operational phase of Project Alpha and Project Bravo. It is considered that low traffic levels and the available sea room will enable vessels to make early course alterations without major time or distance implications. Accordingly no significant impacts are predicted during construction.

During the operational phase it is considered that the smaller size of fishing vessels transiting through the site and the spacing between structures means that they should be able to safely navigate between the structures (subject to safety zones, sea state and weather conditions). While recreational vessels will occasionally be required to make deviations they should also be able to pass between turbines in suitable conditions using their current routes. Accordingly no significant impacts are predicted during operation.

With use of standard mitigation measures including vessel tracking, warning notices, publication of locational data on charts no significant residual risks are predicted i.e. no significant effect on the movements of vessels and no heightened risk of collision with commercial, fishing or recreational vessels. Overall it is considered that the Seagreen Project is compliant with the need to prevent interference with legitimate uses of the seas and to protect human health and is compatible with shipping and navigation activities.

Defence and national security

Defence and national security is included within the MPS as a key activity within the Marine Environment with specific policy objectives. The MOD are required to maintain and deploy the operational capability required to provide military defence and security within UK waters and marine activities should not prejudice the interest of defence and national security.

The potential for construction and operation of offshore marine infrastructure, installations and activities to impact on defence interests is recognised in the MPS. Decision makers are accordingly required to take full account of the individual and cumulative effects of marine infrastructure on both marine and land based MOD interests.

Defence activities that utilise the marine environment, directly or indirectly, in support of operational capability are diverse but are noted within the MPS to include operational vessels and aircraft, HM Naval bases, surface and sub-surface navigational interests, underwater acoustic ranges, maritime exercises, amphibious exercises, coastal training ranges and coastal test and evaluation ranges.

Consultation with the MOD by developers and decision makers is advised in all circumstances to verify whether defence interests will be affected, to ensure the effective use of marine resources and where relevant to identify mitigation measures (MPS 3.2.2 and 3.2.9).

The importance of the MOD activities in the marine environment in proximity to the Seagreen Project has been recognised and appropriate consideration has been given to the potential impact on MOD activity within the ES. Those defence activities which are most directly relevant to the consideration of the Seagreen Project are the location of Military Practice and Exercise Areas (PEXAs). These are areas which are available for training used by the MOD and, in many cases, involve the firing of live ammunition.

There are two PEXAs (maritime and coastal) that have been assessed within the ES as having potential to be affected by the Seagreen Project. Both are considered to be of high sensitivity due to the nature of the use and their strategic importance to the military. The south east corner of Project Bravo extends into PEXA D613a/b which is used for air combat training. PEXA D604 which is utilised for firing and parachute dropping is located at Barry Buddon and overlaps with the proposed ECR landfall at Carnoustie. Project Alpha has no spatial overlap with a PEXA and has no impact. It should also be noted that PEXA D613a/b which was located in the south east corner of Project Bravo, has been closed during the assessment process and therefore is no longer considered as a sensitive receptor.

Potential impacts on both PEXAs arise from the presence of vessels and plant during construction works. Although the spatial overlap between PEXA D613b and the edge of Project Bravo is small (316ha) the presence of this PEXA will require to form part of the detailed design process for Project Bravo.

Any impacts will be temporary (due to the presence of construction vessels and plant) and only carried out after consultation with the MOD. No loss or alteration of either PEXA will occur. Overall the impact on PEXAs is therefore assessed as of minor adverse significance based on an understanding that the design will be regulated to meet the requirements of the military danger areas and the development will not prejudice the interest of defence and national security.

With regard to aviation impacts there is the potential for infrastructure in Project Alpha and Project Bravo to impact upon military (and civilian) radar. In the event that RAF Leuchars (and its associated radar) is closed in 2013, no mitigation will be required in respect of radar used at this facility. In the event that the facility's operational life is extended, a technical radar mitigation solution will be agreed with the MOD. A number of technical mitigation solutions are currently being developed within the industry to address potential wind farm impacts and are likely to become available in time to provide mitigation for the Project Alpha and Project Bravo WTGs when they become operational.

Seagreen are committed to ongoing dialogue with stakeholders to agree mitigations to ensure that there are no significant residual impacts.

There are no impacts upon military and civil aviation resulting from the development of the Transmission Asset Project. There is a potential cumulative impact to military aviation as a result of the Seagreen Project in combination with other wind farms, however on the basis that mitigation can be agreed the impacts will be acceptable and not significant.

Marine dredging and disposal

The MPS notes that marine dredging is an enabling activity which is essential to the functioning of ports and marinas with most marine dredging and disposal carried out for the purposes of navigation and existing and future port development. It is acknowledged that appropriately targeted disposal of dredged sediment can have an ancillary benefit in maintaining sedimentary systems and for alternative uses (MPS 3.6.4).

The specific policy objectives and considerations related to marine dredging and disposal within the MPS relate exclusively to the potential impacts of those activities on the marine environment rather than the interaction of other proposed activities.

However as a recognised beneficial and potentially enabling activity it is relevant to ensure that the Seagreen Project is compatible and can co-exist with this activity. Consideration has accordingly been given to the presence of any dredging and marine disposal sites which may be affected by the Seagreen Project and this has been included within the assessment set out in Chapter 20 (Other Marine Users) of the ES.

Maintenance and capital dredging activity is concentrated in estuarine and coastal waters, at harbours and ports within the Firth of Forth and the Firth of Tay with the closest dredging activity over 80km away, near Edinburgh. It is considered that this is too far to be influenced by, or have influence on, the Seagreen Project and therefore there will be no impact on any dredging activity.

There is a single marine disposal site inshore adjacent to Carnoustie through which the ECR corridor is partially routed and therefore potential for interaction of marine disposal activities during the installation of the export cables. Given the limited spatial overlap and the limited duration for cabling works through the disposal site, the magnitude of impact is considered to be low.

It is proposed within the ES that potential impacts would be avoided by routing the cables within the ECR corridor to avoid any overlap with the disposal area. If an overlap cannot be avoided discussion will be required with Marine Scotland as the Licensing Authority and the relevant operator to ensure that the timing of installation avoids conflict with any disposal activities. Following mitigation, if required, the residual impact for the Transmission Asset Project will be reduced to negligible and therefore not significant. There will be no impacts upon marine disposal sites from Project Alpha and Project Bravo.

The assessment carried out within the ES therefore demonstrates that the Seagreen Project is compatible with this existing disposal activity and will be able to co-exist with no adverse impact on the existing use.

Aggregate extraction

Marine aggregates also have specific policy objectives in the MPS and the ES has considered the presence of aggregate extraction areas within 60km of the geographical area covering the Seagreen Project. The ES confirms that there are a number of historic aggregate licence areas within the area assessed (in the Firth of Forth and the Firth of Tay). The nearest historic aggregate licence area is located 16km from the Seagreen Project boundary. Although no licensed aggregate extraction takes place within this area there is potential for the sites to be re-opened for extraction in the future. No significant adverse impacts are predicted with regard to aggregate extraction activities as a result of the Seagreen Project.

Other relevant policy considerations

National Planning Framework 2 (NPF2)

Scottish Ministers are responsible for the National Planning Framework for Scotland which is the long term strategy for the development in Scotland over the next 20 years. The current National Planning Framework, NPF2 (Scottish Government, 2009), identifies investment in energy infrastructure as a strategic priority for taking forward the spatial aspects of the Scottish Government's policy commitments on sustainable economic growth and climate change.

One of the key aims of the development strategy is to contribute to the achievement of climate change targets and to establish Scotland as a leading location for the development of renewable energy technology, including offshore wind.

Energy is specifically referred to in paragraph 25 of NPF2 where it states that: *"tackling climate change and reducing dependence on finite fossil fuels are two of the major global challenges of our time... Addressing these challenges will demand profound changes in the way we produce, distribute and use energy over the coming decades."*

The MPS confirms that the national level of need for energy infrastructure set out in NPF2 in Scotland must be taken into account in both the development of Marine Plans and in determining applications for energy infrastructure.

In this regard as well as noting the EU climate change objectives NPF2 includes specific reference to Scotland's target for electricity generated from renewable sources which at the time NPF2 was published was 50% by 2020 but which has now been increased to 100%.

The spatial dimension to development of energy infrastructure is recognised by reference within NPF2, to the Firths of Tay and Forth area, as a location with potential for the development of OWFs.

Scottish Planning Policy (SPP)

The National Planning Framework is supported by the SPP (Scottish Government 2010b) which is a statement of the Government's policy on nationally important land use planning matters. The consolidated SPP sets out the Scottish Government's policy on a series of topics, including renewable energy. With regard to offshore renewable energy generation paragraph 192 of the SPP confirms that *"Offshore renewable energy generation presents significant opportunities to contribute to the achievement of Government targets. Although the planning system does not regulate offshore development, it is essential that development plans take into account the infrastructure and grid connection needs of the off-shore renewable energy generation industry"*.

Overall both NPF2 and SPP offer significant support for the proposed development of renewable energy.

CONCLUSION

The Seagreen Project, as a renewable energy development, is supported by a significant amount of international and national policy and guidance and this is support to which considerable weight must be attached when considering the Seagreen Project applications.

The Seagreen Project will make a vital contribution to the new energy infrastructure that needs to be developed to replace existing generating capacity that is reaching the end of its lifespan, to ensure security of supply and to assist in meeting targets for renewable energy generation capacity. Over 1GW of new installed renewable energy capacity will be delivered which will potentially provide enough power for an average equivalent of more than 670,000 homes¹. This represents nearly 30% of Scottish households.

The generation of energy from renewable sources has an overall beneficial effect on air quality, as compared with fossil fuels and as a development which has potential to generate significant levels of renewable energy the Seagreen Project would result in environmental benefits through mitigating GHG emissions from energy production and would contribute to the positive wider environmental, societal and economic benefits of low carbon electricity generation. The prevention of CO₂ emissions ranging from 1.3 to 2.9 million tonnes of CO₂ per year could be achieved².

As the first phase of the largest of the R3 offshore wind zones in Scotland the Seagreen Project represents a significant step towards achieving the climate change targets of the UK and Scottish Government.

An EIA has been undertaken to identify the potential impacts of the Seagreen Project and assist the decision makers in determining the applications. The vast majority of potential impacts have been assessed as not having a significant impact in EIA terms.

This Statement has considered the basis for the decision making process to be followed by Marine Scotland in weighing up the potential benefits and adverse effects of the proposed Seagreen Project. Subject specific impacts have been considered against the findings of the EIA and conclusions have been drawn in respect of the relevant matters that are applicable. The information contained in the ES and in this Statement demonstrates the extent to which the applicant has complied with the duty to have regard to the relevant matters set out in the marine Acts and the Electricity Act, and in mitigating any adverse effects.

The Seagreen Project is considered to be consistent with UK Marine Policy as set out in the MPS and with the marine objectives for achieving the UK's vision for the marine environment. The MPS confirms a presumption in favour of development in order to help promote the benefits of developments which provide environmental and social benefits and drive economic development. The Seagreen Project will provide clear environmental and social benefit and will create large scale inward investment and employment. It will have direct economic benefits which should be given significant weight when determining the Seagreen Project.

The considerable benefits and policy support for the Seagreen Project are considered to outweigh any residual adverse impacts identified in the ES and there are considered to be no relevant considerations which would justify refusal of the applications. It is respectfully requested that the consents applied for under the Marine and Coastal Access Act 2009, the Marine (Scotland) Act 2010, and the Electricity Act 1989 for the Seagreen Project be granted.

¹ This figure is based on an annual average consumption of 4,700 kilowatt hours (kWh) (DECC Annual Digest of United Kingdom Energy Statistics (DUKES), 2011).

² Calculations assume emissions of 398g CO₂ / kWh for gas generated electricity and 909g CO₂ / kWh for coal generated electricity as stated in DUKES 2011. Changes in the power generating mix and fuel costs in the UK may result in changes to these figures over time.

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