

# Inch Cape Wind Farm

New Energy for Scotland

Non Technical Summary  
2018

**SDIC**   
**Red Rock Power Limited**

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# Foreword

**In 2014, Inch Cape Offshore Limited (ICOL) was granted consent to construct and operate the Inch Cape Offshore Wind Farm. The offshore consents granted in 2014, were subject to legal challenge in early 2015. This legal challenge was ultimately unsuccessful and therefore ICOL holds valid consents to construct and operate a wind farm and offshore transmission works. This application and EIA Report is for a revised project design that the 2014 consent does not allow and is being progressed to allow ICOL the opportunity to utilise new turbine technology, improving the project economics whilst also meeting the environmental test required of it.**

This new application falls entirely within the existing consented application boundary and will allow the use of new turbine technology which will see a reduction in turbines of more than a third (to a maximum of 72) for turbines of up to a height of 291 metres (m).

The Environmental Impact Assessment (EIA), demonstrates that this application achieves ICOL's twin objectives of improving project economics while also meeting the environmental tests required. A summary of the EIA is presented in this Non-Technical Summary (NTS).

The Inch Cape Wind Farm could provide sufficient low-carbon generation to meet the electricity demands of approximately 615,000 UK households and power approximately 25 per cent of Scottish homes. The Inch Cape Wind Farm will also provide economic benefits through its construction and ongoing operation and is key to energy supply and security in Scotland and the UK and will make a significant contribution to carbon reduction targets.

Since the award of exclusive development rights for the Inch Cape Wind Farm in 2009, ICOL has been progressing an extensive programme of engineering and environmental works to support consent applications to Marine Scotland, the Scottish Government and East Lothian Council (ELC) for all aspects of the Inch Cape Project, including the Offshore Transmission Works (OfTW) and the Onshore Transmission Works (OnTW). Our team has considered the engineering design of ICOL's Wind Farm along with the OfTW and OnTW and the interaction with the existing environment from a wide range of technical, environmental, commercial and social considerations.

The Inch Cape Wind Farm EIA Report provides the public and stakeholders access to the extensive assessments that have been undertaken to aid Marine Scotland, the Scottish Government and their advisors in their decision making process. It also ensures that any interested organisations or individuals are informed of the Inch Cape Wind Farm plans and predicted effects. This NTS has been produced to distil the key points of the information included in the EIA Report into an accessible format.

**Ian Johnson**  
Inch Cape Project Manager

# Introduction

**Inch Cape Offshore Limited (ICOL) is making an application for consent under Section 36 of the *Electricity Act 1989* for the construction and operation of the Inch Cape Wind Farm and for marine licences under the Marine (Scotland) Act 2010 for the Inch Cape Wind Farm and associated Offshore Transmission Works (OfTW) (the Development) which will be located approximately 15 to 22 kilometres (km) to the east of the Angus coastline in Scotland.**

The Development will include up to 72 wind turbines, together with the OfTW which are required to transmit the electricity generated to a substation at Cockenzie in East Lothian. The Development also includes offshore substation platforms, cables, export cables and other ancillary infrastructure.

It is expected that the transmission assets will be constructed by ICOL and then transferred to an Offshore Transmission Owner (OFTO) as required by legislation. A separate planning application for the Onshore Transmission Works (OnTW) was submitted by ICOL to East Lothian Council in March 2018, at the time of writing this NTS the outcome of the OnTW application has not been decided. Potential cumulative impacts resulting from the OnTW have been considered within the EIA Report where

required, as well as the assessment of cumulative impacts which could occur from the Development and other offshore/coastal and onshore wind farm projects.

The purpose of the Non-Technical Summary (NTS) is to summarise the findings of the Environmental Impact Assessment (EIA) and other key information contained within the EIA Report, which has been prepared to support these applications. In this NTS reference is made to the Development Area which is the offshore area within which the wind turbines, offshore substation platforms and cables between wind turbines and offshore substations will be located, as well as to the 'Offshore Export Cable Corridor', which is the area between the Development Area and the coastline (Landfall). This is shown in Figure 1.



**Figure 1:** Location of Inch Cape Wind Farm and Offshore Export Cable Corridor





# Background and Project Description

- Background, Development Need and Benefits
- Site Selection and Alternatives Considered
- Project Description
- Project Construction and Decommissioning
- Delivering the Development
- Environmental Impact Assessment
- Scope of the EIA and Consultation

# Background, Development Need and Benefits

## The Consented Development

In 2014, ICOL gained offshore consents for the construction and operation of the Inch Cape Offshore Wind Farm and associated OfTW. The key parameters associated with the consented development compared to what is being applied for in the new application is shown in Table 1 below.

The determination of the offshore consents by the Scottish Ministers followed almost five years of project development by ICOL, including environmental surveys, engineering design studies and wide-ranging stakeholder engagement.

The applications that were approved were accompanied by an Environmental Statement (ES) prepared and submitted in accordance with the applicable EIA regulations and legislation.

## Status of the Consents

The offshore consents granted in 2014, together with the offshore consents granted for the Nearth Na Gaoithe, Seagreen Alpha and Seagreen Bravo wind farms, were subject to a petition for judicial review in early 2015. That judicial review was ultimately unsuccessful following the decision of the UK Supreme Court in November 2017 to refuse permission to appeal the decision of the Inner House of the Court of Session to uphold the Scottish Ministers' decisions to grant the offshore consents.

The offshore consents therefore remain valid. This application does not affect the consents, but ICOL will only construct either the Inch Cape 2014 consented wind farm or, if consented, the Wind Farm that this application relates to, but not both.

## Development Need and Benefits

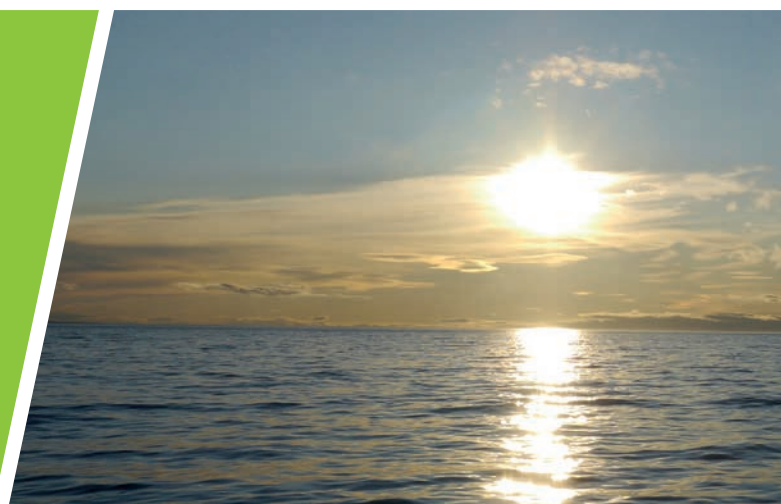
The UK and Scottish Governments have set ambitious legislative targets for cutting greenhouse gas emissions. The Scottish Government is committed to promoting the increased use of renewable energy sources to help tackle climate change and to support economic growth in Scotland.

The target is to reduce Scotland's emissions of greenhouse gases from 1990 levels by at least 80% by 2050, with a 2020 interim target of 42% and a framework of annual targets intended to drive the policies necessary for achieving the long term target.

Inch Cape will make an important contribution to Scotland's renewable energy and climate change targets. The expected annual CO<sub>2</sub> emissions savings from Inch Cape could account

**Table 1:** Development Parameters

Parameter (maximum)	Consented	New
Number of turbines	110	72
Tip height	215 m	291 m
Met masts	2	0
Offshore substation platforms	5	2
Inter-array cabling length	353 km	190 km
Export Cable Length	83 km	83 km
Number of Export Cables	6	2



for the equivalent of between 8 and 21% of the total carbon emissions estimated for Scotland in 2015 (the amount will depend on the general mix of fuels used for electricity generation). The time taken to payback the CO<sub>2</sub> costs of the Development is estimated to be approximately 14 months.

The Development is expected to generate in the order of 2,300 gigawatt (GW) hours of electricity per annum and could provide electricity for the equivalent of 25% of households in Scotland. At a UK level the Development could provide electricity for the equivalent of about 615,000 households based on average UK consumption (see Appendix 8A of the EIA Report). This represents a significant contribution, at both Scottish and UK levels, to domestic electricity generation and therefore to long term energy security.

### **Economic Benefits**

To date, ICOL has spent over £50 million, the majority of which is within the Scottish economy, on the development phase of the project.

In economic terms, the Development is expected to support investment in the renewables industry in Scotland by creating between £55.8 million and £136.2 million of Gross Value Added in the construction phase and between £10.3 million and £18.6 million per annum in the operation and maintenance phase. Employment in Scotland will be created during all phases of the Development in the offshore industry sector and its supply chain with the creation of up to 429 to 1048 direct, indirect and induced Full Time Equivalent (FTE) jobs during construction and up to 80 to 143 direct, indirect and induced FTE jobs during operation and maintenance (see Chapter 16 of the EIA Report).



# Site Selection and Alternatives Considered

**As ICOL already holds existing consents (Inch Cape 2014 Consent) at the Development Area and Offshore Export Cable Corridor, and the purpose of this application is to maximise efficiencies whilst minimising environmental impacts, the selection and assessment of alternatives as detailed in the Inch Cape 2013 Environmental Statement (ES) has been reviewed and remains valid, a summary of which are provided below.**

## **Development Area**

In 2008, by request of the Scottish Government, The Crown Estate (TCE) invited potential developers to submit proposals for offshore wind farm sites within Scottish Territorial Waters (STW).

A broad study of wind resource and water depth data was undertaken by ICOL to identify a suitable region for offshore wind farm development in STW. This study identified the most suitable physical characteristics existed off the east coast of Scotland. Analysis of other marine users and environmental parameters was used to narrow down the search area to the outer Firths of Forth and Tay.

A more detailed analysis of environmental and technical constraints was then undertaken by ICOL for the outer Firths of Forth and Tay to identify and assess viable sites for a wind farm development. From this analysis, the Development Area was identified as being the preferred location for development and thus a proposal was made by ICOL to TCE for this site. In June 2011 TCE awarded an exclusivity agreement for the Development Area, following publication of *Blue Seas – Green Energy: A Sectoral Marine Plan for Offshore Wind Energy in Scottish Territorial Waters: Part A The Plan* (Marine Scotland, 2011).

The suitability of the site can be further seen by the fact that Inch Cape is identified as a Scottish Territorial Waters offshore wind farm in Map 9 (Plan Options for Offshore Wind and Marine Renewable Energy and Planned Developments in Scotland) of Scotland's National Marine Plan: A Single Framework for Managing our Seas Scottish Government, 2015).

## **Transmission Works Grid Connection**

Following engagement between ICOL and National Grid Electricity Transmission Limited (NGET), a grid connection point was offered, and subsequently accepted at Cockenzie, East Lothian. This connection was primarily chosen due to its ability to accommodate the capacity of the wind farm without the need for significant enhancement works by NGET. The grid connection location informed the selection of the Offshore Export Cable Corridor and landfall options.

## **Landfall**

The selection of landfall location for the Export Cables originally considered six sites along the southern shore of the Firth of Forth in East Lothian. Taking account of the location of the grid connection (described above) and analysis of other technical, environmental and economic considerations and constraints along the coast, options at Cockenzie and Seton Sands were found to be feasible landfall options.

Upon further refinement of the landfall location it has been determined that the landfall at Cockenzie is the preferred option due to environmental, economic, technical and land availability considerations. Therefore this application is only for a landfall at Cockenzie.

## **Offshore Export Cable Corridor**

Offshore Export Cable Corridor alternatives were considered in parallel with the assessment of landfall locations, taking account of the potential grid connection location and using constraints mapping and technical analysis techniques to identify potential corridors for the connection. The starting point of the corridors was assumed to be located on the boundary of the Development Area with the end point at the connection at Cockenzie. When assessing potential Offshore Export Cable Corridors, the objective was to minimise the route from the offshore substation to the landfall site, taking account of engineering, physical and environmental constraints, as well as potential conflicts with third parties. The corridor also needs to consider the need for safe installation and the long-term integrity of the cables. Regard must also be given to the location of the grid connection and the likely onshore cabling routes as it may be preferable to increase the offshore route length in order to decrease the onshore route length, depending on the environmental, technical or commercial constraints of the onshore routing options.

# Project Description

**The project consists of a number of components and all permanent and temporary works required to generate or transmit electricity to the national grid, these are grouped as follows:**

- The Wind Farm which includes wind turbines and inter-array cables;
  - The OfTW which includes the offshore export cables and offshore substation platforms; and
  - The OnTW which includes the onshore export cables and onshore substation.
- Up to two Offshore Export Cables which will transmit electricity generated from the Wind Farm to the landfall at Cockenzie. These cables will be individually buried or protected within the Offshore Export Cable Corridor; and
  - An onshore substation (subject to a separate planning application as described above) which receives electrical power from the Export Cables for transmission through onshore underground cables to the existing electricity network.

The key components of the project comprise:

- Up to 72 wind turbines which will be secured to the seabed by steel jackets (including monopiles) or gravity based substructures;
- Offshore Substation Platforms (OSPs) which will collect the electricity generated by the wind turbines for export;
- A network of electricity cables which will electrically connect the wind turbines and offshore substation platforms. These cables will be laid on the seabed and will be either buried or protected;

# Project Construction and Decommissioning

**Construction by the chosen contractors will begin following agreement of the detailed design and discharge of all pre-construction licence conditions with Marine Scotland and other relevant statutory authorities. Construction activities for the offshore components of the Development will likely include:**

- Site preparation and installation of foundations and substructures;
- Cable installation;
- Installation of Wind Turbines;
- Installation and commissioning of Offshore Substation Platforms;
- Export Cable installation, including within intertidal areas; and
- Commissioning of Wind Turbines.

A detailed construction programme will be developed as design and procurement activities progress.

The construction activities are expected to start around 2021, and work will take approximately

24 months over a 3 year period. The main construction activities and durations are shown in Table 2.

The nature of offshore work requires operations to be planned on a 24 hours, seven days a week basis, however work will not be continuous over the whole construction programme. Work durations are subject to changes which may arise, for example, from weather, site conditions, equipment lead times and supply programmes, sequential work requirements, and logistical issues.

The main contractor will support the development of a Construction Environmental Management Plan for construction, following best practice. This document, or suite of documents, will set out procedures to ensure all activities with the potential to affect the environment and all contractors and personnel involved in construction activities, are appropriately managed by ICOL.

A detailed construction programme will be developed as design and procurement activities progress, however an illustrative Construction Programme is presented below in Figure 2.

## Operation and Decommissioning

The operational life of the Development is expected to be up to 50 years, in line with the Crown Estate lease for the seabed area. The Wind Farm will be managed and operated from an onshore facility with maintenance and repair being carried out offshore as required, using a combination of access and work vessels. Helicopter access may be required from time to time.

Operation and maintenance activities may be required at any time, 24 hours per day, 365 days per year. Offshore access will be required to undertake maintenance works and potentially to repair or refit plant and equipment at the Wind Farm and its associated infrastructure.

**Table 2:** Main construction activities and anticipated durations

Main Construction Activity	Anticipated Duration
Foundation installation and associated site preparation	9 months
Inter-array cable installation	1 year
Installation of substructures	6 to 9 months
Installation and commissioning of wind turbines	6 to 9 months
Installation and commissioning of OSPs	6 months
Export cable installation (excluding intertidal)	9 months
Intertidal cable installation	6 months

At the end of the economic life of the Development there will be a requirement to decommission the Development unless a decision has been made to refurbish or replace the turbines and other offshore infrastructure including the export cables. Both refurbishment or replacement will require additional consents from Marine Scotland.



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# Delivering the Development

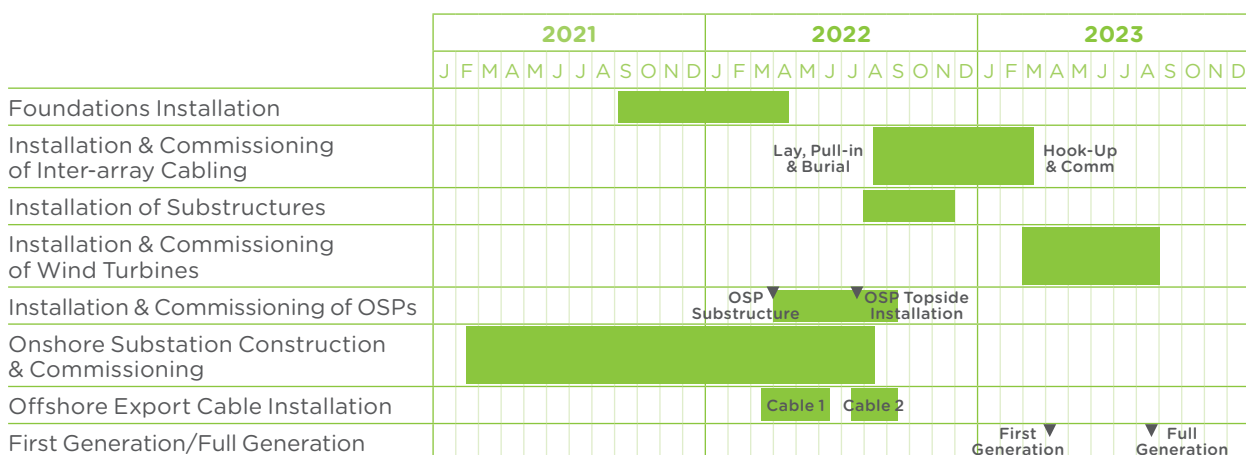
**The design of the Development is not final at this stage. This is primarily due to procurement and supply chain considerations of emerging technology, the requirement for further site investigation and continued design, and the timing of investment decisions.**

The EIA has therefore been completed using a 'Design Envelope' which determines the range of technical parameters realistically possible for the Development, and associated methods of construction, operation, maintenance and decommissioning. Final design specifications of the Development components cannot exceed the limits determined within the Design Envelope, without the need to gain further (additional) permissions from Marine Scotland.

The development of the design will be informed by more detailed marine surveys including ground condition surveys. The findings of these surveys will be used in the micro-siting process to influence the final location of key infrastructure such as foundations for wind turbines and OSPs, and for final siting of the cable routes within the Export Cable Corridor.

The design of the Development and selection of the Development elements such as wind turbines, substations and cables as well as preferred methods of construction will be finalised taking account of safety, commercial procurement, environmental and technical factors. The appointed contractor(s) will construct the works in accordance with the final designs and contract specifications, which will include all the committed environmental mitigation described in the EIA Report and any specific s36 consent or licence conditions.

**Figure 2:** Illustrative Construction Programme



\*Please note the following: All durations are shown as windows for illustration purposes; Activities will not be continuous during these windows; Overall durations may increase or decrease, and the sequence may change; Start and Finish dates may change.

# Environmental Impact Assessment

**An EIA of the Development is required under The Electricity Works (Environmental Impact Assessment) (Scotland) Act 2017 (as amended) and The Marine Works (Environmental Impact Assessment) Regulations 2017 (as amended) because of the scale of the proposal and the potential for significant environmental effects.**

Where an EIA is undertaken, the Regulations require that the information is to be provided by the applicant to the determining authority (in this case Marine Scotland on behalf of the Scottish Ministers), in the form of an EIA Report.

The EIA was developed in accordance with industry best practice, and the findings were used to refine the 'Design Envelope'<sup>1</sup> of the Development (see also above), by ensuring that wherever possible, adverse effects on people, economic assets and on the natural and cultural environment will be avoided or reduced whilst environmental and economic benefits are delivered.

Each technical assessment reported in the EIA Report has been undertaken based on a worst-case scenario, to ensure that the assessment has not underestimated any of the potential environmental impacts of the Development.

Mitigation which has been introduced within the Design Envelope of the Development is referred to as 'embedded mitigation' and is listed where relevant within each technical chapter. Where additional mitigation measures to reduce the impacts of the Development further are required, these are also listed in each chapter. The final impact assessment then considers any additional mitigation measures, to identify each residual effect, and if this effect is considered to be significant.

<sup>1</sup> Where the final design of a large project is not fully certain, (for example, the final height of turbines, or the method of installing the turbine foundations), it is common to apply a 'Design Envelope' for the purposes of an environmental impact assessment. The Design Envelope represents the possible extremes of the component specifications and activities that could occur, so that the impact assessment can be undertaken over all possible worst-case scenarios.



# Scope of the EIA and Consultation

## Scope of the EIA

The scope of the EIA was agreed in consultation with a number of different organisations, groups and individuals through a formal Scoping process, in which the methodology, approach or requirement for any additional information to the EIA was detailed in a Scoping Opinion from the Scottish Ministers.

As a consequence of the scoping process, a significant number of impacts were 'scoped out' of the impact assessment. Each technical chapter of the EIA Report provides details on what relevant impacts have been scoped out and the reasons why and includes a summary of relevant scoping responses and other advice and identifies the section(s) where they are considered.

## Consultation

ICOL has undertaken a range of consultation activities in advance of submission of the applications for the Development. Consultation includes:

- Public engagement, in the form of four public engagement exhibitions in Arbroath and St Andrews in August and October 2017;
- Engagement with consultees on the Scoping Report as submitted in May 2017. A range of stakeholders and community groups were consulted at the scoping stage via meetings, letters and information; and
- Following the release of the Scoping Opinion, further consultation was held with key consultees to refine and inform the approach to the EIA and ensure that stakeholder concerns were considered; and
- Engagement with the fishing industry within the vicinity of the Development.

Information obtained from public consultation and stakeholder engagement has been taken into account during the scoping process and when undertaking the EIA.

Following submission of this application, ICOL and Marine Scotland will undertake formal consultation with a number of groups and statutory consultees. In addition, all stakeholders and the public will be given an opportunity to make representations on the information submitted. Details of where documentation will be available to view free of charge, or downloaded or available for purchase, is provided at the end of this NTS.





# Biological Environment

- Natural Fish and Shellfish
- Marine Mammals and Ornithology

# Natural Fish and Shellfish

**In consultation with Marine Scotland the assessment focused on the potential effects of noise from piling on hearing specialist fish, all other receptors and potential impacts were scoped out of the assessment. The species assessed were cod, herring, allis shad, twaite shad and sprat.**

To establish the baseline environment for the fish and shellfish assessment commercial landings data from between 2012 and 2016 was evaluated to provide information of the abundance of hearing specialist fish within the Regional and Local Study Areas. International Bottom Trawl Survey data was also reviewed to provide information on fish that are not commercially targeted.

Site specific surveys were carried out in 2012 and it was agreed through consultation that no further site specific surveys would be required for this application as the fish distribution was unlikely to differ greatly from that reported in 2012, so the data from those surveys was used to establish the baseline.

Overall, the areas affected at a level deemed able to cause mortal or injurious effects to hearing specialist fish are very small, with mortal effects only becoming apparent after three successive piles. This delay to the onset of mortality effects, and the planned soft start procedure, is likely to reduce mortality effects through fish leaving the affected area in this time period.

Some interaction with spawning and nursery habitats is expected, however such interactions are considered to not affect key areas of these habitats, or to affect such a small proportion that any effects are considered negligible.

Overall, the effects of piling on hearing specialist fish are not considered to be significant.



# Marine Mammals and Ornithology

## Marine Mammals

There are a number of marine mammal species in the Firths of Forth and Tay. The main species, and those on which the assessment has concentrated, are minke whale, bottlenose dolphin, white-beaked dolphin, harbour porpoise, grey seal and harbour seal.

It is predicted that the greatest impact on marine mammals will occur during the construction phase, due to underwater noise from piling. Effects associated with increased noise from geophysical survey systems/equipment also have the potential to affect marine mammal. Potential impacts on marine mammals from this increased noise from both piling and survey equipment include hearing damage and behavioural responses.

During the construction phase piling will be carried out in a controlled and regulated manner, ensuring that effects on marine mammals will be minimised. Further to this, if all other embedded mitigation measures are implemented there will not be any effect at the population level in the long term. Impacts from piling on marine mammals were also considered together with other developments off the east coast of Scotland. No significant effects on marine mammals were found either when considering Inch Cape alone or when considering the impacts cumulatively with other projects.

## Ornithology

To determine what bird species use the area in which the wind farm and offshore export cable is proposed, ICOL conducted two years of boat-based surveys and a year of land-based surveys. Along with existing data and desk-based analysis, these survey data established a good understanding of the species present and how they use the area.

A total of 64 different bird species have been identified from these surveys. These species include a number of different seabirds, intertidal and near-shore waterbirds, and migratory birds.

To assess the impacts of the wind farm and offshore export cable, ICOL assessed the impacts from the Development alone and together with other projects. The methodology and modelling used to carry out the assessments follows established best practice guidance and the approach was agreed with statutory agencies in advance.

Seabird species which use the area (including gannet, kittiwake, herring gull, puffin, razorbill and guillemot) were assessed for potential impacts relating to the installation and operation of the offshore export cable and, during the operation of the wind farm, in relation to the potential collision risk, displacement and barriers effect that the wind farm could cause to birds.

No ecologically significant impacts on bird species have been identified from Inch Cape alone, or with other projects, for the offshore export cable during the construction (and decommissioning), or operation and maintenance periods in relation to direct disturbance/displacement, indirect disturbance of habitats/prey or habitat loss. Likewise, no significant effects, on any of the bird species assessed are predicted to be associated with the operation of the wind farm, either for Inch Cape alone or with other projects.





# Human Environment

- Cultural Heritage and Marine Archaeology
- Seascape, Landscape and Visual
- Commercial Fisheries
- Shipping and Navigation
- Socioeconomics
- Aviation

# Cultural Heritage and Marine Archaeology

**There are a number of known wrecks and features recorded within the area, however through early consultation and an understanding of impacts from the 2014 consent, impacts to seabed prehistory, maritime and aviation archaeology have been scoped out of this assessment. Mitigation including a Written Scheme of Investigation and a Protocol for Archaeological Discoveries will ensure that any unknown wrecks or features are appropriately protected.**

Setting impacts upon relevant receptors were carried out, none of the receptors assessed have statutory protection but are either designated sites or scheduled monuments. Setting impacts are considered to be indirect impacts and occur where visible elements of the Development are inter-visible with cultural heritage receptors and can also include non-visual changes.

For all receptors except, Bell Rock Lighthouse, visualisations are included in the Seascape, Landscape and Visual Impact Assessment viewpoints included with the EIA Report. A wireline showing the indicative turbines from Bell Rock Lighthouse is provided in Cultural Heritage and Marine Archaeology chapter in the EIA.

For all cultural heritage receptors, the Development is not expected to have a significant effect, either alone or in combination with other projects, on the setting of those features assessed.



# Seascape, Landscape and Visual

**ICOL have prepared a folder which includes large visualisations which show what the view is currently like from specific points and how it will change as a result of the Development; these inform the impact assessment but also help to give an overall feel of what the Wind Farm could look like in context. See Figure 3 and 4 for example images.**

The study area for the Seascape, Landscape and Visual Impact Assessment (SLVA) was agreed in consultation with SNH and the Local Planning Authorities and covers a 50 km radius from the edge of the Development Area.

A review of existing seascape, landscape and visual context within the Study Area has been undertaken with reference to existing character assessment, SNH guidance, planning policies and mapping information. In addition, the SLVA Study Area was visited during August and October in 2017 and January 2018 in periods of reasonably fine and clear weather, to verify seascape, landscape and visual receptors and related effects.

The landward component of the SLVA Study Area covers the administrative areas of six local authorities (Aberdeenshire, Angus, Fife, Dundee, East Lothian and Perthshire). Within the SLVA Study Area, the coastline extends from Newtonhill (south of Aberdeen) through Stonehaven to Dundee, across the Firth of Tay before continuing around the coastal edge of East Fife to Largo where it extends across the Firth of Forth to North Berwick and Dunbar.

It is considered that the construction and operation activities relating to the installation of the Offshore Export Cable will not impact seascape, landscape and visual effects, with the exception of the construction of the landfall at Cockenzie, where there may be significant seascape and visual effects. These effects will be localised in extent and temporary in duration.

Potential effects associated with the construction, maintenance and decommissioning of the Wind Farm have been scoped out of the assessment which focusses on the operational phase which relates to views of WTGs, OSPs and related components.

For visual amenity receptors, significant effects are predicted for properties in coastal settlements which have open and unobstructed seaward views in Aberdeenshire including Inverbervie, St Cyrus, Gourdon and Johnshaven; in Angus including, Braehead of Lunan, Auchmithie, Carnoustie and Arbroath; in Fife from, St Andrews, and parts of Crail. Parts of inland settlements in Fife which are close to the coastline such as Kingsbarns may experience significant effects.

Significant effects are predicted for road users on parts of the A92, and for recreational users of the Fife Coastal Path and National Cycle Network (NCN) Route 1. For passengers on the main rail line between Edinburgh and Aberdeen significant effects are predicted for short sections of the route between Carnoustie and Arbroath. Significant effects are predicted for recreational users of coastal facilities at distances of up to approximately 20 km distance from the Development Area and potentially up to 35 km distance for high sensitivity receptors.

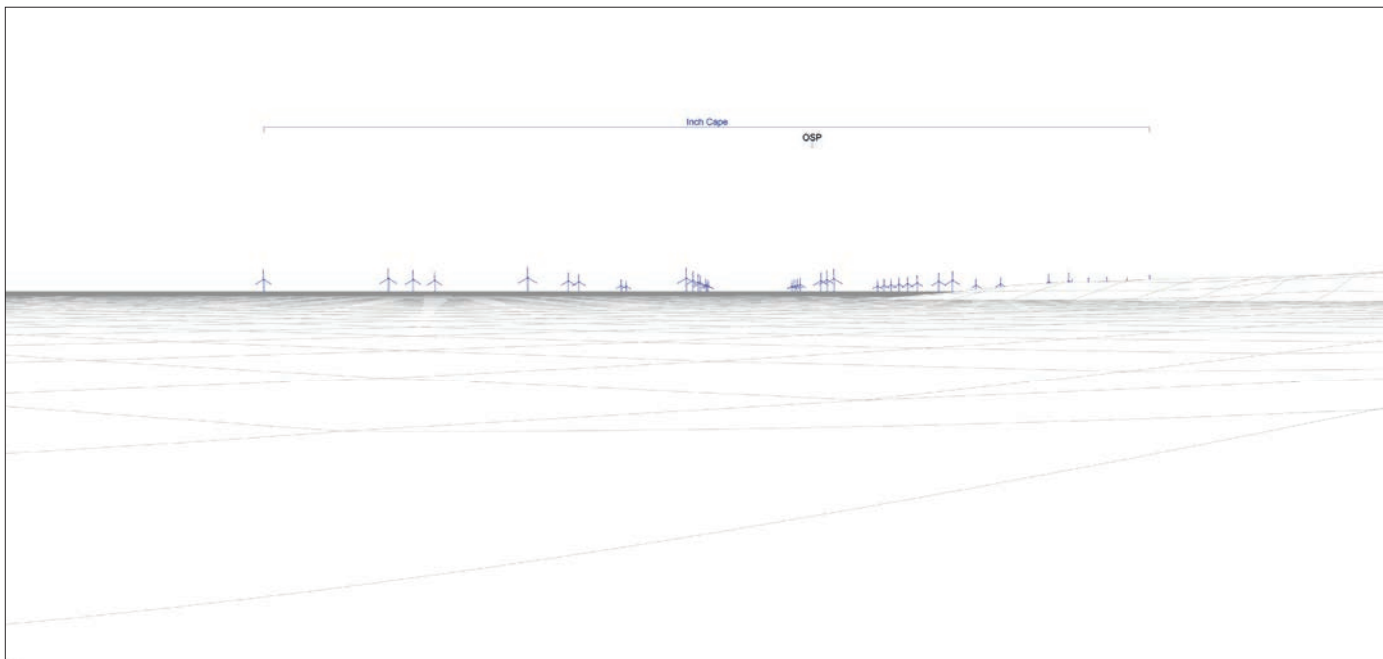


# Seascape, Landscape and Visual (continued)

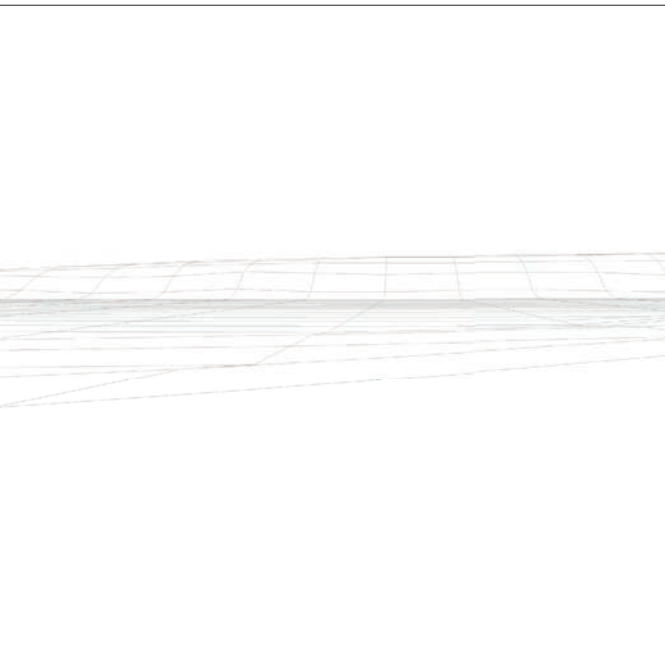
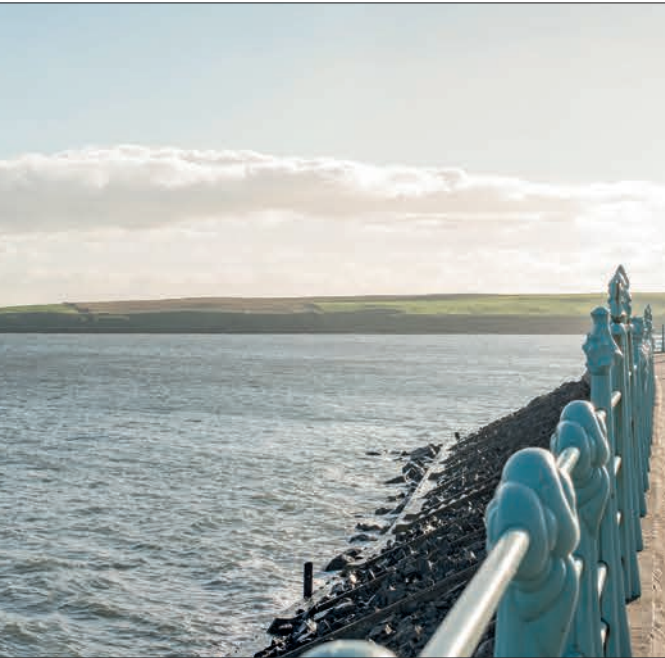
**Figure 3:** Montrose. Wide angle Panorama with Wireline.



Existing view - this image provides landscape and visual context only



Wireline view



Inch Cape  
Offshore  
Limited

Viewpoint and Photography Data

OS Reference	372686 E 757957 N
Elevation	4.9 m AOD
Direction of View	150°
Horizontal Field of View	120° (cylindrical projection)
Camera Height	1.5 m AGL
Principal Distance	349 mm
Paper Size	841 x 297 mm (half A1)
Correct Printed Image Size	731 x 135 mm
Camera	Nikon D750
Lens	AF-S 50mm f/1.4G
Focal Length	50 mm
Date & Time Taken	05/11/2017 13:35

Proposed Turbine Information (Inch Cape only)

Nearest Turbine	19.988 km
Hubs Visible (166 m)	35 (of 40)
Tips Visible (291 m)	40 (of 40)

Horizontal Scale of Map 1:50,000

Geodetic Parameters: OSGB 1936 BNG

Produced: JM  
Reviewed: SP  
Approved: LG

Date: 14/03/2018Revision: 0

REF: 4914\_00004\_29.1.0 LVIA Photomontages\_rev\_H

Figure 12.39a  
VP5 - Montrose  
Wide angle Panorama with Wireline

Inch Cape  
Wind Farm

# Seascape, Landscape and Visual (continued)

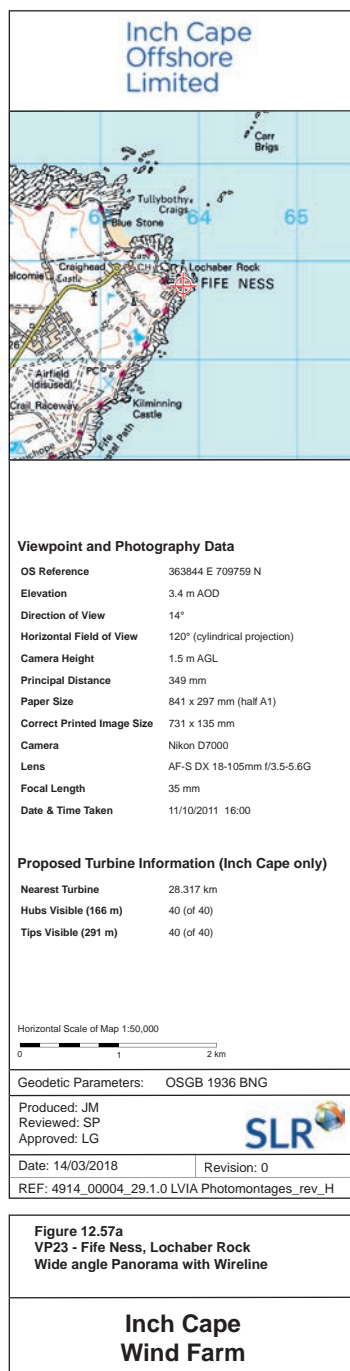
**Figure 4:** Fife Ness, Lochaber Rock. Wide angle Panorama with Wireline.



Existing view - this image provides landscape and visual context only



Wireline view



# Commercial Fisheries

**Potential impacts upon marine commercial fisheries as a result of the Development were considered as part of the EIA. To establish what fishing activity is carried out in the area baseline data from 2011-2016 was used to categorise fishing activity, except for the scallop fishery where this data was supplemented with the data which supported the 2014 consent.**

As there is no single data source or recognised model for establishing commercial fisheries baseline, a number of different data sources, including the Marine Management Organisation and Marine Scotland were consulted. This information was then validated through consultation with local fishermen, fishermen's organisations and other fisheries representatives.

Following review of the data the following fisheries were identified as having the potential to be impacted by the Development:

- Creel fishery;
- Scallop fishery;
- *Nephrops* fishery; and
- Squid fishery.

During construction and operation of the Development, fishing activity is expected to be restricted from certain areas or during discrete periods resulting in either permanent or temporary loss of fishing grounds. The effects of this is not considered to be significant to any of the four fisheries within the assessment. When considering the effects on fisheries with other projects, due to the level of current scallop fishing activity that is undertaken in the wider area a significant effect on this fishery may be experienced during the operational phases. This significant impact is considered the worse-case, assuming that scallop fishermen do not return to fish in the site (or into any other of the other wind farms proposed). However, if the revised developments proposed within the area, with fewer, wider spaced turbines are built it is likely over time that fishermen will try/ become acclimatised to fishing within all of the wind farms and the impact will lessen.

There is a risk of displacement of fishing vessels into other areas during the operation and maintenance of the Development, but this is not considered to have a significant impact on any of the fisheries when considered alone or with other projects.



# Shipping and Navigation

**The assessment has considered the effects on the navigation and routeing of key groups of marine vessels including commercial shipping.**

To establish the existing use by vessels traffic surveys were carried out in 2016, these surveys supplemented those which were carried out in 2011 and 2012 in support of the 2014 consent. The majority of the vessels identified during the 2016 traffic surveys were fishing vessels, also recorded were cargo vessels and 'other' vessels. Twelve main commercial routes were identified as passing through the Study Area.

Whilst the assessment has identified that there will be some disruption to vessel movement and potential increases in vessel to vessel collision risk as a result of the operational stage of the Development, these impacts are not predicted to be significant when considered alone or with other projects.



# Socioeconomics

**Within the context of strong central and Scottish government policy support, there is a wide range of business and infrastructural initiatives being implemented across Scotland designed to enhance the capacity and capability of infrastructure and supply chain for offshore wind farms.**

These are intended to convert economic opportunities presented by offshore wind development off the east coast of Scotland and also further afield. These include the development of business and industry networks, infrastructural strengthening of various ports, skills and training initiatives, and attracting major international energy investors and manufacturing businesses. Assessments conclude that the development of this Development will lead to economic benefits, locally, regionally and nationally.

At the time of writing the final location of the facilities required for the Development have not been determined. In order to assess the socio-economic benefits of the Development an economic study area comprising of eight locations was identified. The locations considered as representative of the type of locations able to support the offshore wind sector are: Leith, Rosyth, Dundee, Montrose, Methil, Burntisland, the Cromarty Firth and Aberdeen.

It is predicted that the Development would result in positive effects in the labour markets within the economic study area and given that the construction period would be temporary and require both general and specialist labour capabilities, this phase is expected to provide benefits to accommodation facilities due to the mobile nature of the workforce. Whilst some positive effects are likely to result from the Development it is unlikely that there will be any significant negative effects when considered alone or with other projects.



# Aviation

**Wind turbines within the operational range of military or civil radars may be visible in certain conditions. Visibility on a radar screen can impact the provision of air traffic control or defence services. The providers of radar services consider the theoretical visibility of any new structures, and the implication on their operational services.**

Following consultation with the Ministry of Defence (MOD), it has been predicted that the wind turbines will be detectable by the Air Traffic Control Primary Surveillance Radar located at Royal Air Force Leuchars, Fife. The MOD is progressing a technology demonstration programme which seeks to identify potential technical solutions for this radar system. ICOL are contributing to the programme and working with all parties to realise an acceptable solution prior to operation.

MOD has also raised concerns about potential impacts on the Air Defence Radar located at Buchan, Aberdeenshire and Brizlee Wood, Alnwick.

When suitable technological mitigation is procured and in operation, there will be a negligible residual effect on the Leuchars Station PSR and the RRH Brizlee Wood and RRH Buchan ADR systems.

National Air Traffic Services (NATS) have confirmed that they have no concerns regarding impacts on civil aviation interests as a result of the Development. As such, no further work or assessments will be required but communications will be maintained throughout development and operation of the Wind Farm.





## Further Information

# Review and Comments on the EIA Report

**The EIA Report will be submitted with an application to Marine Scotland for consent to construct and operate the Wind Farm and associated infrastructure. Once the application has been formally registered, Marine Scotland will undertake consultation and invite public representations on the proposals before reaching a decision.**

The EIA Report can be viewed during the consultation period for the licence application during normal working hours at the following locations:

- Angus Council, Planning, Angus House, Orchardbank Business Park, Forfar, DD8 1AN;
- Arbroath Library, Hill Terrace, Arbroath, DD11 1AH;
- Dunbar Library, Bleachingfield Centre, Dunbar, EH42 1DX;
- Dundee Council, Planning Division, Floor 6, Dundee House, 50 North Lindsey Street, Dundee, DD1 1LS;
- East Lothian Council, John Muir House, Brewery Park, Haddington, East Lothian, EH41 3HA;
- Fife Council, Economy, Planning and Employability Services, Kingdom House, Kingdom Avenue, Glenrothes, KY7 5LY;
- Port Seton Library, Community Centre, South Seton Park, Port Seton, EH32 0BG; and
- St Andrews Library, Church Square, St Andrews, KY16 9NN.

**The EIA Report comprises four volumes:**

- **A Non Technical Summary (this document);**
- **Volume 1: Main Text;**
- **Volume 2: Appendices (including the SLVIA Visualisations and Figures); and**
- **Volume 3: Figures.**

Copies of the EIA Report are available from ICOL in hard copy for £350 and £10 for an electronic copy of the EIA Report on DVD/ Memory Stick. A copy of the NTS can also be requested from the address above free of charge or downloaded from the project website.

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Email:  
[inchcapewind@redrockpower.com](mailto:inchcapewind@redrockpower.com)  
Website:  
[www.inchcapewind.com](http://www.inchcapewind.com)

If you wish to comment on this EIA Report or make representations to Marine Scotland, please write to Marine Scotland at the following address:

Scottish Government  
Marine Laboratory  
PO Box 101, 375 Victoria Road  
Aberdeen, AB11 9DB



