From: [Redacted]

Marine Scotland Licensing Operations Team

Marine Scotland

14 November 2018

Cabinet Secretary for Transport, Infrastructure and Connectivity

APPLICATIONS FOR CONSENT UNDER SECTION 36 AND FOR A DECLARATION UNDER SECTION 36A OF THE ELECTRICITY ACT 1989 FOR THE CONSTRUCTION AND OPERATION OF AN OFFSHORE GENERATING STATION, THE NEART NA GAOITHE OFFSHORE WIND FARM, APPROXIMATELY 15.5km EAST OF FIFE NESS

1.1 Purpose

1.1.1 To seek your determination on an application submitted by Neart na Gaoithe Offshore Wind Ltd (Company Number SC 356223) ("NnGOWL" or "the Company") for consent under section 36 ("s.36") of the Electricity Act 1989 (as amended) ("the Electricity Act 1989") to construct and operate an offshore generating station, comprising up to 54 wind turbine generators ("WTGs"), with a combined maximum generating output of around 450MW ("the Application"), and for a declaration under section 36A ("s.36A") of the Electricity Act 1989 to extinguish public rights of navigation so far as they pass through those places within the territorial sea where structures forming part of the offshore wind farm are to be located.

1.1.2 The Application has been submitted to yourself to determine based on advice from the Cabinet, Parliament and Governance Division. Due to impacts on the St. Abb's Head to Fast Castle Special Protection Area which is within Mr Wheelhouse's constituency, Scottish Natural Heritage have objected to the Application. As such there could be a perceived conflict of interest should Mr Wheelhouse determine the Application.

1.2 Priority

1.2.1 Routine.

1.3 Background

1.3.1 The Company currently holds a s.36 consent ("the Original Consent") and marine licences (which the Scottish Ministers granted in October 2014) for an offshore wind farm development within the same boundary as the current Application. The Company secured a 15-year Contract for Difference in a competitive auction in January 2015, with a strike price of £114.39 on the basis of the Original Consent.

1.3.2 The Company has made the current Application in order to take advantage of new developments in relation to offshore wind technology meaning turbine

numbers can be reduced, leading to a reduction in the associated potential environmental impacts (when compared to the Original Consent).

1.4 Description of the Application and Site

1.4.1 On 16 March 2018, the Company submitted the Application to construct and operate the Neart na Gaoithe Offshore Wind Farm ("the Development"), approximately 15.5km east of Fife Ness. The Application was supported by an Environmental Impact Assessment Report ("EIA Report") and Habitats Regulations Appraisal ("HRA Report"). An addendum of additional information ("EIA Addendum") concerning ornithology was submitted by the Company on 26 July 2018.

1.4.2 The Application is for the construction, operation and maintenance of an offshore energy generating station, with a maximum generating output of around 450MW and comprising up to 54 wind-powered electricity generating stations. A full description of the Development is set out in Annex C.

1.4.3 The location and boundary of the Development site is shown in Annex C, Figure 3. This location was selected based upon: wind resource and energy yield, impacts on environmental receptors (incorporating ornithology, marine mammals and landscape/seascape and visual impact), grid connectivity, suitable port availability, geotechnical conditions and foundation design options.

1.4.4 It is proposed that an offshore electricity export cable corridor approximately 300m wide will contain the two cables that transmit the electricity generated by the turbines to the onshore transformer station, to be located at Thorntonloch, East Lothian. The proposed cables will each measure not more than 43,000m in length. The burial method and/or scour protection requirements will be finalised when the layout is confirmed.

1.5 Key considerations

1.5.1 In light of the legislative and regulatory background, the results of the consultation exercise and the supporting information submitted as part of the Application, including the EIA Report and EIA Addendum, the key considerations in relation to the determination of this proposal are set out in Annex C, section 9.

1.5.2 The Appropriate Assessment ("AA"), as set out in Annex B, concluded that the Development would not adversely affect the integrity of any European offshore marine site or European protected site, either alone or in-combination with other plans or projects.

1.5.3 Marine Scotland Licensing Operations Team ("MS-LOT") considers that the key issues identified have been resolved, mitigated and/or successfully addressed through the use of conditions. All legislative requirements have been complied with throughout the determination process and policy documents identified are considered to be broadly supportive of the Development.

1.5.4 Further, MS-LOT concludes that the Company has had regard to the potential interference of recognised sea lanes essential to international and national navigation. Any obstruction or danger to navigation has been addressed through specific consent conditions at Annex C. The s.36A declaration is included at Annex D.

1.5.5 This Application should be considered in the context of the existing s.36 consents and new applications for s.36 consent in relation to offshore wind farms within the Firth of Forth and Firth of Tay region. These comprise: the Original Consent; the existing consent for Inch Cape offshore wind farm (granted October 2014) and the application for new consent (submitted August 2018); the existing consents for the Seagreen Alpha and Seagreen Bravo offshore wind farms (granted October 2014) and the applications for new consents (submitted September 2018). Combinations of these consents are referred to as the "Forth and Tay Developments" within this submission.

1.6 Key issues raised by consultees

1.6.1 A full summary of the consultation exercise is set out in Annex C, at sections 4,5 and 6. The key issues raised by consultees were as follows:

- Potential impacts on seabirds, and in particular the qualifying interests of the Forth Islands Special Protection Area ("SPA") and the Fowlsheugh SPA, as a result of the Development in-combination with other the Forth and Tay Developments;
- Potential impacts on marine mammals;
- Potential impacts on diadromous fish;
- Potential impacts on commercial fisheries;
- Seascape, landscape and visual potential impacts arising as a result of the Development, particularly in-combination with the other Forth and Tay Developments;
- Potential impacts on cultural heritage receptors; and
- Potential impacts on air defence radar.

1.7 Maintained objections

1.7.1 Scottish Natural Heritage ("SNH") maintains its objection relating to the impacts on the qualifying interests of the Forth Islands SPA, Fowlsheugh SPA and St Abb's Head to Fast Castle SPA arising from the Development in-combination with the Forth and Tay Developments.

1.7.2 The Royal Society for the Protection of Birds Scotland ("RSPB Scotland") maintains its objection due to concerns regarding the predicted impacts on the protected seabird populations arising from the Development in isolation and in-combination with the other Forth and Tay Developments.

1.7.3 Fisheries Management Scotland ("FMS"), Esk District Salmon Fisheries Board ("Esk DSFB"), and Tay District Salmon Fisheries Board ("Tay DSFB") maintain their objections due to concerns over lack of information about migration routes for diadromous fish, lack of consideration of sea trout and concern as to whether

the turbine bases could result in increased predation of diadromous fish by seals.

1.7.4 The Ministry of Defence ("MOD") maintains its objection regarding unacceptable interference to Air Traffic Control ("ATC") radar used by Leuchars Airfield. However, MOD accepts that a condition attached to the consent will address its objection.

1.7.5 The Scottish Fishermen's Federation ("SFF") maintains its objection to the Development. SFF objects on the basis of impacts arising during the construction and operational phases of the Development on a range of fishing operations. SFF objects to the implied continuous closure of the Development area throughout the proposed 3 year construction period and reported impacts of displacement. SFF, however, accepts that a condition attached to the consent will address its concerns regarding decommissioning arrangements.

1.7.6 Further detail on the means by which the concerns and objections have been considered and addressed are set out in Annex C.

1.8 Advice on whether to cause a Public Local Inquiry ("PLI") to be held

1.8.1 The circumstances of the case are such that there is no statutory requirement under Paragraph 2(2) of Schedule 8 to the Electricity Act 1989 for the Scottish Ministers to cause a PLI to be held. The decision to hold a PLI in this case is entirely at the discretion of the Scottish Ministers. Such discretion must always be exercised in accordance with the general principles of public law.

1.8.2 Before you can make a decision on the Application, you must determine whether it is appropriate to cause a PLI to be held. You may have regard to whether:

1. You have been provided with sufficient information to enable you to weigh up all of the conflicting issues and, without a public inquiry, whether you can properly weigh any such issues;
2. Those parties with a right to make representations have been afforded the opportunity to do so; and
3. You have sufficient information on which to take your decision such that a public inquiry would not provide any further factual evidence which would cause you to change your view on the Application.

1.8.3 Angus Council, Dundee City Council, Fife Council and Scottish Borders Council did not raise any objections to the Development. East Lothian Council initially submitted an objection to the Development, which was subsequently withdrawn.

1.8.4 If, having considered the Application, the EIA Report, the EIA Addendum and the objections received, as summarised above, together with other material considerations set out in Annex C, you determine that it would not be appropriate for a PLI to be held, then it remains for you to grant or refuse

consent under s.36 and s.36A, having regard to the considerations set out in this documentation.

1.8.5 MS-LOT is satisfied that sufficient information to weigh up the various competing considerations is available and has been properly taken into account, and that all interested parties have had sufficient opportunity to make representations on the Application. MS-LOT is further satisfied that any inquiry would not be likely to provide any factual information to assist the Scottish Ministers to resolve the issues of risk and planning judgment raised by the Application or to take a different view on the substantive issues on the Application. Accordingly you may conclude that it is not appropriate to cause a PLI to be held into these matters.

1.8.6 MS-LOT has fully considered matters raised in representations from statutory and non-statutory consultees and from members of the public, as well as the EIA Report, HRA Report and EIA Addendum. In addition officials have completed an AA and concluded that the Development will not adversely affect the integrity of any European offshore marine site or European protected site either alone or in-combination with other plans or projects.

1.8.7 Officials have weighed the impacts of the Development, and the degree to which these can be mitigated, against the economic and renewable energy benefits which would be realised. Officials have undertaken this exercise in the context of national and local policies.

1.8.8 MS-LOT considers that where any adverse environmental impacts cannot be prevented, adequate mitigation can be put in place. An obligation has been placed on the Company to give effect to mitigation measures through the attachment of conditions to the consent.

1.8.9 MS-LOT is of the view that in considering the characteristics and location of the Development and the potential impacts, you may be satisfied that the Application has had regard to the preservation of the environment and ecology and that you will have discharged your responsibilities in terms of Schedule 9 to the Electricity Act 1989 in this respect, if you decide to grant consent.

1.8.10 The Company also applied for a declaration under s.36A of the Electricity Act 1989 to extinguish public rights of navigation so far as they pass through those places within the Scottish marine area (essentially the territorial sea adjacent to Scotland) where structures (but not, for the avoidance of doubt, the areas of sea between those structures) forming part of the offshore wind farm. This has been fully considered and the s.36A declaration is included at Annex D.

1.9 Recommendation

MS-LOT recommends that you determine that it is appropriate not to cause a public local inquiry to be held, and to grant consent under section 36 of the Electricity Act 1989 for the 450MW Neart na Gaoithe Offshore Wind Farm, subject to the imposition of conditions, and issue a declaration under section 36A to extinguish the public rights of navigation in so far as they pass through

those places within territorial waters where the structures forming part of the offshore wind farm are to be located.

Please note that two marine licence applications under the Marine (Scotland) Act 2010 for the Neart na Gaoithe Offshore Wind Farm and the offshore transmission works and export cable to shore are being considered alongside this Application. These will be determined by MS-LOT and the approved licences will be forwarded to you for information.

1.10 Publicity

1.10.1 Officials will liaise with Communications once a determination has been made on this Application to agree the appropriate means of announcing the decision.

1.10.2 In order for the determination process to be fully open and transparent, MS-LOT recommend that this submission is published on the Marine Scotland Information website, alongside the key documentation relating to the Application.

1.11 List of Annexes

ANNEX A Legislative Requirements

ANNEX B Appropriate Assessment

ANNEX C Decision Notice and Conditions

ANNEX D Section 36A Declaration

Copy List:	For Action	For Comment	For Information		
			Portfolio Interest	Constit Interest	General Awareness
Minister for Energy, Connectivity and the Islands			X	X	
Cabinet Secretary for the Rural Economy			X		
Cabinet Secretary for Environment, Climate Change and Land Reform			X		
Minister for Rural Affairs and the Natural Environment			X		
DG Economy Director of Marine Scotland, Marine Scotland Helena Gray, Marine Scotland [Redacted] Marine Scotland [Redacted] Marine Scotland [Redacted] Marine Scotland [Redacted] Marine Scotland [Redacted] Marine Scotland [Redacted] Marine Scotland [Redacted] Marine Scotland [Redacted] , Marine Scotland [Redacted] Marine Scotland [Redacted] Marine Scotland [Redacted] , Marine Scotland [Redacted] , Energy Directorate [Redacted] , Energy Directorate [Redacted] Energy Directorate [Redacted] Energy Directorate [Redacted] Energy Directorate Lord Advocate [Redacted] Legal Secretariat to the Lord Advocate [Redacted] , Legal Directorate [Redacted] Legal Directorate [Redacted] Legal Directorate [Redacted] , Special Advisor [Redacted] , Special Advisor Communications - Economy [Redacted] – Communications [Redacted] - Communications					

ANNEX A REGULATORY REQUIREMENTS: LEGISLATION AND POLICY

APPLICATIONS FOR CONSENT UNDER SECTION 36 AND FOR A DECLARATION UNDER SECTION 36A OF THE ELECTRICITY ACT 1989 (AS AMENDED) FOR THE CONSTRUCTION AND OPERATION OF AN OFFSHORE GENERATING STATION, THE NEART NA GAOITHE OFFSHORE WIND FARM, APPROXIMATELY 15.5KM OFFSHORE FROM FIFE NESS

LEGISLATION

1.1 The Scotland Act 1998, The Scotland Act 1998 (Transfer of Functions to the Scottish Ministers etc.) Order 1999 and The Scotland Act 1998 (Transfer of Functions to the Scottish Ministers etc.) (No. 2) Order 2006

1.1.1 The generation, transmission, distribution and supply of electricity are reserved matters under Schedule 5, Part II, section D1 of the Scotland Act 1998. The Scotland Act 1998 (Transfer of Functions to the Scottish Ministers etc.) Order 1999 ("the 1999 Order") executively devolved section 36 consent functions under the Electricity Act 1989 (as amended) ("the Electricity Act 1989" (with related Schedules) to the Scottish Ministers. The Scotland Act 1998 (Transfer of Functions to the Scottish Ministers etc.) (No. 2) Order 2006 revoked the transfer of section 36 consent functions as provided under the 1999 Order and then, one day later, re-transferred those functions, as amended by the Energy Act 2004, to the Scottish Ministers in respect of Scotland and the territorial waters adjacent to Scotland and extended those consent functions to a defined part of the Renewable Energy Zone beyond Scottish territorial waters, as set out in the Renewable Energy Zone (Designation of Area) (Scottish Ministers) Order 2005.

1.2 The Electricity Act 1989

1.2.1 Any proposal to construct, extend or operate a generating station situated in internal waters or the territorial sea (out to 12 nautical miles ("nm") from the shore) with a generation capacity in excess of 1 megawatt ("MW") requires consent under section 36 ("s.36") of the Electricity Act 1989.[1] A consent under s.36 may include such conditions (including conditions as to the ownership or operation of the station) as appear to the Scottish Ministers to be appropriate. The consent shall continue in force for such period as may be specified in, or determined by or under, the consent.

1.2.2 Paragraph 3 of Schedule 9 to the Electricity Act 1989 requires that regard be given to the desirability of preserving natural beauty, of conserving flora, fauna and geological or physiographical features of special interest and of protecting sites, buildings and objects of architectural, historic or archaeological interest.

[1] S.36(2) modified by The Electricity Act 1989 (Requirement of Consent for Offshore Generating Stations)(Scotland) Order 2002

Reasonable steps must be taken to mitigate any effect which the proposals would have on these features. Scottish Ministers must have regard to the extent to which the person, by whom the proposals were formulated, has complied with their duty to mitigate the effects of the proposals. When exercising any relevant functions, a licence holder, a person authorised by an exemption to generate or supply electricity, and the Scottish Ministers must also avoid, so far as possible, causing injury to fisheries or to the stock of fish in any waters.

1.2.3 Under s.36A of the Electricity Act 1989, Scottish Ministers have the power to make a declaration, on application by an applicant when making an application for consent under s.36 of the Electricity Act 1989, which extinguishes public rights of navigation which pass through the place where a generating station will be established; or suspends rights of navigation for a specified period of time; or restricts rights of navigation or makes them subject to conditions. The power to extinguish public rights of navigation extends only to renewable generating stations situated in territorial waters.

1.2.4 Under section 36B of the Electricity Act 1989, the Scottish Ministers may not grant a consent in relation to any particular offshore generating station activities if they consider that interference with the use of recognised sea lanes essential to international navigation is likely to be caused by the carrying on of those activities or is likely to result from their having been carried on. The Scottish Ministers, when determining whether to give consent for any particular offshore generating activities, and considering the conditions to be included in such consent, must have regard to the extent and nature of any obstruction of, or danger to, navigation which, without amounting to interference with the use of such sea lanes, is likely to be caused by the carrying on of the activities, or is likely to result from their having been carried on. In determining this issue, the Scottish Ministers must have regard to the likely overall effect (both while being carried on and subsequently) of the activities in question and such other offshore generating activities which are either already subject to s.36 consent or are activities for which it appears likely that such consents will be granted.

1.2.5 Under Schedule 8 to the Electricity Act 1989, the Electricity (Applications for Consent) Regulations 1990 (as amended) (“the 1990 Regulations”) and the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (as amended) (“the 2017 EW Regulations”), an applicant must publish notice of its application for s.36 consent in one or more local newspapers, in one or more national newspapers, in the Edinburgh Gazette and on an application website to allow representations to be made concerning the Application. The Scottish Ministers must serve notice of any application for s.36 consent upon any relevant planning authority or planning authorities.

1.2.6 Paragraph 2(2) of Schedule 8 to the Electricity Act 1989 provides that where a relevant planning authority notifies the Scottish Ministers that they object to an application for s.36 consent and where they do not withdraw their objection, then the Scottish Ministers must cause a PLI to be held in respect of the application. In such circumstances, before determining whether to give their consent, the Scottish Ministers must consider the objections and the report of the person who held the PLI.

1.2.7 The location and extent of the Development to which the Application relates (being wholly offshore) means that the Development is not within the area of any local Planning Authority. MS-LOT, on behalf of the Scottish Ministers, did however consult with the Planning Authorities most local to the Development: Angus Council, Dundee City Council, East Lothian Council, Fife Council and Scottish Borders Council. East Lothian Council provided an objection which it subsequently withdrew.

1.2.8 The Scottish Ministers are not obliged to require a PLI to be held in this case, but are required, under paragraph 3(2) of Schedule 8 to the Electricity Act 1989 to consider all objections received, together with all other material considerations, with a view to determining whether a PLI should be held. Paragraph 3(2) of Schedule 8 provides that if the Scottish Ministers think it appropriate to do so, they shall cause a PLI to be held, either in addition to or instead of any other hearing or opportunity of stating objections to the Application.

1.2.9 You can be satisfied that all the necessary tests set out within the Electricity Act 1989 have been met through the assessment of the Application and all procedural requirements have been complied with. The Company holds a generation licence. Your officials have therefore approached matters on the basis that Schedule 9, paragraph 3(1) obligations, as apply to licence holders and the specified exemption holders, should also be applied to the Company.

1.3 Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (as amended), the Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (as amended)

1.3.1 The Environmental Impact Assessment Directive 2011/92/EU (as codified and amended) is targeted at projects which are likely to have significant effects on the environment and identifies projects which require an Environmental Impact Assessment ("EIA") to be undertaken. The Company identified the proposed Development as one requiring an Environmental Impact Assessment report ("EIA Report") in terms of the 2017 EW Regulations and the Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (as amended) ("the 2017 MW Regulations"). An addendum of additional environmental information ("EIA Addendum") was submitted by the Company in accordance with the requirements of the 2017 EW and MW Regulations.

1.3.2 In compliance with the 2017 EW Regulations and the 2017 MW Regulations, consultation has taken place with SNH, Scottish Environment Protection Agency ("SEPA"), Historic Environment Scotland ("HES"), the relevant planning authorities, and such other persons likely to be concerned by the proposed Development by reason of their specific environmental responsibilities on the terms of the EIA Report and the EIA Addendum.

1.3.3 The decision notice required under the 2017 EW Regulations is attached at Annex C regarding the s.36 consent. Separate decision notices granted under the 2017 MW Regulations will be issued regarding any marine licences granted in respect of the generating station and offshore transmission infrastructure.

1.3.4 You can be satisfied that the EIA regulatory requirements have been met and have taken into consideration the environmental information, including the EIA Report and EIA Addendum, the responses received from the consultative bodies and the representations received.

1.4 The Habitats Directive and the Birds Directive

1.4.1 Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and wild fauna and flora (as amended) ("the Habitats Directive"), provides for the conservation of natural habitats and of wild flora and fauna in the Member States' European territory, including offshore areas such as the proposed site of the Development. It promotes the maintenance of biodiversity by requiring Member States to take measures, including those which maintain or restore natural habitats and wild species listed in the Annexes to the Habitats Directive at a favourable conservation status and contributes to a coherent European ecological network of protected sites by designating Special Areas of Conservation ("SAC") for those habitats listed in Annex I and for the species listed in Annex II, both Annexes to that Directive.

1.4.2 Council Directive 79/409/EEC of 2 April 1979 on the conservation of wild birds (as amended and codified) ("the Birds Directive"), applies to the conservation of all species of naturally occurring wild birds in the member states' European territory, including offshore areas such as the proposed site of the Development and it applies to birds, their eggs, nests and habitats. Under Article 2, Member States are obliged to "take the requisite measures to maintain the population of the species referred to in Article 1 at a level which corresponds in particular to ecological, scientific and cultural requirements, while taking account of economic and recreational requirements, or to adapt the population of these species to that level." Article 3 further provides that "[i] in the light of the requirements referred to in Article 2, Member States shall take the requisite measures to preserve maintain or re-establish a sufficient diversity and area of habitats for all the species of birds referred to in Article 1". Such measures are to include the creation of protected areas (Article 3.2).

1.4.3 The Habitats Directive and the Birds Directive have, in relation to the marine environment, been transposed into Scots law by the Conservation (Natural Habitats, & c.) Regulations 1994 (as amended) ("the 1994 Habitats Regulations"), the Conservation of Habitats and Species Regulations 2017 ("the 2017 Habitats Regulations") for reserved matters and s.36 consents, and the Conservation of Offshore Marine Habitats and Species Regulations 2017 ("the 2017 Offshore Habitats Regulations") for developments outwith 12nm. These regulations are collectively referred to as "the Habitats Regulations".

1.4.4 The proposed Development is to be sited entirely in territorial waters adjacent to Scotland, therefore the 1994 and 2017 Habitats Regulations are applicable.

1.4.5 Developments in, or adjacent to, European offshore marine sites or European protected sites, or in locations which have the potential to affect such sites, must undergo what is commonly referred to as a Habitats Regulations Appraisal ("HRA"). In line with advice from SNH, and to ensure compliance with European Union ("EU") obligations under the Habitats Directive and the Birds Directive,

MS-LOT, on behalf of the Scottish Ministers, undertook an Appropriate Assessment ("AA") as part of this HRA.

1.4.6 You can be satisfied that the Habitats Regulations requirements have been met. The AA completed has concluded that the Development, alone or in-combination with other plans or projects, will not adversely affect the integrity of any SAC or Special Area of Protection ("SPA"). Reasons for diverging from the SNH advice have been provided in the AA and decision notice.

1.5 Marine (Scotland) Act 2010

1.5.1 The Marine (Scotland) Act 2010 ("the 2010 Act") regulates activities in the territorial sea adjacent to Scotland in terms of marine environment issues. Subject to exemptions specified in subordinate legislation, under Part 4 of the 2010 Act, licensable marine activities may only be carried out in accordance with a marine licence granted by the Scottish Ministers.

1.5.2 Under Part 2 of the 2010 Act, the Scottish Ministers have general duties to carry out their functions in a way best calculated to achieve sustainable development, including the protection and, where appropriate, the enhancement of the health of the area.

1.6 Climate Change (Scotland) Act 2009

1.6.1 Under Part 2 of the 2010 Act the Scottish Ministers must, when exercising any function that affects the Scottish marine area under the Climate Change (Scotland) Act 2009 (as amended), act in the way best calculated to mitigate, and adapt to, climate change so far as is consistent with the purpose of the function concerned. Under the Climate Change (Scotland) Act 2009 (as amended), annual targets have been agreed with relevant advisory bodies for the reduction in carbon emissions.

2 MARINE AND TERRESTRIAL POLICY

2.1 Scotland's National Marine Plan

2.1.1 The National Marine Plan ("NMP"), formally adopted in 2015, provides a comprehensive statutory planning framework for all activities out to 200nm. Scottish Ministers must take authorisation and enforcement decisions, which affect the marine environment, in accordance with the NMP.

2.1.2 The NMP sets an objective to promote the sustainable development of offshore wind, wave and tidal renewable energy in the most suitable locations. In doing so it sets out a presumption in favour of sustainable development and use of the marine environment when consistent with the policies and objectives of the Plan. It also contains specific policies relating to the mitigation of impacts on habitats and species, and in relation to treatment of cables.

2.1.3 Of particular relevance to this proposal are:

- Chapter 4 policies 'GEN 1-21', which guide all development proposals;
- Chapter 6 Sea Fisheries, policies 'FISHERIES 1-3';

- Chapter 8 Wild Salmon and Diadromous Fish, policies 'WILD FISH 1 and 3';
- Chapter 11 Offshore Wind and Marine Renewable Energy, policies 'RENEWABLES 1, 3-10';
- Chapter 12 Recreation and Tourism, policies 'REC & TOURISM 2 and 6';
- Chapter 13 Shipping, Ports, Harbours and Ferries, policies 'TRANSPORT 1 and 6';
- Chapter 14 Submarine Cables, policies 'CABLES 1, 2 and 5'; and
- Chapter 15 Defence, policy 'DEFENCE 1'.

2.1.4 MS-LOT has had full regard to the NMP when assessing the Application. It considers that the Development accords with the NMP.

2.2 Other Marine Policy

2.2.1 The Development will contribute to Scotland's renewable energy targets and will provide wider benefits to the offshore wind industry which are reflected within Scotland's Offshore Wind Route Map and the National Renewables Infrastructure Plan. Offshore wind is seen as an integral element in Scotland's contribution towards action on climate change. The development of offshore wind also represents one of the biggest opportunities for sustainable economic growth in Scotland for a generation. Scotland's ports and harbours present viable locations to service the associated construction and maintenance activities for offshore renewable energy. In addition, Scottish research institutions provide a base of academic excellence for delivering technological advancements and technology transfer and are also well placed to benefit from the creation of this new industry around Scotland.

2.3 Scottish Planning Policy

2.3.1 Scottish Planning Policy 2014 ("SPP") sets out Scottish Government's planning policy on renewable energy development. Efficient supply of low carbon and low cost heat and generation of heat and electricity from renewable energy sources are vital to reducing greenhouse gas emissions and can create significant opportunities for communities. Renewable energy also presents a significant opportunity for associated development, investment and growth of the supply chain, particularly for ports and harbours identified in the National Renewables Infrastructure Plan ("NRIP"). Communities can also gain new opportunities from increased local ownership and associated benefits.

2.3.2 Whilst it makes clear that the criteria against which applications should be assessed will vary depending upon the scale of the development and its relationship to the characteristics of the surrounding area, the SPP states that these are likely to include impacts on landscapes and the historic environment, ecology (including birds, mammals and fish), biodiversity and nature conservation; the water environment; communities; aviation; telecommunications; noise; shadow flicker and any cumulative impacts that are likely to arise. The SPP also makes clear that the scope for the development to contribute to national or local economic development should be a material consideration when considering an application.

2.3.3 MS-LOT has had full regard to the SPP when assessing the Application. It considers that the Development accords with the SPP.

2.4 National Planning Framework 3

2.4.1 Scotland's National Planning Framework 3 ("NPF3"), adopted in June 2014, sets out the ambition for Scotland to move towards becoming a low carbon country, placing emphasis on the development of onshore and offshore renewable energy. It recognises the significant wind resource available in Scotland, and reflects targets to meet at least 30% of overall energy demand from renewable sources by 2020 including generating the equivalent of at least 100% of gross electricity consumption from renewables. It also identifies targets to source 11% of heat demand and 10% of transport fuels from renewable sources by 2020.

2.4.2 NPF3 aims for Scotland to be a world leader in offshore renewable energy and expects that, in time, the pace of onshore wind development will be overtaken by the development of marine energy including wind, wave and tidal power.

2.4.3 MS-LOT has had full regard to the NPF3 when assessing the Application. It considers that the Development accords with the NPF3.

2.5 Terrestrial Policy

2.5.1 MS-LOT has had full regard to the terms of relevant terrestrial planning policy documents and plans. In addition to high level policy documents regarding the Scottish Government's policy on renewables outlined above, MS-LOT has had full regard to the number of national and local level planning documents and plans, including strategic and local development plans.

2.5.2 The Local Development Plans ("LDP") and supporting policies for the relevant planning authorities were considered within the EIA Report at chapter 2. The LDP for each of the planning authorities support the development of renewable energy projects and sustainable development.

2.6 Summary

2.6.1 MS-LOT considers that the policy documents outlined above are broadly supportive of the Development.

ANNEX B APPROPRIATE ASSESSMENT

E:MS.MarineRenewables@gov.scot

Scottish Government
Riaghaltas na h-Alba
gov.scot

SCOTTISH MINISTERS' ASSESSMENT OF THE PROJECT'S IMPLICATIONS FOR DESIGNATED SPECIAL AREAS OF CONSERVATION ("SAC"), SPECIAL PROTECTION AREAS ("SPA") AND PROPOSED SPECIAL PROTECTION AREAS ("pSPA") IN VIEW OF THE SITES' CONSERVATION OBJECTIVES.

APPLICATION FOR CONSENT UNDER SECTION 36 OF THE ELECTRICITY ACT 1989 (AS AMENDED) AND FOR MARINE LICENCES UNDER THE MARINE (SCOTLAND) ACT 2010 FOR THE CONSTRUCTION AND OPERATION OF THE NEART NA GAOITHE OFFSHORE WIND FARM AND ASSOCIATED OFFSHORE TRANSMISSION INFRASTRUCTURE

SITE DETAILS: NEART NA GAOITHE OFFSHORE WIND FARM AND EXPORT CABLE CORRIDOR BOUNDARY – APPROXIMATELY 15.5KM EAST OF FIFE NESS IN THE FIRTH OF FORTH

Name	Assessor or Approver	Date
[Redacted]	Assessor	09/10//2018
[Redacted]	Assessor	09/10/2018
[Redacted]	Approver	02/11/2018

Annex B – Appropriate Assessment

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Annex B – Appropriate Assessment

LIST OF FIGURES AND TABLES

SECTION 1: BACKGROUND

1 Introduction

1.1.1 This appropriate assessment ("AA") relates to the application ("the Application") submitted by Neart na Gaoithe Offshore Wind Ltd ("NnGOWL" or "the Company") for consent under section 36 ("s.36") of the Electricity Act 1989 (as amended) ("the Electricity Act 1989") to construct and operate an offshore generating station 15.5km to the east of Fife Ness in the Firth of Forth ("the Development"), comprising up to 54 wind turbine generators ("WTGs"), with a combined maximum generating output of around 450MW.

1.1.2 The assessment has been undertaken by Scottish Ministers and is required under regulation 48 of the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended) and regulation 63 of the Conservation of Habitats and Species Regulations 2017 (herein collectively referred to as "the Habitats Regulations"). This AA is in accordance with Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora ("the Habitats Directive") and Council Directive 2009/147/EC on the conservation of wild birds ("the Birds Directive"). Scottish Ministers, as the competent authority under the Habitats Regulations, must be satisfied that the Development will not adversely affect the integrity of any European site or European offshore marine site (special areas of conservation ("SAC") and special protection areas ("SPA")) either in isolation or in-combination with other plans or projects before they can grant consent for the Development.

1.1.3 A detailed AA has been undertaken and Scottish Natural Heritage ("SNH") has been consulted.

2 Appropriate assessment ("AA") conclusion

2.1.1 This AA concludes that there will be no adverse effects on the site integrity of the Forth Islands SPA, Fowlsheugh SPA, St Abb's Head to Fast Castle SPA, Buchan Ness to Collieston Coast SPA, Outer Firth of Forth and St Andrews Bay Complex pSPA, Moray Firth SAC, Firth of Tay and Eden Estuary SAC, Berwickshire and North Northumberland Coast SAC or Isle of May SAC (where each SAC, SPA or pSPA is taken as a whole) from the Development either in isolation or in-combination with other plans or projects, providing that the conditions set out in Section 4 are complied with.

2.1.2 Scottish Ministers consider that the most up to date and best scientific evidence available has been used in reaching the conclusion that the Development will not

adversely affect the integrity of these sites and are satisfied that no reasonable scientific doubt remains.

3 Background to including assessment of proposed SPAs

3.1.1 In Scotland, the Scottish Ministers are currently in the process of identifying a suite of new marine SPAs. In 2014, advice was received from the statutory nature conservation bodies ("SNCBs") on the sites most suitable for designation and at this stage they became draft SPAs ("dSPA"). Once the Scottish Ministers have agreed the case for a dSPA to be the subject of a public consultation, the proposal is given the status of proposed SPA ("pSPA") and receives policy protection, which effectively offers the sites the same level of protection as designated sites, from that point forward until a decision on classification of the site is made. This policy protection for pSPAs is provided by Scottish Planning Policy (paragraph 210), the UK Marine Policy Statement (paragraph 3.1.3) and Scotland's National Marine Plan (paragraph 4.45).

3.1.2 It is not a legal requirement under the Habitats Directive or the Habitats Regulations for this assessment to assess the implications of the Development on any pSPAs. This AA includes an assessment of implications upon these sites in accordance with domestic policy. The Scottish Ministers are also required to consider article 4(4) of the Birds Directive in respect of pSPAs. The considerations under article 4(4) of the Birds Directive are separate and distinct to the considerations which must be assessed under this Habitats Directive assessment but they are, nevertheless, set out within this AA (see paragraphs 22.4.1-22.4.2).

3.1.3 In accordance with the Habitats Regulations the Scottish Ministers will, as soon as reasonably practicable following the formal designation of the pSPA, review their decisions if the Development is authorised. If required this will include a supplementary AA being undertaken concerning the implications of the Development on the site as designated (as the site is currently a pSPA, at present, the conservation objectives are in draft form and will be finalised at the point that the site is designated).

4 Details of proposed operation

4.1.1 NnGOWL has submitted two separate marine licence applications in respect of the generating station and the transmission works under part 4 of the Marine (Scotland) Act 2010. In addition, NnGOWL has submitted an Application for s.36 consent under in respect of the Development. A full description of the Development can be found in Chapter 4 of the Environmental Impact Assessment Report ("EIA Report") (as submitted in March 2018). The s.36 consent and marine licences applied for are for a period of 50 years.

4.1.2 NnGOWL proposes to construct and operate a large-scale offshore wind farm and associated offshore transmission infrastructure, located 15.5km to the east of Fife Ness in the Firth of Forth. This Development will consist of a maximum of 54 WTGs. The turbine foundations will consist of a steel lattice jacket with a piled foundation design. In addition to the WTGs, up to two offshore substation platforms ("OSPs") and one meteorological mast is proposed. Should two OSPs be installed, an inter-connector cable will be required to connect the OSPs. Two 43km offshore export cables ("OECs") are proposed, which will run from the OSPs to the landfall point at Thorntonloch, south of Torness Power Station in East Lothian.

4.1.3 NnGOWL previously received s.36 consent and associated marine licences to construct and operate the Neart na Gaoithe Offshore Wind Farm in October 2014 ("the Original Consent"). At the time of granting the Original Consent, a combined AA ("the 2014 AA") was completed for the Original Consent, Inch Cape Offshore Wind Farm, Seagreen Alpha Offshore Wind Farm and Seagreen Bravo Offshore Wind Farm (collectively known as the "Forth and Tay Developments"). The Forth and Tay Developments were subject to judicial review proceedings, and although the consents have been upheld, the projects have not been built out.

4.1.4 Inch Cape Offshore Limited ("ICOL") submitted s.36 consent and marine licence applications in respect of the revised design for the Inch Cape Offshore Wind Farm and transmission infrastructure in August 2018. Seagreen Wind Energy Limited ("Seagreen") submitted s.36 consent and marine licence applications in respect of revised designs for the Seagreen Alpha and Seagreen Bravo Offshore Wind Farms in September 2018 (Seagreen have not submitted marine licence applications for the transmission infrastructure as the marine licences issued in 2014 are still valid, and this part of the project has not changed). In this AA, the Inch Cape and Seagreen 2018 applications are referred to as 2017 scenarios, as the projects were considered by NnGOWL as detailed in the Inch Cape and Seagreen 2017 scoping reports.

4.1.5 The 2014 AA concluded that the Forth and Tay Developments would not adversely affect any European sites or European offshore marine sites, either in isolation or in-combination with other plans and projects.

4.1.6 The Original Consent was subsequently varied in 2015 to increase the maximum rated turbine capacity and the maximum turbine hub heights and platform heights ("the Original Varied Consent"). An AA was undertaken in 2015 ("the 2015 AA") to assess these impacts. The 2015 AA concluded that the Original Varied Consent would not adversely affect any European sites or European offshore marine sites either in isolation or in-combination with other plans and projects.

4.1.7 NnGOWL submitted a scoping report and a request for a scoping opinion to Scottish Ministers in May 2017. Following consultation with statutory and other

consultees, a scoping opinion in respect of the Development was issued by Scottish Ministers on 8 September 2017 ("Scoping Opinion"), advising on the scope of assessment required in respect of the Application. The Scoping Opinion included advice on the Habitats Regulations Appraisal ("HRA") requirements and advised that information to inform the HRA ("HRA Report") must be submitted in conjunction with the EIA Report.

4.1.8 The Application has been developed and proposed in order to take advantage of technological developments in the intervening time period since the Original Varied Consent was granted. Table 1 below provides a summary of the parameters of the design envelopes for the Development and the Original Varied Consent.

Table 1 Comparison of the Development and Original Varied Consent Envelope Parameters

Design Envelope Parameter	**Development**	**Original Varied Consent**
Maximum number of WTGs	54	75
Maximum rotor tip height (above LAT)	208 metres	197 metres
Maximum hub height	126 metres	115 metres
Maximum rotor diameter	167 metres	126-152 metres
Minimum spacing between WTGs	800 metres	450 metres
Blade clearance above LAT	35 metres	30.5 metres
Maximum number of piles per foundation (Offshore Substation Platforms)	8	8
Number of piles per foundation (turbines)	6	4
Foundation Options	Jackets	1. Gravity Base Structures 2. Jackets

Inter-array cables	Up to 10 WTGs per collector unit Up to 14 circuits 14km cable length	Up to 6 WTGs per collector unit Up to 15 circuits 75- 120km cable length
Offshore Substation Platforms – maximum level of topside above LAT	21 metres	18 metres
Offshore Export Cable Length (per cable)	43km	33km

4.1.9 Steel jackets with pile foundations are considered the most appropriate turbine foundation design due to the prevailing site conditions and, therefore, are the only foundation option assessed in the EIA Report. There will be a maximum of 6 piles per foundation, with a penetration depth of 50 metres. The piles will be installed via: driven only piling; drive-drill-drive; or drill only. The EIA Report was completed on an estimation of 6-21 hours of pile driving per foundation (for up to 6 piles) or 62-180 hours for pile drilling (for up to 6 piles) (including time for setting up and changing equipment between piling locations). Jacket installation is anticipated to take 12-24 hours and the impacts of concurrent piling activities (pile driving or pile drilling at two locations concurrently (either on the same vessel or an independent vessel)) was assessed as a worst-case scenario for piling activities. Preliminary geotechnical investigations suggest that 0-10% of piling can be installed by driving and 90-100% of piles can be installed using one or either of drive-drill-drive method or the drill only method.

Table 2 Pile Installation Parameters

Parameter	**Maximum Design Envelope**
Soft start duration	30 minutes
Applied hammer energy during soft start	360 Kilojoules (kJ) (20% of max. energy for an IHC 1800 hammer)
Driving duration at maximum energy	Up to 180 minutes
Applied hammer energy at maximum energy	1, 635kJ (approx. 90% of max. energy for an IHC 1800 hammer)

4.1.10 An indicative construction programme is included in Chapter 4 of the EIA Report and is set out below at Table 3:

Table 3 Indicative Construction Timescales

Activity	Indicative Timescale
Onshore Construction	Q3 2019 – Q3 2021
Intertidal Construction	Q3 2021
Export Cable Works Offshore	Q2 – Q3 2021
Piling Activities	Q1 – Q4 2021
Jacket Installation	Q2 – Q4 2021
OSS Topside Installation	Q2 – Q3 2021
Offshore inter-array cabling works	Q3 2021 – Q2 2022
Offshore WTG installation	Q2 – Q3 2022
Final Commissioning & Transfer to Operation & Maintenance Activities	Q4 2022

4.1.11 Figure 1 provides a chart detailing the Development area, including the Offshore Export Cable Corridor.

Figure 1 Chart of Generating Station and Cable Corridor

Source: HRA Report http://www.gov.scot/Resource/0053/00533370.pdf

5 Consultation

5.1.1 NnGOWL submitted its Application, including the EIA Report and HRA Report, on 16 March 2018. Scottish Ministers accepted the Application and sent copies of it to SNH and other relevant consultees on 28 March 2018 for a 30 day consultation period.

5.1.2 An addendum of additional information ("the EIA Addendum") was subsequently provided and was circulated for consultation on 27 July 2018 for a 30 day consultation period. The EIA Addendum corrected errors in the ornithology assessment.

5.1.3 Detailed comments were received from SNH, the Royal Society for the Protection of Birds Scotland ("RSPB Scotland") and Whale and Dolphin Conservation ("WDC"). Marine Scotland Science ("MSS") provided scientific advice on the information provided.

6 Main points raised during consultation

6.1.1 The main points by each of the respondents that included HRA specific comments are summarised below. Copies of all consultation responses received by Scottish Ministers can be accessed here. Copies of all consultation responses to the EIA Addendum report can be accessed here.

6.2 SNH

Ornithology

6.2.1 In its response dated 11 May 2018, SNH advised that impacts from the Development would be less than the impacts from the Original Varied Consent.

6.2.2 SNH advised that it was content with all aspects of the assessment methodology. SNH advised that the in-combination effects on the Forth Islands SPA and Fowlsheugh SPA were the most significant natural heritage constraint and that it was unlikely that the Scottish Ministers would be able to ascertain whether there will be any adverse effect on the integrity of these sites from the Development in-combination with the other wind farm proposals for either 25 or 50 year operational lifespans.

6.2.3 SNH advised that it was unable to provide advice on the guillemot and razorbill qualifying interests, as the incorrect population data was used in the population modelling. SNH requested that the population models were re-run for both species using the correct data and analysed, with population viability analysis ("PVA") metrics provided, to allow them to provide advice on these qualifying interests. This information was later provided in the EIA Addendum.

6.2.4 SNH advised that there would be no adverse effect on site integrity of any classified SPA or the Outer Forth and St Andrew's Bay pSPA with respect to the following qualifying interests for the Development in-combination with the other Forth and Tay Developments:

- Forth Islands - herring gull, puffin;
- Fowlsheugh - herring gull;
- St. Abb's Head to Fast Castle - herring gull, puffin;
- Buchan Ness to Collieston Coast - herring gull, kittiwake;
- Outer Firth of Forth and St Andrews Bay Complex - gannet, kittiwake, herring gull, puffin, little gull, common gull, black-headed gull

6.2.5 SNH provided a further response on 7 September 2018 in relation to the EIA Addendum, to be considered in conjunction with its previous response, dated 11 May 2018. SNH submitted an objection on the basis of predicted significant adverse effects on the Forth Islands SPA (for gannet and kittiwake) and Fowlsheugh SPA (for kittiwake) in-combination with the existing consents for Inch Cape, Seagreen Alpha and Seagreen Bravo offshore wind farms.

6.2.6 SNH advised that the Development could have an adverse effect on the site integrity of the Forth Islands and Fowlsheugh SPAs in respect of kittiwake and the Forth Islands SPA in respect of gannet in-combination with the 2018 proposals for the Inch Cape and Seagreen offshore wind farms.

6.2.7 SNH advised that the Development could have an adverse effect on the site integrity of the Forth Islands and Fowlsheugh SPAs in respect of razorbill in-combination with the other Forth and Tay Developments, however, SNH advised that further clarification was required in relation to population modelling, apportioning and the calculation of certain metrics to allow them to provide more certain advice.

6.2.8 SNH was able to provide advice regarding the guillemot qualifying interest, based on the content of the EIA Addendum. SNH advised that the Development will not have an adverse effect on the site integrity of any SPA in respect of guillemot, either alone or in-combination with the other Forth and Tay Developments.

6.2.9 A meeting was held between SNH, MSS and the Company on 18 September 2018 to discuss ornithology. Due to some inconsistencies in the NnGOWL information provided to inform the AA, Scottish Ministers consulted SNH further on extracts of this AA for the key species (gannet, kittiwake, razorbill and guillemot) where Scottish Ministers have used information from other sources to inform the assessment. SNH provided further responses on 5 and 8 October 2018, advising that in its view the Development in-combination with the existing consents for Inch

Cape Offshore Wind Farm and Seagreen Alpha and Bravo Offshore Wind Farms would have an adverse effect on site integrity as follows:

- Forth Islands SPA – with respect to gannet, kittiwake and razorbill;
- Fowlsheugh SPA – with respect to kittiwake and razorbill;
- St Abb's Head to Fast Castle SPA – with respect to kittiwake.

6.2.10 SNH did advise that impacts from the Development would be less than for the Original Varied Consent.

Marine Mammals

6.2.11 SNH advised that the greatest level of impacts will arise during the construction phase of the proposed works. SNH welcomed the commitment to implement mitigation and consent conditions and provided further advice on these measures.

6.2.12 SNH highlighted that the outputs of the model of the interim Population Consequences of Disturbance ("iPCoD") used by NnGOWL (version 3) are unreliable, due to known issues in the code and uncertainties regarding the input parameters. As these outputs cannot be relied upon, SNH provided a qualitative assessment of the effects of Permanent Threshold Shift ("PTS") and disturbance from NnGOWL piling events (both single and concurrent events) in its advice. SNH advised that if an updated model becomes available the model should be rerun.

6.2.13 Following revisions to the iPCoD model a workshop was held between Marine Scotland and SNH on 7 September 2018. This resulted in SNH running various agreed in-combination scenarios for bottlenose dolphin and grey seal to inform its advice. SNH provided further advice on 26 September 2018

6.2.14 SNH advised that there would be no adverse effect on the integrity of any SACs with marine mammal qualifying interests from the Development alone or in-combination with other projects

6.3 **RSPB Scotland**

6.3.1 RSPB Scotland submitted an objection to the proposed Development on 13 May 2018 and stated that it strongly disagreed with the conclusions contained with the submitted HRA and EIA Reports. RSPB Scotland advised that the impacts of the worst-case in-combination scenario are wholly unacceptable and would result in significant and irreversible impacts to seabird populations in the region, particularly northern gannet, black--legged kittiwake, Atlantic puffin, razorbill and common guillemot. RSPB Scotland objected to the proposed Development both in isolation and in-combination with the other Forth and Tay Developments.

6.3.2 RSPB Scotland did acknowledge that the potential impacts of the Development are reduced from the Original Varied Consent.

6.3.3 RSPB submitted a further response to the EIA Addendum on 7 September 2018 confirming that its previous objection still stands. RSPB provided comments on the information contained within the EIA Addendum and stated that the contents of the EIA Addendum added further weight to its objection.

6.4 WDC

6.4.1 WDC stated in its response dated 23 May 2018 that it had concerns about the likely effects of the Development in isolation, and in-combination with other plans or projects, on cetaceans, especially harbour porpoise. Likely significant effects on harbour porpoise as a qualifying feature of the Inner Hebrides and Minches candidate SAC on the west coast of Scotland have not been identified and, therefore, this qualifying interest is not considered further within this AA. Harbour porpoise is considered in the EIA Report.

6.4.2 WDC highlighted that the inclusion of pile driving (for the turbine foundations) within the EIA Report means that there should be a commitment to noise mitigation and monitoring during the construction of the entire wind farm, to assess if the conclusions from the noise modelling contained with the EIA and HRA Reports are accurate. WDC provided advice on a number of issues of relevance to the proposed mitigation measures.

6.4.3 WDC also highlighted the need for adequate monitoring pre-construction and requested involvement in the preparation of various post-consent plans (piling strategy, vessel management plan, environmental management plan, project environmental monitoring plan), should any new consent be granted.

SECTION 2: INFORMATION ON NATURA SITES

7 Background information and qualifying interests for the relevant Natura sites

7.1.1 This section provides links to the SNH Interactive website, where background information on the sites being considered in this assessment is available. The qualifying interests for the sites are listed below at Table 5 and the conservation objectives at Table 6. Figure 2 provides a chart of the SPA, pSPA and SAC considered within this AA.

Table 4 Name of Natura sites affected and current status

SPA:

Forth Islands SPA
http://gateway.snh.gov.uk/sitelink/siteinfo.jsp?pa_code=8500

Fowlsheugh SPA
http://gateway.snh.gov.uk/sitelink/siteinfo.jsp?pa_code=8505

St Abb's Head to Fast Castle SPA
http://gateway.snh.gov.uk/sitelink/siteinfo.jsp?pa_code=8579

Buchan Ness to Collieston Coast SPA
http://gateway.snh.gov.uk/sitelink/siteinfo.jsp?pa_code=8473

SAC:

Moray Firth SAC
http://gateway.snh.gov.uk/sitelink/siteinfo.jsp?pa_code=8327

Firth of Tay and Eden Estuary SAC
http://gateway.snh.gov.uk/sitelink/siteinfo.jsp?pa_code=8257

Berwickshire and North Northumberland Coast SAC
http://gateway.snh.gov.uk/sitelink/siteinfo.jsp?pa_code=8207

Isle of May SAC
http://gateway.snh.gov.uk/sitelink/siteinfo.jsp?pa_code=8278

pSPA:

Outer Firth of Forth and St Andrews Bay Complex pSPA
http://gateway.snh.gov.uk/sitelink/siteinfo.jsp?pa_code=10478

Table 5 European qualifying interests

Forth Islands SPA

- Arctic tern (*Sterna paradisaea*), breeding
- Common tern (*Sterna hirundo*), breeding
- Cormorant (*Phalacrocorax carbo*)*, breeding
- Gannet (*Morus bassanus*), breeding

- Guillemot (*Uria aalge*)*, breeding
- Herring gull (*Larus argentatus*)*, breeding
- Kittiwake (*Rissa tridactyla*)*, breeding
- Lesser black-backed gull (*Larus fuscus*), breeding
- Puffin (*Fratercula arctica*), breeding
- Razorbill (*Alca torda*)*, breeding
- Roseate tern (*Sterna dougallii*), breeding
- Sandwich tern (*Sterna sandvicensis*), breeding
- Shag (Phalacrocorax aristotelis), breeding
- Seabird assemblage, breeding

*indicates assemblage qualifier only

Fowlsheugh SPA

- Fulmar (*Fulmarus glacialis*)*, breeding
- Guillemot (*Uria aalge*)*, breeding
- Herring gull (*Larus argentatus*)*, breeding
- Kittiwake (*Rissa tridactyla*), breeding
- Razorbill (*Alca torda*)*, breeding
- Seabird assemblage, breeding

St Abb's Head to Fast Castle SPA

- Guillemot (*Uria aalge*)*, breeding
- Herring gull (*Larus argentatus*)*, breeding
- Kittiwake (*Rissa tridactyla*)*, breeding
- Razorbill (*Alca torda*)*, breeding
- Shag (Phalacrocorax aristotelis)*, breeding
- Seabird assemblage, breeding

Buchan Ness to Collieston Coast SPA

- Fulmar (*Fulmarus glacialis*)*, breeding
- Guillemot (*Uria aalge*)*, breeding
- Herring gull (*Larus argentatus*)*, breeding
- Kittiwake (*Rissa tridactyla*)*, breeding
- Shag (Phalacrocorax aristotelis)*, breeding
- Seabird assemblage, breeding

Moray Firth SAC

- Subtidal sandbanks
- Bottlenose dolphin (*Tursiops truncatus)*

Firth of Tay and Eden Estuary SAC

- Estuaries
- Intertidal mudflats and sandflats
- Subtidal sandbanks
- Harbour seal (Phoca vitulina)

Berwickshire and North Northumberland Coast SAC

- Intertidal mudflats and sandflats
- Reefs
- Sea caves
- Shallow inlets and bays
- Grey seal (Halichoerus grypus)

Isle of May SAC

- Reefs
- Grey seal (Halichoerus grypus)

Outer Firth of Forth and St Andrews Bay Complex pSPA

- Red-throated diver (*Gavia stellata)*, non-breeding
- Little gull (*Hydrocoloeus minutus),* non-breeding
- Common tern (*Sterna hirundo)*, breeding
- Gannet (*Morus bassanus)*, breeding
- Arctic tern (Sterna paradisaea), breeding
- Guillemot (*Uria aalge)*, breeding and non-breeding
- Slavonian grebe (*Podiceps auritus),* non-breeding
- Eider (*Somateria mollissima)*, non-breeding
- Long-tailed duck (*Clangula hyemalis)*, non-breeding
- Common scoter (*Melanitta nigra)*, non-breeding
- Velvet scoter (*Melanitta fusca),* non-breeding
- Goldeneye (*Bucephala clangula),* non-breeding
- Red-breasted merganser (*Mergus serrator)*, non-breeding
- Manx shearwater (*Puffinus puffinus)*, breeding
- Razorbill (*Alca torda)*, non-breeding
- Puffin (Fratercula arctica), breeding
- Black-headed gull (*Chroicocephalus ridibundus)*, non-breeding

- Common gull (*Larus canus),* non-breeding
- Herring gull (*Larus argentatus),* breeding and non-breeding
- Kittiwake (*Rissa tridactyla),* breeding and non-breeding
- Shag (*Phalacrocorax aristotelis),* breeding and non-breeding
- Waterfowl assemblage, non-breeding
- Seabird assemblage, breeding and non-breeding

Table 6 Conservation objectives

SPA:

Forth Islands SPA, Fowlsheugh SPA, St Abb's Head to Fast Castle SPA and Buchan Ness to Collieston Coast SPA

To avoid deterioration of the habitats of the qualifying species (listed above) or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained; and

To ensure for the qualifying species that the following are maintained in the long term:

i. Population of the species as a viable component of the site
ii. Distribution of the species within site
iii. Distribution and extent of habitats supporting the species
iv. Structure, function and supporting processes of habitats supporting the species
v. No significant disturbance of the species

SAC:

Conservation Objectives for the following Qualifying Habitats:

SAC	**Qualifying Habitat(s)**
Moray Firth SAC	Subtidal Sandbanks
Firth of Tay and Eden Estuary SAC	Estuaries Intertidal mudflats and sandbanks Subtidal sandbanks
Berwickshire and North Northumberland Coast SAC	Intertidal mudflats and sandflats Reefs Sea caves

	Shallow inlets and bays
Isle of May SAC	Reefs

To avoid deterioration of the qualifying habitats (listed above) thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to achieving the favourable conservation status for each of the qualifying features; and

To ensure for the qualifying habitat that the following are maintained in the long term:

i. Extent of the habitat on site
ii. Distribution of the habitat within site
iii. Structure and function of the habitat
iv. Processes supporting the habitat
v. Distribution of typical species of the habitat
vi. Viability of typical species as components of the habitat
vii. No significant disturbance of typical species of the habitat

Conservation Objectives for the following Qualifying Interests:

SAC	**Qualifying Interest(s)**
Firth of Tay and Eden Estuary SAC	Harbour seal
Berwickshire and North Northumberland Coast SAC	Grey seal
Isle of May SAC	Grey seal

To avoid deterioration of the habitats of the qualifying species (listed above) or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to achieving favourable conservation status for each of the qualifying features; and

To ensure for the qualifying species that the following are maintained in the long term:

i. Population of the species as a viable component of the site
ii. Distribution of the species within site
iii. Distribution and extent of habitats supporting the species
iv. Structure, function and supporting processes of habitats supporting the species

v. No significant disturbance of the species

Conservation Objectives for the following Qualifying Interests:

SAC	Qualifying Interest(s)
Moray Firth SAC	Bottlenose dolphin

To avoid deterioration of the habitats of the qualifying species (listed above) or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to achieving favourable conservation status for each of the qualifying features; and

To ensure for the qualifying species that the following are established then maintained in the long term:

i. Population of the species as a viable component of the site
ii. Distribution of the species within site
iii. Distribution and extent of habitats supporting the species
iv. Structure, function and supporting processes of habitats supporting the species
v. No significant disturbance of the species

pSPA:

Outer Firth of Forth and St Andrews Bay Complex pSPA (Draft Conservation Objectives)

The following conservation objectives are still in draft form and have not yet been finalised.

To avoid deterioration of the habitats of the qualifying species or significant disturbance to the qualifying species, subject to natural change, thus ensuring that the integrity of the site is maintained in the long-term and it continues to make an appropriate contribution to achieving the aims of the Birds Directive for each of the qualifying species.

This contribution will be achieved through delivering the following objectives for each of the site's qualifying features:

a. Avoid significant mortality, injury and disturbance of the qualifying features, so that the distribution of the species and ability to use the site are maintained in the long-term;

b. To maintain the habitats and food resources of the qualifying features in favourable condition.

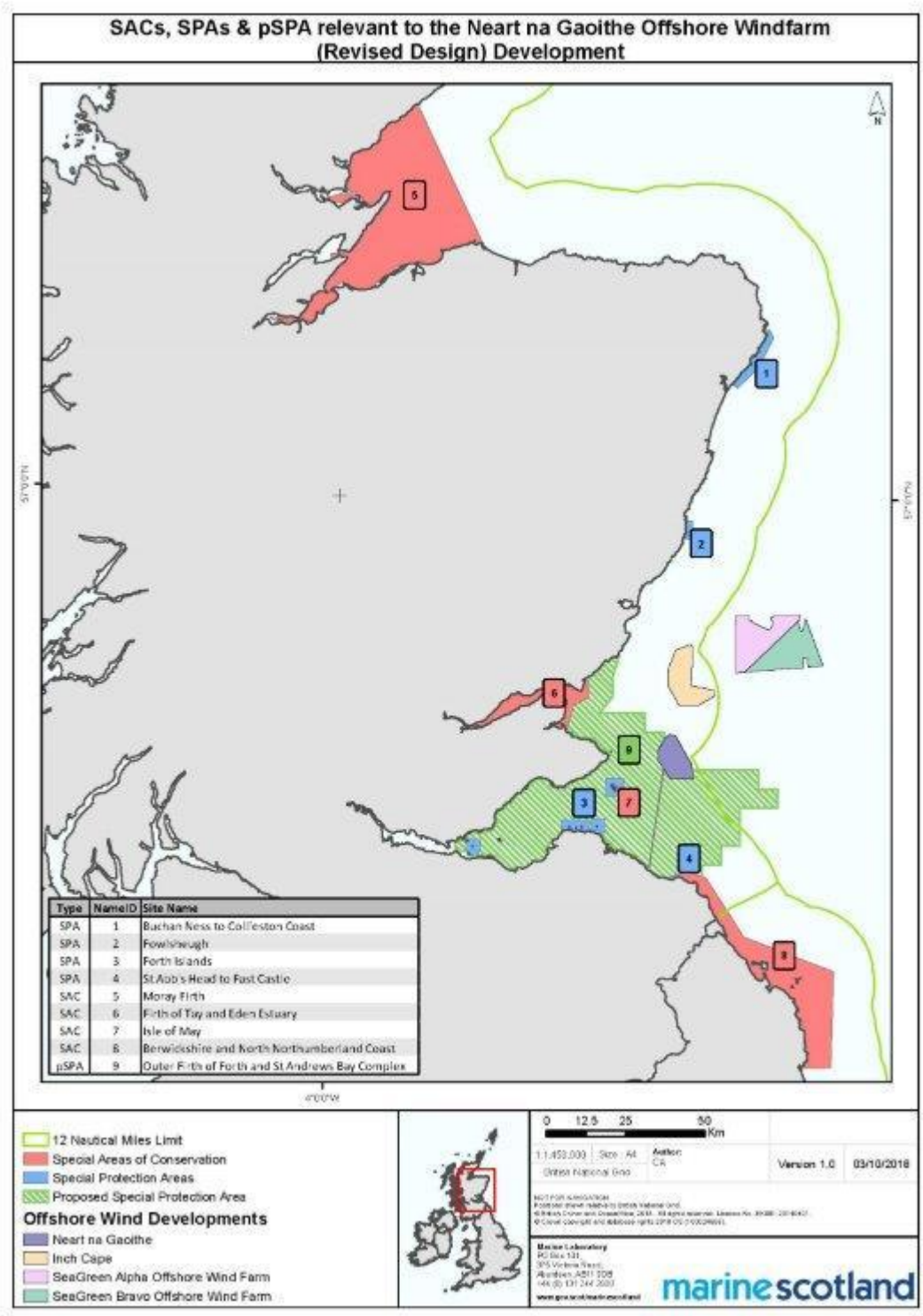

Figure 2 SPAs, pSPA and SACs considered within this AA

SECTION 3: ASSESSMENT IN RELATION TO REGULATION 48 OF THE CONSERVATION (NATURAL HABITATS, &C.) REGULATIONS 1994 (AS AMENDED) AND REGULATION 63 OF THE CONSERVATION OF HABITATS AND SPECIES REGULATIONS 2017

8 Requirement for appropriate assessment

8.1 Is the operation directly connected with or necessary to conservation management of the site?

8.1.1 The operation is not directly connected with or necessary to conservation management of the site.

8.2 Is the operation likely to have a significant effect on the qualifying interests?

8.2.1 The Scoping Opinion identified likely significant effects on the following qualifying interests of the SACs, SPAs and pSPA:-

MARINE MAMMALS

Moray Firth SAC

- Bottlenose dolphin

Firth of Tay and Eden Estuary SAC

- Harbour seal

Berwickshire and North Northumberland Coast SAC & Isle of May SAC

- Grey seal

8.2.2 The HRA Report (section 1.6.) identified that there could be likely significant effects on the qualifying interests of the above SACs during the operational and maintenance phase of the Development arising from;

- mortality or physical injury as a result of noise;
- displacement or disturbance as a result of noise;
- physical impact from vessels; and
- secondary impacts on prey.

8.2.3 In its advice of 11 May 2018, SNH advised that there will be likely significant effects on the qualifying interests listed above arising from disturbance and displacement

during the construction phase of the Development, in particular piling activities associated with the installation of the WTG and OSP foundations.

ORNITHOLOGY

Forth Islands SPA

- Gannet
- Kittiwake
- Herring gull
- Puffin
- Guillemot
- Razorbill

Fowlsheugh SPA

- Kittiwake
- Herring gull
- Guillemot
- Razorbill

St Abb's Head to Fastcastle SPA

- Kittiwake
- Herring gull
- Guillemot
- Razorbill

Buchan Ness to Collieston Coast SPA

- Kittiwake
- Herring gull
- Guillemot

Outer Firth of Forth and St Andrews Bay Complex pSPA

- Gannet
- Kittiwake
- Herring gull
- Puffin
- Guillemot
- Razorbill

8.2.4 SNH also advised that if the turbines overlap with the Outer Firth of Forth and St Andrews Bay Complex pSPA boundary, there would be a likely significant effect on the following qualifying interests of the pSPA:

- Little gull
- Common gull
- Black-headed gull

8.2.5 The Development area does overlap with the pSPA boundary. NnGOWL has stated that approximately 32% of the wind farm area overlaps with the pSPA, however, it has not yet been determined how many WTGs will lie within the pSPA boundary. Once operational, the Development could result in collision and displacement effects on the qualifying seabird interests of the pSPA. The HRA Report calculated that, based on the published current pSPA boundary, the Development footprint overlaps the pSPA by a maximum of 34km, corresponding to approx. 1.3% of the overall pSPA area. The Development may also result in direct habitat loss within the pSPA due to the installation of WTGs and there may be temporary loss arising from cable laying activities.

8.2.6 Within the HRA Report, it has been assumed that, for each species considered, the pSPA population is spread evenly across the pSPA. Further detail regarding this approach is included at page 65 onwards of the HRA Report.

8.2.7 The pSPA was not at the “proposed” stage at the time of the 2014 AA. Whilst most of the construction impacts have been scoped out of the assessment for the designated SPAs, the construction impacts on the pSPA arising from the installation of the WTGs, transmission infrastructure and export cables are considered within this AA. During the construction phase of the Development, there is the potential for likely significant effects on the qualifying interests of the pSPA due to potential impacts on prey availability.

8.2.8 The HRA Report (section 1.6.1) identified that there would be likely significant effects on the qualifying interests of the pSPA and SPAs listed above during the operational and maintenance phase of the proposal arising from:

- mortality as a result of direct collision with turbines during the operational phase of the Development;
- displacement and disturbance resulting in effective habitat loss from an area around turbines and other offshore (e.g. by vessels) activities during the construction, operational and decommissioning phases of the Development;
- barrier effects caused by the physical presence of turbines; and
- direct habitat loss during construction, operation and decommissioning.

8.2.9 In its consultation response, dated 11 May 2018, SNH confirmed that the Development is likely to have a significant effect on a number of qualifying interests of the Forth Islands SPA, Fowlsheugh SPA, St Abb’s Head to Fastcastle SPA, Buchan Ness to Collieston Coast SPA, Firth of Tay and Eden Estuary SAC,

Berwickshire and North Northumberland Coast SAC, Isle of May SAC and Outer Firth of Forth and St Andrews Bay Complex pSPA.

8.2.10 Scottish Ministers agree with the advice provided by SNH and have undertaken an AA for the qualifying interests and sites listed above.

9 Appropriate assessment of the implications for the site in view of the site's conservation objectives.

9.1.1 The following assessment is based upon the information contained in the HRA Report and the advice received from SNH and MSS. Consideration has also been given to other consultation responses detailed above. Consideration of the effect on site integrity for each European site or European offshore marine site and qualifying interest(s) follows below.

9.1.2 For each of the qualifying interests the worst case scenario ("WCS") has been considered and details of the WCS has been provided in the HRA Report. For the ornithology in-combination assessment, the WCS is considered to be the Development in-combination with the 2014 consents granted for Inch Cape, Seagreen Alpha and Seagreen Bravo. Other smaller scale projects included in the in-combination assessment are as described at Appendix 1 of this AA.

10 Marine Mammal SACs - Moray Firth SAC, Berwickshire and North Northumberland Coast SAC, Isle of May SAC and Firth of Tay and Eden Estuary SAC

10.1.1 The HRA Report provides a full explanation of the assessment methods starting from page 105. The marine mammal assessments firstly undertake noise propagation modelling based on the WCSs for pile driving. Secondly, the number of individual animals from different populations of species that are affected by the noise is estimated. The predicted estimate of individuals that experience a permanent threshold shift ("PTS") in their audible hearing range provides a proxy for injury, and the estimated number at risk of disturbance is also calculated. Lastly the population level consequences of these effects were estimated using the iPCoD framework. The assessment results are provided for NnGOWL alone and in-combination with the Forth and Tay Developments, Beatrice Offshore Wind Farm, Moray East Offshore Wind Farm, Moray West Offshore Wind Farm and other relevant construction projects as detailed in paragraph 616 of the HRA Report and Appendix 1. The Aberdeen Harbour Expansion Project ("AHEP"), for which use of explosive blasting was assessed, is also included.

10.1.2 The assessment methods used for marine mammals (as advised in the Scoping Opinion) differ from those that informed the 2014 AA in a number of ways. For example, there are differences in the model used for noise propagation by

NnGOWL and the one used to inform the 2014 AA. The thresholds for onset of PTS and disturbance use the National Oceanic and Atmospheric Administration ("NOAA") (2016)[2] thresholds whereas the Southall *et al* (2007)[3] thresholds, which are also presented as part of the HRA Report, were exclusively relied upon previously. The previous assessment estimated the population consequences using a different population model to the one used in the iPCoD framework. There are also differences in the WCS piling strategies (e.g. number of piling events, hammer energies, timing and duration of piling).

10.1.3 Advice provided by SNH and MSS highlights a number of issues that provide relevant context for this AA. The modelling presented by NnGOWL is precautionary. The results are sensitive to assumptions relating to WCS, particularly with respect to information presented on the other developments detailed in 10.1.1 above considered in-combination. For example, SNH note that all piling is assumed to be drive only using maximum hammer energy when in practice only 10% of the piles are predicted to be drive only, and maximum hammer energy will only be used occasionally. Care is advised with respect to interpretation of the iPCoD results provided in the HRA Report, owing to bugs in the code of the version used to inform their appraisal. In addition NnGOWL used particularly precautionary assumptions regarding piling schedules. For the project alone piling was assumed to take place over 15 months for a single piling event or 9 months for concurrent piling events. For the in-combination assessment, the assumption was made that there would be continuous piling between 2019 and 2028. Realistically, piling durations will be much shorter, for example table 4.3 in the EIA Report records that each foundation would take 6-21 hours to install using pile driving or 62-180 hours using pile drilling.

10.1.4 SNH also provides advice that compares the impacts of the Development on its own with the Original Consent. Based on the use of both Southall *et al* (2007) and NOAA (2016) thresholds, the impacts of the Development on cetaceans are lower than the Original Consent for the species considered in this assessment (bottlenose dolphins, grey seals and harbour seals).

11 BOTTLENOSE DOLPHIN - Moray Firth SAC

[2] NOAA (2016) Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing: Underwater Acoustic Thresholds for Onset of Permanent and Temporary Threshold Shifts. (U.S. Dept. of Commer., NOAA. NOAA Technical Memorandum NMFS-OPR-55, 178 p. National Marine Fisheries Service).

[3] Southall, B., Bowles, A., Ellison, W., Finneran, J., Gentry, Ro., Greene Jr., C., Kastak, D., Ketten, D., Miller, J., Nachtigall, P., Richardson, W., Thomas, J. and Tyack, P. (2007). Marine Mammal Noise Exposure Criteria: Initial Scientific recommendations. (Aquatic Mammals. 33(4): 411-521).

11.1.1 The HRA Report references the bottlenose dolphin population as being estimated to be 195 individuals (95% 162 – 253). The potential for the un-impacted population size to grow and for the current favourable status of the SAC population are noted. The HRA Report estimates the number of animals at risk of onset of PTS and disturbance. For the Development in isolation, <1 animal is estimated to be at risk of PTS, and 2 animals to be at risk of disturbance. NnGOWL presents information on the population consequences based on the outputs of the iPCoD framework. NnGOWL predicts that the Development in isolation will not have a population level effect. The in-combination assessment with the projects detailed in 10.1.1 above estimates a total of <8 animals at risk of PTS and no more than 19 at risk of disturbance at any one time over a period of 11 years. The median of the ratio of impacted to un-impacted population size for the in-combination assessment is presented as 0.53 after 24 years, n.b. ratio values are referred to in the HRA Report as the counterfactuals.

11.1.2 On 11 May 2018, SNH advised that the predictions for both PTS and disturbance are at low levels. The SNH opinion of no adverse effect on site integrity takes account of the precautionary nature of the assessment and the requirement for conditions that will ensure mitigation of the potential effects of PTS and disturbance during the construction period.

11.1.3 To provide further reassurance regarding its conclusions, SNH re-ran the iPCoD framework based on a realistic WCS for the cumulative impact, providing advice to Scottish Ministers on 26 September 2018. Its results, using the median ratio of the impacted to un-impacted population size, concluded that the in-combination assessment after 24 years was 0.94. This indicates that the WCS impacts would be substantially less than those assessed by NnGOWL.

11.1.4 In reaching their conclusion Scottish Ministers have considered the conservation objectives, the population at the site, the predicted levels of effect and population consequences, the fact that the effects are less than in 2014, the precaution in the assessment methods and the advice from SNH. Scottish Ministers conclude that subject to the appliance of conditions, the Development will not adversely affect the site integrity of the Moray Firth SAC with respect to bottlenose dolphin, either alone or in-combination with the other Forth and Tay Developments, Beatrice Offshore Wind Farm, Moray East Offshore Wind Farm, Moray West Offshore Wind Farm, AHEP and the other projects detailed in Appendix 1.

12 GREY SEAL - Berwickshire and North Northumberland Coast SAC and Isle of May SAC

12.1.1 The HRA Report estimates the number of animals from the East Coast Scotland seal management unit area (“ECMA”) at risk of onset of PTS and disturbance. The HRA Report references the latest population estimate for grey seals in this area

as 9,607 (95% CI 8,028 – 11,958). For the purposes of this assessment the population of the ECMA is taken to be the population of both SACs. The growth and favourable status of this population is noted. For the Development in isolation, 1 animal is estimated to be at risk of PTS. The number estimated to be at risk of disturbance from the Development in isolation, varies depending on whether a single pile driving event or concurrent pile driving events are assumed. For a single event the estimate is 821 and for concurrent events the estimate is 1,357. NnGOWL presents information on the population consequences based on the outputs of the iPCoD framework. The median of the ratio of impacted to un-impacted population size for the project in isolation is presented as 0.95 for the WCS of single pile driving events. The in-combination assessment estimates a total of 5 animals at risk of PTS and no more than 1,103 at risk of disturbance at any one time. The median of the ratio of impacted to un-impacted population size for the in-combination assessment is presented as 0.71.

12.1.2 On 11 May 2018, SNH advised that grey seals are predicted to experience PTS and disturbance as a result of the Development, but the effects are less than those predicted for the Original Consent. SNH advised that the population of grey seals along the east coast is increasing and is relatively robust. Grey seals are protected at the Isle of May during the breeding season and during this time, the seals are more likely to be hauled out and, therefore, less exposed to potential impacts. Outwith the breeding season, the seals are more wide-ranging and are able to avoid exposure to impacts.

12.1.3 SNH advised that there will be no adverse effect on site integrity of the Berwickshire and North Northumberland Coast SAC and Isle of May SAC, with respect to grey seals, subject to the implementation of conditions. Its opinion takes account of precautionary nature of the assessment and the requirement for conditions that will provide further mitigation of the potential effects of PTS and disturbance during the construction period.

12.1.4 To provide further reassurance regarding its conclusions, SNH re-ran the iPCoD framework based on a realistic WCS for the cumulative impact, providing advice to Scottish Ministers on 26 September 2018. Its results, using the median ratio of the impacted to un-impacted population size, concluded that the in-combination assessment, with the Forth and Tay Developments, after 24 years was 0.999. This indicates that the WCS impacts would be substantially less than those assessed by NnGOWL.

12.1.5 In reaching their conclusion Scottish Ministers have considered the conservation objectives, the population at the site, the predicted levels of effect and population consequences, the fact that the effects are less than in 2014, the precaution in the assessment methods and the advice from SNH. Scottish Ministers conclude that, subject to the appliance of conditions, the Development will not adversely affect

the site integrity of the Berwickshire and North Northumberland Coast SAC and Isle of May SAC with respect to grey seal, either alone or in-combination with the other Forth and Tay Developments, and the other projects detailed in Appendix 1.

13 HARBOUR SEAL - Firth of Tay and Eden Estuary SAC

13.1.1 The HRA Report estimates the number of animals from the ECMA at risk of onset of PTS and disturbance. The current ECMA population estimate is 311 (95% CI 254 – 415). The population has rapidly declined over a number of years and is considered to be in an unfavourable condition, with no animals forecast to remain even under un-impacted conditions by 2030. For the purposes of this assessment the population of the ECMA is used. For the Development in isolation, 1 animal is estimated to be at risk or PTS. The number estimated to be at risk of disturbance from the Development in isolation, varies depending on whether a single pile driving event or concurrent pile driving events is assumed. For a single event the estimate is 8 and for concurrent events the estimate is 10. The in-combination assessment estimates a maximum total 8 animals at risk of PTS and no more than 11 at risk of disturbance at any one time. NnGOWL presents information on the population consequences based on the outputs of the iPCoD framework. The median of the ratio of impacted to un-impacted population size for the in-combination assessment is presented as 1, the reason for this being that the baseline population is estimated at 0 making it impossible for the impacted population to be less. This is the case for both the Development in isolation and in-combination.

13.1.2 SNH advised that harbour seals are predicted to experience very low PTS and disturbance and the impacts are less than those predicted for the Original Consent.

13.1.3 SNH advised that there will be no adverse effect on site integrity to harbour seals as a qualifying feature of the Firth of Tay and Eden Estuary SAC, subject to the implementation of conditions.

13.1.4 In reaching their conclusion Scottish Ministers have considered the conservation objectives, the population at the site, the predicted levels of effect and population consequences, the fact that the effects are less than in 2014, the precaution in the assessment methods and the advice from SNH. Scottish Ministers conclude that, subject to the appliance of conditions, the Development will not adversely affect the site integrity of the Firth of Tay and Eden Estuary SAC with respect to harbour seal, either alone or in-combination with the other Forth and Tay Developments, and the projects detailed in Appendix 1.

14 Seabird SPAs – Forth Islands SPA, Fowlsheugh SPA, Buchan Ness to Collieston Coast SPA, St Abb's Head to Fast Castle SPA and Outer Firth of Forth and St Andrews Bay Complex pSPA

14.1.1 The Scoping Opinion directed that the primary focus of the HRA Report should be the conservation objectives relating to the maintenance of the relevant qualifying species as a viable component of the sites. As also directed, further justification was provided in the HRA Report regarding why other conservation objectives were less relevant. Consideration was also given to pSPA conservation objective (b), relating to deterioration of habitat, in relation to construction impacts.

14.1.2 The HRA Report provides a full explanation of the assessment methods starting from page 25. The ornithology assessments firstly estimated the predicted levels of effect (collision and/or displacement, depending on the species). Secondly, the numbers of individuals that are affected for each species assigned to age classes (e.g. breeding and non-breeding juveniles). These individuals are then apportioned to SPA breeding colonies. Lastly, where advised through the Scoping Opinion, the population level consequences of these effects were estimated using population viability analysis ("PVA"). PVA was undertaken assuming both a 25 year and 50 year operational life. The assessment results are provided for the Development in isolation and in-combination with the Forth and Tay Developments and other offshore wind farm projects and proposals identified in paragraph 148 of the HRA Report and detailed in Appendices 1 and 2. Further detail on the projects considered in-combination by Scottish Ministers is provided at Appendices 1 and 2 of this assessment.

14.2 Differences with the 2014 Assessment

14.2.1 The assessment methods used for ornithology differ from those that informed the 2014 AA in a number of ways. For example, option 2 of the Band 2012 collision risk model was used in the current assessment for kittiwake and gannet compared with option 3 in 2014. Different avoidance rates have been used in the collision risk assessment based on agreement on more appropriate avoidance rates.

14.2.2 With regards to displacement and barrier effects in 2014, the Centre for Ecology and Hydrology ("CEH") Searle *et al* 2014[4] model was used. This model simulates the movements of individual birds from breeding colonies. The model estimates changes to adult survival and productivity based on estimated changes in adult body mass and provisioning rates of chicks. Data from tagged individuals is used in the model. In this AA, the use of the matrix approach for displacement estimates the percentage of birds displaced from the Development area and from that the percentage of those displaced adults that do not survive. This more simplistic

[4] Searle, K., Mobbs, D., Butler, A., Bogdanova, M., Freeman, S., Wanless, S. & Daunt, F. (2014) Population consequences of displacement from proposed offshore wind energy developments for seabirds breeding at Scottish SPAs (CR/2012/03). (Final Report to Marine Scotland Science).

approach was advised in the Scoping Opinion and is informed by data on seabird densities collected at the development sites.

14.2.3 The population consequences of the effects have been assessed using a different approach to population modelling in these assessments. The 2014 AA was informed by Bayesian state-space models produced by CEH. This AA is informed by stochastic leslie-matrix PVAs.

14.2.4 A table detailing the differences between the methods used in the 2014 AA and this AA is included at Appendix 3 to this AA.

14.3 In-combination assessment – approach

14.3.1 The Scoping Opinion required that two different in-combination assessments with the Forth and Tay Developments were undertaken. These were as follows;

Table 7 In-combination assessment scenarios

Scenario 1
Quantitatively for the Development in isolation and in-combination with the WCS (for each species) from: • Inch Cape (2014, as consented) or Inch Cape (2017 scoping report); • Seagreen Alpha and Bravo (2014, as consented) or Seagreen (2017 scoping report); and • Qualitative assessment of the breeding season effects from other wind farms.
Scenario 2
Quantitatively for the Development in isolation and in-combination with: • Inch Cape (2017 scoping report); • Seagreen (2017 scoping report); and • Qualitative assessment of the breeding season effects from other wind farms.

14.3.2 The HRA Report concluded that the outputs from the in-combination assessment for the 2014 as-consented Inch Cape and Seagreen Alpha and Bravo wind farms represented the worst-case scenario. The in-combination impacts with the Hywind, Kincardine and Forthwind offshore wind farms were considered by NnGOWL during the breeding season. Details of the other projects considered qualitatively in this AA are included in Appendix 1. During the non-breeding season impacts with an additional 25 North Sea wind farm developments were also considered for gannet and kittiwake (these are listed in full at Appendix 2).

14.3.3 A summary of the design envelope parameters for the 2014 consents and the 2018 applications for Inch Cape, Seagreen Alpha and Seagreen Bravo is included at paragraphs 26.3 and 26.2 of Appendix 1.

Table 8 Summary of in-combination scenarios presented in the HRA Report

Impact	**Worst Case Design Scenario**	**Justification**
In-combination collision impacts	Breeding Season: The Development and other Forth and Tay Developments (both scenarios) and Hywind, Kincardine and Forthwind. Non-Breeding Season: Forth and Tay Developments, more distant UK North Sea wind farm projects included for kittiwake and UK North Sea and English Channel for gannet.	Species from breeding SPA colonies are within the mean max. foraging range of the Forth and Tay Developments but not more distant projects. This approach was recommended in the Scoping Opinion.
In-combination impacts arising from displacement	Breeding Season: The Development and other Forth and Tay Developments. Non-Breeding Season: For guillemot and razorbill displacement effects The Forth and Tay Developments were included.	Displacement and mortality rates as per Scoping Opinion guidance. This approach was recommended in the Scoping Opinion.

15 GANNET – Forth Islands SPA and Firth of Forth and St Andrews Bay Complex pSPA

15.1 Forth Islands SPA – Gannet – Development in Isolation

15.1.1 The Forth Islands SPA has the largest colony of gannet in the UK. The SPA is reported to be increasing in size with the last census (2014) estimating the population being 75,259 pairs (compared with a population of 21,600 pairs at the time of designation). The gannet qualifying feature of the SPA is considered to be in a favourable condition (SNH, 2017b).[5] During the breeding season birds from the colony range widely across the North Sea, at times travelling as far as the Norwegian coast (Hamer et al. 2007).[6] Regular feeding movements occur to the north-east of the colony with concentrations of feeding locations off north-east Scotland (Hamer et al. 2011).[7] Outwith the breeding season, gannets disperse widely across the North Sea and move southward with birds wintering in the Bay of Biscay and off West Africa.

15.1.2 In its HRA Report, NnGOWL presented collision risk modelling using the methodologies outlined in the Scoping Opinion (and detailed in Appendix 3). This assessment considered the WCS design envelope of 54 turbines.

15.1.3 Based on this, a total of 93 gannets (91 adults and two immature birds) were estimated to be impacted during the breeding season and 15 gannets (14 adults and one immature bird) were estimated for the non-breeding season (October to mid-March), giving a total of 108 collisions per year for all ages for the Development in isolation as detailed in the HRA Report.

15.1.4 PVA was undertaken by NnGOWL over a period of 25 and 50 years for the Forth Islands SPA gannet population. Assuming all gannet collisions from the Development are apportioned to the Forth Islands SPA population, after 25 years, the median of the ratio of impacted to un-impacted population size for the Development in isolation is 0.99 (n.b. ratio values are referred to in the HRA Report as the counterfactuals). After 50 years, the ratio value is 0.97.

15.1.5 The HRA Report concluded that the loss of up to 108 additional gannets across the year will not adversely affect the integrity of the Forth Islands SPA, in light of the qualifying interest, its condition and vulnerabilities and the conservation objectives. The 2014 AA estimated the number of individuals experiencing mortality from the Original Consent in isolation to be 233, more than double the estimate in this AA.

[5] SNH (2017b). Sitelinks. Scottish Natural Heritage https://gateway.snh.gov.uk/sitelink/index.js

[6] Hamer K.C., Humphreys E.M., Garthe S., Hennicke J., Peters G., Grémillet D., Phillips R.A., Harris M.P. & Wanless S. (2007) Annual variation in diets, feeding locations and foraging behaviour of Gannets in the North Sea: flexibility, consistency and constraint. (Marine Ecology Progress Series, 338, 295-305)

[7] Hamer, K.C., Holt, N. & Wakefield, E. (2011). The distribution and behaviour of northern gannets in the Firth of Forth and Tay area. A review on behalf of the Forth and Tay Offshore Wind Developers Group. Institute of Integrative & Comparative Biology, University of Leeds

15.1.6 SNH advised the Development on its own would not result in an adverse effect on site integrity to the Forth Islands SPA with respect to gannet.

15.2 Forth Islands SPA – Gannet - Development In–combination

15.2.1 This AA is based upon the WCS which means that the Development is assessed in-combination with the 2014 consents for Inch Cape and Seagreen Alpha and Bravo. The estimated impacts of Inch Cape 2017 and Seagreen Alpha and Bravo 2017 proposals on gannet are substantially less than the values used in this AA.

15.2.2 This AA uses collision estimates that are taken from more than one source to estimate the cumulative totals. When reviewing the HRA Report and EIA Addendum inconsistencies were detected in the way in which NnGOWL had calculated the in-combination effects from the Seagreen project. Seagreen also responded to the consultation on 7 September 2018, highlighting that the figures attributed to the Seagreen Alpha and Bravo wind farms by NnGOWL should not be relied on.

15.2.3 Scottish Ministers have reviewed the predicted effects from the Seagreen Alpha and Bravo offshore wind farms that are presented in the Inch Cape application documents and consider these should be relied upon in this assessment. Therefore for the purposes of the gannet assessment the figures are taken from NnGOWL's EIA Report, HRA Report and EIA Addendum for the effects from the Development and the Inch Cape wind farm, and from the Inch Cape application documents for the Seagreen effects, as MSS advised these sources provide the best available evidence. See Table 9 below.

Table 9 Estimated annual in-combination number of gannet collisions based on Band model option 2 and an avoidance rate of 98.9%

Project	Individuals	Source
NnG (2017)	108	NnGOWL EIA ornithology, chapter 9 Tables 9.53, 9.55 & 9.57
Inch Cape (2014)	436	NnGOWL EIA Addendum, Table 9.140 & Table 9.142
Seagreen Alpha (2014)	302	Inch Cape 2018 EIA Report, Appendix 11C Table 11C.10

Seagreen Bravo (2014)	202	Inch Cape 2018 EIA Report, Appendix 11C Table 11C.10
Additional non-breeding season	139	Inch Cape EIA Report, Appendix 11B, Table 11B.4
Total	1,187	

15.2.4 The HRA Report was overly-precautionary in apportioning the effects on gannet to the SPA in that all effects during the breeding and non-breeding season were apportioned to the SPA. This overestimates the effects on the SPA population, particularly during the non-breeding season when birds from other colonies are likely to be present in the Development area. Consequently this AA is based on apportioning carried out by SNH and provided in advice to Scottish Ministers on 26 September 2018. The apportioned numbers are provided in Table 10 below.

Table 10 Estimated annual in-combination effects apportioned to Forth Islands SPA

Project	**Individuals**
NnG (2017)	100
Inch Cape (2014)	406
Seagreen Alpha (2014)	282
Seagreen Bravo (2014)	180
Additional non-breeding season	59
Total	1,027

15.2.5 The cumulative total number of individuals experiencing annual mortality is assessed to be 1,027 which is less than the cumulative total of 1,169 estimated in the 2014 AA.

15.2.6 PVA was undertaken by NnGOWL for gannets breeding in the Forth Islands SPA over 25 year and 50 year periods for a number of scenarios, none of which equate exactly to the assessed cumulative total of 1,027 individuals per year due to inconsistencies in the estimated in-combination effects. However these effects sit between 2 scenarios for which NnGOWL do present PVA outputs, one of which is for a larger effect scenario of 1,302 individuals and another smaller effect scenario of 668 individuals. After 25 years the median of the ratio of impacted to un-impacted population size for the in-combination assessment is 0.85 for the larger

scenario and 0.92 for the lower scenario. After 50 years the ratio values are 0.73 and 0.85. The ratio value for the assessed cumulative total of 1,027 individuals will sit between the larger and smaller PVA scenarios presented by NnGOWL.

15.3 Firth of Forth and St Andrews Bay Complex pSPA – Gannet – Development in Isolation and In-combination

15.3.1 The HRA Report considered that because the Forth Islands SPA borders the pSPA, for the purposes of the assessment the pSPA population during the breeding season was that assumed for the Forth Islands SPA i.e. 75,259 pairs.

15.3.2 The HRA Report states that as details of the number of turbines likely to be placed within the part of the Development area that overlaps with the pSPA were not yet available, the proportion of the Development within the pSPA was applied to results from Collision Risk Modelling ("CRM"), to allow the appropriate number of gannet collisions to be estimated. Approximately 32% of the Development area overlaps with the pSPA.

15.3.3 For the worst-case design scenario (54 turbines), a total of 93 gannet collisions (91 adults and two immature birds) were estimated for the Development during the breeding season. Assuming that the number of gannets estimated to be in the Development area during baseline surveys were evenly distributed, then 32% of all breeding season collisions would occur in the overlapping pSPA area: an estimated total of 30 collisions.

15.3.4 As there is no overlap between the Inch Cape or Seagreen Alpha and Bravo offshore wind farms and the pSPA there is no requirement to consider the in-combination collision effects from these wind farms. Effects on prey availability and habitat loss in relation to the pSPA are considered in paragraphs 22.3.1-22.3.3.

15.3.5 SNH advised that there would be no adverse effect on the site integrity of the Firth of Forth and St Andrews Bay Complex pSPA in respect of gannet as a result of the Development in isolation or in-combination with the other wind farm proposals detailed in Appendices 1 and 2.

15.4 Gannet – Precaution in the Assessment

15.4.1 There are a number of precautionary assumptions made in this AA which mean that the estimated cumulative collision total and their population consequences are highly likely to be over-estimates.

15.4.2 For example, the seabird collision avoidance study undertaken at Thanet offshore wind farm lends support to the view that the avoidance rates used in this assessment are likely to be highly precautionary (Skov *et al*, 2018).[8]

15.4.3 The research at Thanet has also provided valuable information on bird flight speeds. The Scoping Opinion advised that flight speed data for use in CRM be taken from published data (Pennycuick 1997;[9] Alerstam et al. 2007).[10] These flight speeds are based on very small sample sizes (32 gannet). The laser rangefinder track data collected at Thanet recorded by Skov et al. (2018) offers species-specific empirical data on flight speeds from large numbers of individuals (683 gannet). This information was not available at the time of NnGOWL's Application, however the Seagreen EIA report estimates that using the flight speeds recorded at Thanet would reduce gannet collisions by 6%. MSS have advised that the reduction in estimated number of collisions indicated by Seagreen is correct.

15.4.4 The WCS assessment completed by NnGOWL for the 50 year operational life of the Development in-combination with the Forth and Tay Developments ("50 Year Assessment") assumes a 50 year operational life, within the PVA, for the Inch Cape and Seagreen Alpha and Bravo wind farms, whereas the 2014 consents for these projects are only for 25 years. Therefore the in-combination 50 Year Assessment over-estimates the effects.

15.4.5 Lastly, basing this assessment on the WCS for Inch Cape and Seagreen (i.e. their 2014 consents) is very precautionary because they are highly unlikely to be constructed. If their current proposals were used in this assessment it would substantially reduce the effects associated with those projects.

15.5 Gannet - Conclusion

15.5.1 Based on the information presented in NnGOWL's EIA Report, HRA Report and EIA Addendum (which estimated effects which are higher than those in this AA), SNH advised on 7 September 2018 that the Development will have an adverse effect on site integrity for gannet as a qualifying interest of the Forth Islands SPA in-combination with the existing 2014 consents for Inch Cape, Seagreen Alpha and Seagreen Bravo.

[8] Skov, H., Heinanen, S., Norman, T., Ward, R.M., Mendez-Roldan, S. & Ellis, I. 2018. ORJIP Bird Collision and Avoidance Study. Final report – April 2018. The Carbon Trust. United Kingdom

[9] Pennycuick, C.J., 1997. Actual and 'Optimum' Flight Speeds: Field Data Research. The Journal of Experimental Biology, 200, pp. 2355-2361.

[10] Alerstam, T., Rosén, M., Bäckman, J., Ericson, P.G. & Jellgren, O. (2007). Flight speeds among bird species: allometric and phylogenetic effects. PLoS Biology, 5(8), e197

15.5.2 As the information used in this AA comes from various sources, Scottish Ministers consulted SNH on the figures used to inform this gannet assessment. SNH responded on 5 and 8 October 2018 to advise that its previous advice in relation to gannet still stood.

15.5.3 In reaching their conclusion Scottish Ministers have considered the conservation objectives, the populations at the sites, the predicted levels of effect and population consequences, the fact that the effects are less than in 2014, the precaution in the assessment methods and the advice from SNH. Scottish Ministers conclude that, subject to the appliance of conditions, there will be no adverse effect on the site integrity of Forth Islands SPA in respect of the gannet qualifying interest as a result of the Development in isolation or in-combination with the other Forth and Tay Developments or projects detailed in Appendices 1 and 2.

16 KITTIWAKE – Forth Islands SPA, Fowlsheugh SPA, St Abb's to Fast Castle SPA and Buchan Ness to Collieston Coast SPA and Firth of Forth and St Andrews Bay Complex pSPA

16.1.1 Scottish kittiwake populations have experienced significant declines over the last 30 years and this decline was highlighted in advice received from both SNH and RSPB. The reasons for the decline are uncertain, although factors such as climate change and changes to prey distribution are very likely to be key drivers. The results of the modelling for collision and displacement impacts were presented in the HRA Report, as per the Scoping Opinion.

16.1.2 In its HRA Report, NnGOWL presented collision risk modelling using the methodologies outlined in the Scoping Opinion. This assessment considered the maximum design envelope of 54 turbines. Displacement effects were also assessed, using the matrix approach.

16.1.3 For the same reasons as have been described above for gannet, this AA uses collision risk and displacement estimates that are taken from more than one source to estimate the cumulative totals. When reviewing the HRA Report and EIA Addendum, inconsistencies were detected in the way in which NnGOWL had calculated the in-combination effects for kittiwake from the Seagreen projects. Seagreen also responded to the consultation on 7 September 2018, highlighting that the figures attributed to the Seagreen Alpha and Bravo wind farms by NnGOWL should not be relied on.

16.1.4 Scottish Ministers have reviewed the predicted effects from the Seagreen Alpha and Bravo offshore wind farms that are presented in the Inch Cape application documents and consider these should be relied upon in this assessment. Therefore for the purposes of the kittiwake assessment, the figures are taken from NnGOWL's EIA Report, HRA Report and EIA Addendum for the effects from the

Development and the Inch Cape wind farm, and from the Inch Cape application documents for the Seagreen effects, as MSS advised these sources provide the best available evidence. See Table 11 below.

Table 11 Estimated annual in-combination effects on kittiwake from collisions and displacement based on Band model option 2 and an avoidance rate of 89.9% & the matrix approach

Project	Individuals	Source
NnG (2017)	54	NnGOWL EIA Report, ornithology chapter 9, Tables 9.14,9.17,9.20,9.60,9.61 & 9.62
Inch Cape (2014)	538	NnGOWL EIA Addendum, Tables 9.146 & 9.148
Seagreen Alpha (2014)	250	Inch Cape 2018 EIA Report, Appendix 11C, Table 11C.10
Seagreen Bravo (2014)	220	Inch Cape 2018 EIA Report, Appendix 11C, Table 11C.10
Additional non-breeding season	1,077	Inch Cape 2018 EIA Report, Appendix 11B, Table 11B.6
Total	2,139	

16.1.5 The HRA Report was overly-precautionary in apportioning the effects on kittiwake to the SPA colonies in that all effects during the non-breeding season were apportioned to the SPAs. This overestimates the effects on the SPA populations. Consequently this AA is based on apportioning carried out by SNH and provided in advice to Scottish Ministers on 26 September 2018. The apportioned numbers are provided in Table 9 below.

16.2 **Forth Islands – Kittiwake – Development in Isolation**

16.2.1 The kittiwake population at the Forth Islands SPA is in an unfavourable and declining condition (SNH, 2017b)[11] having declined from 9,380 pairs at the time of SPA review undertaken in 2001 to 4,333 pairs in 2015.

16.2.2 Using apportioning advised by SNH, a mortality of 15 individuals (13.08 adults and 1.31 immatures) is estimated for the Forth Islands SPA population as a result of collision and displacement from the Development.

16.2.3 PVA was undertaken by NnGOWL for kittiwake breeding at the Forth Islands SPA over 25 year and 50 year periods for a number of scenarios, none of which match exactly the assessed figure of 15 individuals per year. The closest modelled scenario was 9 individuals. For this level of effect after 25 years the median of the ratio of impacted to un-impacted population size for the Development in isolation is 0.99, and after 50 years the value is 0.97. The assessed effect of 15 mortalities will be close to these figures.

16.2.4 SNH advised that there would be no adverse effect on the site integrity of the Forth Islands SPA in respect of kittiwake as a result of the Development in isolation.

16.3 Forth Islands – Kittiwake – Development In-combination

16.3.1 As detailed in paragraphs 15.2.2-15.2.3 and Table 11 this AA uses collision estimates that are taken from more than one source to estimate the cumulative totals.

16.3.2 This AA is based upon the WCS which means that the Development is assessed in-combination with the 2014 consents for Inch Cape and Seagreen Alpha and Bravo. The estimated effects of the Inch Cape 2017 and Seagreen 2017 proposals are substantially less than the values used in this AA.

Table 12 Estimated annual in-combination number of kittiwake collisions and displacement apportioned to Forth Islands SPA based on Band model option 2 and an avoidance rate of 89.9% & the matrix approach

Project	Individuals
NnG (2017)	15
Inch Cape (2014)	59
Seagreen Alpha & Bravo (2014)	19
Additional non-breeding season	9
Total	102

[11] SNH (2017b). Sitelinks. Scottish Natural Heritage. https://gateway.snh.gov.uk/sitelink/index.jsp

16.3.3 The cumulative total number of individuals experiencing annual mortality is assessed to be 102 which is less than the cumulative total of 135 estimated in the 2014 AA. The 135 estimate from the 2014 AA was based upon the assessment of adults only. The adults only estimate for this assessment is 92.

16.3.4 PVA was undertaken by NnGOWL for kittiwake breeding at the Forth Islands SPA over 25 year and 50 year periods for a number of scenarios, none of which match exactly the assessed cumulative total of 102 individuals per year. However these effects sit between 2 scenarios for which NnGOWL do present PVA outputs, one of which is for a larger scenario of 120 individuals and another smaller scenario of 91 individuals. After 25 years the median of the ratio of impacted to un-impacted population size for the in-combination assessment is 0.82 for the larger scenario and 0.85 for the lower scenario. After 50 years the ratio values are 0.67 and 0.73. The ratio value for the assessed cumulative total of 102 individuals will sit between the larger and smaller PVA scenarios presented by NnGOWL.

16.4 Fowlsheugh SPA – Kittiwake – Development in Isolation

16.4.1 The kittiwake population at the Fowlsheugh SPA is reported as in a favourable and maintained condition (SNH, 2017b).[12] However, the kittiwake population has declined from 36,350 pairs at the time of site designation in 1992 to 9,655 pairs in 2015. The HRA Report therefore considered it was unlikely that the SPA is in favourable condition.

16.4.2 Using apportioning advised by SNH a mortality of 2 individuals (1.98 adults and 0.43 immatures) is estimated for the Fowlsheugh SPA population as a result of collision and displacement from the Development.

16.4.3 PVA was undertaken by NnGOWL for kittiwake breeding at the Fowlsheugh SPA over 25 year and 50 year periods for a number of scenarios, none of which match exactly the assessed figure of 2 individuals per year. The closest modelled scenario was 12 individuals. For this level of effect after 25 years the median of the ratio of impacted to un-impacted population size for the Development in isolation is 0.99, and after 50 years the value is 0.98. The assessed effect of 2 mortalities will be less than these figures.

16.4.4 SNH advised that there would be no adverse effect on the site integrity of the Fowlsheugh SPA in respect of kittiwake as a result of the Development in isolation.

16.5 Fowlsheugh SPA – Kittiwake – Development In-combination

[12] SNH (2017b). Sitelinks. Scottish Natural Heritage

16.5.1 The in-combination assessment for Fowlsheugh SPA uses the same sources of information for the estimate of effects as detailed above in paras 15.2.2-15.2.3 and Table 11.

16.5.2 This AA is based upon the WCS which means that the Development is assessed in-combination with the 2014 consents for Inch Cape and Seagreen Alpha and Bravo. The estimated impacts of Inch Cape 2017 and Seagreen 2017 proposals are substantially less than the values used in this assessment.

16.5.3 The HRA Report was overly-precautionary in apportioning the effects on kittiwake to the SPAs in that all effects during the non-breeding season were apportioned to the SPAs. This overestimates the effects on the SPA populations. Consequently this AA is based on apportioning carried out by SNH and provided in advice to Scottish Ministers on 26 September 2018. The apportioned numbers are provided in Table 13 below.

Table 13 Estimated annual in-combination number of kittiwake collisions and displacement apportioned to Fowlsheugh SPA based on Band model option 2 and an avoidance rate of 89.9% & the matrix approach

Project	Individuals
NnG (2017)	2
Inch Cape (2014)	98
Seagreen Alpha & Bravo (2014)	104
Additional non-breeding season	26
Total	230

16.5.4 The cumulative total number of individuals at risk of mortality is assessed to be 230 which is more than the cumulative total of 212 estimated in the 2014 AA and less than the cumulative threshold of 317 identified in the 2014 AA. The 212 estimate from the 2014 AA was based upon the assessment of adults only. The adults only estimate for this assessment is 205 which is less than the 2014 AA total.

16.5.5 PVA was undertaken by NnGOWL for kittiwake breeding in the Fowlsheugh SPA over 25 year and 50 year periods for a number of scenarios, none of which match exactly the assessed cumulative total of 230 individuals per year. However these effects sit between 2 scenarios for which NnGOWL do present PVA outputs, one of which is for a larger scenario of 262 individuals and another smaller scenario of 138 individuals. After 25 years the median of the ratio of impacted to un-impacted population size for the in-combination assessment is 0.84 for the larger scenario and 0.88 for the lower scenario. After 50 years the ratio values are 0.72 and 0.79. The ratio value for the assessed cumulative total of 230 individuals will sit between

the larger and smaller PVA scenarios presented by NnGOWL, and is likely to be closer to the results of the larger scenario (i.e. 0.84 after 25 years and 0.72 after 50 years).

16.6 St Abb's Head to Fast Castle SPA – Kittiwake – Development in Isolation

16.6.1 The kittiwake population at the St Abb's Head to Fast Castle SPA is reported as in an unfavourable and declining condition (SNH, 2017b).[13] The population has declined from 21,170 pairs at the time of site designation in 1992 to 3,334 pairs in 2016.

16.6.2 Considering apportioning advised by SNH a mortality of 2 individuals (2.03 adults and 0.29 immatures) is estimated for the St Abb's Head to Fast Castle SPA population as a result of collision and displacement from the Development.

16.6.3 PVA modelling was not undertaken for this SPA.

16.6.4 SNH advised that there would be no adverse effect on the site integrity of the St Abb's Head to Fast Castle SPA in respect of kittiwake as a result of the Development in isolation.

16.7 St Abb's Head to Fast Castle SPA – Kittiwake – Development In-combination

16.7.1 The HRA Report was overly-precautionary in apportioning the effects on kittiwake to the SPA in that all effects during the non-breeding season were apportioned to the SPA. This overestimates the effects on the SPA population. Consequently this AA is based on apportioning carried out by SNH and provided in advice to Scottish Ministers on 26 September 2018. The apportioned numbers are provided in Table 14 below.

Table 14 Estimated annual in-combination number of kittiwake collisions and displacement apportioned to St Abb's Head to Fast Castle SPA based on Band model option 2 and an avoidance rate of 89.9% & matrix approach

Project	Individuals
NnG (2017)	2
Inch Cape (2014)	12
Seagreen Alpha & Bravo (2014)	8
Additional non-breeding season	9
Total	32 (due to rounding)

[13] SNH (2017b). Sitelinks. Scottish Natural Heritage

16.7.2 The cumulative total number of individuals experiencing annual mortality is assessed to be 32 which is less than the cumulative total of 60 estimated in the 2014 AA. The 60 estimate from the 2014 AA was based upon the assessment of adults only. The adults only estimate for this assessment is 27.

16.8 Buchan Ness to Collieston Coast SPA – Kittiwake – Development in Isolation

16.8.1 The kittiwake population at the Buchan Ness to Collieston Coast SPA is reported as in an unfavourable (SNH, 2017b).[14] The population has declined from 30,452 pairs at the time of site designation in 1998 to 11,482 pairs in 2016.

16.8.2 The HRA Report considered that the Development area lies 125km to the south of this SPA and is beyond the mean maximum foraging range of breeding kittiwakes. There is therefore a very small risk of any adult breeding kittiwakes from the SPA occurring in the Development area during the breeding season.

16.8.3 During the non-breeding season kittiwakes from the SPA will disperse and may occur within the Development area. The HRA Report estimated that a total of 2 kittiwakes from the colony may be impacted each year from a combination of collision and displacement. The loss of 2 kittiwakes per year is 0.008% of the current breeding population.

16.8.4 PVA modelling was not undertaken for this SPA.

16.8.5 SNH advised that there would be no adverse effect on the site integrity of the Buchan Ness to Collieston Coast SPA in respect of kittiwake as a result of the Development in isolation.

16.9 Buchan Ness to Collieston Coast SPA – Kittiwake – Development In-combination

16.9.1 The HRA Report estimated that based on the worst-case in-combination scenario, there will be an estimated 21 adult kittiwakes from the Buchan Ness to Collieston Coast SPA during the breeding season impacted by collisions and 2 from displacement effects. A further 60 birds (adult and immature) may be impacted by collisions during the non-breeding season. Consequently, it is estimated that a total of 83 kittiwakes from the Buchan Ness to Collieston Coast SPA could be impacted each year from in-combination impacts. The Development is beyond the mean maximum foraging range indicating that negligible breeding season effects would occur, and only 2 impacts are estimated arise from the Development during the non-breeding season.

[14] SNH (2017b). Sitelinks. Scottish Natural Heritage

16.9.2 No PVA was undertaken for the in-combination effects.

16.9.3 The inconsistencies detected in relation to NnGOWL's estimates for the Seagreen effects on kittiwake in relation to the Forth Islands and Fowlsheugh SPAs above, and the issues with apportioning are also relevant here, however the figures have not been re-assessed. Therefore the figures presented in the HRA Report and used in this AA in relation to the in-combination effects for kittiwake at Buchan Ness to Collieston Coast SPA are an overestimate.

16.10 **Outer Firth of Forth and St Andrews Bay Complex pSPA – Kittiwake – Development in Isolation and In-combination**

16.10.1 For the purposes of collision estimates the HRA Report assumed that 32% of the Development area overlapped with the pSPA. For the purposes of displacement the HRA Report assumed that 46% of the Development area overlapped with the pSPA (due to the 2km buffer area being included).

16.10.2 For kittiwake, both the Forth Islands SPA (4,663 pairs), and St. Abb's Head to Fast Castle SPA (3,334 pairs) border the pSPA, therefore, the HRA Report used the total of 7,997 pairs in the assessment during the breeding season.

16.10.3 The HRA Report indicated that 3 kittiwake collisions are estimated to occur during the breeding season within the pSPA and further 6 kittiwakes may be at risk of mortality due to the effects from displacement. Therefore, an estimated total of 9 kittiwakes may suffer mortality during the breeding season. This is equivalent to 0.05% of the breeding population at the two SPAs.

16.10.4 During the non-breeding season, the site selection population for the pSPA is 3,191 birds (SNH 2016). During the non-breeding season an estimated 6 kittiwakes may be impacted by collisions and a further 6 from the effects of displacement: a total of 12 kittiwakes. The loss of up to 12 kittiwakes during the non-breeding season is 0.4% of the population.

16.10.5 The HRA Report concluded that the loss of 0.05% of the kittiwake population during the breeding season and the highly precautionary potential loss of up to 0.4% of the kittiwake population during the non-breeding season will not affect the species remaining as a viable component to the site and therefore not adversely affect the integrity of the Outer Firth of Forth and St Andrews Bay Complex pSPA in light of the qualifying interests, their condition and vulnerabilities and the conservation objectives.

16.10.6 As there is no overlap between the Inch Cape or Seagreen Alpha and Bravo offshore wind farms and the pSPA there is no requirement to consider the in-

combination collision or displacement effects from these wind farms. Effects on prey availability and habitat loss in relation to the pSPA are considered in paragraphs 22.3.1-22.3.3.

16.10.7 SNH advised that there would be no adverse effect on the site integrity of the Firth of Forth and St Andrews Bay Complex pSPA in respect of kittiwake as a result of the Development in isolation or in-combination with the other wind farm proposals.

16.11 Kittiwake – Precaution in the Assessment

16.11.1 There are a number of precautionary assumptions made in this assessment which mean that the estimated cumulative total number of individuals impacted and the population consequences are highly likely to be over-estimates.

16.11.2 SNH, in its scoping advice, advised that displacement for kittiwake did not require to be included in the assessment due to emerging evidence that kittiwake are not affected by displacement. The inclusion of displacement in this assessment is likely to be precautionary, and does not take into account the potential for habituation. The assumption that all birds are displaced from a 2km buffer around each project is likely to be very precautionary.

16.11.3 Another example comes from the seabird collision avoidance study undertaken at Thanet offshore wind farm which lends support to the view that the avoidance rates used in this assessment are likely to be highly precautionary (Skov et al, 2018).[15]

16.11.4 The Scoping Opinion advised that flight speed data for use in CRM be taken from published data (Pennycuick 1997;[16] Alerstam et al. 2007[17]). These flight speeds are based on very small sample sizes (2 kittiwake). The laser rangefinder track data collected at Thanet recorded by Skov et al. (2018) offers species-specific empirical data on flight speeds from large numbers of individuals (287 kittiwake). This information was not available at the time of NnGOWL's Application, however the Seagreen EIA report estimates that using the flight speeds recorded at Thanet would reduce kittiwake collisions by 19%. MSS have advised that across the Forth and Tay Developments, using the Skov 2018 flight speeds would reduce kittiwake collisions by between 20-30% depending on the wind farm site (average 24%).

[15] Skov, H., Heinanen, S., Norman, T., Ward, R.M., Mendez-Roldan, S. & Ellis, I. 2018. ORJIP Bird Collision and Avoidance Study. Final report – April 2018. The Carbon Trust. United Kingdom

[16] Pennycuick, C.J., 1997. Actual and 'Optimum' Flight Speeds: Field Data Research. The Journal of Experimental Biology, 200, pp. 2355-2361

[17] Alerstam, T., Rosén, M., Bäckman, J., Ericson, P.G. & Jellgren, O. (2007). Flight speeds among bird species: allometric and phylogenetic effects. PLoS Biology, 5(8), e197

16.11.5 The NnGOWL 50 Year Assessment assumes a 50 year operational life, within the PVA, for the Inch Cape and Seagreen Alpha and Bravo wind farms, whereas the 2014 consents for these projects are only for 25 years. Therefore the in-combination 50 Year Assessment over-estimates the effects.

16.11.6 Lastly, basing this assessment on the WCS for Inch Cape and Seagreen (i.e. their 2014 consents) is very precautionary as they are highly unlikely to be constructed due to advances in technology. If their current proposals were used in this assessment it would substantially reduce the effects associated with those projects.

16.12 **Kittiwake - Conclusion**

16.12.1 On 11 May 2018, SNH advised that the Development will not have an adverse effect on the site integrity for kittiwake as a qualifying interest of the Buchan Ness to Collieston Coast SPA, and the Firth of Forth and St Andrews Bay Complex pSPA in-combination with the existing 2014 consents for Inch Cape, Seagreen Alpha and Seagreen Bravo.

16.12.2 Based on the information presented in NnGOWL's EIA Report, HRA Report and EIA Addendum (which estimated effects which are higher than those in this AA), SNH advised on 7 September 2018 that the Development will have an adverse effect on site integrity for kittiwake as a qualifying interest of the Forth Islands SPA and Fowlsheugh SPA in-combination with the existing 2014 consents for Inch Cape, Seagreen Alpha and Seagreen Bravo.

16.12.3 As the information used in this AA comes from various sources, Scottish Ministers consulted SNH on the figures used to inform this kittiwake assessment. SNH responded on 5 and 8 October 2018 to advise that its previous advice in relation to kittiwake still stood and that in addition there would also be an adverse effect on the integrity of St Abb's Head to Fast Castle SPA with respect to kittiwake when the Development is considered in-combination with the existing 2014 consents for Inch Cape, Seagreen Alpha and Seagreen Bravo.

16.12.4 In reaching their conclusion Scottish Ministers have considered the conservation objectives, the populations at the sites, the predicted levels of effect and population consequences, the fact that the effects are less than in 2014, the precaution in the assessment methods and the advice from SNH. Scottish Ministers conclude that, subject to the appliance of conditions, there will be no adverse effect on the site integrity of the Forth Islands SPA, Fowlsheugh SPA, St Abb's Head to Fast Castle SPA, Buchan Ness to Collieston Coast SPA or the Firth of Forth and St Andrews Bay Complex pSPA in respect of the kittiwake qualifying interest as a result of the Development in isolation or in-combination with the other Forth and Tay Developments and projects detailed in Appendices 1 and 2.

17 HERRING GULL – Forth Islands SPA, Fowlsheugh SPA, St Abb's Head to Fast Castle SPA, Buchan Ness to Collieston Coast SPA and Outer Firth of Forth and St Andrews Bay Complex pSPA

17.1.1 The closest largest breeding colonies of herring gulls to the Development are on the islands in the Firth of Forth and Isle of May, part of the Forth Islands SPA. Results from site-specific monitoring indicate that herring gulls are present in the Development wind farm area throughout the year, although during the breeding season (April to August) numbers are generally lower. The Buchan Ness to Collieston Coast SPA is beyond the mean max. foraging range for this qualifying interest, however, impacts upon this SPA have been considered as birds from this SPA could occur in the wind farm area during the non-breeding season. The Scoping Opinion required that only collision impacts were assessed in respect of this qualifying interest for both the breeding and non-breeding seasons.

17.1.2 During the breeding season, herring gulls from other breeding colonies, which may not be SPAs, may also be present within the Development area and, therefore, at risk from collision impacts. The potential impacts on all non-SPA breeding colonies and across all SPA colonies, for which herring gull is a qualifying interest, within the mean max. foraging range have been apportioned to take account of the presence of these birds.

17.2 Forth Islands SPA – Herring Gull – Development in Isolation

17.2.1 The herring gull population decreased between the time of designation and counts undertaken in 2014, however has increased again since 2014 and is in a favourable and maintained condition. The herring gull breeding population in the Forth Islands SPA is 6,580 pairs. The CRM presented in the HRA Report estimated that there could be a loss of 5 herring gull from this SPA throughout the year. This would result in an increase in the mortality of the breeding population by 0.04% as a result of collision impacts.

17.3 Fowlsheugh SPA – Herring Gull – Development in Isolation

17.3.1 The herring gull population has decreased significantly since the time of designation when the population was 3,190 pairs to the latest population estimate of 125 pairs. The population is in an unfavourable and declining condition (SNH, 2017b).[18] The outputs of the CRM calculated that approx. 0.03 birds per year would be impacted by collision during the non-breeding season and none during the breeding season.

[18] SNH (2017b). Sitelinks. Scottish Natural Heritage

17.4 St Abb's Head to Fast Castle SPA – Herring Gull – Development in Isolation

17.4.1 The herring gull population has decreased significantly since the time of designation when the population was 1,160 pairs to the latest population estimate of 325 pairs. The population is in an unfavourable and declining condition (SNH, 2017b). Results from the CRM indicated that 0.04 herring gulls from the SPA would be impacted during the breeding season and 0.12 during the non-breeding season, equating to less than one herring gull per year from the SPA. This equates to an increase in mortality of 0.16 birds per year as a result of collision impacts.

17.5 Buchan Ness to Collieston Coast SPA – Herring Gull - Development in Isolation

17.5.1 The herring gull population has decreased significantly since the time of designation when the population was 4,292 pairs to the latest population estimate of 3,115 pairs. The population is in an unfavourable condition (SNH, 2017b). The Development wind farm area is beyond the mean max. foraging range for this qualifying interest during the breeding season and therefore birds from this SPA are unlikely to be present at the wind farm area during the breeding season. The HRA Report estimated that 0.07 of birds from this SPA may be impacted each year during the non-breeding season (equating to less than 0.001% of the breeding population).

17.6 Outer Firth of Forth and St Andrews Bay Complex pSPA – Herring Gull - Development in Isolation

17.6.1 The Scoping Opinion advised that for herring gull the assessment carried out for at the breeding colony SPAs should also be used for the assessment at the pSPA.

17.6.2 The HRA Report states that for herring gull, both the Forth Islands SPA (6,580 pairs), and St. Abb's Head to Fast Castle SPA (325 pairs) border the pSPA, therefore, for the purposes of this assessment, the pSPA population during the breeding season was estimated at 6,905 pairs.

17.6.3 For the worst-case scenario (54 turbines) the HRA Report estimated a total of 2 herring gull collisions (both adults) for the breeding season. Assuming that all herring gulls recorded in the wind farm area during the baseline survey were evenly distributed across the wind farm area, then 32% of all breeding season collisions, could occur in the area of the wind farm overlapping with the pSPA, therefore less than one bird is predicted to be impacted during the breeding season.

17.6.4 During the non-breeding season, an estimated four herring gulls are predicted to be impacted. Assuming that all herring gulls recorded in the wind farm area during

the baseline survey were evenly distributed across the wind farm area, then 32% of all non-breeding season collisions could occur in the area of the wind farm area overlapping with the pSPA. An estimated one herring gull may be impacted during the non-breeding season.

17.7 **Forth Islands SPA, Fowlsheugh SPA, St Abb's Head to Fast Castle SPA, Buchan Ness to Collieston Coast SPA and Outer Firth of Forth and St Andrews Bay Complex pSPA - Herring Gull – In-combination**

17.7.1 No in-combination assessment was undertaken by NnGOWL. The HRA Report recognised that there is the potential for in-combination impacts, but concluded that, due to the very low level of impacts predicted on herring gull, an in-combination assessment was not required.

17.8 **Herring Gull – Conclusion**

17.8.1 The HRA Report stated that the predicted level of increase in herring gull mortality resulting from collision impacts for the Outer Firth of Forth and St Andrews Bay Complex pSPA, Forth Islands SPA, Fowlsheugh SPA, Buchan Ness to Collieston Coast SPA and St Abb's Head to Fast Castle SPA would not hinder the achievement of the conservation objectives of each of the sites.

17.8.2 SNH advised that there would be no adverse effect on the site integrity of the for the Outer Firth of Forth and St Andrews Bay Complex pSPA, Forth Islands SPA, Fowlsheugh SPA, Buchan Ness to Collieston Coast SPA and St Abb's Head to Fast Castle SPA in respect of the herring gull qualifying interest from the Development in isolation or in-combination with other projects.

17.8.3 The 2014 AA identified a -0.1% decline in adult survival for the Forth Islands SPA. This is higher than the decline in adult survival rate calculated in the HRA Report of 0.04% for the Development.

17.8.4 In reaching their conclusion Scottish Ministers have considered the conservation objectives, the populations at the sites, the predicted levels of effect and population consequences, the fact that the effects are less than in 2014, and the advice from SNH. Scottish Ministers conclude that, subject to the appliance of conditions, there will be no adverse effect on the site integrity of the Outer Firth of Forth and St Andrews Bay Complex pSPA, Forth Islands SPA, Fowlsheugh SPA, Buchan Ness to Collieston Coast SPA and St Abb's Head to Fast Castle SPA in respect of the herring gull qualifying interest as a result of the Development in isolation or in-combination with the Forth and Tay Developments and other projects detailed in Appendix 1.

18 RAZORBILL – Forth Islands SPA, Fowlsheugh SPA, St Abb's Head to Fast Castle SPA and Firth of Forth and St Andrews Bay Complex pSPA

18.1.1 The Scoping Opinion advised that NnGOWL was only required to consider displacement effects as razorbill fly lower than the height of the turbine blades so are not at risk from collision.

18.1.2 As the footprints of the Development site and the Inch Cape and Seagreen Alpha and Bravo sites have not changed, the displacement effects from the 2014 consents will be no different to those from the 2018 applications, therefore it was not necessary to assess the revised scenarios as it was for the collision risk assessment. However methods of assessment for displacement have changed since 2014 as detailed in Appendix 3.

18.1.3 The closest large razorbill colonies to the Development are at the Isle of May (part of the Forth Islands SPA), St Abb's Head to Fast Castle SPA and Fowlsheugh SPA. These three SPAs were identified as being at possible risk from the impacts of displacement. The population sizes at Forth Islands SPA and Fowlsheugh SPA have increased significantly since the time of designation.

18.1.4 Tracking studies on 18 razorbills breeding on the Isle of May (2010) indicated that that razorbills did not use the Development wind farm area for non-flight activities such as foraging or resting (Daunt et al. 2011a).[19] Similar tracking studies were repeated by CEH in 2012, 2013 and 2014, albeit with a smaller sample size, which confirmed that there was little activity within the Development area.

18.1.5 This assessment follows the advice on displacement of razorbill provided in the Scoping Opinion and assesses the wind farm areas plus 2km buffers. A 60% displacement rate and 1% mortality rate are assumed during the breeding and non-breeding seasons. Results are summarised in Table 15 below.

Table 15 Estimated annual displacement effects on razorbill

Project	Individuals	Source
NnG (2017)	25	NnGOWL EIA Report, ornithology chapter 9, Tables 9.36 & 9.39

[19] Daunt, F., Bogdanova, M., Newell, M., Harris, M. & Wanless, S. (2011a). GPS tracking of common guillemot, razorbill, black-legged kittiwake on the Isle of May Summer 2010. Report for FTOWDG. Centre for Ecology and Hydrology, Edinburgh.

Inch Cape (2014)	49	NnGOWL EIA Report, ornithology chapter 9, Tables 9.126 & 9.138
Seagreen Alpha & Bravo (2014)	25	NnGOWL EIA Report, ornithology chapter 9, Tables 9.126 & 9.138
Total	99	

18.2 Forth Islands SPA – Razorbill – Development in Isolation

18.2.1 The razorbill population at Forth Islands SPA is in a favourable maintained condition with an increase in population from 2,800 birds at the time of site designation to 7,792 birds in 2017(SNH, 2017b).[20]

18.2.2 NnGOWL provided clarification of how it had apportioned effects in its note to Scottish Ministers on 25 September 2018, and subsequently SNH provided Scottish Ministers with updated calculations of the breeding and non-breeding season effects on 26 & 27 September 2018. The values presented in this AA are taken from SNH's advice. It is estimated that 5 razorbills from the Forth Islands SPA may be impacted by displacement mortality during the breeding season and a further 5 birds of all ages may be impacted during the non-breeding season. The potential loss is assessed as 10 razorbills across the year.

18.2.3 PVAs were undertaken by NnGOWL for Forth Islands SPA over a period of 25 and 50 years. The assessed loss of 10 razorbills is not one of the scenarios for which PVA outputs are provided. The nearest scenario is for the loss of 8 individuals (EIA Addendum appendix July 2018).

18.2.4 Assuming an effect of 8 mortalities, for Forth Islands SPA after 25 years, the median of the ratio of impacted to un-impacted population size for the Development in isolation is 0.98. After 50 years, the ratio value is 0.95 for displacement impacts (Table 8 of EIA addendum appendix July 2018). The ratio value for the assessed figure if 10 individuals will be smaller than the PVA scenario presented by NnGOWL i.e. the population level effect will be greater.

18.2.5 SNH advised the Development on its own would not result in an adverse effect on site integrity to the Forth Islands SPA with respect to razorbill.

18.3 Forth Islands SPA – Razorbill – Development In-combination

[20] SNH (2017b). Sitelinks. Scottish Natural Heritage. https://gateway.snh.gov.uk/sitelink/index.jsp

18.3.1 Table 16 below presents the apportioned total effects (breeding and non-breeding seasons) on Forth Islands SPA based on the information provided by SNH on 26 & 27 September 2018.

Table 16 Estimated annual displacement effects on Forth Islands SPA – razorbill

Project	Individuals
NnG (2017)	10
Inch Cape (2014)	14
Seagreen Alpha & Bravo (2014)	5
Total	30 (due to rounding)

18.3.2 PVA was undertaken by NnGOWL for razorbill breeding in the Forth Islands SPA over 25 year and 50 year periods for a number of scenarios, none of which match exactly the assessed cumulative total of 30 individuals per year. However this effect is closest to the scenario of 25 individuals for which NnGOWL do present PVA outputs (EIA addendum appendix July 2018). After 25 years the median of the ratio of impacted to un-impacted population size for the in-combination assessment is 0.91. After 50 years the ratio value is 0.83 (Table 20 of EIA Addendum appendix). The ratio value for the assessed cumulative total of 30 individuals will be smaller than the PVA scenarios presented by NnGOWL i.e. the population level effect will be greater.

18.3.3 The 2014 AA estimated a loss of 41 individual adults only, which is larger than the effects estimated by this assessment. The adults only estimate for the current assessment is 19.

18.4 Fowlsheugh SPA – Razorbill – Development in Isolation

18.4.1 The razorbill population is in a favourable maintained condition with an increase in population from 5,800 birds at the time of site designation to 7,426 birds in 2017 (SNH, 2017b).[21]

18.4.2 Using the information provided by SNH on 26 & 27 September the estimated number of individual razorbills from Fowlsheugh SPA that may be impacted by

[21] SNH (2017b). Sitelinks. Scottish Natural Heritage

displacement mortality during the breeding season is less than 1 and during the non-breeding season is 7, giving a seasonally combined total of 7.

18.4.3 PVAs were undertaken by NnGOWL for Fowlsheugh SPA over a period of 25 and 50 years. Due to errors in the PVAs for razorbill in the HRA Report, the PVA was recalculated and presented in the EIA Addendum.

18.4.4 There are no PVA outputs for Fowlsheugh SPA that provide an exact match for the assessed loss of 7 individuals. However these effects are closest to the scenario of 11 individuals for which NnGOWL do present PVA outputs (EIA Addendum appendix July 2018). After 25 years, the median of the ratio of impacted to un-impacted population size for the Development in isolation is 0.96. After 50 years, the ratio value is 0.94 for displacement impacts (Table 11 of the EIA Addendum appendix). The assessed loss of 7 individuals would result in smaller changes in the PVA outputs i.e. a larger population ratio value.

18.4.5 SNH advised the Development on its own would not result in an adverse effect on site integrity to the Fowlsheugh SPA with respect to razorbill.

18.5 Fowlsheugh SPA – Razorbill – Development In-combination

18.5.1 Table 17 below presents the apportioned total effects (breeding and non-breeding seasons) on Fowlsheugh SPA based on the information provided by SNH on 26 & 27 September 2018.

Table 17 Estimated annual displacement effects on Fowlsheugh SPA - razorbill

Project	Individuals
NnG (2017)	7
Inch Cape (2014)	17
Seagreen Alpha & Bravo (2014)	11
Total	35

18.5.2 There are no PVA outputs for Fowlsheugh SPA that provide an exact match for the assessed loss of 35 individuals. The closest scenario is for a loss of 33 individuals (EIA Addendum appendix July 2018). After 25 years, the median of the ratio of impacted to un-impacted population size for the Development in isolation is 0.93. After 50 years, the ratio value is 0.85 for displacement impacts (Table 23 of the EIA Addendum appendix). The assessed loss of 35 individuals would result

in slightly greater differences in the PVA outputs i.e. a smaller population ratio value.

18.5.3 The 2014 AA estimated negligible effects on razorbill at Fowlsheugh SPA as that assessment was based on a different approach using the Searle *et al*. (2014)[22] model. Although there were practically no effects on razorbill at Fowlsheugh, the 2014 AA did identify a threshold of acceptable level of impact. This ratio of impacted to un-impacted population size was 0.79. the effects identified above are less than this value i.e. produce a larger population ratio value.

18.6 St Abb's Head to Fast Castle SPA – Razorbill – Development in Isolation

18.6.1 The razorbill population is in a favourable maintained condition with an increase in the population since the time of designation from 2,180 birds to 2770 in 2016 (although a decrease since 2014 when the population was 4,230).

18.6.2 Using the information provided by SNH on 26 & 27 September 2018 the estimated number of individual razorbills from St Abb's Head to Fast Castle SPA that may be impacted by displacement mortality during the breeding season is less than 1 and during the non-breeding season is 2, giving a seasonally combined total of 3.

18.6.3 PVA modelling was not undertaken for this SPA.

18.6.4 SNH advised the Development on its own would not result in an adverse effect on site integrity to the St Abb's Head to Fast Castle SPA with respect to razorbill.

18.7 St Abb's Head to Fast Castle SPA – Razorbill – Development In-combination

18.7.1 Table 18 below presents the apportioned total effects (breeding and non-breeding seasons) on St Abb's Head to Fast Castle SPA based on the information provided by SNH on 26 & 27 September 2018.

Table 18 Estimated annual displacement effects on St Abb's Head to Fast Castle SPA - razorbill

Project	Individuals
NnG (2017)	3
Inch Cape (2014)	5

[22] Searle, K., Mobbs, D., Butler, A., Bogdanova, M., Freeman, S., Wanless, S. & Daunt, F. (2014) Population consequences of displacement from proposed offshore wind energy developments for seabirds breeding at Scottish SPAs (CR/2012/03). (Final Report to Marine Scotland Science).

Seagreen Alpha & Bravo (2014)	2
Total	10

18.7.2 PVA modelling was not undertaken for this SPA.

18.8 Firth of Forth and St Andrews Bay Complex pSPA – Razorbill – Development in Isolation

18.8.1 The Firth of Forth and St Andrews Bay Complex pSPA has razorbill as a qualifying feature during the non-breeding season only. During the non-breeding season the estimated pSPA razorbill population is 5,481 birds (SNH 2016).[23]

18.8.2 The HRA Report estimated that 3 razorbill may be affected by impacts from displacement. This is 0.02% of the wintering population. The HRA Report concluded that this is a very low level of impact would not affect the species being a viable component of the site. Consequently, it concluded that impacts from displacement will not adversely affect the integrity of the Outer Firth of Forth and St Andrews Bay Complex pSPA in light of the qualifying interests, their condition and vulnerabilities and the conservation objectives.

18.8.3 As there is no overlap between the Inch Cape or Seagreen Alpha and Bravo offshore wind farms and the pSPA there is no requirement to consider the in-combination displacement effects from these wind farms.

18.8.4 SNH advised that there would be no adverse effect on the site integrity of the Firth of Forth and St Andrews Bay Complex pSPA in respect of razorbill as a result of the Development in isolation or in-combination with the other Forth and Tay Developments.

18.9 Razorbill – Precaution in the Assessment

18.9.1 Scottish Ministers consider that the assessment completed by NnGOWL with respect to razorbill is precautionary. In particular, the inclusion of a 2km buffer to all the Forth and Tay wind farm sites, and no habituation to the wind farms. The inclusion of the 2km buffer in the displacement assessment has led to predicted displacement effects which are much greater than if the wind farm areas had been considered without the buffer.

[23] SNH. (2016). Outer Firth of Forth and St Andrews Bay Complex Proposed Special Protection Area (pSPA) NO. UK9020316. SPA Site Selection Document: Summary of the scientific case for site selection. Scottish Natural Heritage.

18.9.2 The NnGOWL 50 Year Assessment assumes a 50 year operational life, within the PVA, for the Inch Cape and Seagreen Alpha and Bravo wind farms, whereas the 2014 consents for these projects are only for 25 years. Therefore the in-combination 50 Year Assessment over-estimates the effects.

18.10 Razorbill – Conclusion

18.10.1 In its advice provided on 7 September 2018, SNH stated that for razorbill, as a qualifying interest of the Forth Islands SPA and Fowlsheugh SPA, the Development could have an adverse effect on the site integrity in-combination with Inch Cape and Seagreen Alpha and Bravo wind farms. SNH raised concerns regarding its understanding of the methodology for the razorbill assessment. At a meeting on 18 September 2018 with NnGOWL, clarification on the methodology was provided and SNH confirmed that it did not require any further information.

18.10.2 As the information used in this AA comes from various sources, Scottish Ministers consulted SNH on the figures used to inform this razorbill assessment. SNH responded on 5 and 8 October 2018 to advise that in its view, when the Development is considered in-combination with the existing 2014 consents for Inch Cape, Seagreen Alpha and Seagreen Bravo, there would be an adverse effect on the integrity of the Forth Islands SPA and Fowlsheugh SPA with respect to razorbill.

18.10.3 In reaching their conclusion Scottish Ministers have considered the conservation objectives, the populations at the sites, the predicted levels of effect and population consequences, the fact that the effects are less than in 2014 (except for Fowlsheugh SPA), the precaution in the assessment methods and the advice from SNH. Scottish Ministers conclude that, subject to the appliance of conditions, the Development will not adversely affect the site integrity of the Forth Islands SPA, Fowlsheugh SPA, St Abb's Head to Fast Castle SPA and the Firth of Forth and St Andrews Bay Complex pSPA with respect to razorbill, either alone or in-combination with the other Forth and Tay Developments and projects detailed in Appendix 1.

19 GUILLEMOT - Forth Islands SPA, Fowlsheugh SPA, St Abb's Head to Fast Castle SPA, Buchan Ness to Collieston Coast SPA and Outer Firth of Forth and St Andrews Bay Complex pSPA

19.1.1 The Scoping Opinion advised that NnGOWL was only required to consider displacement effects as guillemot fly lower than the height of the turbine blades so are not at risk from collision.

19.1.2 As the footprints of the Development site and the Inch Cape and Seagreen Alpha and Bravo sites have not changed, the displacement effects from the 2014

consents will be no different to those from the 2018 applications, therefore it was not necessary to assess the different scenarios. However methods of assessment for displacement have changed since 2014 as detailed in Appendix 3.

19.1.3 The closest large guillemot colonies to the Development are at Forth Islands SPA, Fowlsheugh SPA, St Abb's Head to Fast Castle SPA and Buchan Ness to Collieston Coast SPA. These four SPAs were identified as being at possible risk from the impacts of displacement.

19.1.4 This assessment follows the advice on displacement of guillemot provided in the Scoping Opinion and assesses the wind farm areas plus 2km buffers. A 60% displacement rate and 1% mortality rate are assumed during the breeding and non-breeding seasons. The information to inform the guillemot assessment is taken from NnGOWL's EIA Report, HRA Report, EIA Addendum and consultation responses. Due to errors in the PVA results presented in the HRA Report, the PVAs for guillemot were re-run and presented in the EIA Addendum appendix July 2018. Displacement effects on guillemot are summarised in Table 19 below.

Table 19 Estimated annual displacement effects on guillemot

Project	Individuals	Source
NnG (2017)	61	NnGOWL HRA Report, tables 2.66 & 2.68
Inch Cape (2014)	56	NnGOWL HRA Report, tables 2.66 & 2.68
Seagreen Alpha	66	NnGOWL HRA Report, tables 2.66 & 2.68
Seagreen Bravo (2014)	59	NnGOWL HRA Report, tables 2.66 & 2.68
Total	242	

19.2 Forth Islands SPA – Guillemot – Development in Isolation

19.2.1 The guillemot population is in a favourable maintained condition with an increase in population from 8,000 birds at the time of site designation to 28,786 birds in 2017(SNH 2017b).[24]

19.2.2 The HRA Report states that the impacts from displacement during the breeding season based on 60% rate of displacement and 1% mortality during the breeding

[24] SNH (2017b). Sitelinks. Scottish Natural Heritage

and non-breeding seasons indicates a total of 38 guillemots may suffer mortality due to the effects from displacement.

19.2.3 PVAs were undertaken by NnGOWL for Forth Islands SPA over a period of 25 and 50 years (EIA Addendum appendix July 2018). The assessed loss of 38 guillemot is not one of the scenarios for which PVA outputs are provided. The nearest scenario is for the loss of 36 individuals (EIA Addendum appendix July 2018).

19.2.4 Assuming a loss of 36 individuals from Forth Islands SPA after 25 years, the median of the ratio of impacted to un-impacted population size for the Development in isolation is 0.99 (Table 14 of EIA Addendum appendix July 2018). After 50 years, the ratio value is 0.96 for displacement impacts (Table 14 of EIA addendum appendix July 2018). The ratio value for the assessed figure of 38 individuals will be marginally larger than the PVA scenario presented by NnGOWL i.e. the population level impact will be greater.

19.2.5 SNH advised the Development on its own would not result in an adverse effect on site integrity to the Forth Islands SPA with respect to guillemot.

19.3 Forth Islands SPA – Guillemot – Development In-combination

19.3.1 Table 20 below presents the apportioned total effects (breeding and non-breeding seasons) on Forth Islands SPA based on the information in NnGOWL's HRA Report (Tables 2.67 & 2.69).

Table 20 Estimated annual displacement effects on Forth Islands SPA – guillemot

Project plus 2km buffer	Individuals
NnG (2017)	38
Inch Cape (2014)	14
Seagreen Alpha (2014)	6
Seagreen Bravo (2014)	6
Total	64

19.3.2 PVA was undertaken by NnGOWL for guillemot breeding in the Forth Islands SPA over 25 year and 50 year periods for a number of scenarios, none of which match exactly the assessed cumulative total of 64 individuals per year. However this effect is closest to the scenario of 36 individuals for which NnGOWL do present PVA outputs (EIA addendum appendix July 2018). After 25 years the median of the ratio of impacted to un-impacted population size for the in-combination

assessment is 0.99. After 50 years the ratio value is 0.96 (Table 14 of EIA Addendum appendix July 2018). The ratio value for the assessed cumulative total of 64 individuals will be larger than the PVA scenarios presented by NnGOWL i.e. the population level impact will be greater.

19.3.3 SNH advised on 7 September 2018 that the Development in-combination with Inch Cape and Seagreen Alpha and Bravo wind farms would not result in an adverse effect on site integrity to the Forth Islands SPA with respect to guillemot.

19.4 Fowlsheugh SPA – Guillemot – Development in Isolation

19.4.1 The guillemot population is in a favourable maintained condition with a small decrease in population from 56,450 birds at the time of site designation to 55,507 birds in 2017 (SNH, 2017b).[25]

19.4.2 The HRA Report states that the impacts from displacement during the breeding season based on 60% rate of displacement and 1% mortality during the breeding season indicates that 1 adult guillemot may suffer mortality due to the effects from displacement and a further 4 birds of all ages may be impacted during the non-breeding season. The potential loss of 5 guillemots across the year is <0.001% of the current breeding population.

19.4.3 PVAs were undertaken by NnGOWL for Fowlsheugh SPA over a period of 25 and 50 years (EIA Addendum appendix July 2018). The assessed loss of 5 guillemot is not one of the scenarios for which PVA outputs are provided. The nearest scenario is for the loss of 21 individuals (EIA Addendum appendix July 2018). After 25 years the median of the ratio of impacted to un-impacted population size for the loss of 21 individuals is 0.99. After 50 years the ratio value remains at 0.99 (Table 5 of EIA Addendum appendix). The ratio value for the assessed total of 5 individuals will be smaller than the PVA scenarios presented by NnGOWL i.e. the population level impact will be less.

19.4.4 SNH advised the Development on its own would not result in an adverse effect on site integrity to the Fowlsheugh SPA with respect to guillemot.

19.5 Fowlsheugh SPA – Guillemot – Development In-combination

19.5.1 Table 21 below presents the apportioned total effects (breeding and non-breeding seasons) on Fowlsheugh SPA based on the information in NnGOWL's HRA Report (Tables 2.67 & 2.69).

[25] SNH (2017b). Sitelinks. Scottish Natural Heritage

Table 21 Estimated annual displacement effects on Fowlsheugh SPA – guillemot

Project plus 2km buffer	Individuals
NnG (2017)	5
Inch Cape (2014)	28
Seagreen Alpha (2014)	45
Seagreen Bravo (2014)	40
Total	118

19.5.2 PVA was undertaken by NnGOWL for guillemot breeding in the Fowlsheugh SPA over 25 year and 50 year periods for a number of scenarios, none of which match exactly the assessed cumulative total of 118 individuals per year. However this effect is closest to the scenario of 71 individuals for which NnGOWL do present PVA outputs (EIA addendum appendix July 2018). After 25 years the median of the ratio of impacted to un-impacted population size for the in-combination assessment is 0.99. After 50 years the ratio value is 0.97 (Table 17 of EIA Addendum appendix). The ratio value for the assessed cumulative total of 118 individuals will be larger than the PVA scenarios presented by NnGOWL i.e. the population level impact will be greater.

19.5.3 SNH advised on 7 September 2018 that the Development in-combination with Inch Cape and Seagreen Alpha and Bravo wind farms would not result in an adverse effect on site integrity to the Fowlsheugh SPA with respect to guillemot.

19.6 St Abb's Head to Fast Castle SPA – Guillemot – Development in Isolation

19.6.1 The guillemot population is in a favourable maintained condition with an increase in the population from 31,750 birds at the time of site designation to 36,206 birds in 2017 (SNH 2017b).[26]

19.6.2 The HRA Report considered that the impacts from displacement during the breeding season based on 60% rate of displacement and 1% mortality during the breeding season indicates that 4 adult guillemots may suffer mortality due to the effects from displacement and a further 10 birds of all ages may be impacted during the nonbreeding season. The potential loss of 14 guillemots across the year is <0.04% of the current breeding population.

19.6.3 No PVA was undertaken for this SPA.

[26] SNH (2017b). Sitelinks. Scottish Natural Heritage

19.6.4 SNH advised the Development on its own would not result in an adverse effect on site integrity to the St Abb's Head to Fast Castle SPA with respect to guillemot.

19.7 St Abb's Head to Fast Castle SPA – Guillemot – Development In-combination

19.7.1 Table 22 below presents the apportioned total effects (breeding and non-breeding seasons) on St Abb's Head to Fast Castle SPA based on the information in the HRA Report (Tables 2.67 & 2.69).

Table 22 Estimated annual displacement effects on St Abb's Head to Fast Castle SPA – guillemot

Project plus 2km buffer	Individuals
NnG (2017)	16
Inch Cape (2014)	8
Seagreen Alpha (2014)	6
Seagreen Bravo (2014)	6
Total	36

19.7.2 PVA modelling was not undertaken for this SPA.

19.7.3 The HRA Report considered that the loss of an estimated 36 adult guillemots across the year due to in-combination impacts is 0.1% of the breeding population. The loss of an estimated 14 birds during the breeding season is 0.04% of the breeding population.

19.7.4 SNH advised the Development in-combination with Inch Cape and Seagreen Alpha and Bravo wind farms would not result in an adverse effect on site integrity to the St Abb's Head to Fast Castle SPA with respect to guillemot.

19.8 Buchan Ness to Collieston Coast SPA – Guillemot – Development in Isolation

19.8.1 The guillemot population is in a favourable maintained condition with an increase in the population from 17,280 birds at the time of site designation to 33,632 birds in 2017 (SNH, 2017b).[27]

19.8.2 The HRA Report considered the impacts from displacement during the breeding season based on 60% rate of displacement and 1% mortality during the breeding

[27] SNH (2017b). Sitelinks. Scottish Natural Heritage

season indicates that no guillemots from the Buchan Ness to Collieston Coast SPA are predicted to be impacted by the Development and therefore there will be no population level effects on guillemots from this SPA.

19.8.3 No PVA was undertaken for this SPA.

19.8.4 SNH advised the Development on its own would not result in an adverse effect on site integrity to the Buchan Ness to Collieston Coast SPA with respect to guillemot.

19.9 Buchan Ness to Collieston Coast SPA – Guillemot – Development In-combination

19.9.1 Table 23 below presents the apportioned total effects (breeding and non-breeding seasons) on Buchan Ness to Collieston Coast SPA based on the information in the HRA Report (Tables 2.67 & 2.69).

Table 23 Estimated annual displacement effects on Buchan Ness to Collieston Coast SPA – guillemot

Project plus 2km buffer	Individuals
NnG (2017)	1
Inch Cape (2014)	2
Seagreen Alpha (2014)	3
Seagreen Bravo (2014)	3
Total	9

19.9.2 PVA modelling was not undertaken for this SPA.

19.9.3 The HRA Report concluded that the very low predicted displacement effects will not impact on the guillemot remaining as a viable component of the site and will not adversely affect the integrity of the Buchan Ness to Collieston Coast SPA, in light of the qualifying interest, their condition and the site's conservation objectives.

19.9.4 SNH advised the Development in-combination with Inch Cape and Seagreen Alpha and Bravo wind farms would not result in an adverse effect on site integrity to the Buchan Ness to Collieston Coast SPA with respect to guillemot.

19.10 Firth of Forth and St Andrews Bay Complex pSPA – Guillemot – Development in Isolation and In-combination

19.10.1 The Firth of Forth and St Andrews Bay Complex pSPA has guillemot as a qualifying feature during both the breeding and non-breeding seasons.

19.10.2 For guillemot, both the Forth Islands SPA (28,786 birds), and St. Abb's Head to Fast Castle SPA (36,206 birds) border the pSPA, therefore, for the purposes of this assessment, the pSPA population during the breeding season was estimated at 64,992 birds.

19.10.3 The HRA Report estimated that 14 birds (seven adults and seven immature or non-breeding adults) may be impacted during the breeding season.

19.10.4 During the non-breeding season the pSPA guillemot population is 21,968 birds (SNH 2016). The HRA Report estimated that up to 21 guillemots may suffer mortality during this season, if displacement occurs out to 2km beyond the Development area. This is 0.01% of the non-breeding population.

19.10.5 The HRA Report concluded that impacts from displacement will not adversely affect the integrity of the Outer Firth of Forth and St Andrews Bay Complex pSPA with respect to the guillemot qualifying interest.

19.10.6 SNH advised the Development in-combination with Inch Cape and Seagreen Alpha and Bravo wind farms would not result in an adverse effect on site integrity to the Firth of Forth and St Andrews Bay Complex pSPA with respect to guillemot.

19.11 Guillemot – Precaution in the Assessment

19.11.1 Scottish Ministers consider that the assessment completed by NnGOWL with respect to guillemot is precautionary. In particular, the inclusion of a 2km buffer to all the Forth and Tay wind farm sites, and no habituation to the wind farm. The inclusion of the 2km buffer in the displacement assessment has led to predicted displacement effects which are much greater than if the wind farm areas had been considered without the buffer.

19.11.2 The NnGOWL 50 Year Assessment assumes a 50 year operational life, within the PVA, for the Inch Cape and Seagreen Alpha and Bravo wind farms, whereas the 2014 consents for these projects are only for 25 years. Therefore the in-combination 50 Year Assessment over-estimates the effects.

19.12 Guillemot - Conclusions

19.12.1 In its advice provided on 7 September 2018, SNH stated that for guillemot as a qualifying interest of the Forth Islands SPA, Fowlsheugh SPA, St Abb's Head to fast Castle SPA, Buchan Ness to Collieston Coast SPA and The Firth of Forth and St Andrews Bay Complex pSPA, the Development would not have an adverse effect on the site integrity in-combination with Inch Cape and Seagreen Alpha and

Bravo wind farms. This advice was confirmed by SNH on 5 October 2018 having considered in the information being used in this guillemot assessment.

19.12.2 In reaching their conclusion Scottish Ministers have considered the conservation objectives, the populations at the sites, the predicted levels of effect and population consequences, the precaution in the assessment methods and the advice from SNH. Scottish Ministers conclude that, subject to the appliance of conditions, the Development will not adversely affect the site integrity of the Forth Islands SPA, Fowlsheugh SPA, St Abb's Head to Fast Castle SPA and the Firth of Forth and St Andrews Bay Complex pSPA with respect to guillemot, either alone or in-combination with the other Forth and Tay Developments and projects detailed in Appendix 1.

20 PUFFIN - Forth Islands SPA and Outer Firth of Forth and St Andrews Bay Complex pSPA

20.1.1 The Scoping Opinion advised that NnGOWL was only required to consider displacement effects as puffin fly lower than the height of the turbine blades so are not at risk from collision. Displacement impacts during the non-breeding season were not required to be assessed as, following breeding, puffins disperse widely and are not present within the Forth and Tay region in significant numbers.

20.1.2 As the footprints of the Development site and the Inch Cape and Seagreen Alpha and Bravo sites have not changed the displacement effects from the 2014 consents will be no different to those from the 2018 applications, therefore it was not necessary to assess the different scenarios as it was for the collision risk assessment. However methods of assessment for displacement have changed since 2014 as detailed in Appendix 3.

20.1.3 The closest large puffin colony to the Development is located on the Isle of May which is part of the Forth Island SPA. The population is in a favourable maintained condition with an increase in population from 14,000 pairs at the time of site designation to 45,005 pairs between 2009 and 2017(SNH, 2017b).[28]

20.1.4 This assessment follows the advice on displacement of puffin provided in the Scoping Opinion and assesses the wind farm areas plus 2km buffers. A 60% displacement rate and 2% mortality rate are assumed during the breeding season.

20.2 Puffin – Forth Islands SPA – Development in Isolation

20.2.1 The HRA Report estimated that 3,704 puffin could be displaced from the Development area and 2km buffer during the breeding season. Using the 2%

[28] SNH (2017b). Sitelinks. Scottish Natural Heritage

mortality rate this equated to a mortality of up to 37 adult birds and up to 37 immature birds. (see Table 2.42, HRA Report). A displacement mortality of 37 adults during the breeding season corresponds to 0.04% of the Forth Islands SPA adult breeding population.

20.2.2 When the impacts were apportioned across all colonies within the mean max. foraging range, it was estimated that 35 puffins from the Forth Islands SPA may be impacted, and 2 puffins from other colonies within the mean max. foraging range.

20.2.3 PVA undertaken by NnGOWL concluded that there would be no decrease in the current population, with a continued significant increase in the breeding population over the next 25 and 50 years. Over 25 years it is predicted that the population will have increased from its current level of 45,005 pairs to 174,231 pairs, with no wind farms present. The additional estimated mortality arising from displacement effects from the proposed wind farm may cause a reduced level of population increase with the future population predicted to be 172,875 pairs with the wind farm present. After 25 years, the median of the ratio of impacted to un-impacted population size for Development in isolation is 0.99 (n.b. ratio values are referred to in the HRA Report as the counterfactuals). After 50 years, the ratio value is 0.98.

20.2.4 SNH advised the Development on its own would not result in an adverse effect on site integrity to the Forth Islands SPA with respect to puffin.

20.3 Puffin – Forth Islands SPA – Development in-combination

20.3.1 The HRA Report estimated that 134 puffins could suffer mortality due to in-combination displacement impacts (see Table 24 below, n.b the value of 134 includes 3 additional mortalities from other wind farms outwith the Forth and Tay). This figure equates to 0.15% of the current breeding population. The PVA analysis indicated that after 25 years, the median of the ratio of impacted to un-impacted population size for Development in isolation is 0.97. After 50 years, the ratio value is 0.96. The HRA Report concluded that there would be no adverse effect on the site integrity of the Forth Islands SPA with respect to puffin resulting from in-combination effects.

Table 24 Estimated adult puffin mortality from displacement impacts from Forth and Tay wind farms in the breeding season

Project	Adults (Development area + 2km buffer)
NnG	37
Inch Cape	46
Seagreen A	21
Seagreen B	27

TOTAL	131

20.3.2 SNH advised the Development in-combination with Inch Cape, Seagreen Alpha and Seagreen Bravo would not result in an adverse effect on site integrity to the Forth Islands SPA with respect to puffin.

20.4 Puffin - Outer Firth of Forth and St Andrews Bay Complex pSPA – Development in Isolation and In-combination

20.4.1 The Forth Islands SPA borders the pSPA and, therefore, NnGOWL have, for the purposes of their assessment, estimated the population during the breeding season as 45,005 pairs. The 3 year peak mean population of puffins recorded in the wind farm area during the breeding season was 6,173 birds. The area of overlap with the pSPA (including the 2km buffer) equates to 46% and therefore, it was calculated that 46% of the 3 year peak mean population, equating to 2,840 individuals, could be displaced during the breeding season. Assuming a 60% displacement rate and 2% rate mortality rate, the HRA Report estimated that 34 birds (17 adults and 17 immature or non-breeding adults) may be impacted during the breeding season.

20.4.2 PVA was undertaken for the Forth Islands SPA over 25 and 50 year periods. The loss of 17 birds per year within the pSPA is below the level at which PVA modelling is predicted to cause a decrease in the breeding puffin population.

20.4.3 As there is no overlap between the Inch Cape or Seagreen Alpha and Bravo offshore wind farms and the pSPA there is no requirement to consider the in-combination displacement effects from these wind farms.

20.4.4 SNH advised the Development in isolation and in-combination with Inch Cape, Seagreen Alpha and Seagreen Bravo would not result in an adverse effect on site integrity to the Outer Firth of Forth and St Andrews Bay Complex pSPA with respect to puffin.

20.5 Puffin - Conclusion

20.5.1 The 2014 AA estimated a much greater effect on puffin from the Forth and Tay wind farms, the total estimated mortalities in 2014 was 1251 puffin per year from the Forth Islands SPA. This was due to the different assessment methodologies advised in 2014. The assumptions in the 2014 AA were overly precautionary for example a mortality rate of 50% was assumed for puffin. The mortality rate used in the current assessment is 2%, which was advised by SNH, and detailed in the Scoping Opinion. The 2014 AA concluded that there would be no adverse effect on site integrity, the predicted effects in the current AA are significantly less.

20.5.2 SNH advised that, based on the information contained within the EIA and HRA Report, there would be no adverse effect on the site integrity of the Forth Islands SPA or Outer Firth of Forth and St Andrews Bay Complex pSPA in respect of the puffin qualifying interest as a result of the Development in isolation and in-combination with the other Forth and Tay Developments.

20.5.3 In reaching their conclusion Scottish Ministers have considered the conservation objectives, the populations at the sites, the predicted levels of effect and population consequences, the fact that the effects are less than in 2014 and the advice from SNH. Scottish Ministers conclude that, subject to the appliance of conditions, the Development will not adversely affect the site integrity of Forth Islands SPA or Outer Firth of Forth and St Andrews Bay Complex pSPA with respect to puffin in isolation or in-combination with the other Forth and Tay Developments and projects detailed in Appendix 1.

21 BLACK-HEADED GULL, LITTLE GULL AND COMMON GULL - Outer Firth of Forth and St Andrews Bay Complex pSPA

21.1.1 The Scoping Opinion required that assessments of displacement and collision impacts were undertaken for the black-headed gull, little gull and common gull qualifying interests of the pSPA if the Development area overlapped the pSPA boundary for the non-breeding season only.

21.1.2 RSPB stated that the Development would lead to: the loss of the distribution and extent of habitats, deterioration of the habitats of the qualifying interests and that this will infringe on the maintenance of the species as a viable component of the site and the ability of the qualifying interests to utilise important parts of the site. RSPB therefore stated that the Development would have an adverse effect on the site integrity of the pSPA.

21.1.3 Non-breeding season impacts have been calculated using the populations presented in the pSPA site selection document (SNH, 2016).[29] However, the HRA Report states that these figures present the minimum numbers of birds likely to be present and for the little gull qualifying interest a larger population figure has been assumed.

21.2 Little gull

21.2.1 The estimated population for little gull during the non-breeding is given as 126 birds. NnGOWL highlighted, however, that the size of the regional autumn

[29] SNH. (2016). Outer Firth of Forth and St Andrews Bay Complex Proposed Special Protection Area (pSPA) NO. UK9020316. SPA Site Selection Document: Summary of the scientific case for site selection. Scottish Natural Heritage.

passage population is unknown, which presented a constraint when completing their assessment. The HRA Report provided a summary of recent research outputs, which suggests that the species may be more common than originally appreciated. Therefore, the upper limit of birds (3,000 individuals) has been used as a precaution.

21.2.2 The HRA Report concluded that based on the outputs of the CRM there will be no impacts on little gulls from collision. Based on an overlap of 46% and assuming a displacement rate of 30% and a mortality rate of 2%, it was estimated that 1 bird may be impacted by displacement effects during the non-breeding season, which equates to 0.8% of the cited SPA population and 0.03% of the higher population figure.

21.3 Black-headed gull

21.3.1 The CRM predicted no impacts on black-headed gulls from collisions. The HRA Report concluded that 6 birds may suffer mortality during the non-breeding season, based on an overlap of 46% and assuming a displacement rate of 30% and a mortality rate of 2%. This would equate to a total of 0.02% of the pSPA population. The HRA Report considered that these impacts would be unlikely to occur as evidence from other operational wind farms has shown little, if any, displacement behaviour on other species of gull.

21.4 Common gull

21.4.1 The CRM predicted no impacts on common gulls from collisions during the breeding season. Based on an overlap of 46% and assuming a displacement rate of 30% and a mortality rate of 2%, it was estimated that 6 birds may be impacted by displacement during the non-breeding season, equating to 0.02% of the pSPA population. Again, the HRA Report considered that these impacts would be unlikely to occur based on evidence gathered from other operational wind farms regarding displacement behaviour.

21.5 Little gull, common gull, black-headed gull – In-combination

21.5.1 The HRA Report states that, as collision impacts and displacement effects will only affect birds within the pSPA, not all the estimated impacts from the Development will affect birds within the pSPA as the whole of the Development does not overlap with the pSPA. Although the HRA Report recognised that in-combination impacts could occur with projects outwith the pSPA, these in-combination impacts have already been assessed against the relevant terrestrial populations which make up the reference pSPA population. Therefore, no additional in-combination assessment has been undertaken for the pSPA by NnGOWL.

21.6 Little gull, common gull, black-headed gull - Conclusion

21.6.1 These qualifying interests were not considered within the 2014 AA as the SPA was not proposed for designation at this time.

21.6.2 SNH advised that there would be no adverse effect on the site integrity of the Outer Firth of Forth and St Andrews Bay Complex pSPA arising from the Development in isolation in respect of the above listed qualifying interests.

21.6.3 In reaching their conclusion Scottish Ministers have considered the conservation objectives, the populations at the site, the predicted levels of effect, and the advice from SNH. Scottish Ministers conclude that, subject to the appliance of conditions, there will be no adverse effect on the site integrity of the Outer Firth of Forth and St Andrews Bay Complex pSPA in respect of the little gull, common gull or black-headed gull qualifying interests as a result of the Development in isolation or in-combination with other plans and projects.

22 PREY AVAILABILITY AND HABITAT LOSS - Outer Firth of Forth and St Andrews Bay Complex pSPA

22.1.1 Likely significant effects on the qualifying interests of the pSPA are predicted as a result of indirect impacts resulting from prey availability and habitat loss (due to the physical presence of the WTG and cable protection). Temporary impacts arising from disturbance to the seabed during cable laying operations may also occur during the construction phase.

22.2 Habitat Loss

22.2.1 The HRA Report included consideration of the degree of habitat loss arising from the installation of the WTGs on the seabed and accompanying scour protection. The assessment was conducted assuming a worst-case scenario of 54 wind turbines. As approximately 68% of the Development area falls outwith the pSPA boundary, the appraisal assumed that 68% of the turbines would be installed outwith the pSPA boundary and would subsequently have no physical impact on the pSPA. In addition, the impacts of the installation of an OSP and two OECs (including cable protection) were considered – equating to a total potential area of seabed habitat loss of 0.1527km^2 or 0.0056% of the physical habitat.

22.2.2 The HRA Report considered the installation methods to be utilised and site conditions and concluded that the trenching of cables will cause only a local and temporary impact on habitats within the pSPA. The HRA report concluded that these impacts were of negligible magnitude, as the area of habitat predicted to be lost will not cause a significant reduction in the extent, distribution or quality of

habitats that support the qualifying interests of the Outer Firth of Forth and St Andrews Bay Complex pSPA.

22.2.3 The Inch Cape offshore wind farm does not overlap with the pSPA, except for part of the cable route. The Inch Cape HRA Report estimates that 85% of their cable corridor overlaps with the pSPA, which equates to 0.7% of the area of the pSPA being affected.

22.2.4 The Seagreen Alpha and Bravo offshore wind farms do not overlap with the pSPA except for a small percentage of the cable corridor which has landfall at Carnoustie.

22.3 Prey Availability

22.3.1 Further indirect impacts on the bird qualifying interests may arise during the construction phase of the Development. Construction works have the potential to impact benthic and fish receptors, resulting in a reduction in prey availability for the bird qualifying interests. SNH advised that there were no likely significant effects arising from the Development on the fish and benthic qualifying interests of the sites and therefore, these qualifying interests are not considered further in this AA. Impacts on prey were considered at page 132 of the HRA Report, including details of proposed mitigation measures to reduce impacts on prey, such as the piling strategy and vessel management plan. These conditions are listed in Section 4 of this AA.

22.3.2 The HRA Report concluded that the impacts on prey availability will be localised and short-term and, therefore, the distribution and extent of the species will be maintained in the long-term.

22.3.3 In reaching their conclusion Scottish Ministers have considered the conservation objectives, the limited impacts on prey species and the large area of habitat available. Scottish Ministers conclude that there will be no adverse effect on the site integrity of the Outer Firth of Forth and St Andrews Bay Complex pSPA as a result of impacts arising from prey availability or habitat loss from the Development in isolation or in-combination with the Forth and Tay Developments.

22.4 Consideration of the pSPA under Article 4(4) of the Birds Directive

22.4.1 As detailed in paragraph 3.1.2, as the Outer Firth of Forth and St Andrews Bay Complex pSPA has not yet been designated, it also falls within the regime governed by the first sentence of Article 4(4) of the Birds Directive as follows:

> "In respect of the protection areas referred to in paragraphs 1 and 2, Member States shall take appropriate steps to avoid pollution or deterioration of

habitats or any disturbances affecting the birds, in so far as these would be significant having regard to the objectives of this Article. Outside these protection areas, Member States shall also strive to avoid pollution or deterioration of habitats."

22.4.2 The Scottish Ministers have considered the information contained within the HRA Report and the advice provided by SNH and conclude that the works will not cause pollution or deterioration of habitats and any disturbance will be negligible.

23 Overall Conclusion

23.1.1 In the ornithology assessments above Scottish Ministers have considered the conservation objective of "maintaining the population of the species as a viable component of the site" on the individual qualifying features of the SPAs, as well as additional conservation objectives in relation to the pSPA.

23.1.2 For the qualifying interests of the sites concerned Scottish Ministers have determined that the Development in isolation and in-combination will not affect the populations as viable components of the SPAs. Scottish Ministers also conclude that the Development will not, on its own or in-combination with the projects detailed in Appendices 1 and 2, adversely affect the integrity of the Forth Islands SPA, Fowlsheugh SPA, Buchan Ness to Collieston Coast SPA, St Abb's Head to Fast Castle SPA, or the Outer Firth of Forth and St Andrews Bay Complex pSPA, where each SPA is taken as a whole.

23.1.3 In reaching their conclusion Scottish Ministers consider that the most up to date and best scientific evidence available has been used and are satisfied that no reasonable scientific doubt remains. The Scottish Ministers conclude that, subject to the appliance of conditions, the Development with a 50 year operational life will not have an adverse effect on the site integrity of the Isle of May SAC, Berwickshire and North Northumberland Coast SAC, Firth of Tay and Eden Estuary SAC, Moray Firth SAC, Forth Islands SPA, Fowlsheugh SPA, Buchan Ness and Collieston Coast SPA, St Abb's Head to Fast Castle SPA, and the Outer Firth of Forth and St Andrews Bay Complex pSPA in isolation or in-combination with the Inch Cape and Seagreen Alpha and Bravo offshore wind farms and other projects detailed in Appendices 1 and 2.

23.2 Reasons for diverging from SNH advice

23.2.1 In reaching their conclusions Scottish Ministers have given considerable weight to SNH's advice. The methods advised by SNH through scoping, and additional information requested by SNH, have been fully incorporated into this assessment. As such, divergence from their advice is limited to differing conclusions in relation

to site integrity for gannet at Forth Islands SPA, kittiwake at Forth Islands SPA, Fowlsheugh SPA, and St Abb's Head to Fast Castle SPA and razorbill at Forth Islands SPA and Fowlsheugh SPA. In reaching a different conclusion Scottish Ministers note that SNH's advice on the level of impact being adverse to site integrity is a subjective opinion. In reaching their own conclusions, Scottish Ministers have taken proper account of the entire context of this assessment, in particular its highly precautionary assumptions, which make it very unlikely the number of impacted individuals will be as large as the values presented in the assessment. For these reasons Scottish Ministers consider the levels of assessed impact to be reasonable and are convinced there will be no adverse impacts on site integrity of any of the SACs, SPAs or the pSPA considered in this AA.

SECTION 4: CONDITIONS

24 Requirement for conditions

24.1.1 The requirement for the below conditions is as a result of NnGOWL's commitments in the EIA and HRA Reports, along with SNH's advice regarding mitigation measures to ensure that there will be no adverse effect on the site integrity of the natura sites listed above.

24.1.2 The conditions below relate to natura concerns as well as covering other interests. The conditions here are written in their complete form and so may also refer to non-natura interests. Where reference is made to other conditions these are numbered as per the condition numbers which will be used in the s.36 consent if granted.

1. Duration of the Consent

The consent is for a period of 50 years from the date of Final Commissioning of the Development.

Written confirmation of the date of First and Final Commissioning must be provided by the Company to the Scottish Ministers and to Angus Council, Dundee City Council, East Lothian Council, Fife Council, Scottish Borders Council and Scottish Ministers no later than one calendar month after these respective dates.

Reason: *To define the duration of the consent.*

2. Decommissioning

The Development will be decommissioned and will cease to generate electricity by no later than the date falling 50 years from the date of Final Commissioning of the Development.

There must be no Commencement of Development unless a Decommissioning Programme ("DP") has been submitted to and approved in writing by the Scottish Ministers. The DP must outline measures for the decommissioning of the Development, restoration of the sea bed and will include without limitation, proposals for the removal of the Development, the management and timing of the works and, environmental management provisions.

The Development must be decommissioned in accordance with the approved DP, unless otherwise agreed in writing in advance with the Scottish Ministers.

Reason*: To ensure the decommissioning and removal of the Development in an appropriate and environmentally acceptable manner, and in the interests of safety and environmental protection.*

3. Construction Method Statement

The Company must, no later than six months prior to the Commencement of the Development submit a Construction Method Statement ("CMS"), in writing, to the Scottish Ministers for their written approval. Such approval may only be granted following consultation by the Scottish Ministers with SNH, SEPA, MCA, NLB, RSPB Scotland, Forth Ports ("FP"), Angus Council, Dundee City Council, East Lothian Council, Fife Council, Scottish Borders Council and any such other advisors or organisations as may be required at the discretion of the Scottish Ministers.

The CMS must include, but not be limited to:

a. Details of the commencement dates, duration and phasing for the key elements of construction, the working areas, the construction procedures and good working practices for installing the Development.
b. Details of the roles and responsibilities, chain of command and contact details of company personnel, any contractors or sub-contractors involved during the construction of the Development.
c. Details of how the construction related mitigation steps proposed in the Application are to be delivered.

The CMS must adhere to the construction methods assessed in the Application. The CMS also must, so far as is reasonably practicable, be consistent with the Design Statement ("DS"), the Environmental Management Plan ("EMP"), the Vessel Management Plan ("VMP"), the Navigational Safety Plan ("NSP"), the Piling Strategy ("PS"), the Cable Plan ("CaP") and the Lighting and Marking Plan ("LMP").

***Reason**: To ensure the appropriate construction management of the Development, taking into account mitigation measures to protect the environment and other users of the marine area.*

4. Piling Strategy

The Company must, no later than six months prior to the Commencement of the Development, submit a Piling Strategy ("PS"), in writing, to the Scottish Ministers for their written approval. Such approval may only be granted following consultation by the Scottish Ministers with SNH, River Tweed Commission ("RTC"), Whale and Dolphin Conservation ("WDC"), Scottish Borders Council and any such other advisors as may be required at the discretion of the Scottish Ministers.

The PS must include, but not be limited to:

a. Details of expected noise levels from pile-drilling/driving in order to inform point d below;
b. Full details of the proposed method and anticipated duration of piling to be carried out at all locations;
c. Details of soft-start piling procedures and anticipated maximum piling energy required at each pile location; and

d. Details of any mitigation such as Passive Acoustic Monitoring ("PAM"), Marine Mammal Observers ("MMO"), use of Acoustic Deterrent Devices ("ADD") and monitoring to be employed during pile-driving, as agreed by the Scottish Ministers.

The PS must be in accordance with the Application and must also reflect any monitoring or data collection carried out after submission of the Application. The PS must demonstrate how the exposure to and/or the effects of underwater noise have been mitigated in respect to harbour porpoise, minke whale, bottlenose dolphin, harbour seal, grey seal, Atlantic salmon and sea trout.

The PS must, so far as is reasonably practicable, be consistent with the EMP, the Project Environmental Monitoring Programme ("PEMP") and the CMS.

Reason*: To mitigate the underwater noise impacts arising from piling activity.*

5. **Environmental Management Plan**

The Company must, no later than six months prior to the Commencement of the Development, submit an Environmental Management Plan ("EMP"), in writing, to the Scottish Ministers for their written approval. Such approval may only be granted following consultation by the Scottish Ministers with, SNH, SEPA, RSPB Scotland, WDC, RTC, Tay District Salmon Fisheries Board ("Tay DSFB"), Esk District Salmon Fisheries Board ("Esk DSFB"), Forth District Salmon Fisheries Board ("Forth DSFB"), Fisheries Management Scotland ("FMS") and any such other advisors or organisations as may be required at the discretion of the Scottish Ministers.

The EMP must provide the over-arching framework for on-site environmental management during the phases of development as follows:

a. All construction as required to be undertaken before the Final Commissioning of the Development; and
b. The operational lifespan of the Development from the Final Commissioning of the Development until the cessation of electricity generation (environmental management during decommissioning is addressed by the Decommissioning Programme provided for by condition 3).

The EMP must be in accordance with the Application insofar as it relates to environmental management measures. The EMP must set out the roles, responsibilities and chain of command for the Company personnel, any contractors or sub-contractors in respect of environmental management for the protection of environmental interests during the construction and operation of the Development. It must address, but not be limited to, the following over-arching requirements for environmental management during construction:

a. Mitigation measures to prevent significant adverse impacts to environmental interests, as identified in the Application and pre-consent and pre-construction

monitoring or data collection, and include the relevant parts of the CMS (refer to condition 10);

b. A pollution prevention and control method statement, including contingency plans;
c. Management measures to prevent the introduction of invasive non-native marine species;
d. A site waste management plan (dealing with all aspects of waste produced during the construction period), including details of contingency planning in the event of accidental release of materials which could cause harm to the environment. Wherever possible the waste hierarchy of reduce, reuse and recycle should be encouraged; and
e. The reporting mechanisms that will be used to provide the Scottish Ministers and relevant stakeholders with regular updates on construction activity, including any environmental issues that have been encountered and how these have been addressed.

The EMP must be regularly reviewed by the Company and the Scottish Ministers or Forth and Tay Regional Advisory Group ("FTRAG"), at intervals agreed by the Scottish Ministers. Reviews must include, but not be limited to, the reviews of updated information on construction methods and operations of the Development and updated working practices.

The EMP must be informed, so far as is reasonably practicable, by the baseline monitoring or data collection undertaken as part of the Application and the PEMP.

Reason: *To ensure that all construction and operation activities are carried out in a manner that minimises their impact on the environment, and that mitigation measures contained in the Application, or as otherwise agreed are fully implemented.*

6. **Vessel Management Plan**

The Company must, no later than six months prior to the Commencement of the Development, submit a Vessel Management Plan ("VMP"), in writing, to the Scottish Ministers for their written approval. Such approval may only be granted following consultation by the Scottish Ministers with SNH, WDC, FP, MCA, NLB, SFF and any such other advisors or organisations as may be required at the discretion of the Scottish Ministers.

The VMP must include, but not be limited to, the following details:

a. The number, types and specification of vessels required;
b. How vessel management will be coordinated, particularly during construction but also during operation;
c. Location of working port(s), the routes of passage, how often vessels will be required to transit between port(s) and the site and indicative vessel transit corridors proposed to be used during construction and operation of the Development; and

d. A fishing gear De-Confliction Notice. The De-Confliction Notice must lay out guidelines for vessels operating in around the site and transiting into the site from relevant ports.

The confirmed individual vessel details must be notified to the Scottish Ministers in writing no later than 14 days prior to the Commencement of the Development, and thereafter, any changes to the details supplied must be notified to the Scottish Ministers, as soon as practicable, prior to any such change being implemented in the construction or operation of the Development.

The VMP must, so far as is reasonably practicable, be consistent with the CMS, the EMP, the PEMP, the NSP, and the LMP.

Reason: *To mitigate the impact of vessels.*

7. **Cable Plan**

The Company must, no later than six months prior to the Commencement of the Development, submit a Cable Plan ("CaP"), in writing, to the Scottish Ministers for their written approval. Such approval may only be granted following consultation by the Scottish Ministers with, SNH, MCA, SFF and any such other advisors or organisations as may be required at the discretion of the Scottish Ministers. The CaP must be in accordance with the Application.

The CaP must include, but not be limited to, the following:

a. The vessel types, location, duration and cable laying techniques for the inter array cables;

b. The results of monitoring or data collection work (including geophysical, geotechnical and benthic surveys) which will help inform cable routing;

c. Technical specification of inter array cables, including a desk based assessment of attenuation of electro-magnetic field strengths and shielding;

d. A burial risk assessment to ascertain burial depths and where necessary alternative protection measures;

e. Methodologies for surveys (e.g. over trawl) of the inter array cables through the operational life of the wind farm where mechanical protection of cables laid on the sea bed is deployed; and

f. Methodologies for inter array cable inspection with measures to address and report to the Scottish Ministers any exposure of inter array cables.

Any consented cable protection works must ensure existing and future safe navigation is not compromised. The Scottish Ministers will accept a maximum of 5% reduction in

surrounding depth referenced to Chart Datum. Any greater reduction in depth must be agreed in writing by the Scottish Ministers.

Reason: *To ensure all environmental and navigational issues are considered for the location and construction of the inter array cables.*

APPENDIX 1: IN-COMBINATION ASSESSMENT – OTHER PLANS AND PROJECTS

25 In-Combination Assessment (Other Plans & Projects) - Introduction

25.1.1 The AA above provides a detailed in-combination assessment with the Inch Cape and Seagreen Alpha and Bravo offshore wind farms (and where relevant other UK wind farms) for ornithology and also with the Moray East, Moray West and Beatrice offshore wind farms for bottlenose dolphin.

25.1.2 Scottish Ministers are aware of a number of activities which currently have a marine licence and/or s.36 consent and where LSE was identified on the qualifying interests of the Forth Islands SPA, Fowlsheugh SPA, St Abb's Head to Fast Castle SPA, Buchan Ness to Collieston Coast SPA, Outer Firth of Forth and St Andrews Bay Complex pSPA, Moray Firth SAC, Firth of Tay and Eden Estuary SAC, Berwickshire and North Northumberland Coast SAC and Isle of May SAC. Scottish Ministers have considered these other projects in reaching their conclusions above.

25.1.3 Table 25 below provides a summary of the projects which have been considered in this assessment. An overall conclusion regarding in-combination effects is included within the main body of the AA.

Table 25 Projects for which there is currently an active marine licence or s.36 consent and where LSE was identified on the qualifying interests of the sites

Project Name	Licence/Consent Type(s)	Relevant site(s)
Aberdeen Harbour Expansion Project ("AHEP")	Construction	• Moray Firth SAC • Berwickshire & North Northumberland Coast SAC • Isle of May SAC • Forth Islands SPA • Fowlsheugh SPA • Buchan Ness to Collieston Coast SPA
Beatrice Offshore Wind Farm	Offshore wind farm	• Moray Firth SAC

Dounreay Tri – Hexicon	Offshore wind farm	• Forth Islands SPA • Fowlsheugh SPA • Buchan Ness to Collieston Coast SPA • Outer Firth of Forth and St Andrews Bay Complex pSPA
European Offshore Wind Deployment Centre ("EOWDC")	Offshore wind farm (operational phase only)	• Moray Firth SAC • Fowlsheugh SPA • Buchan Ness to Collieston Coast SPA
Forth Ports – Leith and Rosyth	Maintenance dredge and sea disposal	• Outer Firth of Forth and St Andrews Bay Complex pSPA
Forth Road Bridge	Maintenance works	• Forth Islands SPA
Forthwind, Methil	Offshore wind farm	• Outer Firth of Forth and St Andrews Bay Complex pSPA
Hywind Scotland Pilot Park	Offshore wind farm (Operational phase only)	• Moray Firth SAC • Forth Islands SPA • Fowlsheugh SPA • Buchan Ness to Collieston Coast SPA
Kincardine Offshore Wind Farm	Offshore wind farm	• Moray Firth SAC • Forth Islands SPA • Fowlsheugh SPA • Buchan Ness to Collieston Coast SPA • Outer Firth of Forth and St Andrews Bay Complex pSPA
Meygen	Offshore tidal array	• Moray Firth SAC
Moray East Offshore Transmission Infrastructure	Offshore transmission infrastructure	• Moray Firth SAC
Moray Offshore Eastern Development	Offshore wind farm	• Moray Firth SAC

ORE Catapult – Levenmouth Demonstration Turbine	Offshore wind farm	• Outer Firth of Forth and St Andrews Bay Complex pSPA
Port of Cromarty Firth – Phase 4 (Invergordon)	Construction, dredging, sea disposal and land reclamation	• Moray Firth SAC
University of St Andrews, Guardbridge, Fife	Seawall repair	• Firth of Tay and Eden Estuary SAC

26 Project Descriptions

26.1.1 Descriptions of the projects considered in the in-combination assessment are detailed below.

Offshore Renewables Projects

26.2 Seagreen Alpha and Bravo Offshore Wind Farms

26.2.1 Installation and operation of the Seagreen Alpha and Bravo Offshore Wind Farms, located 27km off the Angus coastline, in the outer Firth of Forth and Firth of Tay region. Consent was granted in respect of both wind farms and the associated transmission infrastructure in October 2014. In total the project covers an area of approximately 391km^2. The operational lifespan for both projects is expected to be 25 years. The offshore transmission infrastructure will consist of up to 5 offshore substation platforms and 6 offshore export cables, in addition to inter-array cabling and scour protection. The consents for both wind farms were subsequently varied in 2018, to remove the maximum generating capacity for each wind farm site.

26.2.2 In September 2018, Seagreen Wind Energy Limited submitted applications for the revised designs for the Seagreen Alpha and Bravo Offshore Wind Farms, within the same boundary as the consented projects. A new application has been submitted to reflect technological advancements since the consents were granted in 2014. The operational lifespan of the revised design is expected to be 25 years. The wind farms will utilise the existing marine licence granted in respect of the offshore transmission infrastructure. It is anticipated that construction activities would take place over a period of four years.

Table 26 Summary of design parameters for the as-consented Seagreen Alpha and Bravo projects (2014) and new applications (2018)

Design Parameter	As-consented (2014)	Application (2018)
Maximum number of WTGs	150	120
Rotor diameter	220m	167m
Blade tip height	209.7m	280m
Minimum blade tip clearance above LAT	29.8m	32.5m
Foundation options	Gravity base structures, pin piled jackets, suction caisson	As per 2014, expanded to include monopile foundation option at up to 70 WTG locations

26.2.3 A full project description of the existing consents can be found here and a description of the new applications can be found here.

26.3 Inch Cape Offshore Wind Farm

26.3.1 Construction and operation of the Inch Cape Offshore Wind Farm and associated Offshore Transmission Infrastructure, located 15km east off the Angus coastline, for which consent was granted in October 2014. The operational lifespan of the project is expected to be 25 years. The project covers a total area of approx. 150km^2

26.3.2 In August 2018, Inch Cape Offshore Limited submitted applications for marine licences and s.36 consent in respect of the revised design for the wind farm and offshore transmission infrastructure (with landfall at Cockenzie, East Lothian) to take advantage of technological advancements in the time period since consent was granted. The operational lifespan of the revised design is expected to be 50 years. Construction activities are anticipated to take approximately 24 months over a 3 year period.

Table 27 Summary of design parameters for the as-consented Inch Cape Offshore Wind Farm (2014) and new application (2018)

Design Parameter	As-consented (2014)	Application (2018)
Maximum number of WTGs	110	72
Blade tip height (above LAT)	215m	291m

Rotor diameter	Up to 172m	Up to 250m
Offshore substation platforms	5	2
Offshore Export Cables	6	2
Foundation options	Jackets and driven piles, jacket and suction piles, jacket and drilled piles, jacket and gravity based and gravity base	As per 2014, but with the inclusion of monopiles for jackets and driven piles
Inter-array cable length	353km	190km
Export cable length	83km	8km

26.3.3 A full project description of the existing consents can be found here and a description of the new applications can be found here.

26.4 Beatrice Offshore Wind Farm

26.4.1 Installation and operation of the Beatrice Offshore Wind Farm which is located in the outer Moray Firth 13.5km from the Caithness coast. The total area of the development is 131.5km^2. The operational lifespan of the wind farm is expected to be 25 years.

26.4.2 The original application was for a design envelope of up to 277 wind turbine generators ("WTGs") and a maximum generating capacity of up to 1,000MW. Since consent was granted in 2014, the design has been revised and the development will comprise 84 turbines. Piling operations and cable laying activities are now complete.

26.4.3 Also included in the infrastructure is:

- Up to a maximum of three Offshore Substation Platforms ("OSPs");
- Up to a maximum of three meteorological masts; and
- Up to 350km of inter-array cabling linking the turbines, OSPs and meteorological masts.

26.4.4 Construction started in April 2017 and will continue until approximately the end of 2019. A full project description can be found here.

26.5 Hywind Scotland Pilot Park

26.5.1 Five 6MW turbines have been installed approximately 25km off the coast at Peterhead, north east Scotland, just outside the 12 nautical mile territorial water limit. The project will be expected to produce up to 135GWh per year of electricity. The turbines are positioned between 800 to 1,600m apart and attached to the seabed by a three-point mooring spread and anchoring system. Three anchors are required per turbine and the radius of the mooring system extends 600 to 1,200m out from each turbine.

26.5.2 The turbines are connected by inter-array cables which may require stabilisation in some locations. The export cable, which transports electricity from the Pilot Park to shore at Peterhead, is buried where seabed conditions allow. Where this is not possible cable protection in the form of concrete mattresses and rock is required. Both the inter-array and export cables have 33kV transfer voltage. The export cable comes ashore at Peterhead and connects to the local distribution network at SSE Peterhead Grange substation. The onshore project infrastructure comprises an underground cable approximately 1.5km in length and a small switchgear yard facility close to Peterhead Grange substation.

26.5.3 This project has now finished construction and moved into the operational phase. A full project description can be found here.

26.6 Dounreay Trì Floating Wind Demonstration Project

26.6.1 The Development will consist of a demonstration floating offshore wind farm called Dounreay Trì which shall consist of:

- A two turbine offshore wind farm with an installed capacity of between 8 to 12MW, at least 6km off Dounreay, Caithness;
- A single, 33kV, export cable to bring the power to shore immediately to the west of the Dounreay Restoration Site fence line; and
- Subject to a Connection Offer from Scottish and Southern Energy Power Distribution (“SSEPD”), the associated onshore electrical infrastructure to connect the project at, or near, the existing substation at Dounreay.

26.6.2 The main offshore components will include:

- Two offshore wind turbines;
- A floating foundation;
- Mooring clump weight;
- Mooring chain and/or steel lines;
- Drag embedment anchors;
- One cable to bring the renewable electricity ashore; and

- Scour protection for the anchors and the export cable, where necessary.

26.6.3 A full project description can be found here.

26.6.4 The AA for this project concluded that there would be no adverse effect on the site integrity of any SPAs provided the conditions set out in the AA were complied with.

26.7 ORE Catapult Levenmouth Demonstration Turbine ("LDT")

26.7.1 The project involves the construction, operation and decommissioning of a site for the testing of new designs of offshore wind turbines with a capacity of up to 7MW at the Fife Energy Park, Methil. The development will be operational for 15 years, until 2029. During this timescale there is potential for more than one turbine model to be tested at the site. Once one turbine has been tested it will be removed from the site and replaced with a new turbine which falls within the same design parameters (maximum hub height of 110m, rotor diameter of 172m, and maximum height to turbine tip from MSL of 196m). Only one turbine will ever be installed at any one time. The base will remain in place throughout the development.

26.7.2 The development comprises:

- A single, three bladed demonstration wind turbine with an installed capacity of up to 7MW. The turbine tower is up to 110m tall, from Mean Sea Level ("MSL") including the base jacket. The turbine has a maximum rotor diameter of 172m, giving a maximum level from the MSL to turbine tip of up to 196m;
- A personnel bridge connection between the Fife Energy Park ("FEP") and turbine tower;
- Construction of an onshore crane pad on the FEP; and
- Construction of an onshore control compound

26.7.3 A full project description can be found here.

26.7.4 The AA for this project concluded that, based on the outputs of surveys during the first three years of operation, the population level impacts arising from the displacement of the wintering sea duck qualifying interests would not result in an adverse effect on the site integrity of the SPA.

26.8 Forthwind Offshore Development – Methil

26.8.1 The current licence and s.36 consent in respect of this project, is for the construction and operation of the Forthwind Offshore Wind Demonstration Project ("Forthwind"), approximately 1km from the coast of Methil, Fife. The Forthwind development consists of 2, two-bladed lattice structure WTGs, associated infrastructure, 2 electricity offshore export cables with an overall project footprint of 37,400m^2. The WTG parameters are as follows:

- Maximum hub height 121m (measured from LAT)
- Generating capacity of up to 9MW per turbine
- Maximum rotor diameter of 155m
- 3 pin piled foundations per turbine

26.8.2 Construction has not yet commenced but is anticipated to take place over a 3 to 6 month period, followed by testing and commissioning before becoming operational.

26.8.3 A full project description can be found here. At present, the timescales for commencement of construction activities are unclear and the current marine licence expires on 12 September 2037.

26.8.4 The AA for this project concluded that there would be no adverse effect on the site integrity of any SPA.

26.9 Kincardine Offshore Wind Farm

26.9.1 The works consist of the construction and operation of a demonstrator floating offshore wind farm development, located to the south east of Aberdeen, approximately eight miles from the Scottish coastline. The development is considered a commercial demonstrator site, which will utilise floating semi-submersible technology to install six or eight WTGs, with a combined maximum generating capacity of 50MW, in approximately 60 to 80m of water. The proposal also includes inter-array cabling to the connection point at the onshore Redmoss substation, Altens, Aberdeen. A full project description can be found here. The construction works are scheduled to take place in three phases between March 2018 and June 2020.

26.10 European Offshore Wind Deployment Centre ("EOWDC")

26.10.1 Installation and operation of a European Offshore Wind Deployment Centre consisting of 11 turbines, inter-array and export cables located 2 to 4.5 km east of Blackdog, Aberdeenshire. Construction commenced in November 2017, beginning with foundations and cabling. Construction works are concluded and the project is now in the operational phase. A full project description can be found here.

26.10.2 The AA for this project concluded that there would be no adverse effect on any SPAs or SACs subject to conditions attached to the consent.

26.11 Moray Offshore Eastern Development

26.11.1 The Moray Offshore Eastern Development consists of three proposed wind farm sites: the Telford, Stevenson and MacColl wind farms all situated within the development area. The original design envelope was for up to 339 WTGs with a maximum generating capacity of up to 1,500MW. This has since been reduced to a design with a maximum generating capacity of up to 1,116MW and for a maximum of 186 WTGs. The proposals are located on the Smith Bank in the outer Moray Firth (approximately 2km from the Caithness coastline, in water depths of 38 – 57m). The operational lifespan of the wind farms is expected to be 25 years.

26.11.2 Substructure and foundation design for the WTGs will consist of either a mixture of, or one design option of:

- concrete gravity base foundation with ballast and a gravel/grout bed, or
- steel lattice jackets with pin piles.

26.11.3 A full project description for the Moray Offshore Eastern Development can be found here.

26.11.4 Construction is anticipated to commence in April 2019, with piling activities due to commence in July 2019.

26.12 Moray East Modified Offshore Transmission Infrastructure

26.12.1 The construction and operation of offshore transmission infrastructure in the Outer Moray Firth, to support the Moray Offshore Eastern Development, consisting of:

- Up to 2 OSPs with associated substructures and foundations;
- Inter-platform cabling within the three consented Telford, Stevenson and MacColl wind farms; and
- Up to 4 triplecore submarine export cables between the OSPs and the shore.

26.12.2 Recent project updates advised construction is likely to commence in March 2019.

Large-scale construction projects

26.13 Aberdeen Harbour Expansion Project ("AHEP") – construction works, capital dredging and sea disposal operations

26.13.1 Development of a new harbour facility at Nigg Bay, Aberdeen, approximately 0.8km south of the existing harbour in Aberdeen City centre. The works include the construction of two breakwaters, quaysides and associated infrastructure, as well as a large-scale capital dredge and dredge spoil deposit operation. Works commenced in late 2016 and are scheduled to take place over a 3-year period. Construction works began in May 2017 with the construction of the northern breakwater.

26.13.2 Dredging operations are expected to last until September 2018, which is when their dredging licence expires. Blasting operations are expected to commence in August 2018 for a maximum of 7 consecutive months, however, these timescales may be subject to change. Impact piling will no longer be used and rotary piling used instead, which is thought to produce less noise. All marine elements of the works are scheduled to be complete by February 2020.

26.13.3 Full details of the project can be found in the documentation here.

26.13.4 The AA for this project concluded that there would be no adverse effect on the site integrity of any SPAs or SACs provided that the conditions set out in the AA were complied with.

26.14 Port of Cromarty Firth Phase 4 – Construction of Laydown Area & Capital Dredging

26.14.1 These works involve land reclamation to provide an additional 4.5Ha of laydown space to the west of the previously completed phase 3 development, including the construction of 215m of quay wall to create a new berth adjacent to the existing berth 5, providing a 369m long combined quay face. Fendering will then be installed along berth 5 and the new berth 6.

26.14.2 A rock armour revetment will be constructed along the north and west sides of the new laydown area with a tubular and sheet piled wall forming the new quay. The existing rock armour will be removed from the western edge of the phase 3 development and re-used on phase 4. The area will then be lined with a geotextile membrane and infilled, before appropriate drainage, bollards and services are installed prior to surfacing.

26.14.3 Dredging will be required along the toe of the new revetment structure and a second campaign will be required to create a finished depth of 12 metres along

the new berth. The total dredge volume is estimated to be 110,000m^3. It is anticipated that up to 60,000m^3 of dredge material will be suitable for re-use within the land reclamation and that the remainder will be deposited at the Sutors dredge spoil deposit area.

26.14.4 The works are scheduled to take place between 1 November 2018 and 31 March 2020.

Dredging operations, maintenance works and small-scale construction projects

26.15 Forth Road Bridge - Maintenance Works

26.15.1 Bridge maintenance works, incorporating various schemes as outlined in the supporting information submitted to Marine Scotland as part of the marine licence application. The programme of works is scheduled for an initial period of 5 years, with the option for 5 additional 1 year extensions and is currently anticipated to conclude by October 2020.

26.15.2 The AA for this project concluded that there would be no adverse effect on the site integrity of any SPA due to the extensive alternative areas of habitat available for wintering birds. SNH advised that population, displacement and disturbance effects would be minor, temporary and very limited in area.

26.16 Rosyth and Leith Docks - Maintenance dredging and sea disposal operations

26.16.1 Maintenance dredge and sea disposal at the Leith and Rosyth docks and approaches. The Leith works comprise maintenance dredging of the docks and approach channel consisting of 100,000m^3 of spoil per year and disposal at Narrow Deep B spoil ground for a period of 3 years. The Rosyth works comprise maintenance dredging of the docks and approach channel consisting of 400,000m^3 of spoil per year and disposal at the Oxcars spoil ground for a period of 3 years.

26.16.2 A combined AA was undertaken for these activities due to the close proximity, complete overlap of active licence period and potentially affected Natura sites. The AA concluded that there would be no adverse effect on the site integrity of the Firth of Forth SPA.

26.17 Old Guardbridge Paper Mill – Seawall Repairs

26.17.1 Repair to the East Seal Wall in Guardbridge, Fife, which forms the boundary between the old Guardbridge Paper Mill and the Eden Estuary. The repairs will be over 385m of sewall and include the removal and replacement of wall cope, removal of rubble behind the seawall, concrete repairs to the seawall and replacement of revetment using concrete and rock armour. Works will be carried out over four phases during 2018-2021. Works cannot be carried out between 1 October and 31 April in any calendar year, thus ensuring works are carried out outside the period that the qualifying interests of the Firth of Tay and Eden Estuary SAC are present.

27 Assessment of in-combination effects

27.1 Assessment of in-combination effects on the Fowlsheugh SPA

27.1.1 The following projects have the potential to have a likely significant effect on the relevant qualifying interests of the Fowlsheugh SPA in addition to the Forth and Tay Developments considered in detail above:

- Aberdeen Harbour Expansion Project (“AHEP”)
- European Offshore Wind Deployment Centre (“EOWDC”)
- Hywind Scotland Pilot Park Project
- Kincardine Offshore Wind Farm

27.1.2 The AAs for these projects concluded that there would no adverse effect on the site integrity of the Fowlsheugh SPA, either in isolation or in-combination with other plans or projects, provided that the conditions set out in the AAs and marine licences and s.36 consents were implemented and complied with. The proposed timeframes for the Development will overlap with the operational phases of the projects listed above. The AAs for these projects identified likely significant effects on the relevant qualifying interests of the SPA during the operational phases of the works as a result of collision risk and displacement and barrier effects.

27.1.3 Scottish Ministers have considered these projects in the in-combination assessment completed.

27.2 Assessment of in-combination effects on the St Abb’s Head to Fast Castle SPA

27.2.1 The Scottish Ministers identified no additional projects to the Forth and Tay Developments which would have an in-combination effect with the Development on the site integrity of the St Abb’s Head to Fast Castle SPA.

27.3 Assessment of in-combination effects on the Buchan Ness to Collieston Coast SPA

27.3.1 The following projects have the potential to have a likely significant effect on the relevant qualifying interests of the Buchan Ness to Collieston Coast SPA:

- AHEP
- Dounreay Tri – Hexicon
- EOWDC
- Hywind Scotland Pilot Park Project
- Kincardine Offshore Wind Farm

27.3.2 The AAs for these projects concluded that there would no adverse effect on the site integrity of the Buchan Ness to Collieston Coast SPA, either in isolation or in-combination with other plans or projects, provided that the conditions set out in the AAs and marine licences and s.36 consents were implemented and complied with. The proposed timeframes for the Development will overlap with the operational phases of the projects listed above. The AAs for these projects identified likely significant effects on the relevant qualifying interests of the SPA during the operational phases of the works as a result of collision risks and displacement and barrier effects.

27.3.3 Scottish Ministers have considered these projects in the in-combination assessment completed.

27.4 Assessment of in-combination effects on the Forth Islands SPA

27.4.1 The following projects have the potential to have a likely significant effect on the relevant qualifying interests of the Forth Islands SPA:

- AHEP
- Dounreay Tri – Hexicon
- Forth Road Bridge Maintenance Works
- Hywind Scotland Pilot Park Project
- Kincardine Offshore Wind Farm

27.4.2 The AAs for these projects concluded that there would no adverse effect on the site integrity of the Forth Islands SPA, either in isolation or in-combination with other plans or projects, provided that the conditions set out in the AAs and marine licences and s.36 consents were implemented and complied with. The AAs for these projects identified likely significant effects on the relevant qualifying interests

of the SPA. Conditions were attached to the respective AAs, marine licences and consents to mitigate the impacts on the relevant qualifying interests of the SPA.

27.4.3 Scottish Ministers have considered these projects in the in-combination assessment completed.

27.5 Assessment of in-combination effects on the Outer Firth of Forth and St Andrews Bay Complex pSPA

27.5.1 The following projects have the potential to have a likely significant effect on the relevant qualifying interests of the Outer Firth of Forth and St Andrews Bay Complex pSPA:

- Dounreay Tri – Hexicon
- Forthwind, Methil
- Kincardine Offshore Wind Farm
- ORE Catapult – Levenmouth Demonstration Turbine
- Rosyth and Leith Harbour Maintenance Dredge and Sea Disposal

27.5.2 The Rosyth and Leith Harbour Maintenance Dredge and Sea Disposal operations are anticipated to conclude by February 2021, therefore, there may be minimal temporal overlap with the indicative construction schedule for the Development. The AA for these works concluded that there would be no adverse effect on site integrity due to the availability of extensive alternative areas of habitat, the ability of marine birds to move away from the disposal operations and the long history of dredge spoil disposal at the location to be utilised.

27.5.3 The AAs for the offshore wind farm projects listed above (Dounreay Tri, Forthwind, Kincardine and ORE Catapult) concluded that there would no adverse effect on the site integrity of the Outer Firth of Forth and St Andrews Bay Complex pSPA, either in isolation or in-combination with other plans or projects, provided that the conditions set out in the AAs and marine licences and s.36 consents were implemented and complied with. Conditions were attached to the respective AAs, marine licences and consents to mitigate the impacts on the relevant qualifying interests of the SPA.

27.5.4 Scottish Ministers have considered these projects in the in-combination assessment completed.

27.6 Assessment of in-combination effects on the Moray Firth SAC

27.6.1 In addition to the Forth and Tay wind farms the following projects have the potential to have a likely significant effect on the relevant qualifying interests of the Moray Firth SAC:

- AHEP
- Beatrice Offshore Wind Farm
- EOWDC
- Hywind Scotland Pilot Park Project
- Moray East Offshore Transmission Infrastructure
- Moray Offshore Eastern Development
- Port of Cromarty Firth – Phase 4 (Invergordon)

27.6.2 The AAs for these projects concluded that there would no adverse effect on the site integrity of the Moray Firth SAC, either in isolation or in-combination with other plans or projects, provided that the conditions set out in the AAs and marine licences and s.36 consents were implemented and complied with.

The construction works for the AHEP works and Port of Cromarty Firth Phase 4 development are scheduled to conclude by the end of February 2020 and March 2020 respectively and, therefore, prior to the commencement of offshore activities for the Development.

27.6.3 The AA for the Hywind, Beatrice and Moray East offshore wind farm works concluded that there would be LSE on the bottlenose dolphin qualifying interest of the SAC as a result of construction activities. Scottish Ministers have considered these projects in the in-combination assessment completed.

27.7 Assessment of in-combination effects on the Firth of Tay and Eden Estuary SAC

27.7.1 Repair works to the seawall, Guardbridge, Fife was the only project identified by Scottish Ministers as having a potential in-combination effect on the site integrity of the Firth of Tay and Eden Estuary SAC. The works will conclude by September 2021, therefore there may be temporal overlap with the timeframes for the Development. The works are of relatively small-scale and are scheduled to be carried out outside the period that the qualifying interests are present (1 October – 31 April each year).

27.7.2 Scottish Ministers have considered this project in the in-combination assessment completed.

27.8 Assessment of in-combination effects on the Berwickshire and North Northumberland Coast SAC

27.8.1 The Scottish Ministers identified no plans or projects apart from the Forth and Tay developments which would have an in-combination effect with the Development on the site integrity of the Berwickshire and North Northumberland Coast SAC.

27.9 Assessment of in-combination effects on the Isle of May SAC

27.9.1 The Aberdeen Harbour Expansion Project was the only plan or project in addition to the Forth and Tay Developments identified by the Scottish Ministers as having potential in-combination effects on the Isle of May SAC with the Development. The AHEP AA concluded that there would be no adverse effect on the site integrity of the Isle of May SAC during the construction or operational phase of the works, provided that the conditions set out in the AA, to mitigate the impacts of underwater noise, vessel movements, reduced water quality and prey availability on the grey seal qualifying interest of the SAC.

27.9.2 Scottish Ministers have considered this project in the in-combination assessment completed.

APPENDIX TWO: IN-COMBINATION ASSESSMENT – NORTH SEA WIND FARMS

List of the North Sea wind farms assessed for non-breeding season effects:

1. East Anglia 3
2. East Anglia 1
3. Hornsea 3
4. Blyth Demonstrator
5. Dogger Creke Beck A&B
6. Dogger Teeside A&B
7. Dudgeon
8. Hornsea 1
9. Hornsea 2
10. Humber Gateway
11. Lincs
12. Race Bank
13. Sheringham Shoal
14. Teeside
15. Triton Knoll
16. Westermost Rough
17. Aberdeen demonstrator
18. Beatrice
19. Galloper
20. Greater Gabbard
21. Kentish Flats
22. London Array
23. Moray Firth 1
24. Thanet
25. Rampion

APPENDIX THREE: DIFFERENCES BETWEEN 2014 AND 2018 SEABIRD ASSESSMENT METHODS

The table below identifies the main differences between the 2014 and 2018 assessment methodologies. These differences mean that a direct comparison of the results of the 2014 and 2018 assessments is not appropriate. Consequently, where results from 2014 and 2018 are presented in this document, the methodological differences identified here provide context.

Table 28 Differences in methodologies between the 2014 and 2018 assessments

Difference	2018 Method(s)	2014 Method(s)
1. Displacement (required for puffin, guillemot, razorbill and kittiwake).		
1. a) Overall method	Matrix approach used for all species, which applies an assumed displacement rate to the number of birds estimated to be present in the wind farm and surrounding buffer, and then a mortality rate is applied to those displaced birds. The Scoping Opinion noted the development of the Seabird Offshore Renewable Development ("SeaBORD") displacement model which is an updated version of the Searle *et al* model used in the 2014 AA. The model has not been used to inform this assessment as there is not yet agreement on	Assessment of kittiwake, razorbill and guillemot used effect estimated in Searle *et al* (2014) individual based simulation model of impacts of changes to time and energy budgets resulting from displacement from the wind farm and buffer on survival. Puffin assessment used the matrix approach.

	how it should be used (i.e. what assumptions should be made when running the model).	
1. b) seabird data informing method	At sea density estimates	Tracking data from adult birds tagged at breeding colonies
1. c) output	Change to adult survival rate	Changes to adult survival and productivity rates
1. d) buffer area	All birds displaced from 2km buffer around offshore wind farm	All birds avoid a 1km buffer around offshore wind farm
1. e) non-breeding season	Assessed for Forth and Tay offshore wind farms	Not assessed
2. Collision Risk Modelling (CRM) differences		
2 a) (CRM) – Band model option	Assessment is based on Band model Option 2. The Option 2 model assumes an even distribution of birds across the rotor swept heights,	Assessment was based on Band model Option 3. The Option 3 model assumes the observed distribution of birds across the rotor swept heights and calculates the appropriate collision risk at each height.
2 b) CRM - avoidance rates	Kittiwake & gannet 98.9% Herring gull 99.5%	All species 95%
2 d) CRM- nocturnal activity	Nocturnal activity scores of 2 (25%) should be used for herring gull and kittiwake and 1 (0%) for gannet).	Nocturnal activity scores of 2 (25%) should be used for herring gull and kittiwake and 2 (25%) for gannet).

2 f) CRM – non breeding season	Scope of quantitative assessment includes all UK offshore wind farms for gannet and kittiwake.	Scope of quantitative assessment limited to Forth and Tay offshore wind farms, with qualitative consideration given to other UK offshore wind farms.
3. Apportioning		
3. a) non-breeding season	BDMPS (Furness, 2015) used for gannet and kittiwake following SNH scoping advice.	None
3. b) non-breeding season months	Gannet – Autumn, October to November; Spring, December to mid-March Kittiwake – Autumn, September to December; Spring, January to mid-April Guillemot and razorbill all non-breeding season impacts should be assigned to SPA as per the breeding season.	N/A
3. c) Age classes	Using proportions derived from at sea survey data or, if not available, PVA stable age structure	
3. d) breeding season	Apportioned to SPA and non-SPA colonies using seabird 2000 data and then between SPA colonies using most recent count data. Used SNH apportioning approach for all species.	Species and colonies included in Searle et al displacement model did not require apportioning of displacement effects. For other species and collision effects, the SNH approach and seabird 2000 data were used.

4. Population Viability Analysis ("PVA")		
4. a) population modelling approach	Stochastic Leslie matrix PVA	Bayesian state-space models for most populations.
4. b) effect period	25 and 50 years	25 years
4, c) effect scenarios	Reductions in survival of all age classes estimated for the wind farm in isolation, with the other existing 2014 consented Forth and Tay Developments, and with the other consented or operational offshore wind farms in the eastern UK.	A range of reductions in adult survival and productivity values that were selected and run prior to the wind farm/s effects being known.

ANNEX C Decision Notice and Conditions

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Scottish Government
Riaghaltas na h-Alba
gov.scot

[Redacted]
EDF Renewables, United Kingdom
Atria One, 144 Morrison Street
Edinburgh
EH3 8BE

XX MONTH 2018

Dear [Redacted]

THE ELECTRICITY ACT 1989 (AS AMENDED)

THE ELECTRICITY WORKS (ENVIRONMENTAL IMPACT ASSESSMENT) (SCOTLAND) REGULATIONS 2017 (AS AMENDED)

DECISION NOTICE FOR THE SECTION 36 CONSENT FOR THE CONSTRUCTION, OPERATION AND MAINTENANCE OF THE NEART NA GAOITHE OFFSHORE WIND FARM, APPROXIMATELY 15.5km EAST OF FIFE NESS

DECLARATION UNDER SECTION 36A OF THE ELECTRICITY ACT 1989 (AS AMENDED) TO EXTINGUISH PUBLIC RIGHTS OF NAVIGATION SO FAR AS THEY PASS THROUGH THOSE PLACES WITHIN THE TERRITORIAL SEA WHERE STRUCTURES FORMING PART OF THE NEART NA GAOITHE OFFSHORE WIND FARM GENERATING STATION ARE TO BE LOCATED

1 Application and Description of the Development

1.1 On 16 March 2018, Neart na Gaoithe Offshore Wind Ltd (Company Number SC 356223) having its registered office at Atria One, 144 Morrison Street, Edinburgh, United Kingdom, EH3 8EX ("NnGOWL" or "the Company"), submitted to the Scottish Ministers applications under Electricity Act 1989 (as amended") ("the Electricity Act 1989") for:

- A consent under section 36 ("s.36") of the Electricity Act 1989 for the construction, operation and maintenance of the Neart Na Gaoithe Offshore Wind Farm, approximately 15.5km east of Fife Ness; and
- A declaration under section 36A ("s.36A") of the Electricity Act 1989 to extinguish public rights of navigation so far as they pass through those places

within the Scottish marine area (essentially the territorial sea adjacent to Scotland) where structures forming part of the Near Na Gaoithe Offshore Wind Farm are to be located.

1.2 These applications are collectively referred to as "the Application." The Application was accompanied by an Environmental Impact Assessment report ("EIA Report") as required under the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (as amended) ("the 2017 EW Regulations") and a Habitats Regulations Appraisal ("HRA Report") as required under the Conservation (Natural Habitats, & c.) Regulations 1994 (as amended) and the Conservation of Habitats and Species Regulations 2017 (collectively hereinafter referred to as "the Habitats Regulations"). An addendum of additional information ("EIA Addendum") concerning ornithology was submitted by the Company on 26 July 2018 and is also referred to as part of the Application.

1.3 In addition to the Application, the Company has also applied for two marine licences (under the Marine (Scotland) Act 2010) to deposit, construct and operate marine renewable energy works and offshore transmission infrastructure. Separate decision notices will be issued in respect of any marine licences granted.

1.4 The Application is for the construction, operation and maintenance of an offshore energy generating station, with a maximum generating output of around 450MW. The Development will comprise:

1. Not more than 54, three-bladed horizontal axis Wind Turbine Generators ("WTGs"), each with:

    a) A maximum rotor tip height of 208 metres (measured from Lowest Astronomical Tide ("LAT"));

    b) A maximum rotor diameter of 167 metres;

    c) A maximum hub height of 126 metres (measured from LAT);

    d) A minimum blade tip clearance of 35 metres (measured from LAT);

    e) Blade width of up to 4.5 metres; and

    f) A minimum spacing of 800 metres.

2. Up to 54 jacket foundations and ancillary equipment.

3. Up to 2 Offshore Substation Platforms ("OSPs"), jacket foundations and ancillary equipment.

4. Up to 140km of inter-array cabling and up to 4 interconnector cables between the 2 OSPs.

5. 2 subsea Offshore Export Cables ("OEC") each of up to 43km in length.

6. Scour and cable protection (as required),

7. A Meteorological mast.

1.5 The total area within the Development site boundary is 105km^2. The location and boundary of the Development site is shown in Figure 1.

This decision notice contains the Scottish Ministers' decision to grant consent for the Development detailed above, in accordance with regulation 21 of the 2017 EW Regulations.

2 Summary of environmental information

2.1 The environmental information provided was:

- An EIA Report that provided an assessment of the impact on a range of receptors;
- A HRA Report; and
- As a result of the responses from East Lothian Council, Scottish Natural Heritage ("SNH") and Royal Society for the Protection of Birds ("RSPB"), received through the original consultation exercise, the EIA Addendum.

2.2 In May 2017 the Company submitted a scoping report and a request for a scoping opinion in respect of the Development to the Scottish Ministers. Following consultation with statutory and other consultees, a scoping opinion was issued by Scottish Ministers on 8 September 2017, advising on the scope of the impacts to be addressed and the methods of assessment to be used within the EIA Report.

2.3 The Company currently holds a s.36 consent ("the Original Consent") and marine licences (which the Scottish Ministers granted in October 2014) for an offshore wind farm development within the same boundary as the current Application. As the Company had substantial evidence from the previous Environmental Statement submitted in 2012 for the application made for the Original Consent, it was possible to scope out a range of potential effects which were not found to be significant previously and where the baseline and assessment methodologies had not changed since 2012. A number of receptors were scoped out of the assessment completely, including (but not limited to): air quality, physical processes, geology and water quality. For the receptors which were scoped in, the assessment was limited to those effects which could be significant.

2.4 The EIA Report assessed the impact pathways identified in the scoping opinion and was prepared in accordance with the terms of the 2017 EW Regulations. As the request for a scoping opinion was made before 16 May 2017, the transitional arrangements within the 2017 EW Regulations applied to it.

2.5 A summary of the environmental information provided in the EIA Report and the EIA Addendum is given below.

Fish and Shellfish ecology

2.6 During the construction phase, minor, adverse effects arising from disturbance or injury as a result of particle motion arising from pile driving and disturbance from noise and particle motion arising from the Horizontal Direct Drilling ("HDD") pipe site works were reported for all fish and shellfish species. During the operational phase, potential disturbance resulting from particle motion, minor adverse effects on all fish and shellfish species were reported. In accordance with the scoping opinion justification was provided in the EIA Report for scoping diadromous fish out of the assessment.

Marine mammals

2.7 When the Development was considered in isolation, potential adverse effects arising from noise generated by pre-construction geophysical survey works and drilling construction noise were reported to be negligible for all species. Minor, adverse effects arising from pile driving construction noise were reported for harbour porpoise, bottlenose dolphin, minke whale and harbour seal, whilst the effects on white-beaked dolphin and grey seal were reported to be negligible.

2.8 The assessment of cumulative impacts within the EIA Report reported minor, adverse effects for harbour porpoise, white-beaked dolphin and harbour seal for pile driving construction noise. Major, adverse impacts were reported for bottlenose dolphin and grey seal and moderate, adverse impacts for minke whale. The cumulative impact assessment considered the Development in-combination with all offshore wind farm projects in the Firths of Forth and Tay, the Moray Firth and the Aberdeen Harbour Expansion Project ("AHEP").

2.9 In addition to the EIA Report, the HRA Report considered the impacts of the Development on the Moray Firth Special Area of Conservation ("SAC"), the Firth of Tay and Eden Estuary SAC, Isle of May SAC and Berwickshire and Northumberland Coast SAC. The HRA Report concluded that the Development would not adversely affect the integrity of these protected sites alone or in-combination with other plans or projects.

2.10 The AA highlights issues with the population modelling completed by the Company, and the precautionary nature of the cumulative impact assessment for marine mammals, carried out by the Company. These issues have given rise to the major adverse effects identified in the EIA Report for bottlenose dolphin and grey seal. Additional population modelling completed by SNH reduces the population level impacts and the AA completed concludes that there will be no adverse effect on the integrity of any SACs with bottlenose dolphin or grey seal as qualifying interests from the Development alone or in-combination with other plans or projects.

Ornithology

2.11 The EIA Report assessed the impacts on ornithology receptors during the construction, operational, maintenance and decommissioning phases of the Development. Effects from the Development in isolation were reported to be of negligible or minor significance, these included impacts resulting from construction activities and operational activities (displacement, barrier and collision impacts). No additional mitigation measures, beyond the embedded

mitigation, were therefore proposed in respect of these impacts. The impacts during the decommissioning phase were assessed as being the same as the construction phase impacts.

2.12 The embedded mitigation measures included within the EIA Report included the reduction in the maximum number of WTGs proposed compared with the Original Consent and the increase in the minimum blade tip clearance to 35m above LAT.

2.13 The cumulative assessment reported minor, adverse effects for puffin and negligible adverse effects for all other species arising from displacement and barrier impacts.

2.14 For the cumulative assessment of collision impacts, two scenarios were assessed:

i) Scenario 1: the Development alongside the 2017 design parameters for Seagreen Alpha and Bravo wind farms and Inch Cape wind farm as outlined in their scoping reports as of May 2107 and April 2017 respectively; and
ii) Scenario 2: the Development alongside consented designs for Seagreen Alpha and Bravo wind farms and Inch Cape wind farm as determined in October 2014.

2.15 Scenario 1 predicted no significant effects. Scenario 2 predicted moderate impacts in terms of cumulative kittiwake collision mortality impacts in both the breeding and non-breeding seasons. The Company considers it highly unlikely that the 2014 consented, Seagreen Alpha and Bravo wind farms and Inch Cape wind farm, will be built to the maximum extent of their consented envelopes, therefore the outcomes of Scenario 2 were reported as being precautionary.

2.16 The EIA Addendum contained further information clarifying the assessment contained within the EIA and HRA Reports, including a comparison of the re-run population viability analysis (“PVA”) models for guillemot and razorbill and further apportioning analysis for the guillemot, razorbill and kittiwake qualifying interests of the relevant Special Protection Areas (“SPAs”). The EIA Addendum did not alter the conclusions of the assessment reported in the EIA Report.

2.17 In addition to the EIA Report, the HRA Report considered the impacts of the Development on Forth Islands SPA, Fowlsheugh SPA, St Abbs Head to Fast Castle SPA, Buchan Ness to Collieston Coast SPA and the Outer Firth of Forth and St Andrews Bay Complex proposed SPA (“pSPA”). The HRA Report concluded that the Development would not adversely affect the integrity of these protected sites alone or in-combination with other plans or projects.

Commercial Fisheries

2.18 Impacts from the construction, operational, maintenance and decommissioning phases were considered within the EIA Report. The construction period is anticipated to last 3 years and is predicted to be continuous in respect of the wind

farm area as a whole. The OEC is anticipated to be installed over a period of nine months.

2.19 Construction phase impacts considered both the construction activities and the physical presence of the constructed Development, leading to a reduction in access to, or exclusion from, established fishing grounds for a range of fish resources, additional steaming times to alternative fishing grounds for vessels that would otherwise had been fishing within the Development area and increased vessel traffic within fishing grounds as a result of changes to shipping routes and construction vessel traffic from the Development area.

2.20 Operational phase impacts included the impacts arising from the physical presence of the project infrastructure within the wind farm area, leading to reduction in access to, or exclusion from established fishing grounds, gear snagging, additional steaming to alternative fishing grounds for vessels and increased vessel traffic within fishing grounds arising from changes to shipping routes and maintenance vessel traffic from the Development – resulting in interference with fishing activity.

2.21 Impacts from the Development in isolation were considered to be minor or negligible, however, impacts arising from the reduction in access to, or exclusion from established fishing grounds, were classified as being of moderate significance for potting vessels during the operation and maintenance phase of the Development.

2.22 The cumulative impact assessment in the EIA Report concluded that reductions in access to, or exclusion from, potential and/or established fishing grounds and the effects of displacement (gear conflict and increased fishing pressure on alternative grounds) were of moderate significance for a range of commercial fisheries receptors. Other cumulative effects such as longer steaming distance and changes to shipping routes, leading to inference with fishing activity, were reported as being of minor or negligible significance.

2.23 A wide range of potential impacts were identified, both for the Development alone, and cumulatively, in relation to all phases of the Development and a range of receptors. Whilst some moderate adverse effects were initially identified, the EIA Report advised that implementation of additional mitigation measures reduced these effects to minor significance.

Shipping and Navigation

2.24 The impacts of the Development on shipping and navigation receptors during the construction, operational, maintenance and decommissioning phases were considered in the EIA Report. The impacts of the Development in isolation were reported as being of minor significance.

2.25 Cumulative effects, including impacts arising from the loss of navigable sea room and deviations around the structures, thereby resulting in increased allision (vessel to structure) and collision risk, were reported as being of moderate

significance for all vessel types. The application of mitigation measures did not change the residual significance of the effects.

Military and Aviation

2.26 The EIA Report reported major significant effects on military and aviation receptors as a result of the Development, both in isolation and in-combination with other developments.

2.27 The EIA Report stated that the Development in isolation would have major significant effects on Leuchars Station Primary Surveillance Radar, Leuchars Station Precision Approach Radar and Remote Radar Head ("RRH") Brizlee Wood and RRH Buchan Air Defence Radars ("ADR") (resulting from reflected turbine signals from the WTGs) and on activities carried out in military Practice and Exercise Areas ("PEXA"). Military PEXA activity may be impacted by the creation of clutter on radar systems. The mitigation measures proposed in the EIA Report reduced the residual level of significance to minor, i.e. not significant. Mitigation measures are to be agreed with the Ministry of Defence ("MOD").

2.28 The use of helicopters to support operational and maintenance activities was deemed to be of minor/negligible effect.

2.29 The in-combination assessment reported major significant effects arising from persistent interference to RAF Leuchars PSR, RRH Brizlee Wood and RRH Buchan ADRs from the WTGs. The mitigation measures proposed in the EIA Report reduced the residual level of significance to minor, i.e., not significant. Mitigation measures are to be agreed with the MOD.

Cultural Heritage

2.30 The EIA Report considered impacts on the setting of archaeological and cultural heritage receptors, both onshore and offshore arising from the construction, operational, maintenance and decommissioning phases of the Development.

2.31 The effects arising from the operational phase of the Development in isolation, on the setting of onshore cultural heritage and archaeology receptors, were reported to be of minor or negligible significance. The effects of the Development in-combination with the Forth and Tay Developments were deemed to be of minor or negligible significance, with the exception of effects on the Isle of May Priory, which were deemed to be of moderate significance. The Isle of May Priory is a scheduled monument and the Development will be 16.5km to the east and the turbines will be visible to visitors of the priory and therefore, will contribute to a low level negative effect on the setting of the priory.

Seascape and Landscape Visual Impact Assessment

2.32 The EIA Report included an assessment of seascape, landscape and visual impact assessment during the construction, operational, maintenance and decommissioning phases of the Development. During the construction phase the EIA Report reported only minor effects (during landfall construction works at

Thorntonloch beach). Impacts during the decommissioning phase were anticipated to be similar to those assessed during the construction phase.

2.33 Impacts of moderate significance were reported for the operational phase including the impact of the Development on coastal character, and on visual amenity (within 35km only). The impact of aviation and navigation lighting on coastal character (along the Fife coast only) and on visual amenity (within 30km) was also reported to be of moderate significance. The impact of the Development on visual amenity within 22km was, however, reported to be of major significance.

2.34 The cumulative assessment reported impacts of moderate significance on coastal character arising from the additional presence of the Development in east Fife and south-east Angus (with impacts for other areas being of minor or negligible significance). However, the cumulative impact on visual amenity arising from views of the Development, in addition to other wind farms, was deemed to be of major adverse significance where both the Development and the Inch Cape offshore wind farm are viewed at closer range (and minor or negligible elsewhere). No mitigation measures were identified to reduce the significance of these impacts. Further minor or negligible effects were identified throughout the operational and decommissioning phases.

Socio-Economics

2.35 The EIA Report advised that socio-economic impacts during the construction, operational, maintenance and decommissioning phases were positive, with effects that are quantifiable, ranging from minor positive effects upon the Local Study Area (defined as the combined local authorities of Angus, City of Edinburgh, Dundee, East Lothian and Fife), to moderate positive Scotland-wide effects.

2.36 Moderate, positive, significant effects were reported for the construction phase of the Development resulting from direct and indirect employment creation in the construction supply chain for both the Local Study Area and Scotland. Minor, positive effects were also reported for the Local Study Area and Scotland resulting from indirect and direct Gross Value Added (“GVA”) creation in the construction supply chain. Further minor, positive effects were reported for the operational phase on GVA creation in the construction supply chain and during the decommissioning phase on indirect and direct job and GVA creation in the construction supply chain.

2.37 Whilst the EIA Report stated that cumulative impacts are expected to be positive, it recognised that it is not possible to confidently predict the level of cumulative impact on direct and indirect employment and GVA creation within the supply chain. This depends on several factors, which are, at this time, unknown, including the overall costings and geographical sourcing of goods and services for the construction and the operation and maintenance of other wind farms. As this is not yet known, the EIA Report advised that it is impossible to provide a quantitative assessment of the potential cumulative effects.

3 Consultation

3.1 In accordance with the 2017 EW Regulations, on 16 March 2018, the Company submitted an EIA Report and HRA Report describing the Development and giving an analysis of its significant environmental effects. On 26 July 2018, the Company submitted an EIA Addendum addressing specific queries raised in relation to the ornithology assessment included within the EIA Report and HRA Report.

3.2 Advertisement of the Application and EIA Addendum was made in the local and national press and the application website. The notices were placed in the public domain and the opportunity given for those wishing to make representations to do so.

3.3 The dates of the consultation exercises are given below. The regulatory requirements regarding consultation and public engagement have been met and the responses received taken into consideration. Where matters have not been fully resolved, conditions have been included to ensure appropriate action is taken post consent.

1.1 Document	**1.2 Date received**	**1.3 Dates of consultation**	**1.4 Publication**
1.5 EIA Report and Application 1.6	1.7 16 March 2018	1.8 28 March 2018 – 13 May 2018 (24 March 2018 – 3 August 2018 for Planning Authorities)	1.9 Dundee Courier (4 & 11 April 2018) East Lothian Courier (5 & 12 April 2018) Edinburgh Gazette – (3 & 10 April 2018) The Scotsman (4 April 2018) Fishing News (5 & 12 April 2018) NnGOWL website (3 April 2018)
1.10 EIA Addendum	1.11 26 July 2018	1.12 27 July 2018 – 10 September 2018	1.13 Dundee Courier (2 & 9 August 2018) 1.14 East Lothian Courier (2 & 9 August 2018) 1.15 Edinburgh Gazette (5 & 12 August 2018)

			1.16 The Scotsman (9 August 2018) 1.17 Fishing News (2 & 9 August 2018) NnGOWL website (1 August 2018)

3.5 A summary of the responses received is set out at sections 4, 5 and 6. In addition, specialist advice was provided by Marine Scotland Science ("MSS") and the advice received is set out at section 7.

3.6 The responses to the consultation on the EIA Report are available to view here and the responses to the consultation on the EIA Addendum are available to view here.

3.7 In addition, SNH was consulted on the AA completed by Scottish Ministers.

4 Summary of statutory consultee responses

4.1 Under the 2017 EW Regulations, the statutory consultees are as follows: Scottish Natural Heritage ("SNH"), the Scottish Environment Protection Agency ("SEPA"), Historic Environment Scotland ("HES"). The planning authorities whom the Scottish Ministers consider appropriate in respect of the proposed Development are Angus Council, Dundee City Council, East Lothian Council, Fife Council and Scottish Borders Council.

4.2 In addition, the Maritime and Coastguard Agency ("MCA") and Northern Lighthouse Board ("NLB") are statutory consultees under the Marine (Scotland) Act 2010.

4.3 Angus Council did not object and advised that the impacts of the Development, in terms of material considerations relevant to Angus Council administrative area, do not raise any new or significant issues. Angus Council stated that its comments provided on the 2014 Neart na Gaoithe Offshore Wind Farm application ("the 2014 Application") remain valid to some extent.

4.4 Angus Council considered that there would be significant impacts on landscape and seascape character, however, it did not consider these visual impacts to be unacceptable. Angus Council considered that the aviation and navigation lighting would have significant night seascape impacts, in particular in relation to the setting of the Bell Rock Lighthouse, and that further consideration of appropriate technical solution(s) and mitigation measures is required.

4.5 Angus Council highlighted that its concerns raised in relation to the cumulative seascape, landscape and visual impacts for the 2014 Application in-combination with the Forth and Tay Developments remain valid. Angus Council highlighted

that consistency is required to ensure that the collective view does not become visually inconsistent or distort seascape perspective. However, these significant visual impacts were not considered unacceptable. Cumulative effects of lighting were also considered and Angus Council state that further consideration of this issue is required to identify a consistent lighting solution and appropriate mitigation measures.

4.6 Angus Council advised also that HES had noted the presence of nationally important designated cultural heritage assets within the vicinity of the Development. However, HES is content that the impact does not raise issues of national significance. However, Angus Council considered that this impact is likely to be higher than the 'minor' value assigned to it for both setting impacts and cumulative impacts. Angus Council previously expressed concerns regarding the impact of the Development on the Bell Rock Lighthouse and would concur with the assessment of HES in this regard, but highlights that the EIA Report has limitations in terms of assessing impacts of aviation and navigation lighting on the setting of the asset.

4.7 Angus Council had no comments to make on the EIA Addendum.

4.8 Dundee City Council advised that the Application and supporting information appeared satisfactory and had no other comments to make.

4.9 Dundee City Council had no comments to make on the EIA Addendum.

4.10 East Lothian Council initially submitted an objection to the Development, based on SNH's advice which stated that there would be adverse effects on the site integrity of Natura 2000 sites within or adjacent to the East Lothian Council administrative area. East Lothian Council subsequently provided a response following receipt of the EIA Addendum, stating that its objection had been withdrawn following receipt of SNH's response to the EIA Addendum.

4.11 East Lothian Council noted SNH's comments regarding potential adverse effects on the site integrity of the Forth Islands SPA and Fowlsheugh SPA, however, East Lothian Council further noted that SNH considers the effects of the Application to be less than the predicted effects for the Original Consent. Therefore, East Lothian Council withdrew its objection, on the basis that the predicted effects of the Development would be less than those of the Original Consent.

4.12 In its response, East Lothian Council considered the National Planning Framework 3 ("NPF3"), the Scottish Planning Policy 2014 ("SPP"), the National Marine Plan ("NMP"), the Strategic Development Plan for Edinburgh and South East Scotland ("SESPlan") Strategy Development Plan June 2013, Proposed Strategic Development Plan 2016, East Lothian Local Development Plan 2008 and the proposed East Lothian Development Plan and the Note on Community Benefits from Offshore Renewable Energy Developments – Scottish Government Good Practice Principles.

4.13 East Lothian Council provided comment on the risks associated with pollution incidents and possible impacts on geology, water quality, recreation and wildlife. East Lothian Council requested that conditions were placed on any consent granted to ensure that best practice is followed during all phases of the Development to avoid the risk of pollution as far as possible and to ensure that financial provision is put in place to ensure that sufficient resources are available for any remedial action required.

4.14 East Lothian Council raised concerns regarding potential impacts on Thorntonloch beach and the Thortonloch Local Geodiversity Site and asked Marine Scotland to consider whether there is a need for further information regarding coastal hydro-dynamics.

4.15 East Lothian Council provided comments on the cultural heritage assessment, in particular the cumulative assessment undertaken. East Lothian Council considered that the cumulative assessment should have taken into account onshore wind farm developments and the potential cumulative impacts from both the offshore and onshore wind farms will have a significant impact on cultural heritage receptors.

4.16 East Lothian Council considered that there are likely to be significant adverse seascape and visual impacts from the Development. East Lothian Council did not agree with the classification of the level of significance of the effects for seascape SA17 (Eyebroughy to Torness Point) within East Lothian or the classification of the magnitude of cumulative impact for all viewpoints within East Lothian. East Lothian Council also provided comments on the potential impacts of turbine lighting.

4.17 East Lothian Council provided suggestions of potential mitigation measures to reduce the effects of the Development, including: monitoring measures and remediation of significant effects identified through monitoring, paint colour and finish, lighting solutions and the preparation of a detailed design and layout plan.

4.18 East Lothian Council also commented on the arrangements for decommissioning, including the need to ensure financial arrangements are in place to support decommissioning.

4.19 Conditions have been placed upon the s.36 consent to mitigate the impacts highlighted by East Lothian Council, including the requirement to prepare, consult on and adhere to the Lighting and Marking Plan ("LMP"), Design Specification and Layout Plan ("DSLP"), Construction Method Statement ("CMS") and Decommissioning Programme ("DP").

4.20 Fife Council was supportive of the Application, noting that the Development would make a significant contribution to Scotland's ambitious renewable energy generation and carbon dioxide reduction targets, whilst having the potential to contribute significantly to economic growth in the region in terms of local supply chain contributions and potential increases in tourism.

4.21 Fife Council had no comments to make on the EIA Addendum.

4.22 Scottish Borders Council did not object to the Development and noted that, whilst tip heights have increased by 11 metres, the number of turbines within the array has been significantly reduced to 54. Given the distance has not altered at 30km plus, any slight perception of increased tip height is likely to be more than offset by the significant reduction in turbine numbers. This has been assessed through the Zone of Theoretical Visibility ("ZTV") information and Viewpoints 20 (Coldingham Moor) and 21 (St Abbs Head).

4.23 Scottish Borders Council did, however, recommend conditions regarding sequential pile driving and the implementation of mitigation measures to reduce impacts on the qualifying interests of the St Abb's Head to Fast Castle SPA be included as conditions of consent.

4.24 Scottish Borders Council had no comments on the EIA Addendum.

4.25 The AA considers the Development's impacts on SPA qualifying interests. Conditions have been placed upon the s.36 consent to mitigate the impacts highlighted by Scottish Borders Council, including the requirement to prepare, consult on and adhere to the Project Environmental Monitoring Programme ("PEMP"), Piling Strategy ("PS") and CMS.

4.26 Historic Environment Scotland ("HES") was content that the EIA Report provided sufficient information, and HES did not object to the Application. For the majority of the assessment with the exception of Bell Rock Lighthouse, HES was content to agree that the level of impacts on the setting of cultural heritage receptors is likely to be minor.

4.27 HES provided detailed comments on the assessment methodology utilised and the level of information provided within the EIA Report. HES stated that the definitions used for sensitivity of receptor are occasionally inconsistent, which may have the potential to affect the conclusions of the level of impact.

4.28 HES considered that the level of impact on the setting for the Bell Rock Lighthouse may have been underestimated, both in isolation and in-combination with other wind farm developments. HES considered that the impact may be higher than the 'minor' value assigned, for both setting and cumulative impacts, however, HES is content that this does not raise issues of national significance.

4.29 Following further discussion with the Company, HES stated that it was content with the justifications provided by the Company and that any differences in the conclusions reached by HES and the Company do not significantly alter the conclusions of the assessment.

4.30 HES had no comments on the EIA Addendum.

4.31 Maritime & Coastguard Agency ("MCA") advised that detailed discussion with the Company regarding the required traffic surveys updates had taken place. The MCA accepted the original Navigation Risk Assessment ("NRA"), the updated

EIA Report, the traffic validation study and MGN 543 checklist, as constituting an equivalent to a new NRA.

4.32 The MCA commented on the proposed layout design and requested that the final turbine layout design is subject to its approval. Further consideration of the layout design is required to mitigate risks to surface vessels (including rescue boats) and Search and Rescue ("SAR") aircraft operating within the Development area and to ensure all structures are aligned in straight rows and columns.

4.33 The MCA was satisfied that the recommendations within the Marine Guidance Note ("MGN") checklist had been adequately addressed and requested that a SAR checklist and updated Emergency Response Co-operation Plan ("ERCoP") be completed and implemented throughout the lifespan of the Development. MCA further requested that hydrographic surveys be undertaken to fulfil the requirements of the International Hydrographic Organisation Order 1a standard.

4.34 The MCA supported the use of safety zones throughout the lifespan of the Development, but stated that further detailed justification would be required for the implementation of a 50m operational safety zone.

4.35 The MCA stated that further work needs to be undertaken to define cable burial and protection options, particularly close to shore where impacts on navigable water depth may become significant. MCA stated that any consented cable protection works must ensure existing and future safe navigation is not compromised. The MCA would accept a maximum of 5% reduction in surrounding depth referenced to chart datum. The MCA stated that existing charted anchorage areas should be avoided.

4.36 The MCA advised that lighting and marking requirements would require further discussion with key stakeholders and provided further detail on the requirements for turbine lighting.

4.37 The MCA welcomed the list of embedded mitigation provided by the Company and stated that the Company should clarify whether they intend to install Automatic Identification System ("AIS") receivers and how they intend to communicate with vessels e.g. Very High Frequency ("VHF") radio systems should be utilised, and where the Development is wholly or partially outside effective shore based radio coverage, access should be provided to HM Coastguard.

4.38 The MCA stated that the cumulative impact assessment in the EIA Report provided a comprehensive overview. The MCA noted that appendix 11.2 of the EIA Report provides an indication of the rerouting that may occur as a result of the Development, and that the Company has recommended that marine traffic is monitored via AIS post-construction to ensure actual changes in shipping behaviour resulting from the Development can be fully understood. The MCA stated that this monitoring will serve to confirm deviated routeing and will also provide an indication of any vessel activity occurring within the Development area.

4.39 Finally, MCA advised that its preference would be for continuous construction operations, which are progressive across the Development with no opportunity for two separate areas to be constructed with a gap in the middle.

4.40 MCA had no comments on the EIA Addendum.

4.41 Conditions have been placed upon the s.36 consent to mitigate the impacts highlighted by MCA, including the requirement to prepare, consult on and adhere to the Emergency Response Co-operation Plan ("ERCoP"), Cable Plan ("CaP") CMS, DSLP, Navigational Safety Plan ("NSP") and LMP.

4.42 Northern Lighthouse Board ("NLB") stated that it requires the Company to establish a NSP and LMP, detailing the proposed marking and lighting for the lifespan of the Development. The NLB provided detailed comments on the lighting and marking requirements during the construction, operational and decommissioning phases of the Development, to be included within such plans.

4.43 NLB further highlighted that the lighting and marking requirements may require to be altered or amended according to other developments within the Forth and Tay.

4.44 The NLB provided further comments on the requirement to obtain a Statutory Sanction prior to the deployment of navigational marking and lighting equipment, promulgation of information regarding the nature and timescales of the Development and the requirement to inform the United Kingdom Hydrographic Office ("UKHO") of turbine installation locations, cable routes and cable landing points.

4.45 The NLB noted that an ERCoP will be required, detailing emergency response arrangements in the event of catastrophic failure and/or collision scenarios.

4.46 The NLB had no comments on the EIA Addendum.

4.47 Conditions have been placed on the s.36 consent to mitigate the impacts highlighted by the NLB, including the requirement to prepare, consult on and adhere to the ERCoP, NSP and LMP.

4.48 Scottish Environment Protection Agency ("SEPA") had no comments to make on the offshore element of this proposal and referred to their standing advice on marine consultations (LUPS-GU13 Marine Scotland consultations: SEPA standing advice for Marine Scotland on marine licence consultations).

4.49 SEPA had no comments on the EIA Addendum.

4.50 Conditions relating to SEPA's standing advice have been placed on the s.36 consent, including the requirement to prepare, consult on and adhere to the Environmental Management Plan ("EMP") to minimise the risk of pollution.

4.51 Scottish Natural Heritage ("SNH") submitted an objection to the Development based on the grounds that it predicted adverse effects on the site integrity of the

Forth Islands SPA, Fowlsheugh SPA and St Abb's Head to Fast Castle SPA for the Development in-combination with the existing consents for the other Forth and Tay Developments.

4.52 SNH initially advised that it was unable to provide advice on the razorbill and guillemot qualifying interests, due to the use of incorrect population counts within the population modelling.

4.53 The Company subsequently provided responses within the EIA Addendum to SNH's queries including the outputs of the population modelling undertaken with the correct population counts for razorbill and guillemot.

4.54 Following consideration of the EIA Addendum, SNH maintained its objection to the Development on the basis that it predicted significant adverse effects on the Forth Islands SPA (for gannet and kittiwake) and Fowlsheugh SPA, in-combination with the existing consents for the Forth and Tay Developments. Further discussion took place between stakeholders on 18 September 2018 to discuss the issues further.

4.55 As there were some inconsistencies in the ornithology information provided by the Company to inform the AA, Scottish Ministers consulted SNH further on the information used to inform the AA which was taken from other sources. In addition SNH provided apportioning calculations for some species.

4.56 Following this consultation on the information being used to inform the AA, SNH maintained its objection, and advised that it believed there would be an adverse effect on the integrity from the Development in-combination with the existing consents from the other Forth and Tay Developments as follows:

- Forth Islands SPA with respect to gannet, kittiwake and razorbill;
- Fowlsheugh SPA with respect to kittiwake and razorbill; and
- St Abb's Head to Fast Castle SPA with respect to kittiwake.

4.57 SNH advised that it believed that the greatest levels of impacts on marine mammals would occur during the construction phase of the Development. SNH welcomed the commitment to implement mitigation and consent conditions and provided further advice on these measures.

4.58 SNH maintained that the outputs of the model of the interim Population Consequences of Disturbance ("iPCoD") used by the Company were unreliable, due to known issues in the code and uncertainties regarding the input parameters. As it considered that these outputs could not be relied upon, SNH provided a qualitative assessment of the effects of Permanent Threshold Shift ("PTS") and disturbance from piling events (both single and concurrent events). SNH advised that if an updated model became available, the model should be rerun.

4.59 Following revisions to the iPCoD model, a workshop was held between Marine Scotland and SNH on 7 September 2018. This resulted in SNH running various agreed in-combination scenarios for bottlenose dolphin and grey seal to inform

its advice. SNH provided outputs of this exercise and further advice on 26 September 2018.

4.60 SNH advised that the effect on the Moray Firth bottlenose dolphin population from the Development in-combination with the other Forth and Tay Developments, the Beatrice offshore wind farm, the Moray East offshore wind farms, the Moray West offshore wind farm proposal and the Aberdeen Harbour Expansion Project would not result in an adverse effect on site integrity of the Moray Firth SAC.

4.61 SNH advised that the Development in–combination with the other Forth and Tay Developments would not have an adverse effect on the integrity of the Isle of May SAC or the Berwickshire and Northumberland Coast SAC with respect to grey seal.

4.62 SNH also provided advice on landscape and visual impacts of the Development both in isolation and in-combination with the other Forth and Tay Developments. SNH advised that the individual and in-combination impact of the Development and as-consented Forth and Tay Developments would be the same and, therefore, its advice regarding significance of impacts for the Original Consent remained applicable. SNH advised that it believed the cumulative impact of the Development in-combination with the Forth and Tay Developments would be significant and adverse, in particular due to the increased height of the proposed Inch Cape Offshore Wind farm. SNH considered the worst-case scenarios assessed within the EIA Report.

4.63 SNH recommended that a number of conditions relating to the pre-construction, construction, operational and decommissioning phases should be attached to any consent granted in order to mitigate the impacts detailed above.

4.64 Conditions have been attached to the s.36 consent requiring the Company to prepare, consult on and adhere to EMP, PS, LMP, DSLP, Design Statement ("DS"), PEMP, Vessel Management Plan ("VMP"), DP, and participate in the Forth and Tay Regional Advisory Group ("FTRAG") to address the concerns outlined above.

5 Summary of non-statutory consultee responses

5.1 A number of other bodies and organisations were consulted on the EIA Report and EIA Addendum and provided responses.

5.2 BT Radio Network Protection ("BT") advised that the Development should not cause interference to BT's current and presently planned radio network.

5.3 Chamber of Shipping ("CoS") raised no objections and commended the useful summary in Appendix 11.3 of the EIA Report of the MGN 543 Checklist.

5.4 Dunbar Fishermen's Association ("DFA") advised that the preparation and placement of cables would cause disruption to fishing grounds and that, should

cable burial not be possible, this may result in permanent loss of fishing grounds. DFA stated that compensation would be necessary and that this would need to be considered further.

5.5 Conditions requiring the Company to prepare, consult on and adhere to a Fisheries Management and Mitigation Strategy ("FMMS") and to participate in the Forth and Tay Commercial Fisheries Working Group ("FTCFWG") have been attached to the s.36 consent to mitigate these concerns.

5.6 Esk District Salmon Fishery Board ("Esk DSFB") submitted an objection to the Development.

5.7 Esk DSFB stated that it does not agree with the conclusions of the EIA Report regarding the impacts on wild Atlantic salmon and sea trout populations. Esk DSFB strongly recommended that the Company be compelled to conduct pre-, peri- and post-construction monitoring of wild salmon and sea trout in and around the Development area to detect any changes in baseline conditions resulting from the Development. Esk DSFB raised concerns regarding potential in-combination effects of the Forth and Tay Developments on wild salmonids.

5.8 Esk DSFB stated that it fully supports the comments and recommendations made by Fisheries Management Scotland ("FMS") in response to the Application. Esk DSFB stated that it would maintain its objection until an agreed and accepted monitoring and mitigation strategy is produced. Esk DSFB stated that it was keen to engage with the Company and other stakeholders to develop and deliver this strategy.

5.9 The Company provided further justification of the information used to support the preparation of the EIA Report and reiterated the commitment to the development of the PEMP, in consultation with FTRAG. No subsequent response was received from the Esk DSFB.

5.10 Conditions requiring the Company to participate in the FTRAG and prepare, consult on and implement the PEMP (which includes the requirement to monitor diadromous fish) and the requirement for an EMP have been attached to the s.36 consent.

5.11 Eyemouth Harbour Trust ("EHT") supported the granting of consent for this Development based on matters including: an otherwise unused resource being turned into a valuable commodity, having a generation capacity wholly in Scottish territorial waters to enhance the security of the national electricity supply, the contribution made by the Development to achievement of Scottish, UK and international targets for greenhouse gas emissions by 2050 and potential benefits to Scottish industry and coastal communities.

5.12 EHT stated that its concerns, regarding the local natural environment during the construction and operational phases of the Development, had been adequately addressed in the EIA Report. EHT welcomed the proposal to establish and maintain involvement with relevant statutory bodies and other local and national

bodies, such as the involvement in the FTRAG and through the preparation and implementation of the PEMP.

5.13 EHT welcomed the consultation undertaken with local fisheries representatives during the preparation of the EIA Report and the proposal that these activities continue to be actively pursued in order to minimise intrusion to the fishing industry. Where this intrusion may impact adversely on the fishermen's income, EHT welcomed the Company's commitment to compensate for losses.

5.14 Conditions have been attached to the s.36 consent which will implement the commitments outlined in the EIA Report, including the requirement to prepare, consult on and implement the PEMP and to participate in the FTRAG.

5.15 Forth District Salmon Fishery Board ("Forth DSFB") raised concerns regarding potential impacts on migrating adult Atlantic salmon. Forth DSFB considered this receptor is of particularly high sensitivity as a large proportion of the east coast population pass through the Development area. Forth DSFB stated that uncontrolled negative effects will affect the whole of the east coast including the Rivers Tweed, Tay and South Esk.

5.16 Forth DSFB expressed its disappointment that many individual small-scale impacts were scoped out of the EIA Report when considered as standalone impacts. Forth DSFB stated that it is are disappointed that the cumulative impact of many small effects over an exceptionally large area, when the Development is considered together with the Forth and Tay Developments, has not been assessed.

5.17 Forth DSFB welcomed the commitment to participate in the FTRAG and development of an environmental monitoring plan for diadromous fish species. Forth DSFB stated that it is appropriate to use the Development (together with the Forth and Tay Developments) as an opportunity to further the understanding of salmonid movements and the impacts of offshore wind farms on salmonids. Forth DSFB advised that, should monitoring identify any negative impacts resulting from the Development, there should be a requirement for the developers to fund compensatory activities in the affected catchments to reduce and mitigate any further detriment to the Atlantic salmon and sea trout populations.

5.18 A response from the Company, along with MSS comments on consultation responses relating to diadromous fish were forwarded to Forth DSFB. The Company provided further justification of the information used to support the preparation of the EIA Report and reiterated the commitment to the development of the PEMP, in consultation with FTRAG. No subsequent response was received from the Forth DSFB.

5.19 Conditions have been added to the s.36 consent which will implement the commitment to participate in the FTRAG, as outlined in the EIA Report and include the requirement to prepare, consult on and implement the PEMP.

5.20 Fisheries Management Scotland ("FMS") objected on the grounds that the Application contains insufficient information to make an adequate assessment of the potential effect on salmonid populations. FMS stated that there is a lack of knowledge of the migratory routes of smolts (Atlantic salmon and sea trout) and the potential secondary impacts on increased predation of migratory fish by seals. FMS also emphasised the importance of the consenting process being flexible enough to take into account relevant information relating to migratory fish, as and when such information becomes available. FMS stated that it is therefore important that conditions are included which allow appropriate additional mitigation to be put in place, should negative impacts prove more likely than reported in the EIA Report.

5.21 FMS had a number of comments on appendix 7.2: Atlantic salmon – Appraisal of Original EIA, around the use of the Development by seals and the potential for increased predation of migratory salmonids. FMS disagreed that Atlantic salmon present within the Development area are less at risk of being predated, as they are actively migrating and that sea trout and Atlantic salmon, as priority marine features have not been considered. FMS advised that, for these reasons, it does not consider NMP General Policy 9 to have been considered fully.

5.22 FMS emphasised that it does not wish to prevent or delay the Development unnecessarily, and it welcomed the opportunity to work with the Company, stakeholders and the Scottish Ministers to identify appropriate monitoring programmes. These monitoring programmes would allow more appropriate assessment of the acknowledged risks of the Development, and other proposed developments.

5.23 FMS considered that there is a clear and urgent need to fund, plan and start strategic research on the movement, abundance, swimming depth, feeding behaviour etc. of salmon and sea trout. FMS stated that such research would clearly feed into the potential mitigation measures to be implemented and the conditions under which such mitigation should be enacted.

5.24 FMS considered that the installation of fish counters, particularly in SAC rivers, to allow the real time understanding of adult salmon abundance (and other, newer technology) should be an immediate priority. FMS suggested that the installation of such counters, in close liaison with DSFBs and Marine Scotland Science ("MSS"), could potentially be considered as a condition of consent, where appropriate to local conditions.

5.25 FMS stated that offshore wind farm developers should be encouraged to work together to fund such strategic monitoring, including the on-going costs of operating such counters, in order to allow more certainty for all involved..

5.26 A response from the Company, along with MSS comments on consultation responses relating to diadromous fish were forwarded to FMS. No subsequent response was received from FMS.

5.27 Conditions have been added to the s.36 consent which will implement the commitment to participate in the FTRAG, as outlined in the EIA Report and include the requirement to prepare, consult on and implement the PEMP.

5.28 Forth Ports ("FP") advised that in light of the cumulative effect of the wind farms, a coastal vessel traffic service for the passing traffic may be required and should be considered further.

5.29 The Company advised that a coastal vessel traffic service for passing traffic has been considered and is not deemed necessary in the context of the range of proposed mitigation measures. Notwithstanding, the Company remains open to further discussions in the event of surrounding developments proceeding.

5.30 A condition requiring the preparation of a NSP and participation in the FTRAG have been attached to the s.36 consent, which will address these concerns.

5.31 Inch Cape Offshore Limited ("ICOL") stated that the approach taken by the Company to the cumulative assessment of seascape, landscape and visual impacts differs from the approach advised by SNH and Marine Scotland. ICOL also highlighted the approach taken by the Company in classifying the area as an area of open sea. ICOL recognised the difficulties encountered by the Company when preparing night time visualisations and noted that it would be beneficial for further strategic discussions regarding the preparation of night time visuals to assist with future applications.

5.32 ICOL highlighted that the fisheries datasets used to support the commercial fisheries assessment undertaken by the Company differ, thus resulting in the reporting of different effects by both ICOL and the Company in their respective EIA reports. ICOL stated its belief that the Company has overestimated the potential impacts on potting vessels and provided details of other datasets which could provide useful context when assessing the potential impacts on commercial fisheries. Further, ICOL stated that, in its opinion, the Company has overestimated the impacts on creelers as a result of displacement of nephrops vessels during the cable installation.

5.33 ICOL further stated that the definitions of sensitivity used in the marine mammal assessment, when considering the impacts of pile driving noise, has resulted in the reporting of reduced impacts for all species of marine mammals (other than bottlenose dolphin and harbour seal). ICOL also noted the use of the National Oceanic and Atmospheric Administration criteria ("NOAA") alone,[30] without the use of Southall (2007)[31] criteria to provide context, as advised at scoping, may

[30] NOAA (2016) Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing: Underwater Acoustic Thresholds for Onset of Permanent and Temporary Threshold Shifts. (U.S. Dept. of Commer., NOAA. NOAA Technical Memorandum NMFS-OPR-55, 178 p. National Marine Fisheries Service).

[31] Southall, B., Bowles, A., Ellison, W., Finneran, J., Gentry, Ro., Greene Jr., C., Kastak, D., Ketten, D., Miller, J., Nachtigall, P., Richardson, W., Thomas, J. and Tyack, P. (2007). Marine Mammal Noise Exposure Criteria: Initial Scientific recommendations. (Aquatic Mammals. 33(4): 411-521).

have an impact on the numbers of animals reported as being likely to be impacted. ICOL further highlighted that the use of the uncorrected code when running the iPCoD model will have influence on the reported outputs. Further, ICOL noted that the summary data from the Brandt et al (2016)[32] dose response curve has been utilised and stated that, therefore, the results would be less conservative than the data available from the Beatrice Offshore Wind Farm development.

5.34 Regarding ornithology, ICOL noted that the EIA Report does not provide clear detail on how effects have been apportioned amongst SPA and non-SPA colonies. ICOL believes that the assessment has been carried out in such a way that the impacts on SPA populations may have been overestimated.

5.35 ICOL further noted that a differing approach had been taken by the Company to the consideration of the Transponder Mandatory Zone ("TMZ") and should any improved technical mitigation measures be identified and implemented, they must be cost effective, time bound and subject to the usual MOD approach to mitigation measures.

5.36 Further consultation has taken place with SNH regarding the ornithology and marine mammal issues identified and conditions have been attached to the s.36 consent which require the Company to participate in the FTRAG and FTCFWG, which will help to address the issues raised above.

5.37 The Ministry of Defence ("MOD") objected to the Development, citing unacceptable interference to the Air Traffic Control ("ATC") radar used by Leuchars Airfield (as radar may be desensitised due to the proximity of the Development). Furthermore, the MOD noted that the Development would adversely affect the frequency of the provision of Traffic Service and Deconfliction Service in the vicinity of the proposed wind farm, air traffic density in the vicinity of the proposed wind farm, the performance of the radar, the complexity of the ATC task, the workload of controllers and the position of the Development in relation to handover points.

5.38 MOD highlighted that the agreement to the TMZ as a mitigation measure for the Original Consent was a temporary measure. MOD highlighted that it requires an enduring technical solution to mitigate potential impacts. MOD stated that it would welcome clarification from the Company regarding any potential mitigation measures for the Development.

5.39 MOD also objected on grounds of unacceptable interference to the Air Defence ("AD") radar at both Remote Radar Head ("RRH") Brizlee Wood and RRH Buchan, due to detectability of turbines. Further, visibility of the turbines at both locations would exceed the cumulative effect thresholds.

[32] Brandt et al. (2016) Effects of offshore pile driving on harbour porpoise abundance in the German Bight. Assessment of Noise Effects. Final Report. Prepared for Offshore Forum Windenergie. Available at: http://bioconsult-sh.de/site/assets/files/1573/1573.pdf (Last accessed 01/11/2018)

5.40 MOD advised that research into technical mitigation solutions is currently ongoing and the Company may wish to investigate these further. MOD requested that the turbines are fitted with aviation lighting in accordance with Article 219 of the Air Navigation Order, should the stated issues be overcome.

5.41 Following further discussion with the Company, MOD removed its outstanding objections on 20 August 2018 in relation to interference at RRH Brizlee Wood and RRH Buchan Air Defence radar. MOD advised that the impacts on the ATC radar at Leuchars Airfield could be effectively mitigated through the preparation and implementation of an Air Traffic Control Radar Mitigation Scheme.

5.42 Conditions requiring the Company to prepare, consult on and adhere to an Air Traffic Control Radar Mitigation Scheme ("ATC Scheme") has been attached to the s.36 consent to mitigate these concerns.

5.43 NATS Safeguarding ("NATS") advised that the Development does not conflict with its safeguarding criteria. Accordingly, NATS (En Route) Public Limited Company ("NERL") had no safeguarding objection to the proposal.

5.44 River Tweed Commission ("RTC") advised that the EIA Report has not taken into account the large number of east coast salmon which travel across the North Sea in line with south Northumberland, and then travel northwards up the east coast to reach their Scottish natal rivers.

5.45 RTC advised that salmon passing through the Development area are vulnerable to seal predation and new information has shown that the bases of wind turbines can act as artificial reefs, attracting and thus altering the foraging patterns of seals. RTC considered that the influence of underwater structures on predation of salmon migration has not been fully considered in the EIA Report.

5.46 RTC considered that some compensatory support should be given to those rivers which will suffer as a consequence of greater predation on returning stocks, should further data support that this is the case.

5.47 A response from the Company, along with MSS comments on consultation responses relating to diadromous fish, was forwarded to RTC. RTC subsequently confirmed that the information provided by the Company does not alter its opinion regarding the potential impacts on seal predation and their request for further monitoring of potential impacts on salmon.

5.48 Conditions have been attached to the s.36 consent which will implement the commitments outlined in the EIA Report, including the requirement for the PEMP, EMP, PS and to participate in the FTRAG.

5.49 Royal Society for the Protection of Birds Scotland ("RSPB Scotland") submitted an objection to the proposed Development and stated that it strongly disagrees with the conclusions reported in the EIA Report. RSPB Scotland stated that the impacts of the worst-case in-combination scenario, as presented in the EIA Report, are wholly unacceptable and would result in significant and irreversible

impacts to the region's seabird populations (particularly northern gannet, black-legged kittiwake, Atlantic puffin, razorbill and common guillemot).

5.50 RSPB Scotland recognised that the reported impacts represent a reduction in the impacts reported for the as-consented Forth and Tay Developments (both in isolation and in-combination). RSPB Scotland, however, stated that the impacts reported in the EIA Report remain significant and will result in adverse effects on the site integrity of the relevant SPAs (in particular in respect of the kittiwake qualifying interest of the Fowlsheugh SPA and Firth of Forth SPA). RSPB Scotland provided detailed comments on the methods and outputs of the assessment and stated that it was not possible, based on the information provided, to reach a full description and conclusion of the likely significant effects of the Development.

5.51 RSPB Scotland also raised concerns regarding the absence of any mitigation or offsetting measures within the EIA Report and stated, that should any consent be granted, a strategic approach should be taken to the aim of the delivering maximum generating capacity for least environmental effect.

5.52 A response from the Company was forwarded to RSPB Scotland. RSPB Scotland subsequently confirmed that the information provided did not alter its position. RSPB Scotland stated the scale of impacts are a limiting factor to the Development and, on receipt of the 2018 applications for the Inch Cape, Seagreen Alpha and Seagreen Bravo offshore wind farms, RSPB Scotland will consider its position further.

5.53 RSPB Scotland submitted a response to the EIA Addendum and maintained its objection to the Development. RSPB Scotland provided detailed comment on discrepancies identified within the information provided, in particular the revised assessment of the in-combination impacts on the razorbill and guillemot qualifying interests of the Fowlsheugh SPA and Forth Islands SPA. RSPB Scotland stated that the information provided in the EIA Addendum added further weight to its initial concerns.

5.54 Conditions have been attached to the s.36 consent requiring the Company to prepare, consult on and adhere to the PEMP, EMP, CMS, and to participate in the FTRAG, to contribute to improved understanding of the impacts of the Development, both in isolation and in-combination, on seabird populations.

5.55 Royal Yachting Association Scotland ("RYA") agreed with the points raised in chapter 11 of the EIA Report. in relation to recreational vessels. RYA advised that it is likely that approximately four times the amount of recreational vessels may be present in the area when compared to the number presented via AIS data. RYA, however, advised that this difference would not alter the reported effects.

5.56 Seagreen Wind Energy Limited ("Seagreen") commented that the cumulative assessments for all receptors do not take account of the updated design envelope for the Seagreen Alpha and Seagreen Bravo Offshore Wind Farms. Further, Seagreen advised that there are differences in the underlying data used

to support some of the assessments which will result in differing outputs. Seagreen highlighted a discrepancy in the marine mammal assessment which predicts up to 97 harbour porpoise will be exposed to Permanent Threshold Shift ("PTS"). Seagreen's assessment predicts that no harbour porpoise will be exposed to PTS. Seagreen further advised that its predicted disturbance numbers for some marine mammal species are significantly lower than those predicted by the Company.

5.57 Seagreen also raised concerns regarding the effects estimated by the Company on the displacement and collision impacts from the Seagreen project and how these were apportioned.

5.58 Information from other sources has been used by Scottish Ministers to inform the AA for marine mammals and seabirds for the in-combination assessment with the Seagreen development.

5.59 Scottish Fishermen's Federation ("SFF") submitted an objection to the Development. SFF objected to statements made within the EIA Report regarding decommissioning (including the proposal that the subsea structures and cables are to be left in situ), the use of the term "overfishing" (and the negative implications of this term) and the projected timescale for the installation of the OEC, which SFF stated was unrealistic and therefore, the impacts on fishing activities during the installation period had not been fully considered. SFF further advised that, in its experience, fishing would not automatically resume following completion of the construction phase of the Development and, therefore, monitoring of the real time impacts and consideration of mitigation/compensation measures, particularly for the nephrops fleet, is required.

5.60 SFF advised that it expects the scallop industry to be compensated, due to implications that continuous closures may take place over the three years of construction. The SFF advised that it considers the Company has insufficient understanding that mobile and static fisheries and mobile fishing operations may be seriously restricted post-construction. SFF highlighted that disturbance payments are intended for specific vessels and, therefore, do not replace the need to mitigate the impacts on the wider fleet and onshore fisheries supply chains (including potential impacts on food security) arising from the Development.

5.61 SFF requested to be consulted on all relevant plans to include the Commercial Fisheries Management Plan ("CFMS" now known as FMMS), CaP, require the Company to participate in the FTCFWG and to be involved in the monitoring of the impacts of the Development on commercial fisheries receptors.

5.62 A response from the Company was forwarded to SFF addressing the comments detailed above. The Company stated that arrangements for decommissioning would be addressed through the development of a DP post-consent and SFF advised that this measure would satisfactorily address its concerns.

5.63 The Company stated that ongoing monitoring of specific target groups will be undertaken through the PEMP as appropriate. The Company advised that the

local fishing community would be kept informed of cable installation works. The Company also stated a commitment to ensuring the OEC is safe and available for fishing as soon as reasonably practicable. The SFF advised it expects displaced vessels of all metiers to be compensated in some way, and that the monitoring of commercial species across the Development area, including the OEC route, will go some way to address this.

5.64 SFF stated that the Company's response regarding continuation of scallop fishing during the operational phase of the Development does not accurately reflect the impacts of displacement. SFF emphasised that monitoring of commercial species, including scallops, is essential to measure the impacts on this receptor. SFF stated that the Company should invest in trials with real fishing vessels to prove the proposition that safe fishing can occur within the Development area.

5.65 SFF maintained that the embedded mitigation included within the EIA Report is not intended to mitigate the impacts on fisheries receptors, but rather to mitigate health and safety concerns. SFF stated that the information and response provided by the Company does not reflect the need for the CFMS (now known as the FMMS) to be agreed by the FTCFWG. Further still, SFF stated that the response provided did not consider the potential impacts on scallop and nephrops fisheries and therefore, monitoring and compensation measures for these receptors require further consideration. SFF stated that the EIA Report did not include consideration of the potential negative socio-economic impacts resulting from impacts on commercial fisheries receptors.

5.66 Conditions have been attached to the s.36 consent which require the Company to prepare, consult on and adhere to the terms of a DP and CaP. Further, the Company will be required to prepare and deliver a PEMP to monitor the impacts of the Development on a range of receptors, including commercial fisheries receptors. The Company is required to prepare, consult on and adhere to the terms of a FMMS. The SFF will be consulted on all relevant post-consent plans.

5.67 Sport Scotland ("SS") had no comments to make on the Application.

5.68 Scottish Seabird Centre ("SSC") raised concerns regarding potential seabird fatalities in an area of international significance for seabird colonies and where wildlife tourism has become established as an important factor in the local economy, delivering important socio-economic benefits.

5.69 A response from the Company was forwarded to SSC. SSC welcomed the actions being taken to reduce the potential detrimental environmental impacts of this Development and that the Company will continue to consult with Marine Scotland, SNH and RSPB Scotland in order to prepare the PEMP.

5.70 SSC reiterated its concerns regarding seabird fatalities and the need to minimise detrimental environmental impacts, whilst identifying and delivering positive outcomes for the marine environment and wildlife, wherever possible.

5.71 Conditions have been attached to the s.36 consent, including the requirement to prepare, consult on and implement the PEMP and to participate in the FTRAG.

5.72 Tay District Salmon Fishery Board ("Tay DSFB") submitted an objection to the Development. Tay DSFB raised concerns regarding potential negative impacts on Atlantic salmon and sea trout arising from the Development. Tay DSFB expressed its support for the consultation response submitted by FMS.

5.73 Tay DSFB requested that, should any consent be granted, conditions should be attached regarding monitoring and mitigation measures and expressed its willingness to participate in the development of such measures. Tay DSFB stated that it will maintain its objection until an agreed and accepted monitoring and mitigation strategy is produced

5.74 A response from the Company, along with MSS comments on consultation responses relating to diadromous fish were forwarded to Tay DSFB. No subsequent response was received from Tay DSFB.

5.75 Conditions have been attached to the s.36 consent which will implement the commitment to participate in the FTRAG, as outlined in the EIA Report and include the requirement to prepare, consult on and implement the PEMP.

5.76 Transport Scotland ("TS") advised that conditions, requiring the preparation and approval of a Construction Traffic Management Plan ("CTMP") and Traffic and Transportation Plan ("TTP") should be considered for any consent granted to mitigate potential impacts on the trunk road network and any impacts arising from road based traffic and transportation associated with the Development.

5.77 TS noted that no access, traffic and transport section had been included within the EIA Report. However, TS acknowledged that the EIA Report states that this information has not been included as no port has been selected. TS therefore considered it reasonable that the TTP is not prepared until the port/ports has/have been selected.

5.78 TS noted that the EIA Report states that traffic, transport and access matters relating to onshore works are dealt with under the onshore planning regime. TS stated that the requirements and conditions included in any associated onshore planning permission should be considered during the preparation of the TTP.

5.79 A condition has been attached to the s.36 consent requiring the Company to prepare, consult on and adhere to a CTMP to mitigate the impacts identified. This plan also incorporates the TTP requirements.

5.80 Whale and Dolphin Conservation ("WDC") advised that it had concerns about the impacts of the Development, both in isolation and in-combination with other developments, on cetaceans, in particular harbour porpoise.

5.81 WDC reiterated its serious concerns regarding the current levels of scientific uncertainty regarding the impacts, and potential negative impacts, which

renewable energy developments, both individually and cumulatively, may have on cetaceans and seals within Scottish waters.

5.82 WDC strongly urged that the Company considers alternative methods to pile driving, however, if pile driving is to be utilised, WDC stated that there should be a commitment to noise mitigation and monitoring during the entirety of the construction phase to assess if the conclusions of the noise modelling assessment reported in the EIA Report are accurate. WDC further stated that pre-construction monitoring should be undertaken. WDC encourages further consideration of the noise abatement technologies recommended in Faulkner et al. (2018)[33] to mitigate the impacts of underwater noise.

5.83 WDC stated that marine mammal observers ("MMO") and passive acoustic monitoring ("PAM") should be utilised throughout the construction phase as mitigation. WDC recognised the use of soft-start as a sensible mitigation measure and requested that the use of the soft-start procedure should be monitored to establish its effectiveness.

5.84 WDC strongly urged that Acoustic Deterrent Devices ("ADD") are not utilised, due to its concerns regarding the impacts of the additional noise generated on harbour porpoise and other species. WDC stated that an European Protected Species ("EPS") licence would be required if ADD were to be utilised.

5.85 WDC requested to be involved in the development of the PS, VMP, EMP and PEMP and other such post-consent plans.

5.86 A response from the Company was forwarded to WDC addressing the comments detailed above. No subsequent response was received from WDC.

5.87 Conditions have been attached to the s.36 consent requiring that the Company prepare, consult on and adhere to a PS, VMP, EMP and PEMP. Conditions have been attached to the s.36 consent requiring the Company to participate in the FTRAG.

6 Representations from other organisations and members of the public

6.1 Four public representations were received, all of which objected to the Development.

6.2 One public representation felt that the Development required much larger public awareness and publicity in East Lothian, Fife and the Scottish Borders and that any positive economic impacts would not benefit East Lothian.

6.3 Two of the public representations objected on the grounds of adverse impacts to visual amenity, citing adverse effects on the views to sea from viewpoints in East Lothian and Fife East Lothian, with attendant impacts on the tourism industry.

[33] Faulkner, R.C., Farcas, A. and Merchant, N.D. 2018. *Guiding principles for assessing the impact of underwater noise.* Journal of Applied Ecology 1-6. DOI: 10.1111/1365-2664.13161

6.4 The fourth public representation objected on the basis that the Development has the potential to damage the ecosystem and food stocks in the Firth of Forth and bird breeding sites at the Bass Rock and Isle of May and that this would exceed the community benefits of the energy generated by the Development.

6.5 The information has been passed to the Company. The points raised are not considered to be determinative, but have been taken into consideration in the final decision.

7 Advice from 3rd Parties

7.1 MS-LOT sought advice from MSS on the Application, EIA Addendum and on consultation responses. MSS provided advice as follows and also provided expertise in completing the AA.

Marine mammals

7.2 MSS recognised the precaution in the marine mammal assessment and also the issues identified with the version of the iPCoD model used to inform the assessment.

7.3 MSS took part in a workshop with SNH on 7 September 2018 to agree a set of scenarios to run through the revised version of iPCoD for bottlenose dolphin and grey seal, and reviewed the report provided by SNH. MSS concurred with the SNH advice that the Development, in-combination with the Forth and Tay Developments (and in the case of bottlenose dolphin with the Moray Firth wind farms and AHEP), would not adversely affect the integrity of the SACs concerned.

7.4 MSS agreed with the mitigation measures outlined in the SNH response of 11 May 2018.

Ornithology

7.5 MSS raised several queries following its consideration of the ornithology chapter of the EIA Report, the HRA Report and the relevant appendices. MSS highlighted inconsistencies in the information provided by the Company. This, along with the concerns raised by SNH led to the Company submitting an EIA Addendum.

7.6 MSS advised that there is increasing evidence to suggest that kittiwake may be less susceptible to displacement than originally thought, with SNH advising that displacement of kittiwake did not need to be considered by the Company. The displacement rate of 30% assumed for kittiwake is therefore likely to be overly precautionary.

7.7 In its advice, MSS highlighted the new Seabird Offshore Renewable Development ("SeabORD") tool for estimating displacement effects.[34] This tool was not available at the time the Application was submitted, and MSS advised that it may be some time before it can be used in casework, as there are a number of ways in which it can be applied and agreement will need to be reached by the relevant parties.

7.8 MSS advised that displacement effects using the matrix approach as advised in the scoping opinion are less that those estimated in 2014 when the Searle et al 2014 model was used.[35] Preliminary examination of SeabORD also suggests that using the "shortest route method" the displacement effects would be less than those estimated in 2014.

Commercial Fisheries

7.9 MSS reviewed the Application and the SFF response. MSS considered that the SFF suggestion of a monitoring programme for validating impacts on commercial fisheries was appropriate. In particular, this would help inform the impacts on scallop dredgers and concerns raised by the SFF that the Development area would be incompatible with scallop dredging after construction.

7.10 MSS advised that the Company should provide clarity on the installation time for their cables. MSS advised that over-trawlability surveys would help inform whether it is safe for trawling to recommence along the cable route once installation is complete. However these may not be required if the Company can provide evidence that the installation of the cables has not left any fishing hazards.

Diadromous Fish

7.11 The scoping opinion advised that the Company should review the updated published information relating to the behaviour of diadromous fish to ensure that the conclusions of no significant effects in relation to the 2014 Application remain valid. The justification to scope out diadromous fish from the EIA was provided by the Company in Appendix 7.2 of the EIA Report. Despite the receptor being scoped out, concerns were raised through the consultation by several bodies.

7.12 Concerns were raised by consultees relating to the unknown effects of wind farms on diadromous species and lack of knowledge on migration routes. MSS advised that there has been substantial progress in research relating to movement, abundance, swimming depth, feeding behaviour etc. of salmon and

[34] SeaBORD: A tool to estimate the fate of birds displaced by offshore renewable developments. Available here: https://www2.gov.scot/Topics/marine/marineenergy/mre/current/SeabORD (Last accessed 01/11/2018)

[35] Searle, K., Mobbs, D., Butler, A., Bogdanova, M., Freeman, S., Wanless, S. & Daunt, F. (2014) Population consequences of displacement from proposed offshore wind energy developments for seabirds breeding at Scottish SPAs (CR/2012/03). (Final Report to Marine Scotland Science).

sea trout. In general concerns about actual impacts caused by wind farm developments have been reduced.

7.13 MSS confirmed that salmon smolts and adults are likely to pass though the Development area and that sea trout will also occur in the area. MSS advised that information on the likely distribution of sea trout, is currently lagging behind salmon smolts and adults, although there has again been progress on many topics.

7.14 MSS advised that turbine bases can provide shelter and potentially new feeding opportunities which might concentrate potential prey fish and/or predators under some situations. However, MSS is not aware of any evidence to date that migrating smolts or adult salmon gather at turbine bases. The view of MSS is that smolts or adult salmon while they were still offshore will be actively migrating and following cues taking them away from foundation bases. Therefore MSS does not consider that concerns raised by consultees that salmon may be more at risk from predation in the Development area to be a major issue.

Socio-economics

7.15 The Marine Analytical Unit ("MAU") reviewed the Application and found that the general methodological approach was sound and accounted for uncertainty about the economic content of the Development that will be realised in Scotland or in the local study area.

7.16 MAU raised some points regarding the economic multipliers that had been used and advised that as UK input/output tables had been used this could overstate or understate the indirect impact in Scotland.

7.17 MAU advised that as the displacement of other economic activity had not been assessed this could overstate the economic (GVA and employment) impacts of the Development.

7.18 MAU advised that socioeconomic analysis is exclusively focused on economic outcomes and does not consider potential impacts on social variables like – health, education, access to services, housing and crime.

7.19 Scottish Ministers have considered the advice provided by MSS in reaching their decision.

8 Public Local Inquiry ("PLI")

8.1 Scottish Ministers did not require PLI to be held.

9 The Scottish Ministers Considerations

Environmental Matters

9.1 Scottish Ministers are satisfied that an environmental impact assessment has been carried out. Environmental information including the EIA Report and EIA Addendum has been produced and the applicable procedures regarding publicity and consultation laid down in regulations have been followed. The environmental impacts of the Development have been assessed and the Scottish Ministers have taken the environmental information into account when reaching their decision.

9.2 Scottish Ministers are satisfied that the Company, when formulating its proposal to construct the generating station, had regard to the desirability of preserving natural beauty, of conserving flora, fauna, and geological and physiographical features of special interest and of protecting sites, buildings and objects of architectural, historic, or archaeological interest.

9.3 Scottish Ministers have had regard to the matters mentioned in the previous paragraph and the extent to which the Company has done what it reasonably could to mitigate the effects of the Development on those features, and are satisfied that the Company has done what it reasonably could with regard to mitigation.

9.4 Scottish Ministers have considered fully and carefully the Application, EIA Report, HRA Report, the EIA Addendum, all relevant responses from consultees, MSS and third party representations received.

Main Determinative Issues

9.5 Scottish Ministers, having taken account of all relevant information, consider that the main determining issues are:

- The extent to which the Development accords with and is supported by Scottish Government policy and the terms of the NMP and relevant local development plans;
- Renewable energy generation and associated policy benefits;
- Economic impacts; and
- The significant effects of the Development on the environment, which are in summary:
    - Impacts on marine mammals and seabirds including impacts on European sites and European offshore marine sites;
    - Impacts on diadromous fish;
    - Impacts on commercial fisheries;
    - Impacts on cultural heritage;
    - Impacts on seascape, landscape and visual amenity; and
    - Impacts on aviation and defence.

Scottish Government Policy Context

9.6 The NMP, formally adopted in 2015, and recently reviewed in Spring 2018, provides a comprehensive statutory planning framework for all activities out to 200 nm. Scottish Ministers must take authorisation and enforcement decisions, which affect the marine environment, in accordance with the NMP.

9.7 Of particular relevance to this proposal are:

- Chapter 4 policies 'GEN 1-21', which guide all development proposals;
- Chapter 6 Sea Fisheries, policies 'FISHERIES 1-3';
- Chapter 8 Wild Salmon and Diadromous Fish, policies 'WILD FISH 1 and 3';
- Chapter 11 Offshore Wind and Marine Renewable Energy, policies 'RENEWABLES 1, 3-10';
- Chapter 12 Recreation and Tourism, policies 'REC & TOURISM 2 and 6';
- Chapter 13 Shipping, Ports, Harbours and Ferries, policies 'TRANSPORT 1 and 6';
- Chapter 14 Submarine Cables, policies 'CABLES 1, 2 and 5'; and
- Chapter 15 Defence, policy 'DEFENCE 1'.

9.8 The Development will contribute to Scotland's renewable energy targets and will provide wider benefits to the offshore wind industry which are reflected within Scotland's Offshore Wind Route Map and the National Renewables Infrastructure Plan. Offshore wind is seen as an integral element in Scotland's contribution towards action on climate change. The development of offshore wind also represents one of the biggest opportunities for sustainable economic growth in Scotland for a generation. Scotland's ports and harbours present viable locations to service the associated construction and maintenance activities for offshore renewable energy.

9.9 Scottish Planning Policy 2014 ("SPP") sets out Scottish Government's planning policy on renewable energy development. Efficient supply of low carbon and low cost heat and generation of heat and electricity from renewable energy sources are vital to reducing greenhouse gas emissions and can create significant opportunities for communities. Renewable energy also presents a significant opportunity for associated development, investment and growth of the supply chain, particularly for ports and harbours identified in the National Renewables Infrastructure Plan. Communities can also gain new opportunities from increased local ownership and associated benefits.

9.10 Whilst the SPP makes clear that the criteria against which applications should be assessed will vary depending upon the scale of the development and its relationship to the characteristics of the surrounding area, it states that these are likely to include impacts on landscapes and the historic environment, ecology (including birds, mammals and fish), biodiversity and nature conservation; the water environment; communities; aviation; telecommunications; noise; shadow flicker and any cumulative impacts that are likely to arise. It also makes clear that the scope for the development to contribute to national or local economic development should be a material consideration when considering an application.

9.11 Scotland's National Planning Framework 3 ("NPF3") sets out the ambition for Scotland to move towards a low carbon country, placing emphasis on the development of onshore and offshore renewable energy. NPF3 recognises the

significant wind resource available in Scotland, and reflects targets to meet at least 30% of overall energy demand from renewable sources by 2020 including generating the equivalent of at least 100% of gross electricity consumption from renewables with an interim target of 50% by 2015. It also identifies targets to source 11% of heat demand and 10% of transport fuels from renewable sources by 2020.

9.12 NPF3 aims for Scotland to be a world leader in offshore renewable energy and expects that, in time, the pace of onshore wind development will be overtaken by the development of marine energy including wind, wave and tidal.

Impacts of the development on the environment

Impacts on marine mammals, seabirds, European sites and European offshore marine sites

9.13 The Conservation of Habitats and Species Regulations 2017 and the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended) ("the Habitats Regulations") require Scottish Ministers to consider whether the proposed Development would be likely to have a significant effect on a European site or European offshore marine site (either alone or in-combination with other plans or projects), as defined in the Habitats Regulations.

9.14 Owing to the view of SNH that the Development is likely to have a significant effect on the qualifying interests of Forth Islands SPA, Fowlsheugh SPA, St Abb's Head to Fast Castle SPA and Buchan Ness to Collieston SPA, Moray Firth SAC, Tay and Eden Estuary SAC, Berwickshire and North Northumberland Coast SAC and Isle of May SAC, and the Outer Firth of Forth and St Andrews Bay Complex pSPA, Scottish Ministers, as the "competent authority", were required to carry out an AA.

9.15 For marine mammal species the main impact of the Development is from noise during construction due to piling operations, and in particular in-combination impacts with the other Forth and Tay Developments and wind farms in the Moray Firth.

9.16 For the SAC qualifying interests, namely, bottlenose dolphin, grey seal and harbour seal, SNH advised that there would be no adverse effect on the integrity of the above SACs. The Appropriate Assessment ("AA") considered the conservation objectives, the populations at the sites, the predicted levels of effect and population consequences, the fact that the effects are less than in those associated with the Original Consent, the precaution in the assessment methods and the advice from SNH. Scottish Ministers concluded that the Development, subject to the appliance of conditions, would not adversely affect the site integrity of the Moray Firth SAC, Tay and Eden Estuary SAC, Berwickshire and North Northumberland Coast SAC and Isle of May SAC either alone or in-combination with the other projects. The AA provides detail on the noise propagation modelling and the population modelling undertaken to inform the assessment.

9.17 In addition to the SAC qualifying interests above, other cetaceans (which are also European protected species) could be affected by the Development, in particular harbour porpoise and minke whale. These species were considered in the EIA Report. In its response of 11 May 2018, SNH advised that for both these species there would be no impact on favourable conservation status, subject to conditions being attached to the consent.

9.18 WDC raised some concerns in relation to impacts on marine mammals from construction, particularly from pile driving. WDC requested to be consulted on relevant post consent plans to inform the mitigation further.

9.19 For bird species the main impacts come from either collision and/or displacement and barrier effects. SNH considered that there would be likely significant effect as follows:

- Forth Islands SPA – gannet, kittiwake, herring gull, puffin, guillemot and razorbill;
- Fowlsheugh SPA – kittiwake, herring gull, guillemot and razorbill;
- St Abb's Head to Fast Castle SPA – kittiwake, herring gull, guillemot and razorbill;
- Buchan Ness to Collieston Coast SPA – kittiwake, herring gull, guillemot; and
- Outer Firth of Forth and St Andrews Bay Complex pSPA – gannet, kittiwake, herring gull, puffin, guillemot, razorbill, little gull, common gull and black-headed gull.

9.20 Advice was received from SNH on 11 May 2018 and 7 September 2018, on the information provided by the Company, objecting to the Development. This was due to SNH's view that the Development in-combination with the 2014 consents for Inch Cape and Seagreen Alpha and Bravo offshore wind farms would lead to an adverse effect on the Forth Islands SPA with respect to gannet and kittiwake and Fowlsheugh SPA with respect to kittiwake. SNH also raised concerns regarding the razorbill assessment methodology.

9.21 SNH did, however, advise that the impacts from the Development would be less than those associated with the Original Consent. A meeting was held between the Company, SNH, MS-LOT and MSS on 18 September 2018 to discuss the ornithology assessment and clarity was provided by the Company on the razorbill assessment.

9.22 As there were some inconsistencies in the information provided in the EIA Report, HRA Report and EIA addendum in relation to ornithology, Scottish Ministers also used information from other sources to inform the AA, and therefore consulted SNH further.

9.23 SNH responded on 5 and 8 October 2018, and advised that their previous position in relation to kittiwake and gannet at Forth Islands SPA and Fowlsheugh SPA still stood. SNH advised that it considered that there would also be an adverse effect on the integrity of the Forth Islands SPA and Fowlsheugh SPA with respect to razorbill, and an adverse effect on St Abb's Head to Fast Castle

SPA with respect to kittiwake, from the Development in-combination with the 2014 consents for Inch Cape and Seagreen Alpha and Bravo offshore wind farms.

9.24 RSPB Scotland also objected to the Development both in isolation and in-combination with the other Forth and Tay Developments due to unacceptable impacts on SPAs. RSPB Scotland did however recognise that the Development would have less impacts than the Original Consent. As the information used to inform the AA came from other sources, and not solely from information provided by the Company, this information was shared with RSPB Scotland on 10 October 2018.

9.25 The AA considered the conservation objectives, the populations at the sites, the predicted levels of effect and population consequences, the fact that the effects are less than in those associated with the Original Consent, the precaution in the assessment methods and the advice from SNH. Scottish Ministers concluded that that , subject to the appliance of conditions, the Development will not adversely affect the site integrity of the Forth Islands SPA, Fowlsheugh SPA, St Abb's Head to Fast Castle SPA and Buchan Ness to Collieston SPA either alone or in-combination with other projects. Full details of the assessment methodology is provided in the AA.

9.26 In reaching their conclusions in the AA Scottish Ministers have given considerable weight to SNH advice. The methods advised by SNH through scoping, and additional information requested by SNH, have been fully incorporated into the assessment. As such, divergence from SNH advice is limited to differing conclusions for gannet at Forth Islands SPA, kittiwake at Forth Islands SPA, Fowlsheugh SPA, and St Abb's Head to Fast Castle SPA and razorbill at Forth Islands SPA and Fowlsheugh SPA. In reaching a different conclusion from SNH in the AA, Scottish Ministers note that SNH advice on the level of impact being adverse to site integrity is a subjective opinion. In reaching their own conclusions, Scottish Ministers have taken proper account of the entire context of the AA, in particular its highly precautionary assumptions, which make it very unlikely the number of impacted individuals will be as large as the values presented in the AA. For these reasons Scottish Ministers consider the levels of assessed impact to be reasonable and are convinced there will be no adverse effect on site integrity of any of the SACs, SPAs or the pSPA considered in the AA.

9.27 In Scotland, Scottish Ministers are currently in the process of identifying a suite of new marine SPAs. In 2014, advice was received from the Statutory Nature Conservation Bodies ("SNCBs") on the sites most suitable for designation and at this stage they became draft SPAs ("dSPAs"). Once Scottish Ministers have agreed the case for a dSPA to be the subject of a public consultation, the proposal is given the status of proposed SPA ("pSPA") and receives policy protection, which effectively puts such sites in the same position as designated sites, from that point forward until a decision on classification of the site is made. This policy protection for pSPAs is provided by Scottish Planning Policy (paragraph 210), the UK Marine Policy Statement (paragraph 3.1.3) and the NMP for Scotland (paragraph 4.45). The Outer Firth of Forth and St. Andrew's

Bay Complex pSPA is currently at consultation and, therefore, is included in the AA.

9.28 It is not a legal requirement under Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora ("the Habitats Directive") or the Habitats Regulations for the AA to assess the implications of the Development on the pSPA. The AA includes an assessment of implications upon this sites in accordance with domestic policy. Scottish Ministers are also required to consider article 4(4) of Council Directive 2009/147/EC on the conservation of wild birds ("the Birds Directive") in respect of the pSPA. The considerations under article 4(4) of the Birds Directive are separate and distinct to the considerations which must be assessed under this Habitats Directive assessment but they are, nevertheless, set out within the AA.

9.29 SNH advised that the Development in-combination with the other Forth and Tay Developments would not adversely affect the integrity of the Outer Firth of Forth and St Andrews Bay pSPA. The completed AA came to the same conclusion.

9.30 Considering article 4(4) of the Birds Directive, Scottish Ministers concluded that the Development will not cause pollution or deterioration of habitats and any disturbance will be negligible.

9.31 In accordance with regulation 50 of the Conservation (Natural Habitats, &c.) Regulations 1994, and regulation 65 of the Conservation of Habitats and Species Regulations 2017, the Scottish Ministers will, as soon as reasonably practicable following the formal designation of the pSPA, review their decision authorising the Development. If required, this will include a supplementary AA being undertaken concerning the implications of the Development on the site as designated (as the site is currently a pSPA, the conservation objectives are currently in draft form; the conservation objectives will be finalised at the point at which the site is designated). If the conservation objectives, site boundary and qualifying features do not change when the site becomes designated then a further AA may not be required as the effects of the Development have been fully considered in the current AA.

9.32 Conditions requiring the Company to prepare, consult on and adhere to a CMS, EMP, PS, VMP and PEMP have been attached to the s.36 consent.

9.33 Scottish Ministers consider that, having taken into account the information provided by the Company, the responses of the consultative bodies, and having regard to the conditions attached, there are no outstanding concerns in relation to the impact of the Development on marine mammals, seabirds or European sites or European offshore marine sites which would require consent to be withheld.

Impacts on diadromous fish

9.34 In its scoping advice, SNH advised that diadromous fish should be scoped out of both EIA and HRA. During the scoping process, MSS advised that there was significant new information from recent research in relation to diadromous fish.

Therefore the scoping opinion advised that the Company should review the updated published information relating to the behaviour of diadromous fish to ensure that the conclusions of no significant effects in relation to the Original Consent remain valid. The justification to scope out diadromous fish from the EIA was provided by the Company in appendix 7.2 of the EIA Report. Despite the receptor being scoped out, objections were raised during the consultation by FMS, Esk DSFB and Tay DSFB. The objections related to the Application not containing sufficient information to make an adequate assessment of the potential effect on salmonid populations. In addition, a lack of knowledge of the migratory routes of smolts (Atlantic salmon and sea trout) and the potential secondary impacts on increased predation of migratory fish by seals were highlighted as key concerns.

9.35 MSS advised that that there has been substantial progress in research relating to movement, abundance, swimming depth, feeding behaviour etc. of salmon and sea trout. In general, concerns about actual impacts caused by wind farm developments have been reduced. MSS does not consider that concerns raised by consultees that salmon may be more at risk from predation in the Development area to be a major issue.

9.36 A condition requiring the Company to prepare, consult on and adhere to a PEMP, to include diadromous fish, has been attached to the s.36 consent to mitigate concerns.

9.37 Scottish Ministers consider that, having taken into account the information provided by the Company, the responses of the consultative bodies, and having regard to the conditions attached, there are no outstanding concerns in relation to the impact of the Development on diadromous fish which would require consent to be withheld.

Impacts on commercial fisheries

9.38 Moderate significant effects were identified by the Company on demersal trawlers and potters, however, with additional mitigation, the Company concluded that there would be no significant effects on commercial fisheries.

9.39 The SFF responded on behalf of the 500 plus fishing vessels in membership of its constituent associations objecting to the Development. The SFF objected to certain aspects of the EIA Report, in particular in relation to the construction period for the cables and impacts on the industry from the closure of the Development area for fishing during the 3 year construction period. SFF considered that impacts on the scallop fishery would be major, rather than minor as reported in the EIA Report. The SFF also raised concerns regarding the use of the area for fishing post construction.

9.40 Conditions requiring the Company to prepare, consult on and adhere to a FMMS and PEMP, to include commercial fisheries, and to participate in the FTCFWG have been attached to the s.36 consent to mitigate these concerns.

9.41 Scottish Ministers consider that, having taken into account the information provided by the Company, the responses of the consultative bodies, and having regard to the conditions attached, there are no outstanding concerns in relation to the impact of the Development on commercial fisheries which would require consent to be withheld.

Impacts on seascape, landscape and visual amenity

9.42 Assessments were completed for both the Development cumulatively with the Original Consents for the Inch Cape and Seagreen Alpha and Bravo offshore wind farms and the 2017 proposals for fewer, larger turbines. Moderate cumulative significant impacts were identified on the coastal character of east Fife and north-east East Lothian and south-east Angus. Moderate significant effects were identified from aviation and navigation lighting on coastal character and visual amenity. Major cumulative significant effects were identified on visual amenity where the Development and the Inch Cape offshore wind farm are viewed at close range. No objections were received from consultees in relation to these impacts.

9.43 SNH advised that the Development cumulatively with the 2017 proposals for Inch Cape and Seagreen Alpha and Bravo offshore wind farms results in the most severe effect, largely due to the increase in turbine height of the Inch Cape wind farm.

9.44 Angus Council considered that there would be significant impacts on landscape and seascape character, however, it did not consider these visual impacts to be unacceptable. Angus Council considered that the aviation and navigation lighting would have significant night seascape impacts.

9.45 East Lothian Council also considered that there would be significant adverse seascape and visual impacts from the Development and did not agree with the classification of the level of significance in certain instances. However, East Lothian Council did not object. Two public representations objected to the Development on the grounds of adverse impacts to visual amenity, citing adverse effects on the views to sea from viewpoints in East Lothian and Fife East Lothian, with attendant impacts on the tourism industry.

9.46 Conditions requiring the Company to prepare, consult on and adhere to a DSLP and DS have been attached to the s.36 consent.

9.47 Scottish Ministers consider that, having taken into account the information provided by the Company, the responses of the consultative bodies and the public representations, and having regard to the conditions attached, there are no outstanding concerns in relation to the impact of the Development on seascape, landscape and visual amenity which would require consent to be withheld.

Impacts on cultural heritage

9.48 Moderate, adverse impacts on the setting of the Isle of May Priory were reported in the EIA Report. The priory is a scheduled monument, located 16.5 km to the east of the Development. These impacts were not discussed in the responses received from consultees.

9.49 East Lothian Council provided specific comment on the reported effects of the Development on cultural heritage. East Lothian Council disagreed with the reporting of effects on Tantallon Castle and North Berwick Law as being of minor significance, stating that it considers these impacts to be of moderate significance. East Lothian Council provided further detailed comments on the assessment methodology utilised, which it suggested would increase the potential impact of the Development upon the cultural heritage of East Lothian. East Lothian Council stated that the potential cumulative impacts of the Development would have a significant impact on cultural heritage, however, East Lothian Council did not object to the Development on these grounds.

9.50 HES was content that the reported impacts of the Development did not raise issues of national significance and did not object to the Development. HES stated that the Application should be considered further in accordance with national and local policy on development affecting the historic environment. HES provided detailed comment on the assessment methodologies utilised and inconsistencies and gaps within the EIA Report, particularly in relation to the assessment of impacts on the setting of the Bell Rock Lighthouse, however, HES was content that the discrepancies identified do not raise issues of national significance or alter the conclusions of the assessment.

9.51 Angus Council concurred with the HES's conclusions but highlighted limitations in the assessment of the impacts of navigation and aviation lighting on the setting of the Bell Rock Lighthouse.

9.52 One public representation raised issues of cultural heritage, in particular the potential impacts on the setting of the Bell Rock Lighthouse.

9.53 Conditions requiring the Company to prepare, consult on and adhere to a DSLP, Marine Archaeology Reporting Protocol ("MARP") and DS have been attached to the s.36 consent.

9.54 Scottish Ministers consider that, having taken into account the information provided by the Company, the responses of the consultative bodies and the public representations, and having regard to the conditions attached, there are no outstanding concerns in relation to the impact of the Development on cultural heritage which would require consent to be withheld.

Impacts on aviation and defence

9.55 The EIA Report reported major significant effects on military and aviation receptors, both in isolation and in-combination with other developments. MOD initially submitted an objection to the Development on safeguarding grounds, on the basis of unacceptable interference to the ADRs at RRHs Buchan and Brizlee Wood and the air traffic control radar at RAF Leuchars and potential subsequent

impacts on air safety. MOD requested that further engagement take place with the Company to identify an enduring technical solution to mitigate impacts.

9.56 MOD requested that any WTGs are fitted with aviation lighting in accordance with Article 219 of the Air Navigation Order. Further requirements regarding aviation lighting were recommended by NLB and the requirements for aviation and navigation lighting will be implemented through consent conditions.

9.57 Further discussion between the Company and the MOD to identify appropriate technical solutions to mitigate the impacts of the Development occurred. MOD suggested that the inclusion of conditions requiring the preparation of and adherence to a Primary Radar Mitigation Scheme ("PRMS") and Air Traffic Control Radar Mitigation Scheme ("ATC Scheme") will ensure that appropriate mitigation measures are implemented prior to and throughout the entire operational phase of the Development to mitigate potential impacts on RAF Leuchars.

9.58 Following further consideration, MOD subsequently withdrew its objections in relation to the ADRs at RRH Buchan and RRH Brizlee Wood. Further assessment identified that, due to the height of the WTGs and limited coverage, the WTGs are unlikely to be detected by the Brizlee Wood ADR. Further, current technical evidence does not identify the need for the application of any mitigation measures to address the potential impacts of the operational WTGs on RRH Buchan ADR therefore the requirement for the PRMS is no longer required.

9.59 NATS had no safeguarding objection to the Development.

9.60 Conditions requiring the Company to prepare, consult on and adhere to a ATC Scheme, LMP, DSLP, DS, CMS and NSP have been attached to the s.36 consent.

9.61 Scottish Ministers consider that, having taken into account the information provided by the Company, the responses of the consultative bodies, and having regard to the conditions attached, there are no outstanding concerns in relation to the impact of the Development on aviation and defence which would require consent to be withheld.

Renewable energy generation and associated policy benefits

9.62 The key environmental benefit of the Development is to offset greenhouse gas ("GHG") emissions that might otherwise be produced by other means of electricity generation. Over the lifetime of the Development, carbon emissions from fabrication, construction, operation and decommissioning will be offset by the net reduction in emissions through the low carbon wind energy technology.

9.63 There are multiple benefits associated with the Development, including:

- The reduction in emissions of carbon dioxide, nitrogen oxides, and sulphur dioxide during the operational phase equivalent to the annual

emissions of carbon dioxide, nitrogen oxides, and sulphur dioxide from traditional thermal generation sources;
- Improvements to the security of the UK's domestic energy supply through increased energy generation;
- Reduction in the reliance on fossil fuels; and
- Providing a contribution towards the ambitious Scottish, UK and European Union renewable energy targets.

9.64 The proposed installed generating capacity of the Development is around 450MW (however, the exact value is dependent on the nominal capacity and number of WTGs installed and cannot yet be confirmed). Based on the Scottish Government's published Renewable Electricity Output Calculator,[36] it is estimated that, depending on the fuel type displaced, 584,581 tonnes of carbon dioxide will be saved each year. In addition, it is estimated that the Development will generate enough electricity to meet the needs of the equivalent 290,560 Scottish households per year.

Economic benefits

9.65 SPP advises that economic benefits are material issues which must be taken into account as part of the determination process. It also confirms the Scottish Ministers' aim of achieving a thriving renewables industry in Scotland. Further, national policy and strategies, such as NPF3 and The Scottish Energy Strategy: The Future of Energy in Scotland (Scottish Government, 2017), support the role of renewable energy development in achieving socio-economics benefits and supporting the growth of the low carbon economy. The EIA Report reported that the Development would support the development of the domestic renewable energy industry and offset GHG emissions.

9.66 Whilst impacts on tourism were scoped out of the EIA Report, the Company assessed socio-economic impacts related to the offshore elements of the Development on the Local Study Area and across Scotland.

9.67 The Company reported that, whilst cumulative impacts are expected to be positive, it is not possible to confidently predict these at the present time due to uncertainties around factors such as overall costing and the geographical sourcing of goods and services. Further, it is not yet possible to accurately predict the effects of the decommissioning phase of the Development.

9.68 The Company have estimated that construction of the Development would indirectly and directly support an average annual employment impact of between 300 full-time equivalent ("FTE") person years of employment each year under the lowest modelled socio-economic scenario to 3,295 FTEs under the highest impact scenario. Direct employment effects were predicted for a relatively small number of employment sectors, including: manufacturing and engineering, construction, transport and professional services sectors. Other sectors, including accommodation, food and beverage service activities and electric

[36] https://www.gov.scot/Topics/Statistics/Browse/Business/Energy/onlinetools/ElecCalc (Last accessed: 01/11/2018)

generation, transmission and distribution may also be impacted by the Development. The indirect effects would be spread across a much wider range of sectors.

9.69 During construction, the Development is expected to deliver Gross Added Value ("GVA") impact of between £79.7 million, under the low scenario, and up to £626.9 million under the highest impact scenario at a Scotland-wide level.

9.70 The Company assessed operations and maintenance scenarios across a range of impact scenarios. The Company have estimated that during the operational and maintenance phase, the potential employment impact ranges from 155 FTE posts each year for the lowest impact scenario to 215 FTE posts each year for the highest impact scenario.

9.71 At a Scotland-wide level, GVA during the operational and maintenance phase is expected to range from £10.7 million, under the lowest impact scenario, up to £17.0 million under highest impact scenario.

9.72 Fife Council, in its consultation response, advised that, in terms of wider tourism benefit locally, the Development may provide new tourism potential through the creation of a new boat tour route up to and around the turbines, as has happened in other developments across the UK. Fife Council highlighted the potential for the private sector to create a visitor centre, linked to any boat tour(s), explaining the engineering process of offshore wind farm development. Fife Council stated that the creation of potential boat tours may provide benefits for accommodation providers across the East Neuk and St Andrews area due to increased visitor numbers. Fife Council highlighted that there may be increased opportunities for existing harbours at Tayport, St Andrews, Crail and Anstruther etc. and that these harbours, where possible, should be encouraged to consider diversification.

9.73 In its consultation response, the SFF stated that the EIA Report did not include consideration of the potential negative socio-economic impacts resulting from impacts on commercial fisheries receptors.

9.74 MAU advised that the methodology and approach was largely appropriate, however highlighted some issues with the assessment regarding the economic multipliers and the fact that displacement of other economic activity had not been assessed.

9.75 The Scottish Ministers consider that there is sufficient information regarding the socio-economic impacts of the Development to inform their decision.

10 The Scottish Ministers' Determination

10.1 The Scottish Ministers are satisfied that an environmental impact assessment has been carried out, and that the applicable procedures regarding publicity and consultation in respect of the Application have been followed.

10.2 When formulating proposals for the construction of the proposed generating station, the Company must comply with paragraph 3 of Schedule 9 to the Electricity Act 1989. Paragraph 3(1)(a) of Schedule 9 requires the Company in formulating such proposals to have regard to the desirability of preserving natural beauty, of conserving flora, fauna and geological or physiographical features of special interest and of protecting sites, buildings and objects of architectural, historic or archaeological interest. Paragraph 3(1)(b) requires the Company to do what it reasonably can to mitigate any effect which the proposals would have on the natural beauty of the countryside or on any such flora, fauna, features, sites, buildings or objects. Under paragraph 3(3) of that Schedule, the Company must also avoid, so far as possible, causing injury to fisheries or to the stock of fish in any waters.

10.3 Under paragraph 3(2) of that Schedule, the Scottish Ministers must have regard to the desirability of the matters mentioned in paragraph 3(1)(a) of that Schedule and the extent to which the Company has complied with its duty under paragraph 3(1)(b). Under paragraph 3(3), the Scottish Ministers must avoid, so far as possible, causing injury to fisheries or to the stock of fish in any waters.

10.4 In considering the application, the Scottish Ministers have had regard to the desirability of the matters mentioned in paragraph 3(1)(a) of Schedule 9 and the extent to which the Company has complied with its duty under paragraph 3(1)(b). Ministers consider that the Company has done what it reasonably can to mitigate the effect of the proposed development on the matters mentioned in paragraph 3(1)(a). Ministers are satisfied that the requirements of paragraph 3 of Schedule 9 are satisfied.

10.5 Scottish Ministers have weighed the impacts of the proposed Development, and the degree to which these can be mitigated, against the economic and renewable energy benefits which would be realised. Ministers have undertaken this exercise in the context of national and local policies.

10.6 Scottish Ministers have considered the extent to which the Development accords with and is supported by Scottish Government policy, the terms of SPP, the NMP, local development plans and the environmental impacts of the Development, in particular: impacts on seabirds and marine mammals (including impacts on European sites and European offshore marine sites), impacts on diadromous fish, impacts on seascape, landscape and visual amenity, impacts on commercial fisheries, impacts on cultural heritage and impacts on aviation and defence. Scottish Ministers have also considered the estimated contribution made by the Development to reducing carbon dioxide emissions, and the socio-economic and renewable energy benefits of the Development.

10.7 Scottish Ministers are satisfied that many of the environmental issues have been appropriately addressed by way of the design of the Development and mitigation, and that the issues which remain are, on balance, outweighed by the benefits of the Development. In particular Scottish Ministers are satisfied that the proposal will not adversely affect the site integrity of the Forth Islands SPA, Fowlsheugh SPA, St Abb's Head to Fastcastle SPA, Buchan Ness to Collieston Coast SPA, Moray Firth SAC, Firth of Tay and Eden Estuary SAC, Berwickshire and North

Northumberland Coast SAC, Isle of May SAC or the Outer Firth of Forth and St Andrews Bay Complex pSPA.

10.8 Scottish Ministers have had regard to the requirements of Directive 2009/147/EC of the European Parliament and of the Council on the conservation of wild birds, and Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora.

10.9 In their consideration of the environmental impacts of the Development, Scottish Ministers have identified conditions to be attached to the consent to reduce and monitor environmental impacts. These include requirements for pre-construction, construction and operational monitoring of birds, marine mammals and diadromous fish, CMS, an EMP, Operation and Maintenance Programme ("OMP") and a VMP.

10.10 A condition has also been identified containing requirements for the appointment of an Environmental Clerk of Works ("ECoW") to monitor compliance with all environmental and nature conservation mitigation works and working practices. The ECoW appointed will have powers to order a stop to any activity on site which in his or her reasonable opinion could lead to an incidence of noncompliance with the environmental and ecological conditions or a breach of environmental law.

10.11 Scottish Ministers have concluded that the Company has had regard to the potential interference of recognised sea lanes essential to international and national navigation. Any obstruction or danger to navigation has been addressed through specific consent conditions attached to the s.36 consent.

10.12 Scottish Ministers are satisfied, having regard to current knowledge and methods of assessment, that this reasoned conclusion, as required under the 2017 EW Regulations, is still up to date.

10.13 Subject to the conditions set out in Annex 2, Scottish Ministers grant consent under s.36 of the Electricity Act 1989 for the construction and operation of the Neart na Gaoithe Offshore Wind Farm (as described in Annex 1). In addition Scottish Ministers have also made a declaration under s.36A of the Electricity Act 1989 at Annex D.

10.14 The embedded mitigation and any additional mitigation identified in the EIA Report has been incorporated into the conditions of this s.36 consent and/or any marine licence granted. The conditions also capture monitoring measures required under Regulation 22 of the 2017 EW Regulations.

10.15 In accordance with the 2017 EW Regulations, the Company must publicise notice of this determination and provide that a copy of this decision letter may be inspected on the application website, in the Edinburgh Gazette and a newspaper circulating in the locality to which the Application relates is situated. The Company must provide copies of the public notices to the Scottish Ministers.

10.16 Copies of this letter have been sent to the public bodies consulted on the Application including the relevant planning authorities, SNH, SEPA and HES. This letter has also been published on the Marine Scotland Information website

10.17 The Scottish Ministers' decision is final, subject to the right of any aggrieved person to apply to the Court of Session for judicial review. Judicial review is the mechanism by which the Court of Session supervises the exercise of administrative functions, including how the Scottish Ministers exercise their statutory function to determine applications for consent. The rules relating to the judicial review process can be found on the website of the Scottish Courts. Your local Citizens' Advice Bureau or your solicitor will be able to advise you about the applicable procedures.

Yours sincerely,

[Redacted]

Marine Scotland Licensing Operations Team

A member of the staff of the Scottish Ministers

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ANNEX 1 – DESCRIPTION OF THE DEVELOPMENT

An offshore energy generating station, located in the outer Firth of Forth, approximately 15.5km from East Fife Ness, as shown in Figure 1 below, with a maximum generating output of around 450MW comprising:

1. Not more than 54, three-bladed horizontal axis Wind Turbine Generators ("WTGs"), each with:

    a) A maximum rotor tip height of 208 metres (measured from Lowest Astronomical Tide ("LAT"));
    b) A maximum rotor diameter of 167 metres;
    c) A maximum hub height of 126 metres (measured from LAT);
    d) A minimum blade tip clearance of 35 metres (measured from LAT);
    e) Blade width of up to 4.5 metres; and
    f) A minimum spacing of 800 metres.

2. Up to 54 jacket foundations and ancillary equipment.
3. Up to 2 Offshore Substation Platforms ("OSPs"), jacket foundations and ancillary equipment.
4. Up to 140km of inter-array cabling and up to 4 interconnector cables between the 2 OSPs.
5. Two subsea Offshore Export Cables ("OEC") each of up to 43km in length;
6. scour and cable protection.
7. A Meteorological mast.

The total area within the Development site boundary is 105km^2.

Annex C – Decision Notice and Conditions

Annex 1 – Description of the Development

Figure 3

Neart na Gaoithe Offshore Wind farm Site and Export Cable Corridor to shore at Thorntonloch, East Lothian.

ANNEX 2 - SECTION 36 CONSENT CONDITIONS

The consent granted under Section 36 of the Electricity Act 1989 is subject to the following conditions:

The Company must submit the requested plans as detailed in the conditions prior to the Commencement of the Development, in writing, to the Scottish Ministers for their written approval. Such approval may only be granted following consultation by the Scottish Ministers with any such advisors or organisations as detailed in the conditions or as may be required at the discretion of the Scottish Ministers.

The Development must, at all times, be constructed in accordance with the approved plans as updated or amended.

Any updates or amendments made to the approved plans must be submitted, in writing, to the Scottish Ministers for their prior written approval.

The Company must satisfy themselves that all contractors or sub-contractors are aware of the extent of the Development for which this consent has been granted, the activity which is consented and the terms of the conditions attached to this consent. All contractors and sub-contractors permitted to engage in the Development must abide by the conditions set out in this consent.

The Company must ensure that all personnel adhere to the Scottish Marine Wildlife Watching Code, where appropriate, during all installation, operation and maintenance activities.

Part 1 - Conditions Attached to Section 36 Consent

1. Duration of the Consent

The consent is for a period of 50 years from the date of Final Commissioning of the Development.

Written confirmation of the date of First and Final Commissioning must be provided by the Company to the Scottish Ministers and to Angus Council, Dundee City Council, East Lothian Council, Fife Council, Scottish Borders Council and Scottish Ministers no later than one calendar month after these respective dates.

Reason: *To define the duration of the consent.*

2. Commencement of Development

The Commencement of the Development must be no later than five years from the date of this consent, or in substitution such other later period as the Scottish Ministers may hereafter direct in writing. The Company must provide written confirmation of the intended date of Commencement of Development must to the Scottish Ministers and to Angus Council, Dundee City Council, East Lothian Council, Fife Council and Scottish Borders Council no later than one calendar month before that date.

***Reason**: To ensure that the Commencement of the Development is undertaken within a reasonable timescale after consent is granted.*

3. **Decommissioning**

There must be no Commencement of Development unless a Decommissioning Programme ("DP") has been submitted to and approved in writing by the Scottish Ministers. The DP must outline measures for the decommissioning of the Development, restoration of the sea bed and will include without limitation, proposals for the removal of the Development, the management and timing of the works and, environmental management provisions.

The Development must be decommissioned in accordance with the approved DP, unless otherwise agreed in writing in advance with the Scottish Ministers.

***Reason**: To ensure the decommissioning and removal of the Development in an appropriate and environmentally acceptable manner, and in the interests of safety and environmental protection.*

4. **Assignation**

This consent must not be assigned without the prior written authorisation of the Scottish Ministers. The Scottish Ministers may authorise the assignation of the consent (with or without conditions) or refuse assignation as they may see fit. The consent is not capable of being assigned, alienated or transferred otherwise than in accordance with the assignation procedure as directed by Scottish Ministers.

***Reason**: To safeguard the obligations of the consent if transferred to another company.*

5. **Redundant turbines**

If one or more turbine fails to generate electricity for a continuous period of 12 months, then unless otherwise agreed in writing by the Scottish Ministers, the Company must: (i) by no later than the date of expiration of the 12 month period, submit a scheme to the Scottish Ministers setting out how the relevant turbine(s) and associated

infrastructure will be removed from the site and the sea bed restored; and (ii) implement the approved scheme within six months of the date of its approval, all to the satisfaction of the Scottish Ministers.

***Reason**: To ensure that any redundant wind turbine(s) is/are removed from the site, in the interests of safety, amenity and environmental protection.*

6. **Incident Reporting**

In the event of any breach of health and safety or environmental obligations relating to the Development during the period of this consent, the Company must provide written notification of the nature and timing of the incident to the Scottish Ministers within 24 hours of the incident occurring. Confirmation of remedial measures taken and/or to be taken to rectify the breach must be provided, in writing, to the Scottish Ministers within a period of time to be agreed by the Scottish Ministers .

***Reason**: To keep the Scottish Ministers informed of any such incidents which may be in the public interest.*

7. **Implementation in accordance with approved plans and requirements of this consent**

Except as otherwise required by the terms of this consent, the Development must be constructed and operated in accordance with the Application (as supplemented by the additional environmental information ("EIA Addendum"), submitted by the Company on 26 July 2018) and any other documentation lodged in support of the Application.

***Reason**: To ensure that the Development is carried out in accordance with the approved details.*

8. **Transportation for site inspections**

As far as reasonably practicable, the Company must, on being given reasonable notice by the Scottish Ministers (of at least 72 hours), provide transportation to and from the site for any persons authorised by the Scottish Ministers to inspect the site.

***Reason**: To ensure access to the site for the purpose of inspecting compliance with this consent.*

9. **Construction Programme**

The Company must, no later than six months prior to the Commencement of the Development, submit a Construction Programme ("CoP"), in writing, to the Scottish Ministers for their written approval. Such approval may only be granted following consultation by the Scottish Ministers with Scottish Natural Heritage ("SNH"), Scottish Environment Protection Agency ("SEPA"), Maritime and Coastguard Agency ("MCA"), Northern Lighthouse Board ("NLB"), Royal Society for the Protection of Birds Scotland ("RSPB Scotland"), Angus Council, Dundee City Council, East Lothian Council, Fife Council, Scottish Borders Council and any such other advisors or organisations as may be required at the discretion of the Scottish Ministers. The CoP must set out:

a. The proposed date for Commencement of Development;
b. The proposed timings for mobilisation of plant and delivery of materials, including details of onshore lay-down areas;
c. The proposed timings and sequencing of construction work for all elements of the Development infrastructure;
d. Contingency planning for poor weather or other unforeseen delays; and
e. The scheduled date for Final Commissioning of the Development.

***Reason**: To confirm the timing and programming of construction.*

10. **Construction Method Statement**

The Company must, no later than six months prior to the Commencement of the Development submit a Construction Method Statement ("CMS"), in writing, to the Scottish Ministers for their written approval. Such approval may only be granted following consultation by the Scottish Ministers with SNH, SEPA, MCA, NLB, RSPB Scotland, Forth Ports ("FP"), Angus Council, Dundee City Council, East Lothian Council, Fife Council, Scottish Borders Council and any such other advisors or organisations as may be required at the discretion of the Scottish Ministers.

The CMS must include, but not be limited to:

a. Details of the commencement dates, duration and phasing for the key elements of construction, the working areas, the construction procedures and good working practices for installing the Development.
b. Details of the roles and responsibilities, chain of command and contact details of company personnel, any contractors or sub-contractors involved during the construction of the Development.
c. Details of how the construction related mitigation steps proposed in the Application are to be delivered.

The CMS must adhere to the construction methods assessed in the Application. The CMS also must, so far as is reasonably practicable, be consistent with the Design Statement ("DS"), the Environmental Management Plan ("EMP"), the Vessel Management Plan ("VMP"), the Navigational Safety Plan ("NSP"), the Piling Strategy ("PS"), the Cable Plan ("CaP") and the Lighting and Marking Plan ("LMP").

***Reason**: To ensure the appropriate construction management of the Development, taking into account mitigation measures to protect the environment and other users of the marine area.*

11. **Piling Strategy**

The Company must, no later than six months prior to the Commencement of the Development, submit a Piling Strategy ("PS"), in writing, to the Scottish Ministers for their written approval. Such approval may only be granted following consultation by the Scottish Ministers with SNH, River Tweed Commission ("RTC"), Whale and Dolphin Conservation ("WDC"), Scottish Borders Council and any such other advisors as may be required at the discretion of the Scottish Ministers.

The PS must include, but not be limited to:

e. Details of expected noise levels from pile-drilling/driving in order to inform point d below;

f. Full details of the proposed method and anticipated duration of piling to be carried out at all locations;

g. Details of soft-start piling procedures and anticipated maximum piling energy required at each pile location; and

h. Details of any mitigation such as Passive Acoustic Monitoring ("PAM"), Marine Mammal Observers ("MMO"), use of Acoustic Deterrent Devices ("ADD") and monitoring to be employed during pile-driving, as agreed by the Scottish Ministers.

The PS must be in accordance with the Application and must also reflect any monitoring or data collection carried out after submission of the Application. The PS must demonstrate how the exposure to and/or the effects of underwater noise have been mitigated in respect to harbour porpoise, minke whale, bottlenose dolphin, harbour seal, grey seal, Atlantic salmon and sea trout.

The PS must, so far as is reasonably practicable, be consistent with the EMP, the Project Environmental Monitoring Programme ("PEMP") and the CMS.

Reason*: To mitigate the underwater noise impacts arising from piling activity.*

12. **Development Specification and Layout Plan**

The Company must, no later than six months prior to the Commencement of the Development, submit a Development Specification and Layout Plan ("DSLP"), in writing, to the Scottish Ministers for their written approval. Such approval may only be granted following consultation by the Scottish Ministers with the MCA, NLB, SNH, the Ministry of Defence ("MOD"), Civil Aviation Authority ("CAA"), Chamber of Shipping ("CoS"), SNH, Scottish Fishermen's Federation ("SFF"), Angus Council, Dundee City Council, East Lothian Council, Fife Council, Scottish Borders Council, and any such other advisors or organisations as may be required at the discretion of the Scottish Ministers.

The DSLP must include, but not be limited to the following:

a. A plan showing the location of each individual WTG (subject to any required micro-siting), including information on WTG spacing, WTG identification/numbering, location of the substation platforms, seabed conditions, bathymetry, confirmed foundation type for each WTG and any key constraints recorded on the site;

b. A list of latitude and longitude co-ordinates accurate to three decimal places of minutes of arc for each WTG. This should also be provided as a Geographic Information System ("GIS") shape file using WGS84 format;

c. A table or diagram of each WTG dimensions including - height to blade tip (measured above Lowest Astronomical Tide ("LAT")) to the highest point, height to hub (measured above LAT to the centreline of the generator shaft), rotor diameter and maximum rotation speed;

d. The generating output of each WTG used on the site (Figure 1) and a confirmed generating output for the site overall;

e. The finishes for each WTG (see condition 20 on WTG lighting and marking); and

f. The length and proposed arrangements on the seabed of all inter-array cables.

Reason: *To confirm the final Development specification and layout.*

13. **Design Statement**

The Company must, no later than six months prior to the Commencement of the Development, submit a Design Statement ("DS"), in writing, to the Scottish Ministers. The DS, which must be signed off by at least one qualified landscape architect, as instructed by the Company prior to submission to the Scottish Ministers, must include representative wind farm visualisations from key viewpoints as agreed with the

Scottish Ministers, based upon the final DSLP as approved by the Scottish Ministers as updated or amended. The Company must provide the DS, for information only, to Angus Council, Dundee City Council, East Lothian Council, Fife Council, Scottish Borders Council, SNH, MCA and any such other advisors or organisations as may be required at the discretion of the Scottish Ministers.

***Reason**: To ensure that the Development is carried out in accordance with the approved details, and to inform interested parties of the final wind farm scheme proposed to be built.*

14. **Environmental Management Plan**

The Company must, no later than six months prior to the Commencement of the Development, submit an Environmental Management Plan ("EMP"), in writing, to the Scottish Ministers for their written approval. Such approval may only be granted following consultation by the Scottish Ministers with, SNH, SEPA, RSPB Scotland, WDC, RTC, Tay District Salmon Fisheries Board ("Tay DSFB"), Esk District Salmon Fisheries Board ("Esk DSFB"), Forth District Salmon Fisheries Board ("Forth DSFB"), Fisheries Management Scotland ("FMS") and any such other advisors or organisations as may be required at the discretion of the Scottish Ministers.

The EMP must provide the over-arching framework for on-site environmental management during the phases of development as follows:

c. All construction as required to be undertaken before the Final Commissioning of the Development; and

d. The operational lifespan of the Development from the Final Commissioning of the Development until the cessation of electricity generation (environmental management during decommissioning is addressed by the Decommissioning Programme provided for by condition 3).

The EMP must be in accordance with the Application insofar as it relates to environmental management measures. The EMP must set out the roles, responsibilities and chain of command for the Company personnel, any contractors or sub-contractors in respect of environmental management for the protection of environmental interests during the construction and operation of the Development. It must address, but not be limited to, the following over-arching requirements for environmental management during construction:

f. Mitigation measures to prevent significant adverse impacts to environmental interests, as identified in the Application and pre-consent and pre-construction monitoring or data collection, and include the relevant parts of the CMS (refer to condition 10);

g. A pollution prevention and control method statement, including contingency plans;

h. Management measures to prevent the introduction of invasive non-native marine species;

i. A site waste management plan (dealing with all aspects of waste produced during the construction period), including details of contingency planning in the event of accidental release of materials which could cause harm to the environment. Wherever possible the waste hierarchy of reduce, reuse and recycle should be encouraged; and

j. The reporting mechanisms that will be used to provide the Scottish Ministers and relevant stakeholders with regular updates on construction activity, including any environmental issues that have been encountered and how these have been addressed.

The EMP must be regularly reviewed by the Company and the Scottish Ministers or Forth and Tay Regional Advisory Group ("FTRAG"), at intervals agreed by the Scottish Ministers. Reviews must include, but not be limited to, the reviews of updated information on construction methods and operations of the Development and updated working practices.

The EMP must be informed, so far as is reasonably practicable, by the baseline monitoring or data collection undertaken as part of the Application and the PEMP.

Reason: *To ensure that all construction and operation activities are carried out in a manner that minimises their impact on the environment, and that mitigation measures contained in the Application, or as otherwise agreed are fully implemented.*

15. **Vessel Management Plan**

The Company must, no later than six months prior to the Commencement of the Development, submit a Vessel Management Plan ("VMP"), in writing, to the Scottish Ministers for their written approval. Such approval may only be granted following consultation by the Scottish Ministers with SNH, WDC, FP, MCA, NLB, SFF and any such other advisors or organisations as may be required at the discretion of the Scottish Ministers.

The VMP must include, but not be limited to, the following details:

e. The number, types and specification of vessels required;

f. How vessel management will be coordinated, particularly during construction but also during operation;

g. Location of working port(s), the routes of passage, how often vessels will be required to transit between port(s) and the site and indicative vessel transit corridors proposed to be used during construction and operation of the Development; and

h. A fishing gear De-Confliction Notice. The De-Confliction Notice must lay out guidelines for vessels operating in around the site and transiting into the site from relevant ports.

The confirmed individual vessel details must be notified to the Scottish Ministers in writing no later than 14 days prior to the Commencement of the Development, and thereafter, any changes to the details supplied must be notified to the Scottish Ministers, as soon as practicable, prior to any such change being implemented in the construction or operation of the Development.

The VMP must, so far as is reasonably practicable, be consistent with the CMS, the EMP, the PEMP, the NSP, and the LMP.

Reason: *To mitigate the impact of vessels.*

16. **Operation and Maintenance Programme**

The Company must, no later than three months prior to the Commissioning of the first WTG, submit an Operation and Maintenance Programme ("OMP"), in writing, to the Scottish Ministers for their written approval. Such approval may only be granted following consultation by the Scottish Ministers with the SNH, SEPA, MCA, NLB, RSPB Scotland, SFF, Angus Council, Dundee City Council, East Lothian Council, Fife Council, Scottish Borders Council and any such other advisors or organisations as may be required at the discretion of the Scottish Ministers.

The OMP must set out the procedures and good working practices for operations and the maintenance of the WTG's, substructures, and inter-array cable network of the Development. Environmental sensitivities which may affect the timing of the operation and maintenance activities must be considered in the OMP.

The OMP must, so far as is reasonably practicable, be consistent with the EMP, the PEMP, the VMP, the NSP, the CaP and the LMP.

Reason: *To safeguard environmental interests during operation and maintenance of the Development.*

17. **Navigational Safety Plan**

The Company must, no later than six months prior to the Commencement of the Development, submit a Navigational Safety Plan ("NSP"), in writing, to the Scottish Ministers for their written approval. Such approval may only be granted following consultation by the Scottish Ministers with MCA, NLB and any other navigational advisors or organisations as may be required at the discretion of the Scottish Ministers. The NSP must include, but not be limited to, the following issues:

a. Navigational safety measures;
b. Construction exclusion zones;
c. Notice(s) to mariners and radio navigation warnings;
d. Anchoring areas;
e. Temporary construction lighting and marking;
f. Buoyage.

The Company must confirm within the NSP that they have taken into account and adequately addressed all of the recommendations of the MCA in the current Marine Guidance Note 543 ("MGN 543"), and its annexes that may be appropriate to the Development, or any other relevant document which may supersede this guidance prior to approval of the NSP.

Reason: *To mitigate the navigational risk to other legitimate users of the sea.*

18. **Emergency Response Co-operation Plan**

The Company must, no later than six months prior to the Commencement of the Development, submit an Emergency Response Co-operation Plan ("ERCoP") for the construction, operation, maintenance and decommissioning phases of the Development, in writing, to the Scottish Ministers for their written approval. Such approval may only be granted following consultation by the Scottish Ministers with the MCA and NLB and any other navigational advisors or organisations as may be required at the discretion of the Scottish Ministers. The ERCoP should follow the template and guidance as found on the MCA website. The ERCoP must be developed in discussion with the MCA and be in accordance with condition 3.2.1.4 of the marine licence.

Reason: *For emergency response planning relating to the Development and requirements for Search And Rescue ("SAR") helicopter operations.*

19. **Cable Plan**

The Company must, no later than six months prior to the Commencement of the Development, submit a Cable Plan ("CaP"), in writing, to the Scottish Ministers for their written approval. Such approval may only be granted following consultation by the Scottish Ministers with, SNH, MCA, SFF and any such other advisors or organisations as may be required at the discretion of the Scottish Ministers. The CaP must be in accordance with the Application.

The CaP must include, but not be limited to, the following:

a. The vessel types, location, duration and cable laying techniques for the inter array cables;

b. The results of monitoring or data collection work (including geophysical, geotechnical and benthic surveys) which will help inform cable routing;

c. Technical specification of inter array cables, including a desk based assessment of attenuation of electro-magnetic field strengths and shielding;

d. A burial risk assessment to ascertain burial depths and where necessary alternative protection measures;

e. Methodologies for surveys (e.g. over trawl) of the inter array cables through the operational life of the wind farm where mechanical protection of cables laid on the sea bed is deployed; and

f. Methodologies for inter array cable inspection with measures to address and report to the Scottish Ministers any exposure of inter array cables.

Any consented cable protection works must ensure existing and future safe navigation is not compromised. The Scottish Ministers will accept a maximum of 5% reduction in surrounding depth referenced to Chart Datum. Any greater reduction in depth must be agreed in writing by the Scottish Ministers.

Reason: *To ensure all environmental and navigational issues are considered for the location and construction of the inter array cables.*

20. **Lighting and Marking Plan**

The Company must, no later than six months prior to the Commencement of the Development, submit a Lighting and Marking Plan ("LMP"), in writing, to the Scottish Ministers for their written approval. Such approval may only be granted following consultation by the Scottish Ministers with SNH, MCA, NLB, CAA, MOD, SFF, Angus Council, Dundee City Council, East Lothian Council, Fife Council, Scottish Borders

Council and any such other advisors or organisations as may be required at the discretion of the Scottish Ministers. The LMP must provide that the Development be lit and marked in accordance with the current CAA and MOD aviation lighting policy and guidance that is in place as at the date of the Scottish Ministers approval of the LMP, or any such other documents that may supersede this guidance prior to the approval of the LMP. The LMP must also detail the navigational lighting requirements detailed in International Association of Marine Aids to Navigation and Lighthouse Authorities ("IALA") IALA Recommendation O-139 or any other documents that may supersede this guidance prior to approval of the LMP.

Reason: *To ensure navigational safety and the safe marking and lighting of the Development.*

21. **Aviation Radar**

The Company must, prior to the erection of any WTGs on the site, submit an Air Traffic Control Radar Mitigation Scheme ("ATC Scheme"), in writing, to the Scottish Ministers for their written approval. Such approval may only be granted following consultation by the Scottish Ministers with the MOD.

The ATC Scheme is a scheme designed to mitigate the impact of the Development upon the operation of the Primary Surveillance Radar at Leuchars Airfield ("the Radar") and the air traffic control operations of the MOD which is reliant upon the Radar. The ATC Scheme must set out the appropriate measures to be implemented to mitigate the impact of the Development on the Radar and must be in place for the operational life of the Development provided the Radar remains in operation.

No WTGs forming part of the Development may become operational, unless and until all those measures required by the approved ATC Scheme to be implemented prior to the operation of the turbines, have been implemented, and the Scottish Ministers have confirmed this in writing. The Development must thereafter be operated fully in accordance with the approved ATC Scheme.

***Reason**: To mitigate the adverse impacts of the Development on the Radar [aerodrome navigations systems and or radar stations].*

22. **Charting requirements**

The Company must, prior to the Commencement of the Development, and following confirmation of the approved DSLP by the Scottish Ministers (refer to condition 12), provide the positions and maximum heights of the WTGs, any Offshore Substation Platforms ("OSPs") and construction equipment to the United Kingdom Hydrographic

Office (“UKHO”) for aviation and nautical charting purposes. The Company must, within one month of the Final Commissioning of the Development, provide the coordinates accurate to three decimal places of minutes of arc for each WTG and OSP, position and maximum heights of the WTGs and OSPs to the UKHO for aviation and nautical charting purposes.

***Reason**: For aviation and navigational safety.*

23. **Project Environmental Monitoring Programme**

The Company must, no later than six months prior to the Commencement of the Development, submit a Project Environmental Monitoring Programme (“PEMP”), in writing, to the Scottish Ministers for their written approval. Such approval may only be granted following consultation by the Scottish Ministers with SNH, RSPB Scotland, WDC, SFF, FMS, RTC, Tay DSFB, Esk DSFB, Forth DSFB, and any other environmental advisors or organisations as required at the discretion of the Scottish Ministers. The PEMP must be in accordance with the Application as it relates to environmental monitoring.

The PEMP must set out measures by which the Company must monitor the environmental impacts of the Development. Monitoring is required throughout the lifespan of the Development where this is deemed necessary by the Scottish Ministers. Lifespan in this context includes pre-construction, construction, operational and decommissioning phases.

The Scottish Ministers must approve all initial methodologies for the above monitoring, in writing and, where appropriate, in consultation with the FTRAG referred to in condition 24 of this consent.

Monitoring must be done in such a way so as to ensure that the data which is collected allows useful and valid comparisons between different phases of the Development. Monitoring may also serve the purpose of verifying key predictions in the Application. In the event that further potential adverse environmental effects are identified, for which no predictions were made in the Application, the Scottish Ministers may require the Company to undertake additional monitoring.

The PEMP must cover, but not be limited to, the following matters:

a. Pre-construction, construction (if considered appropriate by the Scottish Ministers) and post-construction monitoring or data collection as relevant in terms of the Application, and any subsequent monitoring or data collection for:

1. Birds;
2. Marine Mammals;
3. Commercial Fisheries;
4. Marine fish;
5. Diadromous fish;
6. Benthic communities; and
7. Seabed scour and local sediment deposition.

b. The participation by the Company to contribute to data collection or monitoring of wider strategic relevance, identified and agreed by the Scottish Ministers.

Due consideration must be given to the Scottish Marine Energy Research ("ScotMER") programme.

Any pre-consent monitoring or data collection carried out by the Company to address any of the above issues may be used in part to discharge this condition subject to the written approval of the Scottish Ministers.

The PEMP is a live document and which will be regularly reviewed by the Scottish Ministers, at timescales to be determined by them to identify the appropriateness of on-going monitoring. Following such reviews, the Scottish Ministers may, in consultation with the FTRAG, require the Company to amend the PEMP and submit such an amended PEMP, in writing, to the Scottish Ministers, for their written approval. Such approval may only be granted following consultation with the FTRAG, and any other environmental, or such other advisors as may be required at the discretion of the Scottish Ministers.

The Company must submit written reports and associated raw and processed data of such monitoring or data collection to the Scottish Ministers at timescales to be determined by them. Consideration should be given to data storage, analysis and reporting and be to MEDIN data standards.

Subject to any legal restrictions regarding the treatment of the information, the results are to be made publicly available by the Scottish Ministers, or by such other party appointed at their discretion.

The Scottish Ministers may agree, in writing, that monitoring may be reduced or ceased before the end of the lifespan of the Development.

Reason: *To ensure that appropriate and effective monitoring of the impacts of the Development is undertaken.*

24. **Regional Advisory Group**

The Company must participate in any Forth and Tay Regional Advisory Group ("FTRAG") or any successor group, established by the Scottish Ministers for the purpose of advising the Scottish Ministers on research, monitoring and mitigation programmes for, but not limited to, ornithology, marine mammals, diadromous and commercial fish. The extent and nature of the Company's participation in the Regional Advisory Group is to be agreed by the Scottish Ministers.

Reason: *To ensure effective environmental monitoring and mitigation is undertaken at a regional scale.*

25. **Fisheries Management and Mitigation Strategy**

The Company must no later than six months prior to the Commencement of the Development, submit a Fisheries Management and Mitigation Strategy ("FMMS"), in writing, to the Scottish Ministers for their written approval in consultation with SFF. The Company must also remain a member of the Forth and Tay Commercial Fisheries Working Group ("FTCFWG"), or any successor group formed to facilitate commercial fisheries dialogue, to define and finalise the FMMS.

In order to inform the production of the FMMS the Company must monitor or collect data as relevant and agreed with Scottish Ministers.

As part of any finalised FMMS, the Company must produce and implement a mitigation strategy for each commercial fishery that can prove to the Scottish Ministers that they would be adversely affected by the Development. The Company must implement all mitigation measures committed to be carried out by the Company within the FMMS. Any contractors, or sub-contractors working for the Company, must co-operate with the fishing industry to ensure the effective implementation of the FMMS.

Reason: *To mitigate the impact on commercial fishermen.*

26. **Environmental Clerk of Works**

Prior to the Commencement of the Development, the Company must at its own expense, and with the approval of the Scottish Ministers in consultation with SNH,

appoint an independent Environmental Clerk of Works ("ECoW"). The ECoW must be appointed in time to review and approve the draft version of the first plan or programme submitted under this consent to Scottish Ministers, in sufficient time for any pre-construction monitoring requirements, and remain in post until agreed by the Scottish Ministers. The terms of appointment must also be approved by the Scottish Ministers in consultation with SNH.

The terms of the appointment must include, but not be limited to:

a. Quality assurance of final draft versions of all plans and programmes required under this consent;
b. Responsibility for the monitoring and compliance of the consent conditions and the environmental mitigation measures for all wind farm infrastructure;
c. Provision of on-going advice and guidance to the Company in relation to achieving compliance with consent conditions, including but not limited to the conditions relating to and the implementation of the CMS, the EMP, the PEMP, the PS, the CaP and the VMP;
d. Provision of reports on point b & c) above to the Scottish Ministers at timescales to be determined by the Scottish Ministers;
e. Induction and toolbox talks to onsite construction teams on environmental policy and procedures, including temporary stops and keeping a record of these;
f. Monitoring that the Development is being constructed in accordance with the plans and this consent, the Application and in compliance with all relevant regulations and legislation;
g. Reviewing and reporting incidents/near misses and reporting any changes in procedures as a result; and
h. Agreement of a communication strategy with the Scottish Ministers.

***Reason**: To ensure effective monitoring of and compliance with the environmental mitigation and management measures associated with the Development.*

27. **Fisheries Liaison Officer**

Prior to the Commencement of the Development, a Fisheries Liaison Officer ("FLO"), must be appointed by the Company and approved, in writing, by the Scottish Ministers (following consultation with SFF and the FTCFWG. The FLO must be appointed by the Company for the period from Commencement of the Development until the Final Commissioning of the Development. The identity and credentials of the FLO must be included in the EMP (referred to in condition 14). The FLO must establish and maintain effective communications between the Company, any contractors or sub-contractors, fishermen and other users of the sea during the construction of the Development, and ensure compliance with best practice guidelines whilst doing so.

The responsibilities of the FLO must include, but not be limited to:

a. Establishing and maintaining effective communications between the Company, any contractors or sub-contractors, fishermen and other users of the sea concerning the overall Development and any amendments to the CMS and site environmental procedures;
b. The provision of information relating to the safe operation of fishing activity on the site of the Development; and
c. Ensuring that information is made available and circulated in a timely manner to minimise interference with fishing operations and other users of the sea.

***Reason**: To facilitate engagement with the commercial fishing industry.*

28. **Marine Archaeology Reporting Protocol**

The Company must, no later than six months prior to the Commencement of the Development, submit a Marine Archaeology Reporting Protocol ("MARP") which sets out what the Company must do on discovering any marine archaeology during the construction, operation, maintenance and monitoring of the Development, in writing, to the Scottish Ministers for their written approval. Such approval may be given only following consultation by the Scottish Ministers with Historic Environment Scotland ("HES") and any such advisors as may be required at the discretion of the Scottish Ministers. The Reporting Protocol must be implemented in full, at all times, by the Company.

Reason: *To ensure any discovery of archaeological interest is properly and correctly reported.*

29. **Construction Traffic Management Plan**

The Company must, no later than six months prior to the Commencement of the Development submit a Construction Traffic Management Plan ("CTMP") in writing, to the Scottish Ministers for their written approval. Such approval may only be granted following consultation by the Scottish Ministers with Transport Scotland and any such other advisors as may be required at the discretion of the Scottish Ministers.

The CTMP must include but not be limited to:

a. A mitigation strategy for the abnormal loads on the trunk road network including any accommodation measures required, incorporating the removal of street furniture, junction widening, or traffic management of road based traffic and transportation associated with the construction of the Development. All construction traffic associated with the Development must conform to the approved CTMP.

b. Any additional signing or temporary traffic control measures deemed necessary due to the size or length of loads being delivered as a result of the Development.

Reason: To maintain the free flow and safety of the trunk road network.

DEFINITIONS AND GLOSSARY OF TERMS

“AA” means the Appropriate Assessment;

“ADD” means Acoustic Deterrent Devices;

“ADR” means Air Defence Radars;

“AHEP” means Aberdeen Harbour Expansion Project;

“AIS” means Automatic Identification System;

“the Application” means the EIA Report, HRA Report and supporting documents submitted by the Company on 16 March 2018 to construct and operate an offshore generating station and transmission works, it also includes the EIA Addendum relating to ornithology submitted by the Company on 26 July 2018;

“ATC” means Air Traffic Control;

“Commencement of the Development” means the date on which the first construction activity occurs in accordance with the EIA Report submitted by the Company on 16 March 2018;

“the Company” means Neart na Gaoithe Offshore Wind Ltd (Company Number SC356223, Atria One, 144 Morrison Street, Edinburgh, United Kingdom, EH3 8EX;

“dSPA” means draft Special Protection Area;

“the Development” means the Neart na Gaoithe Offshore Wind Farm, approximately 15.5km East of Fife Ness;

“ECoW” means Environmental Clerk of Works;

“EIA” means Environmental Impact Assessment;

“EIA Addendum” means the addendum of additional information submitted by the Company on 26 July 2018;

“EIA Report” means Environmental Impact Assessment Report;

“EPS” means European Protected Species;

“Final Commissioning of the Development” means the date on which the last wind turbine generator constructed forming the Development has supplied electricity on a commercial basis to the National Grid, or such earlier date as the Scottish Ministers deem the Development to be complete;

“First Commissioning of the Development” means the date on which the first wind turbine generator constructed forming the Development has supplied electricity on a commercial basis to the National Grid;

“FLO” means Fisheries Liaison Officer;

“Forth and Tay Developments” means combinations of the existing consent for Neart na Gaoithe Offshore Wind Farm (granted October 2014), the existing consent for Inch Cape offshore wind farm (granted October 2014) and the application for new consent (submitted August 2018), the existing consents for the Seagreen Alpha and Seagreen

Bravo offshore wind farms (granted October 2014) and the applications for new consents (submitted September 2018);

“FTE” means full-time equivalent;

“GHG” means greenhouse gas;

“GIS” means Geographic Information System;

“GVA” means Gross Value Added;

“HDD” means Horizontal Direct Drilling;

“HRA” means Habitat Regulations Appraisal;

“IALA” means International Association of Marine Aids to Navigation and Lighthouse Authorities;

“iPCoD” means interim Population Consequences of Disturbance;

“LAT” means Lowest Astronomical Tide;

“LSE” means Likely Significant Effect;

“MMO” means marine mammal observer;

“MW” means megawatt;

“NnG” means the Neart na Gaoithe Offshore Wind Farm;

“OEC” means Offshore Export Cables;

“Original Consent” means the s.36 consent and marine licences (which the Scottish Ministers granted in October 2014) held by the Company for an offshore wind farm development within the same boundary as the current Application;

“OSPs” means Offshore Substation Platforms;

“PAM” means passive acoustic monitoring;

“PEXA” means military Practice and Exercise Areas*;*

“PLI” means Public Local Inquiry;

“pSPA” means Proposed Special Protection Areas;

“PTS” means Permanent Threshold Shift;

“PVA” means population viability analysis;

“the Radar” means the Primary Surveillance Radar at Leuchars Airfield;

“RRH” means Remote Radar Head;

“SAC” means Special Area of Conservation;

“SAR” means Search and Rescue;

“ScotMER” means Scottish Marine Energy Research Programme;

“SPA” means Special Protection Area;

“SNCBs” means statutory nature conservation bodies;

“s.36” means section 36 of the Electricity Act 1989 (as amended);

“s.36A” means section 36A of the Electricity Act 1989 (as amended);
“TMZ” means Transponder Mandatory Zone;
“the 2014 Application” means the application submitted by the Company on 13 July 2012;
“VHF” means Very High Frequency;
“WTGs” means wind turbine generators; and
“ZTV” means Zone of Theoretical Visibility.

Organisations and Companies

“BT” means BT Radio Network Protection;
“CoS” means Chamber of Shipping;
“DFA” means Dunbar Fishermen’s Association;
“Esk DSFB” means Esk District Salmon Fishery Board;
“EU” means European Union;
“EHT” means Eyemouth Harbour Trust;
“Forth DSFB” means Forth District Salmon Fishery Board;
“FMS” means Fisheries Management Scotland;
“FP” means Forth Ports;
“FTCFWG” means the Forth and Tay Commercial Fisheries Working Group;
“FTRAG” means Forth and Tay Regional Advisory Group;
“HES” means Historic Environment Scotland;
“ICOL” means Inch Cape Offshore Limited;
“MAU” means Marine Scotland Marine Analytical Unit;
“MS-LOT” means Marine Scotland Licensing Operations Team;
“MSS” means Marine Scotland Science;
“MCA” means the Maritime and Coastguard Agency;
“MOD” means the Ministry of Defence;
“MS-LOT” means Marine Scotland Licensing Operations Team;
“MSS” means Marine Scotland Science;
“NATS” means National Air Traffic Service;
“NOAA” means National Oceanic and Atmospheric Administration
“NLB” means the Northern Lighthouse Board;
“NnGOWL” means Neart Na Gaoithe Offshore Wind Ltd;

“RAG” means Regional Advisory Group;
“RTC” means River Tweed Commission;
“RSPB Scotland” means The Royal Society for the Protection of Birds Scotland;
“RYA Scotland” means Royal Yachting Association Scotland;
“SEPA" means The Scottish Environment Protection Agency;
“Seagreen” means Seagreen Wind Energy Limited;
“SFF” means The Scottish Fishermen’s Federation;
"SNH" means Scottish Natural Heritage;
“SS” means Sport Scotland;
“SSC” means Scottish Seabird Centre;
“Tay DSFB” means Tay District Salmon Fishery Board;
“TS” means Transport Scotland;
“UKHO” means United Kingdom Hydrographic Office; and
“WDC” means Whale and Dolphin Conservation.

Plans and Programmes

“ATC Scheme” means Air Traffic Control Radar Mitigation Scheme;
“CaP” means Cable Plan;
“CMS” means Construction Method Statement;
“CoP” means Construction Programme;
“CTMP” means Construction Traffic Management Plan;
“De-confliction Notice” means a plan which sets out measures to be taken to avoid or reduce the impact of vessel movement on the local fishing industry and to promote a sustainable coexistence. It will include indicative transit routes for vessels operating in and around the development and transiting to the site from relevant ports;
“DP” means Decommissioning Programme;
“DS” means the Design Statement;
“DSLP” means Development Specification and Layout Plan;
“EMP” means Environmental Management Plan;
“ERCoP” means Emergency Response Co-operation Plan;
“FMMS” means Fisheries Management and Mitigation Strategy;
“LDP” means Local Development Plans;
“LMP” means Lighting and Marking Plan;
“MARP” means Marine Archaeology Reporting Protocol;

“MGN” means Marine Guidance Note;

“NMP” means the National Marine Plan;

“NPF3” means Scotland’s National Planning Framework 3;

“NRA” means Navigation Risk Assessment;

“NRIP” means National Renewables Infrastructure Plan

“NSP” means Navigational Safety Plan;

“OMP” means Operation and Maintenance Programme;

“PEMP” means Project Environmental Monitoring Programme;

“PRMS” means Primary Radar Mitigation Scheme;

“PS” means Piling Strategy;

“SPP” means Scottish Planning Policy 2014; and

“VMP” means Vessel Management Plan.

Legislation

“the Birds Directive” means Council Directive 79/409/EEC of 2 April 1979 on the conservation of wild birds, as amended and as codified by Directive 2009/147/EC of the European Parliament and of the Council of 30th November 2009;

“the Electricity Act” means the Electricity Act 1989 (as amended);

“the 1990 Regulations” means the Electricity (Applications for Consent) Regulations 1990 (as amended);

“the Habitats Regulations” mean the Conservation of Habitats and Species Regulations 2017 and the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended);

“the Habitats Directive” means Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and wild fauna and flora (as amended);

“the 2017 Habitats Regulations” means The Conservation of Habitats and Species Regulations 2017;

“the 1994 Habitats Regulations” means the Conservation (Natural Habitats, & c.) Regulations 1994 (as amended);

“the 1999 Order” means The Scotland Act 1998 (Transfer of Functions to the Scottish Ministers etc.) Order 1999;

“the 2017 EW Regulations” means The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (as amended);

“the 2017 Habitats Regulations” means the Conservation of Habitats and Species Regulations 2017;

“the 2017 MW Regulations” means the Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (as amended);

“the 2017 Offshore Habitats Regulations” means the Conservation of Offshore Marine Habitats and Species Regulations 2017; and

“the 2010 Act” means the Marine (Scotland) Act 2010.

ANNEX D - DECLARATION UNDER SECTION 36A OF THE ELECTRICITY ACT 1989 (AS AMENDED)

DECLARATION UNDER SECTION 36A OF THE ELECTRICITY ACT 1989 RELATING TO PUBLIC RIGHTS OF NAVIGATION SO FAR AS THEY PASS THROUGH THE LOCATIONS IN THE SEA WHERE THOSE STRUCTURES FORMING PART OF THE NEART NA GAOITHE OFFSHORE WIND FARM GENERATING STATION ARE TO BE PLACED

The Scottish Ministers, in exercise of the powers conferred on them by section 36A of the Electricity Act 1989 (as amended) ("the Electricity Act 1989") and all other powers enabling them to do so, make the following declaration.

In accordance with section 36A(1) and 36A(2) of the Electricity Act 1989, the application for this declaration was made to the Scottish Ministers at the same time as an application was made to them by Neart na Gaoithe Offshore Wind Ltd ("the Company") under section 36 of the Electricity Act for the construction and operation of the Neart na Gaoithe Offshore Wind Farm generating station ("the Development"), which is to comprise renewable energy installations. This declaration is made at the same time as consent is granted under section 36 of the Electricity Act 1989 for the construction and operation of the Development.

In this declaration the "plan folio" means the plan folio number 1, entitled "NnGOWL Site Coordinates", and signed with reference to this declaration and attached hereto. The Development is to be constructed within the area delineated on the plan folio by a solid red line, as more specifically described by a line joining the co-ordinates listed at lines A – I in the table attached to this declaration (the "Area").

Consent under section 36 of the Electricity Act 1989 is granted by the Scottish Ministers for the construction and operation of the Development in the Area, subject to the following parameters:

a) The total number of turbines shall be up to 54; and

b) The distance between turbines shall be not less than 800 metres.

The wind turbines to be constructed in accordance with the consent are identified, for the purposes of section 36A(5)(a) of the Electricity Act 1989, as the proposed renewable energy installations by reference to which this declaration is made (the "Renewable Energy Installations").

The Scottish Ministers declare that, in accordance with section 36A(3) of the Electricity Act 1989, the public rights of navigation in the Area in so far as they pass through the locations where the Renewable Energy Installations are to be situated, are extinguished.

It is a requirement of the consent (conditions 9 and 12) that the Company must submit to the Scottish Ministers, for their approval, a Construction Programme ("CoP") which must set out, amongst other matters, the proposed date for the commencement of the construction of the Development and a Development Specification and Layout Plan ("DSLP") for the Renewable Energy Installations.

Annex D –Section 36A Declaration

The CoP and DSLP must be submitted to the Scottish Ministers no later than six months prior to the commencement of the construction of the Development.

In accordance with section 36A(5)(b) of the Electricity Act 1989 this declaration shall come into force on a date to be publicised by the Company, the publication of which must be as soon as reasonably practicable following the approval by the Scottish Ministers of the CoP and the DSLP.

Subscribed by

XXXX XXXX

being an officer of the Scottish Ministers at Aberdeen on the XX day of XXXX 2018

before this witness

XXXX XXXX in Aberdeen

TABLE: COORDINATES OF THE OUTER BOUNDARY OF THE NEART NA GAOITHE OFFSHORE WIND FARM GENERATING STATION

Coordinates supplied in World Geodetic System 1984, latest revision.

	WGS84		**WGS84**	
Point	**Long**	**Lat**	**Long**	**Lat**
A	-2.164966	56.254516	002° 09.898'W	56° 15.271'N
B	-2.15425	56.212016	002° 09.255'W	56° 12.721'N
C	-2.2333	56.212533	002° 13.998'W	56° 12.752'N
D	-2.271533	56.212766	002° 16.292'W	56° 12.766'N
E	-2.327133	56.257983	002° 19.628'W	56° 15.479'N
F	-2.33425	56.263783	002° 20.055'W	56° 15.827'N
G	-2.3372	56.2905	002° 20.232'W	56° 17.430'N
H	-2.2971	56.3292	002° 17.826'W	56° 19.752'N
I	-2.2753	56.338533	002° 16.518'W	56° 20.312'N
J	-2.2485	56.336183	002° 14.910'W	56° 20.171'N