From: Adrian Tait
Marine Scotland Licensing Operations Team
Marine Scotland
31 July 2014

Minister for Energy, Enterprise and Tourism

APPLICATION FOR CONSENT UNDER SECTION 36 OF THE ELECTRICITY ACT 1989 FOR THE CONSTRUCTION AND OPERATION OF THE NEART NA GAOITHE OFFSHORE WIND FARM ELECTRICITY GENERATING STATION, APPROXIMATELY 15.5 KM TO THE EAST OF FIFE NESS IN THE FIRTH OF FORTH

Purpose

To seek your determination on the Application by Neart na Gaoithe Offshore Wind Limited (Company Number SC356223) ("the Company") for consent under section 36 of the Electricity Act 1989 ("the Electricity Act") to construct and operate an offshore wind farm, with a maximum generating capacity of 450 megawatts ('MW'), located approximately 15.5km to the east of Fife Ness in the Firth of Forth comprising up to 75 turbines.

Priority

Routine.

Background

On 13th July 2012, the Company applied for consent to construct and operate the Neart na Gaoithe offshore wind farm ("the Development") comprising up to 125 wind turbine generators ("WTGs") each with a maximum tip height of 197 metres, in the Firth of Forth approximately 15.5km east of Fife Ness (**ANNEX G – PROJECT LOCATION**).

The Application submitted was to construct and operate an offshore wind generating station with a maximum generating capacity of up to 450 MW. The maximum number of WTGs has since been reduced from 125 turbines during the course of the consideration of the Application to address concerns expressed by consultees. Consent is now sought for an offshore generating station with a maximum generating capacity of up to 450 MW, consisting of:

- not more than 75 three-bladed horizontal axis WTGs each with a maximum blade tip height of up to 197 metres and a maximum rated capacity of up to 6 MW;
- for each WTG, a jacket or gravity base foundation;
- for each WTG, a transition piece (including access ladders / fences and landing platforms), turbine tower, blades and nacelle; and
- inter array cabling between the turbines and the offshore sub-station platforms.

In conjunction with the consultation on the Application for consent under the Electricity Act, Marine Scotland Licensing Operations Team ("MS-LOT") has consulted on the application for a marine licence, submitted on 13th July 2012, concerning the deposit of the associated infrastructure, the Offshore Transmission Works and export cable coming to shore at Thorntonloch. The marine licence application is being considered under the Marine (Scotland) Act 2010 alongside the Application and will be determined in due course.

As a result of issues raised during the consultation process, supplementary environmental information was required. This was submitted by the Company on 7th June 2013. This Supplementary Environmental Information Statement ("SEIS") to the application included further information on ornithological receptors, landscape and visuals, and an updated Habitat Regulations Appraisal ("HRA") report. The SEIS also included a refinement of design envelope which previously included a maximum of 125 turbines as part of the Development. The refined design envelope reduced the maximum number of turbines to 90.

In accordance with standard procedure and statutory requirements, this application has been advertised in line with the legislative requirements and has been subject to wide ranging consultation which afforded interested parties appropriate time to submit representations to the Scottish Ministers. MS-LOT is satisfied that there are no outstanding issues that should prevent consent being granted should you determine that is appropriate.

An application for planning permission under the Town and Country Planning (Scotland) Act 1997 regarding the ancillary onshore infrastructure for the Development, was submitted by the Company to East Lothian Council in December 2012. East Lothian Council granted planning permission for this application, subject to conditions in June 2013.

CONSIDERATION OF THE APPLICATION

MS-LOT is satisfied that whilst the Development would have an impact on the environment, by taking into account the extent to which any environmental effects will be reduced by measures the Company has agreed to take, or will be required to take, under the conditions attached to the section 36 consent and marine licences, the environmental issues can be appropriately addressed by way of mitigation and monitoring and that any impacts which remain are outweighed by the benefits the Development will bring.

As well as delivering renewable electricity to the National Grid, making a valuable contribution to the renewables obligation and climate change targets in Scotland, if licensed and consented, the Development, once fully constructed and operational, would provide energy equivalent to the needs of approximately 288,400 homes.

The Company estimate that in Scotland, the expenditure made by the Development (and Offshore Transmission Works) could generate Gross Value Added ("GVA") of between £119 million and £570 million over its lifetime (including the decommissioning phase). Between £55 million and £440 million of this total GVA

could be in Angus, Dundee, Fife, Edinburgh and East Lothian (“the Study Area”). Background and consultation information for the proposal is set out at

ANNEX B – BACKGROUND INFORMATION AND SCOTTISH MINISTERS' CONSIDERATIONS

Consultation Summary

Scottish Natural Heritage ("SNH") and the Joint Nature Conservation Committee ("JNCC") raised some concerns regarding the environmental impacts of this Development, both organisations recommended planning conditions should the Scottish Ministers grant consent. These conditions are reflected in **ANNEX D – DRAFT DECISION LETTER AND CONDITIONS**. SNH and JNCC agreed with the conclusions reached in the Appropriate Assessment ("AA") regarding impacts upon the relevant marine mammal and freshwater fish Special Area of Conservations and in some instances the relevant Special Protected Areas ("SPA"). There was disagreement however on the conclusions of some other SPA interests. This is reflected in **ANNEX E – APPROPRIATE ASSESSMENT**.

During the consultation process, objections were received from, amongst others, the Royal Society for the Protection of Birds Scotland ("RSPB"), the South East Inshore Fishery Group ("SEIFG"), the 10 Metre and Under Association (representing commercial fishing vessels of under 10m) ("10MAU"), the Association of Salmon Fishery Boards ("ASFB"), Tay District Salmon Fishery Board ("TDSFB"), Scottish Fisherman's Federation ("SFF") and Whale and Dolphin Conservation ("WDC").

Further discussions between the Company and the Defence Infrastructure Organisation ("DIO") (Ministry of Defence ("MOD")) resulted in DIO withdrawing their objection.

Following the receipt of the Supplementary Environmental Information Statement ("SEIS"), and further discussion between the Company and the above named consultees, objections are being maintained from the RSPB, ASFB, SEIFG, 10MAU, TDSFB, Esk District Salmon Fishery Board ("EDSFB"), Fishermens Mutual Association (Pittenweem) Ltd ("FMA"), Fife Fish Producers Organisation ("FFPO") and WDC. The RSPB has raised several concerns mainly regarding the impacts upon kittiwakes, gannets and puffins. In order to minimise the predicted impacts, the Development has been reduced from 125 turbines to 75 WTG's. and the development area reduced from 105km^2 to 87.2km^2. Conditions are being implemented as part of this consent to further minimise the potential impacts of this Development.

Objections from members of the public are being maintained.

Public Representations

A total of twenty three (23) representations were received from members of the public during both consultation periods. Of these, sixteen (16) object to the Development, five (5) support it, and two (2) neither objected nor supported with one (1) relating to the onshore cable route and subsequent onshore planning application and one (1) relating to information used to assess the Development's potential impact on bats.

All public representations have been taken into consideration. They are summarised in **ANNEX F – PUBLIC REPRESENTATIONS.**

Publicity

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

As a potential way of meeting any Freedom of Information requests which may be received, and in order for the determination process to be fully open and transparent, we recommend that this submission is published on the Marine Scotland licensing page of the Scottish Government website, alongside the key documentation relating to the application including consultee responses and public representations with personal information, e.g. names, email addresses and phone numbers redacted.

Recommendation

The Development offers a significant and strategic opportunity to drive the harnessing of Scotland's vast offshore renewable resources forward and will also make a significant contribution to Scotland's target of generating the equivalent of 100% of Scotland's gross electricity consumption from renewables by 2020. Having taken all material issues into account, including the statutory and non-statutory consultation responses, public representations and objections received, and being satisfied that all legislative requirements have been met, MS-LOT is of the view that you should:

> **Determine that it is appropriate not to cause a public inquiry to be held and to grant consent under section 36 of the Electricity Act 1989 for the 450 MW Neart na Gaoithe offshore wind farm.**
>
> **Please note that a marine licence under the Marine (Scotland) Act 2010 for the Neart na Gaoithe offshore wind farm, Offshore Transmission Works and export cable to shore is being considered alongside this application. It will be determined and a decision issued in due course.**

List of Annexes

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Copy List:	For Action	For Comments	For Information		
			Portfolio Interest	Constit Interest	General Awareness
Cabinet Secretary for Finance, Employment and Sustainable Growth			X		
Cabinet Secretary for Rural Affairs, Food and the Environment			X		
Minister for Environment and Climate Change			X		
Minister for Transport and Veterans					X
Minister for Local Government & Planning					X
Lord Advocate					X
Solicitor General					X

DG Enterprise & Environment
Linda Rosborough – Marine Scotland
David Palmer – Marine Scotland
Jim McKie – Marine Scotland
Phil Gilmour – Marine Scotland
David Pratt – Marine Scotland
Mark Christie – Marine Scotland
David Mallon – Marine Scotland
Ian Davies – Marine Scotland
Nim Kumar – Marine Scotland
Colin Troup – LSLA
James Shaw – LSLA
Keith White – LSLA
Mary McAllan – Energy & Climate Change
Chris Stark – Energy & Climate Change
Simon Coote – Energy & Climate Change
Janine Kellett – Energy & Climate Change
David Stevenson – Energy & Climate Change
Murray Sinclair – SGLD
Paul Cackette – SGLD
Alan Williams – SGLD
Claire Cullen – SGLD
Fiona McClean – SGLD
Ian Vickerstaff – SGLD
Graham Marchbank – Planning
Keith Connal – E&RA
Iain Malcolm - Freshwater Fisheries
Chris Wilcock – Ports and Harbours
Mike McElhinney- Ministerial Portfolios
Malcolm Fleming - Advisor
Communications - Greener
Communications – Wealthier and Fairer

ANNEX A – REGULATORY REQUIREMENTS: LEGISLATION AND POLICY

APPLICATION FOR CONSENT UNDER SECTION 36 OF THE ELECTRICITY ACT 1989 FOR THE CONSTRUCTION AND OPERATION OF THE NEART NA GAOITHE OFFSHORE WIND FARM ELECTRICITY GENERATING STATION, APPROXIMATELY 15.5 KM TO THE EAST OF FIFE NESS IN THE FIRTH OF FORTH

LEGISLATION

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. 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") (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.

The Electricity Act 1989

2. Any proposal to construct, extend or operate a generating station situated in the territorial sea (out to 12 nautical miles from the shore), with a generation capacity in excess of 1 megawatt requires consent under section 36 of the Electricity Act. This substituted reduced capacity is implemented through the Electricity Act 1989 (Requirement of Consent for Offshore Generating Stations) (Scotland) Order 2002. A consent under section 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.

3. Paragraph 3 of Schedule 9 to the Electricity Act places a duty on licence holders or persons authorised by an exemption to generate, distribute, supply or participate in the transmission of electricity when formulating "relevant proposals" within the meaning of paragraph 1 of Schedule 9 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.

Such persons are statutorily obliged to do what they reasonably can to mitigate any effect which the proposals would have on these features.

4. Paragraph 3 of Schedule 9 to the Electricity Act also provides that the Scottish Ministers must have regard to the desirability of preserving natural beauty etc. and 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.

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

6. Under section 36B of the Electricity Act 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 section 36 consent or are activities for which it appears likely that such consents will be granted.

7. Under Schedule 8 to the Electricity Act and the Electricity (Applications for Consent) Regulations 1990 (as amended), notice of applications for section 36 consent must be published by the applicant in one or more local newspapers, in one or more national newspapers, and in the Edinburgh Gazette to allow representations to be made to the application. Under Schedule 8 to the Electricity Act, the Scottish Ministers must serve notice of any application for consent upon any relevant Planning Authority.

8. Paragraph 2(2) of Schedule 8 to the Electricity Act provides that where a relevant planning authority notifies the Scottish Ministers that they object to an application for section 36 consent and where they do not withdraw their objection then the Scottish Ministers must cause a public inquiry 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 public inquiry.

9. The location and extent of the proposed development to which the Application relates (being wholly offshore) means that the Development is not within the area of any local Planning Authority. The Marine Scotland Licensing Operations Team ("MS-LOT"), on behalf of the Scottish Ministers, did however, consult with the Planning Authorities most local to the Development. The Scottish Ministers are not, therefore, obliged under paragraph 2(2) of Schedule 8 to the Electricity Act to require a public inquiry to be held. The nearest local planning authorities did not object to the Application. If they had objected to the Application, and even then if they did not withdraw their objections, the Scottish Ministers would not have been statutorily obliged to hold a public inquiry.

10. The Scottish Ministers are, however, required under paragraph 3(2) of Schedule 8 to the Electricity Act to consider all objections received, together with all other material considerations, with a view to determining whether a public inquiry should be held in respect of the Application. Paragraph 3(2) of Schedule 8 provides that if the Scottish Ministers think it appropriate to do so, they shall cause a public inquiry to be held, either in addition to or instead of any other hearing or opportunity of stating objections to the application.

11. You can be satisfied that all the necessary tests set out within the Electricity Act when assessing the application and all procedural requirements have been complied with. The Company, at the time of submitting the Application, was not a licence holder or a person authorised by an exemption to generate, distribute, supply or participate in the transmission of electricity when formulating "relevant proposals" within the meaning of paragraph 3 of Schedule 9 to the Electricity Act. The Company obtained a generation licence during the period whilst the Scottish Ministers were determining the Application for consent. The Minister and his officials have approached matters on the basis that the Schedule 9, paragraph 3(1) obligations as apply to licence holders and the specified exemption holders should also, from the date of the Application for consent, be applied to the Company.

Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2000

12. The Environmental Impact Assessment Directive, which is targeted at projects which are likely to have significant effects on the environment, identifies projects which require an Environmental Impact Assessment ("EIA") to be undertaken. The Company identified the proposed Development as one requiring an Environmental Statement ("ES") in terms of the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2000 (as amended) ("the 2000 Regulations").

13. The proposal for the Development has been publicised, to include making the ES available to the public, in terms of the 2000 Regulations. An ES has been

produced and the applicable procedures regarding publicity and consultation all as laid down in those regulations have been followed.

14. In compliance with those Regulations, consultation has taken place with SNH, JNCC, the Scottish Environmental Protection Agency ("SEPA"), the Planning Authorities most local to the development, and such other persons likely to be concerned by the proposed Development by reason of their specific environmental responsibilities on the terms of the ES and the SEIS in accordance with the regulatory requirements.

15. Under the 2000 Regulations, the Scottish Ministers are required to obtain the advice of SEPA on matters relating to the protection of the water environment. This advice was received on 10th September 2012.

16. MS-LOT has also consulted a wide range of relevant organisations, including colleagues within the Scottish Government on the Application, on the ES and as a result of the issues raised during the initial consultation, upon the required SEIS in accordance with the regulatory requirements.

17. MS-LOT considers that you can be satisfied that the regulatory requirements have been met. MS-LOT has taken into consideration the environmental information, including the ES and SEIS, the responses received from the statutory consultative bodies and the representations and objections received.

The Habitats Directive

18. Council Directive 92/43/EEC of 21st May 1992 on the conservation of natural habitats and wild fauna and flora (as amended) ("the Habitats Directive") and Council Directive 79/409/EEC of 2nd April 1979 on the conservation of wild birds (as amended and codified) ("the Wild 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 Regulations"), and the Offshore Marine Conservation (Natural Habitats, & c.) Regulations 2007 (as amended) ("the 2007 Regulations"). As the Development is to be sited in Scottish Territorial Waters (within 12 nautical miles of the shore) it is the 1994 Regulations which are applicable in respect of this application for section 36 consent.

19. The key mechanism for securing compliance with the Habitats Directive and the Wild Birds Directive is the carrying out of an Appropriate Assessment ("AA") as required under Article 6(3) of the Habitats Directive, being an assessment of a project's implications for European protected sites in view of such sites' conservation objectives. Article 7 of the Habitats Directive applies the obligations arising under Article 6(2), (3) and (4) of that Directive to the Wild Birds Directive. Under the 1994 Regulations this is provided by regulation 48. Developments in, or adjacent to 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"). The appraisal involves two stages, and if the proposal is likely to have a significant effect on a protected site, then an AA must be carried out.

20. The AA which has been undertaken has considered the combined effects of the Development with the other Forth and Tay Offshore wind farms (the Inch Cape Offshore Limited ("ICOL"), Seagreen Alpha Wind Energy Limited ("SAWEL") and Seagreen Bravo Wind Energy Limited ("SBWEL") applications). Where appropriate (depending upon the receptor) other offshore wind farm developments and licensable marine activities have also been considered in the AA. These include (but are not limited to) the recently consented Moray Firth offshore wind farms, Aberdeen Bay offshore wind farm and the Moray Firth port developments.

21. SNH, ASFB, TDSFB, EDSFB, WDC and the RSPB in particular flagged up issues in relation to the 1994 Regulations, as the proposal has the potential to impact on certain Special Protection Areas ("SPAs") and Special Areas of Conservation ("SACs"). In SNH's view the proposal is likely to have a significant effect on the qualifying interests of certain SPA and SAC sites.

22. In line with advice from SNH and the JNCC, and to ensure compliance with European Union ("EU") obligations under the Habitats Directive and the Wild Birds Directive, MS-LOT, on behalf of the Scottish Ministers, undertook an AA. In carrying out the AA, MS-LOT concludes that the Development will not adversely affect the integrity of any of the identified European protected sites which were assessed as having connectivity with the Development. Conditions can also be imposed on any grant of consent ensuring that the sites are protected from damage. SNH and the JNCC were consulted on the AA and agreed with all of the conclusions that have been reached with regards to the marine mammals and the freshwater fish SACs, however did not agree with some of the conclusions reached with regards to the Forth Islands and Fowlsheugh SPAs (at **ANNEX E – APPROPRIATE ASSESSMENT**). The AA will be published and available on the Marine Scotland licensing page of the Scottish Government's website.

Marine (Scotland) Act 2010

23. 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.

24. 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 the sustainable development, including the protection and, where appropriate, the enhancement of the health of the area. The Scottish Ministers, when exercising any function that affects the Scottish marine area under the 2010 Act, the Climate Change (Scotland) Act 2009, or any other enactment, must act in a way best calculated to mitigate, and adapt to climate change.

Climate Change (Scotland) Act 2009

25. Also of relevance to the Application is that under Part 2 of the Marine (Scotland) Act 2010 the Scottish Ministers must, when exercising any function that affects the Scottish marine area under the Climate Change (Scotland) Act 2009, 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 annual targets have been agreed with relevant advisory bodies for the reduction in carbon emissions.

26. The Company estimates that, once the Development is fully constructed and operational, there could be a saving of up to 29.9 million tonnes of CO_2 over the 25 year lifetime of the project when compared to the average CO2 release from gas and coal fired electricity generation. MS-LOT estimate that the Development could provide renewable electricity for approximately 288,400 homes. The Development therefore has the potential to provide enough electricity to power, for example, the number of homes in the City of Edinburgh (2012 estimate of 224,322 households by gro-scotland.gov.uk).

27. You can be satisfied that in assessing the Application you have acted in accordance with your general duties.

MARINE AND TERRESTRIAL POLICY

The UK Marine Policy Statement 2011

28. The UK Marine Policy Statement 2011 ("the Statement") prepared and adopted in accordance with Chapter 1 of Part 3 of the Marine and Coastal Access Act 2009 requires that when Scottish Ministers take authorisation decisions that affect, or might affect, the marine area they must do so in accordance with the Statement.

29. The Statement which was jointly adopted by the UK Administrations sets out the overall objectives for marine decision making. It specifies issues that decision-makers need to consider when examining and determining applications for energy infrastructure at sea, namely – the national level of need for energy infrastructure as set out in the Scottish National Planning Framework; the positive wider environmental, societal and economic benefits of low carbon electricity generation; that renewable energy resources can only be developed where the resource exists and where economically feasible; and the potential impact of inward investment in offshore wind, wave, tidal stream and tidal range energy related manufacturing and deployment activity. The associated opportunities on the regeneration of local and national economies need also to be considered.

30. Chapter 3, paragraphs 3.3.1 to 3.3.6, 3.3.16 to 3.3.19 and 3.3.22 to 3.3.30 of the Statement are relevant and have been considered by the Scottish Ministers as part of the assessment of the Application.

31. Existing terrestrial planning regimes generally extend to mean low water spring tides. The marine plan area boundaries extend up to the level of mean high water spring tides. The UK Marine Policy Statement clearly states that the new system of marine planning introduced across the UK will integrate with terrestrial planning. The Statement also makes it clear that the geographic overlap between the Marine Plan and existing plans will help organisations to work effectively together and to ensure that appropriate harmonisation of plans is achieved. MS-LOT has, accordingly, had regard to the terms of relevant terrestrial planning policy documents and Plans when assessing the Application for the purpose of ensuring consistency in approach.

32. MS LOT has had full regard to the Statement when assessing the Application and therefore considers that the Development accords with the Statement.

Blue Seas – Green Energy: A Sectoral Marine Plan for offshore wind energy in Scottish Territorial Watters, 2011

33. The Scottish Government has used a marine planning approach to develop Blue Seas Green Energy – A Sectoral Marine Plan for Offshore Wind in Scottish Territorial Waters ("the Plan").

34. The Plan represents the Scottish Government's vision for the delivery of energy from offshore wind resources within Scottish Territorial Waters (0 to 12 nautical miles). The Plan contains proposals for offshore wind development at the regional level up to 2020 and beyond. It seeks to maximise the benefits for Scotland, its communities and people, and recognises the need for public acceptability in the development of offshore wind. It aims to strike a balance between economic, social and environmental needs and also recognises that there are national and regional challenges to overcome to facilitate development.

35. The draft Plan contained 10 short term (up to 2020) and 30 medium term (up to 2030) options including Neart na Gaoithe as a short term site in the East region. The sites were selected by developers and The Crown Estate Commissioners ("CEC") and awarded Exclusivity Agreements. The Scottish Ministers decided that 6 short term sites and 25 medium term areas of search should be progressed within this Plan. However, one of the six short term sites (Forth Array) has since been removed from the Plan due to the CEC withdrawing the exclusivity agreement for this site.

36. The Scottish Ministers further decided that 3 short term sites in the West and South-West regions were unsuitable for the development of offshore wind and should not be progressed as part of the Plan. These short term sites were considered unsuitable because of the presence of a wide range of constraints on a number of receptors (including communities, shipping, fishing, biodiversity, recreation, defence, economic impact, cultural heritage, seascapes and landscapes).

37. The main findings for the East (Firth of Forth) Offshore Wind Plan region was that this region has favourable conditions and significant potential for the development of offshore wind within Scottish Territorial Waters. The significant strategic issues to be resolved, according to the Plan, related to fishing and the environment. Other key issues to be addressed for the region included shipping and navigation, biodiversity, aviation and radar and defence activities. Evidence at this stage suggested that issues could be addressed through appropriate mitigation measures at the project level.

38. The Neart na Gaoithe short term site was seen to be suitable for development by 2020 (as well as the Inch Cape Development in Scottish Territorial Waters and Seagreen Round 3 offshore wind development site just outside Scottish Territorial Waters adjacent to Neart na Gaoithe). The cumulative and in combination impacts of these developments were identified as requiring further consideration.

39. The Plan recommended that the Neart na Gaoithe short term option should be taken forward to the licensing stage. A key finding was that there is significant potential for this development in the short term, and it appears to be publicly and environmentally acceptable at the strategic level.

40. The Plan seeks to deliver the Scottish Ministers' policies for green energy, thereby helping to meet carbon reduction targets. The Plan underpins the promotion of economic development and competitiveness for Scotland and has been built using environmental and socio-economic assessments and consultation, both public and sectoral, as marine plan making tools.

41. The outcomes of Strategic Environmental Assessment ("SEA"), HRA, Socio-economic Assessment and Consultation Analysis informed the final Plan.

42. Officials consider that the Development accords with the Plan.

Draft National Marine Plan

43. A draft of Scotland's National Marine Plan, developed under the 2010 Act and the 2009 Act, was subject to consultation which closed in November 2013. Marine Scotland Planning & Policy are now considering the responses and undertaking a consultation analysis exercise. When formally adopted, the Scottish Ministers must take authorisation and enforcement decisions which affect the marine environment in accordance with the Plan.

44. The draft National Marine Plan sets an objective to promote the sustainable development of offshore wind, wave and tidal renewable energy in the most suitable locations. It also contains specific policies relating to the mitigation of impacts on habitats and species; and in relation to the treatment of cables.

45. The Scottish Ministers require, should it be deemed appropriate and proportionate, that consideration be given to undertaking a Scenario Mapping exercise. Such an exercise, should it be required, would allow the local

community to understand the range of possible implications of the Development.

46. Given the timing of the statutory consultation of the draft of Scotland's National Marine Plan, and the finalisation of the consideration of all material issues connected with the Development, MS-LOT has not been able to undertake a scenario mapping exercise as per the Plan's planning policy 'Renewables 10'. Whilst there is currently no formal mechanism for requiring scenario mapping in the Forth and Tay, MS-LOT is satisfied that the full range of possible implications for the community has been outlined within the Company's ES and that these benefits have been thoroughly considered as part of this recommendation.

Other Marine Policy

47. The Development, will contribute significantly to Scotland's renewable energy targets via its connection to the National Grid. It will also provide wider benefits to the offshore wind industry which are reflected within Scotland's Offshore Wind Route Map and the National Renewables Infrastructure Plan. Scotland has considerable potential for offshore renewable energy developments. Estimates indicate that Scotland has up to 25% of Europe's offshore wind potential (Scotland's Renewable Resource 2001). Offshore wind is seen as an integral element in Scotland's contribution towards action on climate change. The large scale 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.

48. Published in September 2010 the Scotland's Offshore Wind Route Map sets out the opportunities, challenges and priority recommendations for action for the sector to realise Scotland's full potential for offshore wind. The refreshed version of this document, published in January 2013, highlighted the progress that has been made but pointed to the continuing challenges that need to be overcome.

Terrestrial Policy

49. MS-LOT have had regard to the terms of relevant terrestrial planning policy documents and Plans when assessing this Application for the purpose of ensuring consistency in approach.

Scottish Planning Policy (SPP)

50. Scottish Planning Policy sets out the Scottish Government's planning policy on renewable energy development. 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, 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.

51. You can be satisfied that these matters have been addressed in full both within the Application, the ES, the SEIS and within the responses received to the consultations by the closest onshore Planning Authorities, SEPA, SNH, and other relevant bodies.

National Planning Framework 2

52. Scotland's National Planning Framework 2 ("NPF2") sets out strategic development priorities to support the Scottish Government's central purpose, namely sustainable economic growth. Relevant paragraphs to the Application are paragraphs 65, 144, 145, 146, and 147. NPF2 provides strong support for the development of renewable energy projects to meet ambitious targets in place to generate the equivalent of 100% of our gross annual electricity consumption from renewable sources and to establish Scotland as a leading location for the development of renewable offshore wind sector.

National Planning Framework 3

53. During the determination of the Application, Scotland's National Planning Framework 3 ("NPF3") was published. NPF3 is the national spatial plan for delivering the Scottish Government's Economic Strategy. The Main Issues Report sets out the ambition for Scotland to be a low carbon country, and emphasises the role of planning in enabling development of renewable energy onshore and offshore. National Development 4 'High Voltage Electricity Transmission Network' is designed to facilitate electricity grid enhancements needed to support the increasing renewable energy generation, both on and offshore. NPF3 also supports development and investment in sites identified in the National Renewables Infrastructure Plan.

54. The Main Issues Report was published for consultation in April 2013 and the Proposed NPF3 was laid in the Scottish Parliament on 14th January 2014. This was subject, by statute, to sixty (60) day Parliamentary consideration ending on 22nd March 2014. The Scottish Government published the finalised NPF3 on 23rd June 2014.

55. NPF3 sets the context for development planning in Scotland and provides a framework for the spatial development of Scotland as a whole setting out the

Scottish Governments development priorities over the next 20-30 years. It also identifies national developments which support the development strategy. Paragraphs relevant to the Application are 3.4, 3.6, 3.8, 3.9, 3.12, 3.14, 3.25, 3.32, 3.33, 3.34 and 3.41.

56. 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. NPF3 also identifies targets to source 11% of heat demand and 10% of transport fuels from renewable sources by 2020.

57. 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. NPF3 notes the Firth Coast form Cockenzie to Torness is a 'potentially important energy hub'. It notes that there are significant plans for offshore wind to the east of the Firths of Forth and Tay and states; 'Proposals for grid connections for these projects are now emerging, requiring undersea cabling connecting with converter stations and substations. We want developers to work together to minimise the number and impacts of these developments by combining infrastructure where possible'. NPF3 also recognises Cockenzie as a site with potentially significant opportunities for renewable energy related investment.

Fife Development Plan

58. Fife Council advised that due to the scale of the Development, in terms of turbine height and numbers, it requires to be assessed against the Fife Development Plan. This Plan comprises of the TAYplan Strategic Development Plan 2012-2032 and the Adopted St. Andrews and East Fife Local Plan 2012.

TAYplan Strategic Development Plan 2012-2032

59. The TAYplan Strategic Development Plan ("TAYplan SDP") sets out a spatial strategy which says where development should and should not go. It is designed to deliver the location related components of sustainable economic development, good quality places and effective resource management.

60. The Scottish Ministers consider that the TAYplan SDP is broadly supportive of the Development

Adopted St. Andrews and East Fife Local Plan 2012

61. The Adopted St. Andrews and East Fife Local Plan 2012 implements the strategic vision set out in the Fife Structure Plan as it applies to the St Andrews and East Fife area. It contains proposals to guide the area's development over the period until 2022.

62. The relevant policies in this Plan are E3, E8, E11, E12, E20, E21, E22, E23 and I1. The Scottish Ministers consider that the St Andrews and East Fife Local Plan is broadly supportive of the Development.

Fife Council's Supplementary Planning Guidance (SPG) on Wind Energy 2011

63. This supplementary Planning Guidance, whilst carrying less weight as a consideration than the TAYplan SDP, supplements the local plan policies. It indicates that proposals for wind farms/turbines will be assessed against the following constraints, any positive or adverse effects on them, and how any adverse effects can be overcome or minimised: Historic environment; areas designated for their regional and local natural heritage value; tourism and recreational interests; communities; buffer zones; aviation and defence interests; broad casting installations.

64. The Scottish Ministers consider that the Development has been assessed against these constraints and addressed in **ANNEX D – DRAFT DECISION LETTER AND CONDITIONS.**

East Lothian Local Plan 2008

65. East Lothian Council have advised that the policies of the East Lothian Local Plan do not apply to the offshore works as the plan only covers land to the Low Water Mark therefore the only aspect of the Development that this plan relates to is the inter-tidal works.

66. Where the cable makes landfall at Thorntonloch, a planning application will be made to East Lothian Council. The area concerned is covered by East Lothian Local Plan Policy DC1: Development in the Countryside and Undeveloped Coast; Policy C3: Protection of Open Space; NH4: Areas of Great Landscape Value and Policy NRG2: Torness Consultation Zone.

Angus Local Plan Review (Adopted 2009)

67. The Angus Local Plan Review sets out the land use planning response and policy framework which will contribute to ensuring that the physical, social and economic needs of all communities in Angus are provided for in a sustainable manner. Angus Council has advised that the Angus Local Plan Review is not a relevant consideration as the Development is out with the area covered.

Material considerations

68. MS-LOT has carefully considered the issues in connection with the Application and has identified the material considerations, for the purposes of deciding whether it is appropriate to cause a public inquiry to be held or for making a decision on the Application for consent under section 36 of the Electricity Act.

69. MS-LOT are content that the material considerations have been addressed in the Application, the ES, the SEIS and within the responses received to the consultations by the closest onshore Planning Authorities, SEPA, SNH, the JNCC and other relevant bodies. The material considerations have been addressed in **ANNEX D – DRAFT DECISION LETTER AND CONDITIONS**.

Public Local Inquiry ("PLI")

70. In terms of paragraph 2(2) of Schedule 8 to the Electricity Act, if the relevant Planning Authority made a valid objection and did not withdraw it, you must convene a PLI, which must be confined to so much of the application as it relates to land within the area of the authority whom the objection was made (except in so far as you direct otherwise) before you may determine the application, the objection and the report of the inquiry.

71. None of the Planning Authorities consulted on the Application, Angus Council, Dundee City Council, East Lothian Council, Fife Council or Scottish Borders Council, raised any objection to the Development.

72. Even if the Council(s) had objected, and did not withdraw their objection, a PLI is not a statutory requirement in this case due to the fact that the Development to which the application for section 36 consent relates falls out with the Councils' jurisdiction. Paragraph 7A of Schedule 8 to the Act provides that paragraph 2(2) of the Schedule does not apply in cases like this where no part of the place to which the application relates is within the area of the local planning authority.

73. Paragraph 3(2) of Schedule 8 to the Electricity Act provides that where objections or copies of objections have been sent to the Scottish Ministers in pursuance of the Electricity (Applications for Consent) Regulations 1990 in those cases where a PLI must not be convened by them in terms of paragraph 2(2) of Schedule 8 (i.e. those cases where the Planning Authority either has not objected, or objected and withdrawn their objection or where the "relevant planning authority" is the Scottish Ministers on account of the fact that all of the development being located at sea), then the Scottish Ministers "shall consider those objections together with all other material considerations" with a view to determining whether a PLI should be held with respect to the application and, if they think it appropriate to do so, they shall cause a PLI to be held.

Determination on whether to cause a Public Local Inquiry to be held

74. Before you can make a decision on the Application for section 36 consent you must determine whether it is appropriate to cause a PLI to be held. Advice regarding the matters you must consider before you may make a decision regarding the holding of a PLI is included in **ANNEX B – BACKGROUND INFORMATION AND SCOTTISH MINISTERS' CONSIDERATIONS**. If, following your consideration of that advice, you are content that causing a PLI to be held is not appropriate in terms of the statutory provisions then, and only then, can you proceed to make a decision on the Application for section 36 consent.

Decision on the Application for section 36 consent

75. If, having considered the Application, the ES, the SEIS, representations and the objections received, as outlined in **ANNEX B - BACKGROUND INFORMATION AND SCOTTISH MINISTERS CONSIDERATIONS,** together with other material considerations as outlined in **ANNEX D – DRAFT DECISION LETTER AND CONDITIONS**, you determine that it would not be appropriate for a PLI to be held, then it remains for you to grant or refuse section 36 consent to the Development having regard to the considerations in **Annex B**.

Adrian Tait
Marine Scotland Licensing Operations Team
Marine Planning and Policy
31 July 2014

ANNEX B – BACKGROUND INFORMATION AND SCOTTISH MINISTERS' CONSIDERATIONS

APPLICATION FOR CONSENT UNDER SECTION 36 OF THE ELECTRICITY ACT 1989 FOR THE CONSTRUCTION AND OPERATION OF THE NEART NA GAOITHE OFFSHORE WIND FARM ELECTRICITY GENERATING STATION, APPROXIMATELY 15.5 KM TO THE EAST OF FIFE NESS IN THE FIRTH OF FORTH

BACKGROUND INFORMATION

The following applications have been made to the Scottish Ministers for:

i. A consent under section 36 of the Electricity Act 1989 (as amended) ("the Electricity Act") by Neart na Gaoithe Offshore Wind Limited (Company Number SC356223) and having its registered office at C/O Shepherd and Wedderburn LLP, 191 West George Street, Glasgow, G2 2LB ("the Company") for the Neart na Gaoithe Offshore Wind Farm in the Firth of Forth ("the Development");

ii. A marine licence to be considered under the Marine (Scotland) Act 2010 ("the 2010 Act") by the Company to deposit any substance or object and to construct, alter or improve any works in relation to the Neart na Gaoithe Offshore Wind Farm; and

iii. A marine licence to be considered under the 2010 Act by the Company to deposit any substance or object and to construct, alter or improve any works in relation to the Offshore Transmission Works within the Scottish marine area.

THE APPLICATION

I refer to the Application at i above made by the Company, received on 13th July 2012, for consent under section 36 of the Electricity Act for the construction and operation of the Development in the Firth of Forth ("the Application") (Figure 1 and also at **ANNEX G – DEVELOPMENT LOCATION**).

The Application submitted was to construct and operate an offshore wind generating station with a maximum generating capacity of up to 450 megawatts ("MW") comprising up to 125 turbines. The maximum number of turbines has since been reduced during the course of the consideration of the Application to address concerns expressed by consultees. Consent is now sought for an offshore generating station with a maximum generating capacity of up to 450 MW, consisting of up to 75 wind turbine generators ("WTGs")

In tandem with the consultation on application i, Marine Scotland Licensing Operations Team ("MS-LOT") has consulted on a marine licence application (received on 13th July 2012) for the Development (application ii).

In tandem with the consultation on applications i and ii, MS-LOT has consulted on a marine licence application (received on 13th July 2012) for the Offshore Transmission Works and export cable to shore at Thorntonloch (application iii).

Project Description

An offshore wind turbine generating station located as shown in Figure 1 and at **Annex G – DEVELOPMENT LOCATION** to this consent, with a gross electrical output capacity of up to 450 MW comprising:

- not more than 75 three-bladed horizontal axis wind turbines each with a maximum blade tip height of up to 197 metres and a maximum rated capacity of up to 6 MW;
- for each wind turbine generator, a jacket or gravity base foundation;
- for each wind turbine generator, a transition piece (including access ladders / fences and landing platforms), turbine tower, blades and nacelle; and
- inter array cabling between the turbines and the offshore substation platform.

and, except to the extent modified by the foregoing, all as specified in the application letter and the project description contained in the accompanying Environmental Statement ('ES') (Chapter 5 of the ES as supplemented by Technical Appendix 1 of the Supplementary Environmental Information Statement ("SEIS") but subject always to the conditions specified in **Annex D – DRAFT DECISION LETTER AND CONDITIONS, Annex 2** of this consent.

A condition has been attached to the consent (condition 5) at **Annex D – DRAFT DECISION LETTER AND CONDITIONS, Annex 2** which will require a reduction in the negative effect on adult survival of kittiwakes from Forth Islands SPA of 0.2%. This is to provide that the Company has demonstrated to the satisfaction of the Scottish Ministers that the predicted impact of the Development would not exceed a certain level.

Location of Development

The proposed Development is located approximately 15.5 km from Fife Ness and 16 km from the Isle of May. The proposal is situated in the outer Firth of Forth and covers a total area of 82.7 km^2. The Company estimates that water depths across the site range from approximately 40 m to 60 m. The export cables from the site are proposed to travel southwest from the Development and make landfall at Thorntonloch beach to the South of Torness Power Station.

The Company identified the wind farm site as a suitable site for offshore wind farm development, there are a number of reasons for the site being suitable, these are:

- Seabed of less than 60m in depth;
- Economic distance from major grid connection points and ports;
- Avoidance of excessive wave heights;
- Avoidance of remote areas; and
- Avoidance of known major ecological constraints.

Final site selection was made through desk studies and consultation including:

- Site specific Ornithological, Marine Mammal, Atlantic salmon, reefs and Sandeel interests on the basis of reports by EMU, Natural Research, Cork Ecology and through consultation with The Royal Society for the Protection of Birds Scotland ("RSPB Scotland"), Scottish Natural Heritage ("SNH"), Fisheries Research Services ("FRS") and Scottish Government Seabird Groups;
- Shipping density on the basis of a 2008 Anatec report and consultation with Chamber of Shipping ("COS"), Maritime Coastguard Agency ("MCA") and Montrose Port;
- Geology on the basis of a report by offshore design engineering ltd and an EMU geological study;
- Grid connection opportunities on the basis of a report done by Sinclair Knight Merz (SKM Consulting) and the Companies experience;
- Wind resource on the basis of a Garrad Hassan and Partners Ltd report and the Companies specialist knowledge;
- Aviation and Radar on the basis of the 2008 Pager report and Ministry of Defence ("MOD") consultation;
- Fishing on the basis of ICES landings data, consultation with FRS, Scottish Fishermen's Federation ("SFF") and Montrose Port; and
- Visual Impact on the basis of the 2008 a Land Use Consultants report, 2006 Dti SEA study, Fife Council guidance and the 2006 ASH report.

In February 2009, The Crown Estate ("TCE") announced an Exclusivity Agreement with the Company. The suitability of the site was further affirmed in May 2010 with the Scottish Government's publication of the Strategic Environmental Assessment ("SEA") in the Draft Plan for Offshore Wind Energy in Scotland which confirmed that all ten Scottish Territorial Waters 2009 lease round sites could be developed between 2010 and 2020 if "appropriate mitigation is implemented to avoid, minimise and offset significant environmental impacts".

In March 2011 'Blue Seas – Green Energy, A Sectoral Marine Plan for Offshore Wind Energy in Scottish Territorial Waters' was published by Marine Scotland. Of the original ten sites proposed by TCE in Scottish Territorial Waters, the 'Blue Seas – Green Energy' publication endorsed six of the original ten proposals as suitable sites for development. The six selected sites included the Neart na Gaoithe site as a short-term site (for development by 2020) The Plan recommended the Development option should be taken forward to the licensing stage. A key finding of the Plan was that there is significant potential for this Development in the short term and it appears to be publically and environmentally acceptable. Another key finding was that the north east area relates closely to areas where there is significant potential for economic investment and employment and that the development of short term options in this area appeared to be, at the time of the reports publication, publicly and environmentally acceptable.

Officials recommend that the location of the Development is appropriate having regard to its many advantages.

Landscape and Visual Impacts

SNH, the Scottish Ministers statutory advisers on visual impacts on designated landscape features was consulted and provided comment on landscape and visual grounds.

SNH stated that the key landscape, seascape, and visual impacts of the Development, together with the Inch Cape Offshore Limited ("ICOL") and Seagreen Alpha Wind Energy Limited ("SAWEL") and Seagreen Bravo Wind Energy Limited ("SBWEL") proposals adjacent to the Development site, would cause widespread and significant adverse landscape and visual impacts along the Scottish East coast from St Cyrus in Aberdeenshire, through Angus and Fife, South to Dunbar in East Lothian.

SNH recommended that landscape consultants continue to be involved post-consent to work with the project and engineering teams to scope and finalise the wind farm design.

SNH highlight that the main impacts of the Development would be experienced along three stretches of coast: South Aberdeenshire/Angus; East Fife; and East Lothian.

SNH advised that in combination with ICOL, SAWEL and SBWEL, the Development would result in significant cumulative effects on views and coastal character. The Development would have a particularly significant effect on the East Fife coastline given its proximity.

SNH also advised that the Development (mainly in combination with ICOL) would change the night time character of the sea, extending lit-ribbon development from along the Fife and East Lothian coasts out into the Forth.

SNH state that because final designs cannot be assessed at this stage, they highlight the importance of wind farm design in mitigating landscape and visual impacts. As such, SNH recommends that the Company should employ a qualified and experienced landscape architect to be involved in the post consent design process and to 'sign off' the final wind farm design alongside project engineers. SNH also recommend that the cumulative effects of wind farm design should be assessed, particularly where visual impacts are currently assessed as major. It is also stated that visualisations could be provided post-consent to illustrate the finalised wind farm from key representative viewpoints which would be for public information only and not for consultation.

Both Marine Scotland officials and SNH carried out separate site visits of select viewpoints provided in the Company's Application. Marine Scotland officials were able to compare the views from those viewpoints using visual photomontages provided by the Company. It is considered by officials that the photomontages represent a true representation of the worst case visual impacts. It should be noted that the reduction in turbine numbers for ICOL and NNGOWL will act as a mitigation to this worst case scenario impact. A Development Specification and layout Plan, Design Statement, and a Lighting and Marking Plan have been included in the draft decision letter and consent attached at **ANNEX D – DRAFT DECISION LETTER AND CONDITIONS, Annex 2**.

East Lothian Council ("ELC"), Angus Council ("AC"), Fife Council ("FC"), Dundee City Council ("DCC") and Scottish Borders Council ("SBC") were also all consulted on landscape and visual grounds. Both ELC and AC raised concerns regarding visuals, as outlined within the Consultation Exercise summary below, however, their concerns were not sufficient to cause them to object to the Development.

Marine Mammal Impacts

SNH, the Joint Nature Conservation Committee ("JNCC"), Marine Scotland Science ("MSS") and Whale and Dolphin Conservation ("WDC") advised that a key concern was the potential impacts from pile driving during construction. WDC raised particular concerns over potential impacts to the bottlenose dolphin and harbour seal populations. Three species of marine mammal; harbour seal from the Firth of Tay and Eden Estuary Special Area of Conservation ("SAC"), grey seal from the Isle of May SAC and the Berwickshire and Northumberland Coast SAC, and bottlenose dolphin from the Moray Firth SAC were considered in the Appropriate Assessment ("AA").

SNH and the JNCC advised that the reference populations for both grey and harbour seals should be the east coast management unit. The AA concluded that the Development in combination with the other Forth and Tay offshore wind farm proposals would not adversely affect the integrity of the SACs with respect to grey and harbour seals. These conclusions were based on noise modelling carried out by the Company and for harbour seals population modelling which was carried out by SAWEL, SBWEL and ICOL. This modelling predicted some impacts to the population during construction but no long term effects. SNH, the JNCC and WDC also advised that there may be a link between vessels with ducted propellers and fatal corkscrew injuries to harbour seals. SNH and the JNCC advised that this could be addressed through a Vessel Management Plan ("VMP"), the requirement for such a Plan is included in **ANNEX D – DRAFT DECISION LETTER AND CONDITIONS, Annex 2.**

For bottlenose dolphin, the reference population was advised as being the "Coastal East Scotland" unit. Modelling of whether any resulting disturbance to individuals could lead to population level effects was undertaken by Prof Paul Thompson (University of Aberdeen and Marine Scotland Science Advisory Board) at the request of Marine Scotland. This work considered the cumulative impacts of the Forth and Tay wind farms together with the impacts from the recently consented Moray Firth wind farms. The conclusions reached were that there would be no long-term effects from underwater noise disturbance on the bottlenose dolphin population of the Moray Firth SAC. The AA concluded no adverse effect on site integrity of any of the SACs designated for marine mammals, subject to conditions being included in **ANNEX D – DRAFT DECISION LETTER AND CONDITIONS, Annex 2**. Further details of the assessments are provided in **ANNEX E – APPROPRIATE ASSESSMENT.** SNH and the JNCC agreed with all the conclusions reached in the AA with respect to marine mammals.

Impacts on other cetacean species including harbour porpoise, minke whale and white beaked dolphin were also considered by the Company. SNH and the JNCC advised that the temporary disturbance/ displacement caused by the proposed Forth and Tay wind farms has the potential to affect the animals energy budget. However these species are wide-ranging, and the spatial scale and temporary nature of the disturbance from wind farm piling and other construction activity is very small when compared to the range and movements of these species. SNH and the JNCC advised that disturbance to these species will not be detrimental to the maintenance of these populations at a favourable conservation status in their natural range. A European Protected Species ("EPS") licence will be required prior to construction. A Marine Mammal Monitoring Programme ("MMMP") is required as part of the Project Environmental Monitoring Programme ("PEMP") condition of this consent (see **ANNEX D – DRAFT DECISION LETTER AND CONDITIONS, Annex 2**) and WDC have welcomed the opportunity to be consulted on the MMMP.

Ornithological Impacts

The potential impacts of the Development on bird species were considered in detail by the Company and advisors during the assessment of the Applications. RSPB Scotland, the JNCC and SNH expressed concerns about the potential impact of the Development in combination with the Seagreen and Inch Cape developments on several bird species using the Firth of Forth. Advice from SNH and the JNCC on the 7th March 2014 was that they could not conclude with reasonable certainty that there would be no adverse effect arising from the Forth and Tay wind farms on the site integrity of Forth Islands or Fowlsheugh Special Protection Areas ("SPA"). RSPB Scotland object to the Forth and Tay wind farms, due to the unacceptable harm to seabird species. The species highlighted by SNH, the JNCC, and RSPB Scotland to be of most concern due to the cumulative impacts of the Forth and Tay wind farms were kittiwake, gannet and puffin. Concerns over gannet were mainly in relation to collision risk with the WTGs during operation whereas concerns over puffin were in relation to displacement of these species from the wind farm sites. Kittiwake were principally affected by displacement and barrier effects, with collision effects making a relatively small contribution to the estimated impacts.

These species along with guillemot, razorbill, herring gull, lesser black-backed gull, fulmar and common and Arctic tern were considered in the AA. When considering whether impacts are acceptable, an estimation of the level of predicted impact and the level of acceptable change that a population can withstand are required in order to make decisions on site integrity for an SPA. The levels of effect were detailed by the Company and further refined during meetings with MSS, SNH and the JNCC. Several methods were used by SNH, the JNCC and MSS to determine levels of acceptable change. The AA concluded that the proposed NNGOWL, ICOL, SAWEL and SBWEL developments will not, on their own or in combination with each other (or where appropriate for consideration, other developments already licenced), subject to conditions, adversely affect site integrity of the Buchan Ness to Collieston Coast SPA, Fowlsheugh SPA, Forth Islands SPA or St Abb's Head to Fast Castle SPA.

A condition has been attached to the consent (condition 5) at **Annex D – DRAFT DECISION LETTER AND CONDITIONS, Annex 2** which will require a reduction in

the negative effect on adult survival of kittiwakes from Forth Islands SPA of 0.2%. This is to provide that the Company has demonstrated to the satisfaction of the Scottish Ministers that the predicted impact of the Development would not exceed a certain level.

SNH and the JNCC disagreed with some of the conclusions of the AA and advised that no adverse effect on site integrity could not be concluded for:

- Fowlsheugh SPA with respect to kittiwake
- Forth Islands SPA with respect to kittiwake, gannet, puffin and razorbill

This is mainly to do with differences in assessment methods and the SNH and JNCC reluctance to have the predicted effect close to the threshold. Full details are provided in **ANNEX E – APPROPRIATE ASSESSMENT.**

SNH and the JNCC also highlighted that effects on species not covered under Habitat Regulations Appraisal ("HRA") also require consideration (i.e. individuals breeding out with SPAs and non-breeding individuals). For some species, e.g. kittiwake, a considerable number of smaller colonies exist outside of the SPA boundaries. Whilst it is possible for effects to be attributed to these colonies, the setting of thresholds in the same manner as with the SPA populations becomes much more problematic due to the paucity of data from the colonies, their small size, and the questionable value of any population models that could therefore be produced. Assessments therefore focused upon the SPA populations as these were identified in advice from SNH and the JNCC as being of greatest concern.

One of the challenges in assessing non-breeding season effects is that currently no appropriate reference populations have been defined that would allow a suitable assessment to be undertaken. However, Marine Scotland Science are contributing to a project being led by Natural England that will define non-breeding season populations for the first time. This will allow appropriate thresholds of change to be identified, and be a significant step towards allowing such assessments to be carried out in the future.

SNH and the JNCC advise that with regard to impacts on migratory waders and wildfowl they support the strategic collision risk assessment commissioned by Marine Scotland and undertaken by the Wildfowl & Wetlands Trust ("WWT") and MacArthur Green Ltd. This project presents a strategic assessment of potential collision risk to migrating wildfowl, waders and other non-seabird species from all current offshore wind farm proposals in Scotland and Robin Rigg, in operation. The modelling confirms that the risk presented by this Development would not be significant on its own, nor cumulatively with the other Forth and Tay developments or recently consented Moray Firth offshore wind farms, to any of these migratory non-seabird populations.

Habitats Regulations Appraisal

Owing to the view of SNH and the JNCC that the Development is likely to have a significant effect on the qualifying interests of a number of SPAs and SACs, MS-LOT, on behalf of the Scottish Ministers, as the competent authority, was required to carry out

an AA. Having carried out the AA (considering all the advice received from SNH, the JNCC and MSS) it can be ascertained with sufficient confidence that the Development, subject to appropriate conditions being included within the consent, will not adversely affect site integrity of any of the identified SPAs and SACs assessed to have connectivity with the Development. The SNH and JNCC are in agreement with our conclusions for the marine mammal and freshwater fish SACs and in some instances the SPAs. There is disagreement on the conclusions of the following:

- Fowlsheugh SPA with respect to kittiwake
- Forth Islands SPA with respect to kittiwake, gannet, puffin and razorbill

This disagreement is regarding differences in assessment methods and the SNH and the JNCC reluctance to have the predicted effect close to the threshold. MS-LOT consider that the best available evidence has been used in the AA and that the assessment has been precautionary. A full explanation of the ornithology issues and justification for decisions regarding site integrity is provided in **ANNEX E – APPROPRIATE ASSESSMENT**.

SNH, the JNCC and MSS recommended that certain conditions be included on any consent which would allow this 450 MW Development to be implemented. These conditions have been included in the draft decision letter and consent attached at **ANNEX D – DRAFT DECISION LETTER AND CONDITIONS, Annex 2**.

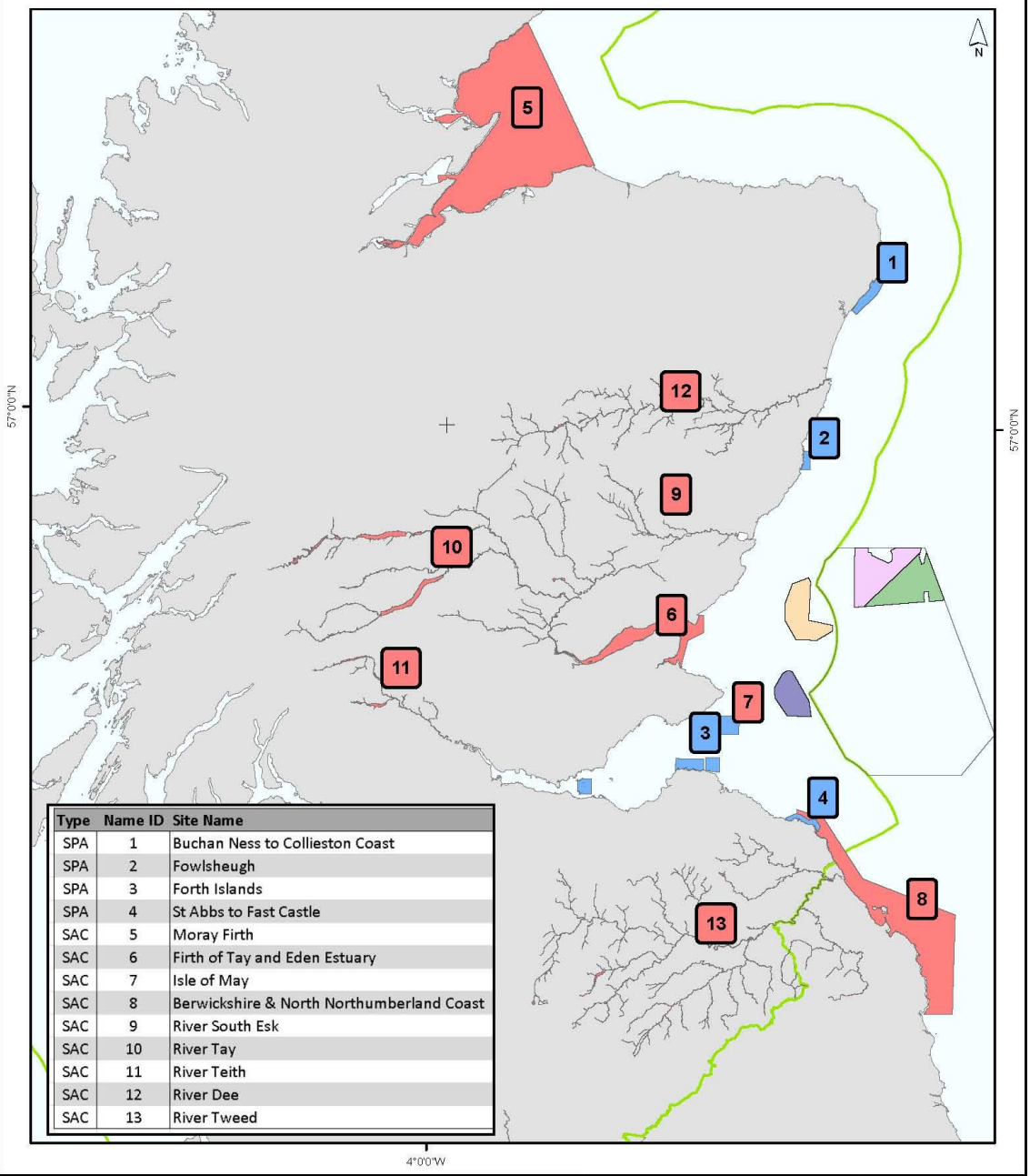
A recent announcement by the Scottish Government has highlighted the Outer Firth of Forth and Tay Complex as a draft marine SPA as it meets the SNH and the JNCC selection guidelines. A formal consultation will be undertaken towards the end of 2014 / beginning of 2015. Following consultation it is possible that this area could become a designated marine SPA towards the end of 2015. At this stage a further AA may be required if Likely Significant Effects ("LSE") on the qualifying features is identified from the Development. Under the Habitats regulations this must be carried out as soon as is reasonably practicable following designation.

Summary

MS LOT has undertaken a full and thorough consultation with relevant stakeholders and members of the public and are of the opinion that there are no considerations which would prevent consent being granted to the Development in its current location subject to the imposition of conditions (subject to the Minister's approval). The Application has been considered fully and carefully, as have its accompanying documents and all relevant responses from consultees. Third party representations received have also been considered.

MS LOT is satisfied that whilst the Development would have an impact on the environment, by taking into account the extent to which any environmental effects will be reduced by measures the Company has agreed to take, or will be required to take, under the conditions attached to the section 36 consent and marine licence, the environmental issues can be appropriately addressed by way of mitigation and monitoring and that any impacts which remain are outweighed by the benefits the Development will bring.

SACs & SPAs relevant to Forth & Tay Offshore Wind Developments



Type	Name ID	Site Name
SPA	1	Buchan Ness to Collieston Coast
SPA	2	Fowlsheugh
SPA	3	Forth Islands
SPA	4	St Abbs to Fast Castle
SAC	5	Moray Firth
SAC	6	Firth of Tay and Eden Estuary
SAC	7	Isle of May
SAC	8	Berwickshire & North Northumberland Coast
SAC	9	River South Esk
SAC	10	River Tay
SAC	11	River Teith
SAC	12	River Dee
SAC	13	River Tweed

12 Nautical Miles Limit
Special Areas of Conservation
Special Protection Areas

Forth and Tay Offshore Wind Developments

Neart na Gaoithe
Inch Cape
SeaGreen Alpha Offshore Wind Farm
SeaGreen Bravo Offshore Wind Farm
Firth of Forth

0 15 30 60 Km

1:1,600,000 | Size : A4 | British National Grid

Author: Andronikos Kafas

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The Scottish Government

CONSULTATION EXERCISE

Consultation on the Application, Environmental Statement and Supplementary Environmental Information Statement

Under Schedule 8 to the Electricity Act, and Regulations made under that Act (Electricity (Applications for Consent) Regulations 1990 ("the 1990 Regulations")), the Scottish Ministers are required to consult any relevant Planning Authority (although as the Development to which this Application for section 36 relates is wholly offshore the closest planning authority is not a 'relevant Planning Authority' under the Electricity Act). In addition, to comply with the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2000 ("the EIA Regulations"), there is a requirement to consult SNH, the Scottish Environment Protection Agency ("SEPA") and any other person likely to be concerned by the proposed Development by reason of their specific environmental responsibilities. As the JNCC are the statutory conservation body for the offshore area (outwith 12 nautical miles) and have a requirement to consider regional cumulative impacts on the Seagreen project which lies out with 12 nautical miles but also within the Forth and Tay region they have also been consulted.

In complying with the EIA Regulations, the Company identified the proposed Development as an EIA development and hence one which would require an ES. This ES should describe the environmental impacts and the proposed mitigation measures associated with the Development.

MS-LOT consulted a wide range of relevant organisations including colleagues within the Scottish Government on the Application and ES and, as a result of issues raised, the required SEIS. In accordance with the statutory requirements, as part of the overall consultation, MS-LOT sought the advice of SNH, the JNCC, SEPA and the Planning Authorities most local to the Development.

Statutory Consultees

Angus Council did not object to the Development however they made a number of comments relating to landscape and visual impacts as well as impacts on cultural heritage arising from the Development.

AC acknowledged that the Development will have a degree of impact on Landscape Character Types ("LCTs") and Regional Seascape Units ("RSU") within the Angus area. However AC were content that the proposed Development will not have an adverse or significant impact on Angus in landscape terms with only minor direct impact on the quality and character of these landscape resources. In terms of landscape and seascape character, AC considered that there would be significant impacts arising from the Development however these were not considered to be unacceptable.

AC also considered landscape impacts in terms of local and national landscape designations and also sites of landscape value in the Angus area. Two sites were identified by AC as potentially being subject to significant effects from the Development – Dunninald and The Guynd. These were both excluded from the

further assessment in the ES as the effects were not found to be significant and AC accepted this conclusion.

AC felt that there was a fundamental weakness in the ES as it did not consider impacts from shipping navigation and aviation lighting and the possible impacts from this. In this respect AC were concerned about possible impacts from the Development on the Bell Rock Lighthouse and considered that there was the potential for significant impacts on the night time seascape. AC suggested that infra-red aviation lights be used on the turbines however it was acknowledged that these may not be suitable for shipping navigation purposes. AC concluded that, provided a technical solution to the night light issue was identified, then the effects arising from night time lighting would be not be unacceptable.

AC also considered the issue of cumulative landscape and visual impacts and considered that the assessment, which included other proposals in the Firth of Forth, understated the potential for impact. AC contended the Company's findings that there will not be a significant or adverse cumulative effect on Angus as the Development, together with the ICOL, SAWEL and SBWEL proposals, would collectively clearly extend the horizontal extent of the seaward horizon which would be seen as wind turbines or a wind farm. Moreover, AC felt that the presence of future development of wind turbines closer to Angus, specifically the ICOL proposal would inevitably draw increased attention to the existence of all three wind farm proposals. This would, AC noted, be a significant cumulative effect on Angus however it was not felt to be considered as unacceptable at this stage.

In terms of views of offshore turbines, together with the additional impact of all other cumulative wind farms identified on land, AC were content with the assessment undertaken by the Company and agreed with the findings that the proposed development would not result in an unacceptable adverse cumulative visual impact from all visual receptor types.

AC noted that a key cumulative consideration is the relative height and design of the three different offshore projects. Whilst AC felt that the Development itself was not unacceptable, they advised caution that the replicating of turbines of the size proposed for the Development closer to Angus and the Bell Rock lighthouse as part of future applications may not be considered acceptable and that design options available may become limited if the current Application is approved with turbines of a height of 197 metres.

AC advised that two cultural assets had the potential to be affected by the Development – Bell Rock Lighthouse and Ladyloan Signal Tower which are both Category A listed structures. Both are structures whose purpose, location and setting are significant within the seascape particularly Bell Rock Lighthouse which is visible from land and sea. AC noted that Historic Scotland were content that there would be no significant adverse indirect or cumulative impact on Bell Rock Lighthouse or the Ladyloan Signal Tower as a result of the Development. However, AC contended that the ES underplayed the significance of the effect the Development would have on Bell Rock Lighthouse. AC were of the opinion that the appropriate level of significance is more accurately described as "moderate significance" although this is

not considered to be unacceptable to AC nor does it warrant any mitigation measures to be implemented.

Turning to Ladyloan Tower, AC noted similar conflicts in the rated vulnerability and significance of impact in the ES. However, given the significant increase in distance and the judgement that this structure has a smaller setting it is considered that there will be less of an effect on the significance of impact. This would result in a "moderate significance" on the listed building which is again not considered by AC to be unacceptable.

In both the case of the Ladyloan Tower and Bell Rock Lighthouse, whilst AC felt there was scope for a moderately significant impact it was not of such significance that an objection would be merited.

AC concluded by stating that the aviation and shipping lighting raised a concern as lights would appear visible from Angus at a similar height to the Bell Rock Lighthouse. Unless mitigated against, these effects could be significant and unacceptable. Furthermore, AC raised concern regarding cumulative effects arising from the height and size of the Development and other proposals nearby. If the turbine heights proposed for this Development are approved then a precedence is set which, if replicated closer to Angus by other offshore wind farms, might not be acceptable. Should mitigation measures be taken into account, AC was content to not raise an objection to the Development.

Where appropriate, enforceable conditions are reflected in the draft decision letter and consent attached at **ANNEX D – DECISION LETTER AND CONDITIONS, Annex 2.**

Dundee City Council did not object on the original application and confirmed they had no planning comments to make on the SEIS.

East Lothian Council did not object to the Development, however they raised a number of concerns relating to landscape and visual issues arising from the proposal, specifically that the ES had underestimated the significance of the impacts on landscape and visuals receptors in East Lothian. ELC state that the main impact will be from the introduction of turbines, associated lighting and structures into an area of formerly open sea. This will lead to changes in the perception of the seascape and landscape character as well as impact on visual amenity.

ELC did not agree with a number of the findings in the ES resulting from assessments undertaken by the Company namely the understating of significance of impacts arising from the Development on a number of receptors. These include, but are not limited to, an understating of the assessment of visual impact from Viewpoint 17 (North Berwick Law), an understating of the assessment of visual impact from Viewpoint 19 (West Steel), concerns regarding information on cumulative impacts at North Berwick Law and an understating of the visual impact, lack of consideration of potential impacts on terrestrial heritage assets in East Lothian and lack of an explanation of the design concept for the Development.

ELC also noted in their response that the Development will create a dense line of wind turbines along the horizon broadly from the Isle of May to the Bass Rock. The turbines will form the horizon and backdrop to these islands and will result in a significant change to the seascape setting of these islands from the North Berwick area. As referred to above, ELC disagreed with the assessment by the Company which stated that the impact was considered as moderate. ELC consider the impact from the Development on the North Berwick area as major.

ELC also concluded that there would be a cumulative impact with other proposed offshore wind farms in the Firth of Forth Inch Cape and Seagreen (should they receive consent) and also other onshore developments. The effect of the Development with these other proposals will be to extend the length of the horizon containing turbines and intensify the concentration of turbines as well as bringing turbine development closer to the coast and increase the number of days an offshore wind farm development will be visible. Furthermore, this will lead to a reduction in the areas within East Lothian were a wind farm will not be visible. ELC caveat this statement by noting that Fallago Rig and Soutra onshore wind farms were not included in the cumulative analysis.

Further to the issues detailed above, ELC also raise concerns regarding cumulative impacts at North Berwick Law specifically querying the accuracy of the concluded effect of Moderate – Minor. ELC note that visitors climbing North Berwick Law will see a wind farm development in a direction where previously there was none in addition to already extensive development to the South and South East.

ELC queried what design process had been followed to explain the design concept for the wind farm and stated that consideration should be given to possible design options within the Rochdale Envelope to identify possible mitigation measures to minimise seascape and / or landscape impacts. In general, ELC were of the opinion that the ES had underestimated the significance of the impacts on landscape and visual receptors in East Lothian.

ELC note that the ES does not consider potential impacts on terrestrial heritage assets in East Lothian other than Historic Gardens and Designated Landscapes. ELC felt that there are clear impacts on the historic environment of East Lothian on both designated and undesignated sites and monuments. Of concern was monuments that may be impacted which are linked with the seascape. ELC stated that the Development had a high potential to alter how the historic towns of North Berwick and Dunbar, including their conservation areas, feel as the seascape is important to the setting of both.

ELC requested that Marine Scotland ensure that the particular impact assessments highlighted within the landscape and seascape section of their response were reassessed and the implications of any change from this assessment considered fully before any decision on the Development is made. A summary of the review regarding particular visual concerns raised by ELC can be found below.

Further to comments on the original application, ELC responded during the SEIS consultation to state that the original comments remain and also to provide some further comment on a number of topics.

ELC noted that the SEIS provided a reduction in the number of turbines and an increase in the air gap however stated that these changes do not appear to have a significantly different effect in landscape and visual terms than the maximum height scenario in the original.

ELC highlight their preference for more, larger turbines, as seen in the SEIS over fewer smaller turbines, as featured within the design envelope of the original ES as this, in their view, would reduce cluttering of the Development. ELC recognise that it would be difficult to entirely avoid stacking (whereby one turbine is seen in front of others) and welcome the fact that within the indicative layouts, as presented in the SEIS, this is not particularly evident from their key viewpoints.
ELC welcomed both the inclusion of further wireframes at the Seabird Centre and Tantillon Castle and also the increased quality of the photomontages however disagreed with the assessment by the Company of the significance of impact on the Seabird Centre as Moderate.

ELC highlight the Military and Aviation Appendix which gives a scheme of lighting and sound to warn maritime and flying users of the area that the scheme is there. ELC state that, without compromising safety, it would be desirable if both sound and light could be restricted to the minimum necessary for safety to reduce visibility / audibility from the shore. ELC suggest powering down lighting during conditions of good visibility. Within the SEIS and the response sent to ELC via MS-LOT, the Company provide a Proposed Scheme of Aviation and Maritime Marking and Lighting Scheme which was produced to ensure safety requirements are fully satisfied and to minimise the onshore impact of such equipment as much as possible and ELC appreciate that efforts will be made to keep lighting and sound to the minimum necessary.

ELC commented that without SNH input [at the time of their response] it was not clear whether the cumulative impact of all of the proposed Firth of Forth Windfarms on Firth of Forth SPAs would be acceptable, but for ELC, the greatest impact of these developments would appear at present to be the landscape and visual impacts associated with Neart na Gaoithe. ELC concluded that whilst these impacts are not deemed unacceptable given the need to produce renewable energy, they would like this taken into account should the total amount of development which can be accommodated within the Firth of Forth is limited by impact on Natura 2000 sites.

The Company acknowledged and addressed the points raised above via a letter sent to MS-LOT dated 02 May 2013. The following conclusions and commitments were made by the Company and submitted as part of a response to ELCs comments:

The Company largely responded to the comments above by reviewing the ELC report against the findings of the Seascape and Landscape Visual Impact Assessment (“SLVIA”) presented in the ES and feel satisfied that the assessments are appropriate. The Company also highlights that changes to the design of the wind farm, within the parameters of the design envelope, are unlikely to affect the outcome of the assessment. ELC replied to the Companies response and summarises that it remains their view that the ES underestimates the landscape and visual impact on East Lothian.

In order to ensure that the particular impact assessments highlighted in 'landscape and seascape' section of the ELC report (paragraphs 3.09 to 3.26), MS commissioned third party reviewer, CH2M HILL, to undertake an assessment of both the visuals as presented by the Company, and the subsequent comments provided by ELC.

CH2M HILL used adapted Institute of Environmental Management and Assessment ('IEMA') guidance to take into account the themes associated with an IEMA ES review: regulatory compliance, the context and influence of the ES, the content of the ES and the presentation of the ES. These themes were reviewed alongside key guidance documents produced by SNH and also the Guidelines for Landscape and Visual Impact Assessment, CH2M HILL provided comments on the baseline, the assessment and environmental mitigation and management. A copy of this document was provided to ELC however they did not review it for comment as their visuals member of staff had since retired. In summary, the review found the SLVIA to be acceptable and answered the questions that formed part of the review but note that there is some slight issue relating to the allocation of sensitivity which gives rise to concerns from ELC. The review also provided a number of criteria which a magnitude of change to the character areas could be based which CH2M HILL feel could give a more transparent assessment. One particular omission from the ES is reported to be a rigid matrix setting out the possible combinations of sensitivity and magnitude to provide significance of effects and whilst this omission is explained in the text of the ES, the review deems that the reasoning behind the allocation of each specific impact is not clearly documented and transparent for reasoned justification of particular allocations of impact significance.

CH2M HILL review covers points raised by ECL, as requested. The following outlines these points and the response provided:

ELC raised concerns relating to the sensitivity allocated to Seascape Area (SA) 17, Eyebroughty to Torness Point, that the Company had assessed as medium sensitivity. The review finds that where SA17 divided into two subsections, as per the two national seascape units that it covers, the allocation of a low sensitivity to the South East and a high sensitivity to the North West would be appropriate. The assessment of medium across the two is reported to mask a potentially high sensitivity around North Berwick given the views of the Bass Rock and the Isle of May.

ELC contest the allocation of the assessed magnitude of impact, as low to negligible, on the character of the seascape within East Lothian. The review finds that, with the exception of SA18 where the turbines are 30km away and the magnitude appears to be reasoned, the magnitude of medium would seem to apply to the area around North Berwick with the views of Bass Rock and the Isle of May. Given the extent of SA17, this magnitude of impact is diluted by the other sections of the coast however low to negligible does appear to underestimate the impact. CH2M HILL state that whilst the wind farm is a considerable distance off shore, the impact is clearly not negligible.

ELC question the magnitude of impact on the viewpoint at North Berwick Law stating that the magnitude should be "high" rather than "low" although CH2M HILL note that

ELC have quoted the incorrect magnitude criteria. Whilst the CH2M HILL review finds that an allocation of medium impact might be more appropriate the significance of effect of "moderate" arising from the allocation of the original "low" magnitude it is identified as significant within the ES and so amending the magnitude does not affect the ES output.

ELC state that the sensitivity and magnitude of impact on the viewpoint at West Steel should be high rather than medium as this is reported as a core path used by walkers and a receptor of this nature would usually be allocated a high sensitivity. The allocated magnitude of impact of low is also disputed by ELC however CH2M HILL report that the definition of low magnitude does seem to fit as the wind farm is 35km away and is seen behind the smoke plume of cement works. CH2M HILL state that neither of the amendments proposed by ELC would likely re-categorise the significance at West Steel.

Regarding the cumulative visual effect on the viewpoint at North Berwick Law, ELC criticize the cumulative wireframe and dispute the allocation of a moderate-minor effect. ELC state that the wireframe is confusing and that no explanation is given as to why the Isle of May and ICOL are obscured. ELC does not accept that the cumulative effect on North Berwick viewpoint is Moderate-Minor as set out in the ES. The review notes that the cumulative effect is set out however there is no description as to how the judgement is made – the ES allocates a low magnitude of effect. The review finds that it is not unreasonable to state that the additional impact of the Development as one of many visible wind farms, would be low and also that the combination of the low magnitude with high sensitivity would give a "moderate" significance of impact using the standard rigid model but that no explanation is given as to why a "moderate minor" value is allocated.

ELC also query the impact on the coastal Areas of Great Landscape Value ("AGLVs") in East Lothian, specifically the allocated magnitude of impact of "low". The review finds that the significance of distance from the turbines is a key factor in the magnitude however the wide visibility of the turbines and the relative importance of the sea view to the character of the AGLV would suggest that an allocation of increased magnitude would not be inappropriate. Medium / Low magnitude is stated for East Fife AGLV. The review suggests that a minor effect is probable which would perhaps better indicate the likely effect on the coastal AGLVs however this would still not constitute a significant effect.

Finally, ELC criticises the lack of explanation of the design concept for the wind farm however the report highlights the inclusion of a paragraph within the ES that states that a Design Sensitivity Analysis was undertaken on behalf of the Forth and Tay Offshore Wind Developers Group ("FTOWDG") within which generic layouts for each of the three proposed offshore wind farms (the Companies, ICOL, SAWEL and SBWEL) were compared in terms of their potential impacts and the results of this were provided to, among others, local authorities. The Company was able to confirm that a copy of these minutes had been sent to ELC

Fife Council did not object to the Development and recommended conditions for inclusion on any consent. FC provided some comments with respect to the Development as follows.

FC noted that the wind farm, although approximately 15 km from the Fife coastline, raised the potential for noise impacts. The possibility of construction related noise and vibrations being heard or experienced on the developed Fife coastline was a concern that FC raised and one that required to be addressed due to the large scale nature of the works although there was no evidence within the ES that construction noise would be controlled and monitored. Whilst FC was not absolutely certain that construction works could create noise and vibrations that could be audible or felt on the coastline, conditions to mitigate any potential issues were recommended including, for example, limiting the hours of operation for construction. The Company has responded to this point by outlining that the possible effects of an increase in airborne noise from the construction and operation of offshore turbines was screened out of the ES due to the distance from shore and that it will adhere to industry standards during the construction phase. The Company is developing a Construction Environmental Management Plan ("CEMP") which will provide additional details on the standards and construction protocols. FC are content with this approach.

FC recommended the implementation of detailed archaeological mitigation strategy for each specific turbine and cable trenching footprint so as to ensure a full and detailed assessment of seabed archaeology being undertaken to minimise disturbance to the sea bed. The Company has is committed to producing an Archaeological Written Scheme of Investigation ("WSI") and Protocols for Archaeological Discoveries with Marine Scotland. Historic Scotland and the relevant Local Authorities will be consulted on this document. FC are content with this approach.

FC expressed concern for the Development's potential to impact on commercial fishing interests in the area. FC noted that the fishing industry has a limited capacity to cope with displacement, is constrained by lack of capital and also licence / quota regulations from fishing in other areas or diversifying into other fisheries.

A lack of clarity of exactly what the Development comprises was cited as the main reason for concern amongst fishing interests. One such example given was the lack of information on whether or not exclusion zones would operate and if these would act as a permanent displacement of all fishing activity. The Company has responded to this point to highlight that a rolling safety zone of 500m will be enforced around the construction works and that for operational works they reserve the right to apply for permanent safety zones of up to 50m around all installed structures, as described within chapter 16 of the ES, The Company does not intend to exclude any vessels from the wind farm area during day to day operations. FC is content with this approach.

Furthermore, FC felt that the fishing industry in Fife was not convinced that the suggested business opportunities for the sector would materialise specifically the potential for fishermen to gain income through maintenance and supply contracts for the project as it is felt that the Company would favour its own specialist suppliers and contractors. The Company advises that it has remained open about the intention to work with the fishing industry and through the Forth and Tay Offshore Wind Developers - Commercial Fisheries Working Group ("FTOWDG-CFWG") discussions

are ongoing to provide the fishing community with advice on opportunities to work in the renewables industry as these arise. FC is content with this approach.

FC stated that it was aware that there was a strong demand from local fishermen for assurance that they would be compensated for loss of income following disruption to or exclusion from fishing grounds resulting from the Development. FC requested that this be considered by Marine Scotland when determining the Application. The Company states that it does not intend to exclude any vessel from the wind farm area during day to day operations however accepts that there may be temporary disruption during the construction phase. Any restrictions that result from the rolling safety zone during construction will be publicised well in advance in order to minimise disruption to fishing activities and other users of the sea. The Company commit to continue working with the local and national fishing communities through the FTOWDG-CFWG. FC is content with this approach.

FC requested that the fisheries working group, which has been set up by developers within the Forth and Tay area, ensures that meetings are held as frequently as considered necessary by the fishing industry, and at a time of the week that suits fishermen so that they can readily take part. The Company have stressed that they remain committed to the FTOWDG-CFWG and highlights that the terms of reference were agreed alongside developer and fishing industry representatives. FC is content with this approach.

Conditions incorporating comments from FC are reflected in the draft decision letter and consent attached at **ANNEX D – DECISION LETTER AND CONDITIONS**.

Scottish Borders Council did not object to the Development. SBC commented that the Application did not include any information on the transportation of components and materials to the site by road. SBC Roads Planning Officer recommended that, if any of the transportation involves public roads within the SBC network, a Traffic Management Plan ("TMP") should be submitted for approval and this point was reinforced in their response to the SEIS. The Company responded to the request by stating that it does not anticipate any significant loads will be transported by road through the SBC area, however, should this occur, they will prepare a Traffic Management Plan for consultation with SBC and other affected Local Authorities.

SBC considered that the overall visual impact of the Development will be within acceptable limits in respect of their areas of interest. Whilst SBC acknowledged there would be changes to views at night, through the introduction of navigational and aviation lights, this is not considered to add significantly to their impact from receptors in the Borders.

Cumulatively, SBC noted there are some concerns about the overall impact that this scale of offshore development will have on the east coast of Scotland by spreading large development along the coastline, but in terms of immediate impact on the views from the Borders, it is considered that, although there will be a noticeable intensification of visual impact, it would not be so sufficient as to warrant an objection.

Conditions incorporating comments from SBC are reflected in the draft decision letter and consent attached at **ANNEX D – DECISION LETTER AND CONDITIONS**.

Scottish Natural Heritage ("SNH") and the Joint Nature Conservation Committee ("JNCC") SNH, a statutory consultee, provided a response to the Application on 23 November 2012 stating they were still in the process of reviewing the ES, but wished to provide key issues that the Company should address where they believed there was lack of clarity, or conflicting information, within the ES. This advice was followed up by a meeting with the Company and a meeting between MSS and the Company to determine what information was required. SNH also provided a separate letter on the 23 November 2012 with regard the cumulative SLVIA, within which they raised serious concerns regarding the illustrative material presented for the Development and what information was going to be available for the cumulative SLVIA. Following the Company's submission of the SEIS in June 2013, which incorporated advice of responses from 23 November 2012, as well as advice from other consultees on the original application, SNH and the JNCC provided their combined regional formal advice on 7 March 2014. Further advice was also received as detailed below:

- 15th April 2014 – advice on gannet population modelling and update to the threshold
- 30th May 2014 - advice on marine mammal and freshwater fish interests included in the draft appropriate assessment for NNGOWL (also relevant for these Applications)
- 6th June 2014 – advice on ornithology interests included in the draft appropriate assessment for NNGOWL
- 10th June 2014 – advice on increased turbine spacing and displacement assessment for SAWEL and SBWEL
- 17th June 2014 – advice on increased turbine spacing and displacement assessment for ICOL
- 2nd July 2014 – collision risk modelling undertaken to include the commitment by SAWEL and SBWEL to increase the blade clearance by 4m from LAT
- 4th July 2014 – advice on puffin displacement rates and assessment methods
- 11th July 2014 – letter to Marine Scotland advising that the closer effects are to thresholds the greater the risks of adverse effects and detailing appropriate post-consent monitoring (should the Minister grant consent)
- 16th July 2014 – updated advice on appropriate displacement rates for guillemot, razorbill and kittiwake at the SAWEL, SBWEL and ICOL sites.

SNH and the JNCC advised that the Development is likely to have a significant effect on the qualifying interests of a number of SACs and SPAs. Both advised MS-LOT to carry out an AA in view of the conservation objectives for these sites.

SNH and the JNCC undertook their own appraisal of the Development following a series of meetings between SNH, JNCC, MSS, the Company, ICOL, SAWEL and SBWEL to resolve "common currency" issues to support a more reliable cumulative impact assessment and comparison between the four development proposals. SNH concluded that the Environmental Impact Assessment ("EIA") and HRA have shown

that some SPA seabird species are the key natural heritage interest which will constrain the Development in combination with the ICOL, SAWEL and SBWEL proposals. Impacts on birds including collision risk and displacement will occur over the operational lifespan of the wind farm. SNH and the JNCC highlighted kittiwake, gannet and puffin as being of particular concern, followed by common guillemot, razorbill, herring gull, lesser black-backed gull, Northern fulmar and common & Arctic tern species. For all species other than gannet and puffin, SNH and the JNCC used a reduced uncertainty method of acceptable biological change ("ruABC") in their appraisal to determine whether levels of impact would be acceptable under the Habitats Regulations. In their appraisal for gannet, Strategic Ornithological Support Services ("SOSS") Population Viability Analysis ("PVA") was used, and for Puffin, both potential biological removal ("PBR") and thresholds from proxy species of razorbills and guillemots was used.

In their advice on 7 March 2014 SNH and the JNCC advised that the **Development in combination with ICOL, SAWEL and SBWEL**:

- **would** adversely affect the site integrity of the Forth Islands SPA with respect to kittiwake, gannet and puffin; and
- **would** adversely affect the site integrity of the Fowlsheugh SPA with respect to kittiwake.

Of the remaining species and sites requiring consideration in the AA, SNH and the JNCC advised that neither collision nor displacement (as a consequence of the Development in combination with ICOL, SAWEL and SBWEL wind farms) **would not** adversely affect the integrity of:

- Buchan Ness to Collieston Coast SPA with respect to guillemot, herring gull, fulmar, and kittiwake;
- Forth Islands SPA with respect to guillemot, razorbill, herring gull, lesser black backed gull, fulmar, common tern and Arctic tern;
- Fowlsheugh SPA with respect to guillemot, razorbill, herring gull and fulmar; or
- St Abb's Head to Fast Castle SPA with respect to kittiwake, guillemot, razorbill and herring gull.

In their advice dated 6 June 2014 SNH and the JNCC advised that due to the finalisation of the CEH report they were now also advising that adverse effect on site integrity could not be ruled out for Forth Islands SPA with respect to razorbill.

This advice was reviewed by MSS who provided MS-LOT with a detailed justification as to why the methods used by SNH and the JNCC in reaching their conclusions were not the most appropriate and in their view did not use the best available evidence.

SNH and the JNCC also highlighted that effects on species not covered under HRA also require consideration (i.e. individuals breeding out with SPAs and non-breeding individuals). For some species, e.g. kittiwake, additional potential mortality from the Forth and Tay developments could contribute a significant proportion of total UK cumulative mortality. In respect of gannet, great-black backed gull, lesser black-

backed gull and razorbill there may be significant cumulative impacts at a UK-level arising from consented and proposed wind farm development in UK waters.
One of the challenges in assessing non-breeding season effects is that currently no appropriate reference populations have been defined that would allow a suitable assessment to be undertaken. However, Marine Scotland Science are contributing to a project being led by Natural England that will define non-breeding season populations for the first time. This will allow appropriate thresholds of change to be identified, and be a significant step towards allowing such assessments to be carried out in the future.

SNH and the JNCC advise that with regard to impacts on migratory waders and wildfowl they support the strategic collision risk assessment commissioned by Marine Scotland and undertaken by the Wildfowl & Wetlands Trust ("WWT") and MacArthur Green Ltd. This project presents a strategic assessment of potential collision risk to migrating wildfowl, waders and other non-seabird species from all current offshore wind farm proposals in Scotland and Robin Rigg, in operation. The modelling confirms that the risk presented by this Development would not be significant on its own, nor cumulatively with the other Forth and Tay developments or recently consented Moray Firth offshore wind farms, to any of these migratory non-seabird populations.

Following a meeting held on 7th July 2014 between Marine Scotland and SNH, SNH followed up with a letter of 11th July which stated they had the opportunity to review and discuss aspects of their advice where conclusions reached by SNH & JNCC on Special Protection Areas are at variance from those reached by Marine Scotland Science. This was done in an effort to understand the nature and origin of the differences, and the extent to which they were germane to the decisions facing the Scottish Ministers with regards to this Application and the other applications for wind farms in the Forth and Tay.

In the letter, SNH noted that there was agreement between their advisers on the vast majority of the issues raised by the Forth and Tay proposals in terms of their effects on the natural heritage and in particular on protected species of seabird. SNH also noted there were precautionary elements in the approaches taken and the models recommended by SNH & JNCC, and by Marine Scotland Science.

SNH stated that what level of precaution is appropriate is not a matter that can be determined precisely, and judgements have to be made. They went on to say that this is a new and fast developing area of scientific study and that approaches are continually developing and being tested. Many of the methods underpinning assessment (such as collision risk modelling) are based on assumptions for which it may take a long time to get field data to provide verification. So again judgements had to be made where empirical analysis is unable to provide certainty.

SNH outlined several areas of ornithology monitoring which they recommended should be included in any consent granted. These were:

- the avoidance behaviour of breeding seabirds around turbines;
- flight height distributions of seabirds at wind farm sites;
- displacement of kittiwake, puffin and other auks from wind farm sites; and

- effects on survival and productivity at relevant breeding colonies.

A condition requiring this monitoring is included at **ANNEX D – DECISION LETTER AND CONDITIONS, Annex 2.**

With regard to marine mammals, SNH and the JNCC concluded that, subject to conditions, there would be no long-term effects from underwater noise disturbance on the bottlenose dolphin population from the Moray Firth SAC, or the harbour seal population from the Firth of Tay & Eden Estuary SAC. It was also concluded that there would be no long-term effects from underwater noise disturbance on the grey seal population from the Isle of May or Berwickshire & Northumberland Coast SACs and thus no adverse effect on site integrity. SNH and the JNCC advised that it has not been established whether there is a link between the use of ducted propellers and the corkscrew injuries which have been recorded in seal species over the last couple of years. Research in this regard has been commissioned by Marine Scotland and SNH and is currently being undertaken by the Sea Mammal Research Unit ("SMRU"). A condition requiring a VMP is included in this consent at **ANNEX D – DECISION LETTER AND CONDITIONS, Annex 2.** The VMP will consider measures to mitigate potential corkscrew injuries to seals, and SNH and the JNCC will be consulted on this plan.

With regard to Atlantic salmon and sea lamprey, SNH and the JNCC advise likely significant effect from the proposals due to the possibility that the fish could be disturbed by construction noise associated with the Development (not the cable route) and / or possible effects of electro-magnetic fields ("EMF") arising from installed cables. Given that Atlantic salmon are integral to the Freshwater Pearl Mussel, SNH and the JNCC advise likely significant effect on this species and requested that indirect impacts to Freshwater Pearl Mussel were considered in the AA.

SNH and the JNCC advised that an EPS licence would be required due to the potential for disturbance to cetacean species. An EPS licence(s) will be applied for, by the Company, when the final wind farm layout, design and foundation options have been confirmed.

A key concern of SNH and the JNCC in respect of marine fish, relates to underwater noise impacts from pile-driving of the WTG foundations during construction on cod and herring. It was recommended by SNH and the JNCC that soft start for piling operations could mitigate noise impacts on these species. SNH and the JNCC also recommended pre construction monitoring of sandeels be carried out in order to map densities across the site and ascertain whether it is possible to micro-site turbines away from higher density areas. It is also noted that gravity bases may not be recommended in key areas recorded for sandeels due to the larger footprint over piled foundations.

Benthic surveys by the Company did not identify any Priority Marine Features ("PMF") within the wind farm site or the cable corridor.

For Visuals, SNH stated that the key landscape, seascape and visual impacts of the Development, together with the ICOL, SAWEL and SBWEL proposals to develop

another three offshore wind farms adjacent to the Development site, would cause widespread and significant adverse landscape and visual impacts along the Scottish East coast from St Cyrus in Aberdeenshire, through Angus and Fife, South to Dunbar in East Lothian. SNH recommended that landscape consultants continue to be involved post-consent to work with the project and engineering teams to scope and finalise the wind farm design.

SNH highlighted that the main impacts of the Development would be experienced along three stretches of coast: South Aberdeenshire/Angus; East Fife; and East Lothian. Furthermore, in combination with ICOL, SAWEL and SBWEL, the Development would result in significant cumulative effects on views and coastal character. The Development would have a particularly significant effect on the East Fife coastline given its proximity.

SNH also advised that the Development (mainly in combination with ICOL) would change the night time character of the sea, extending lit-ribbon development from along the Fife and East Lothian coasts out into the Forth.

SNH state that because final designs could not be assessed at this stage, they highlight the importance of wind farm design in mitigating landscape and visual impacts. As such, SNH recommends that the Company should employ a qualified and experienced landscape architect to be involved in the post consent design process and to 'sign off' the final wind farm design alongside project engineers. SNH also recommend that if more than one development is consented, the cumulative effects of wind farm design should be assessed, particularly where visual impacts are currently assessed as major. It is also stated that visualisations could be provided post-consent to illustrate the finalised wind farm from key representative viewpoints which would be for public information only and not for consultation.

SNH and the JNCC requested that conditions be attached to any consent to mitigate their concerns. Where appropriate, enforceable conditions are reflected in the draft decision letter and consent attached at **ANNEX D – DRAFT DECISION LETTER AND CONDITIONS, Annex 2**.

The **Scottish Environment Protection Agency**, a statutory consultee, stated that it had no objection to the Development. SEPA did however note that measures should be taken to minimise the likelihood of marine non-native species ("MNNS") being accidentally introduced into the marine environment. SEPA advised that a Construction Method Statement ("CMS") should be produced which should include measures to minimise the risks of spreading MNNS.

SEPA also provided advice with respect to the cable landfall at Thorntonloch recommending that horizontal direct drilling ("HDD") would be preferable so as to minimise the impact on sand dune habitats. However, if the Company decides to trench through the sand dunes then SEPA recommend that the CMS includes justification for this as well as demonstrating how the sand dunes would be restored and potential for erosion problems will be avoided. SEPA also advised that any beach works at Thorntonloch take place out with the bathing water season which is 1st June to 15th September.

The Company replied to the consultation response to provide commitment to the production of a CEMP which will be done in consultation with SEPA and other stakeholders. The CEMP will include measures to mitigate potential impacts on the water environment including MNNS and the guidance SEPA has produced will be taken into account. The CEMP will also include details of the final method at the intertidal area and will include measures to protect the dunes and monitor their integrity post-construction.

With respect to the beach works at Thorntonloch, the Company responded stating that it will endeavour to undertake this work outside the bathing water season although it is not possible to commit to this at this stage. Details of timing will be contained within the CMS.

SEPA responded to comments by the Company to state that they do not have any further comments to make with this regard.

SEPAs requests will be captured, where appropriate, under wider conditions for environmental management, monitoring and mitigation as reflected in the draft decision letter and consent attached at **ANNEX D – DECISION LETTER AND CONDITIONS**.

SEPA have confirmed that some of the onshore works are likely to require authorisation, and that the Company must comply with the Water Environment (Controlled Activities) (Scotland) Regulations 2011. The Company is committed to consulting with SEPA and East Lothian Council regarding licensing requirements for crossing the Thornton Burn. This highlighted in the response to SEPA

Non Statutory Consultees

The **10 Metre and Under Association ("10MUA")**, representing fishermen who are either engaged in fishing on boats which are 10 metre overall length and below, or on boats which are under 15 metres overall length operating in the non-sector, did not object to the Development however they raised a number of concerns regarding the project and how it would negatively impact on the fishing interests of the 10MUA.

The 10MUA restricted their comments to issues concerning commercial fishing activity. The 10MUA queried why the ES did not acknowledge that the highest percentage of fishing in the area affected by the proposed Development is for vessels less than 15 metres in length for which, the Company claims, there is no data. The 10MUA were of the opinion that this undermines the importance of the local fishery and raises queries about the quality of the Application. The Company responded to this point by providing assurance within their response that there is no attempt to undermine the importance of a local fishery and highlighted where this aspect has been addressed within the ES where it is specifically highlighted that the majority of vessels operating in the region are under 15m in length. The Company also noted that the 10MUA does not agree with all conclusions of the Commercial Fisheries chapter however remain of the opinion that the overall conclusions within the chapter remain valid.

The proposal to establish a regional working group facilitating future engagement of the fishing industry was welcomed. The proposed FTOWDG-CFWG should, in the view of the 10MUA, be a condition of any consent that may be granted to the Company. The 10MUA recommended that local associations are members of any such group if one was to be established. The Company highlight the FTOWDG-CFWG and a monitoring sub-group which are now firmly established with a work programme and meeting schedule in place. The Company state their commitment to this group and will commit to allocating staff time and resources to suit any increase in efforts of the group should consent be granted. The Company also state their commitment to the continued use of a dedicated Company Fishing Liaison Officer and Fisheries Liaison Officer ("FLO") as described in the Fisheries Liaison and Offshore Wind and Wet Renewables ("FLOWW") guidelines.

Concerns were raised regarding burial depths for cables which might lead to possible exclusion of fishing vessels from the area. The 10MUA raised concerns that burying cables at the depths proposed in the Application, (0 – 1 metre), would mean that vessels would not be able to operate trawl gear between turbines and therefore be excluded from the area and, as a result, raises questions about the accuracy of the "not significant" assessed impact. The 10MUA felt that there would be a loss of fishing grounds beyond what is described in the ES, specifically with regards to the export cable which runs for approximately 33 kilometres over what the 10MUA claim are important fishing grounds. The 10MUA requested that export and inter array cables are buried to industry standard or alternative methods of protection should be utilised. In its response, the Company recognise the inconsistency and provides clarity that it is the intention, where physically possible, to bury inter-array cables to 1.5m in depth and export cables to 3m in depth. Where this is not physically possible, the Company state that rock placement or mattresses will be used. The Company claim they are committed to the production of a Maintenance Plan which will be adhered to. This Maintenance Plan will include regular inspection and any remedial / repair work for both the inter-array and export cables. The Company recognise the risk that exposed cabling would pose to fishing activities and therefore post burial, over-trawlability surveys, will be taken – methodologies for this activity will be agreed with the 10MUA either through the FTOWDG-CFWG or individually.

The 10MUA stated that the greatest impact on the fish population and fishermen will take place during the construction and decommissioning phases of the Development. The 10MUA requested that there should be conditions attached to any consent that would see the seabed restored to a reasonable and acceptable standard for fishing activities to be safely resumed and include an obligation that any accidentally dropped objects into the marine environment are reported and that any obstacles deposited during construction are removed. The 10MUA called for any CEMP to be formulated prior to any consent being issued. The Company has responded to state that it is fully committed to developing a procedure to address these issues through the FTOWDG-CFWG or wider renewables and commercial fishing groups such as FLOWW. Should this effort fail to implement a suitable system, the Company has committed to producing a bespoke system to cover the proposed Development.
The 10MUA proposed that continual assessments of the fish and shellfish stock should be made to monitor the populations and the information shared with the fishing industry and other interested parties. The Company responded to this point to

state that not only is there work being considered by the FTOWDG-CFWG, which includes monitoring plans to address the issues raised above, but also highlights that Marine Scotland are also undertaking two pieces of work – research to assess the potential social-economic impact of renewable energy developments at Scottish fleet and individual vessel scales, and also that Marine Scotland are committed to commissioning a piece of work to look at the actual impact on fisheries from displacement around the Forth and Tay and Moray Firth offshore wind farm developments should they be consented.

If the information contained within the Application was found to be flawed, and impacts from the Development are greater than those assessed, the 10MUA called for compensation to fishermen to be considered such as the reimbursement of additional fuel costs from displacing the fleet elsewhere. Whilst not contained within the response to 10MAU, in response to the East Coast Inshore Fisheries Group ("ECIFG"), the Company accept that temporary displacement of those fishing in the Development area during construction is inevitable but that all efforts will be made to minimise any displacement. As per the response to the original South East Inshore Fisheries Group ("SEIFG") comment, the Company states that funds will be allocated for compensation payments to fishermen who are displaced by construction activities. This however is a matter between the Company and the respective fishermen and is not part of this determination.

Finally, the 10MUA requested that the cumulative impacts of neighbouring developments in the Firth of Forth should also be considered. This cumulative aspect is included within the ES produced in support of the application.

The FTOWDG-CFWG has been set up and both the Company and the SFF attend. A condition for its continuation and one for the appointment of a Fisheries Liaison Officer is reflected in the draft decision letter and consent attached at

ANNEX D – DRAFT DECISION LETTER AND CONDITIONS, Annex 2.

The Association of Salmon Fishery Boards ("ASFB") objected to the Development and, having discussed the proposal further with the Company and reviewed the SEIS, maintain their objection until adequate monitoring and mitigation strategies are put in place. The ASFB also responded to the Company's response to the consultation advice and welcomed the further detail provided, the willingness of the Company to consider contributing to strategic monitoring, and potentially building mitigation into the construction schedule. Despite this, the ASFB maintain their objection on their belief that there remains insufficient information to make an adequate assessment of the potential effect on salmonid populations whilst recognising that these information gaps can only reasonably be filled by large-scale strategic research which would be required to assess risk.

The ASFB stated that the development had the potential to directly and indirectly impact on Atlantic salmon and sea trout and that there was an expectation on the Company to assess the potential impacts arising from the Development on fish during the deployment, operation and decommissioning phases. The Company has stated that it is committed to working with the ASFB, District Boards and MSS to develop appropriate mitigation and monitoring programmes and will engage in the Scottish Salmon Monitoring Strategy at local level. This has been welcomed by the ASFB who respond to state that they will continue to engage positively in this process, in order to develop and help deliver a credible and effective research strategy.
The ASFB cited a number of concerns arising from the Development which might impact on Atlantic salmon and sea trout including, but not limited to, subsea noise during construction and operation, EMFs arising from cabling and operation of the devices, disturbance or degradation of the benthic environment and aggregation effects.

The ASFB did not feel that the Habitats Regulations Appraisal was appropriate for the development as it failed to include information on the River Dee or River Tweed. Furthermore, information on migration to natal rivers for Atlantic salmon and sea trout was not included in the assessment. The Company responded by including information on both the River Dee and River Tweed within an updated HRA as part of the SEIS whilst noting that the SACs included within the original ES were based on advice from SNH and MSS.

The ASFB noted that whilst considering time of migration to and from natal rivers, the Company has only included the migration of Atlantic salmon and sea trout smolts from natal rivers and highlight that it is important to note that adult Atlantic salmon return to Scottish rivers in all 12 months of the year and that sea trout would be expected to return to natal rivers during the Autumn. The Company responded to state that the reason for this was that mortality of Atlantic salmon is believed to be most severe during the first few months after which smolt enter the marine environment and that adult fish returning to their natal rivers to spawn are generally considered to be at peak fitness, therefore may be less susceptible to disturbance. The ASFB raise the point that any delay in migration to returning fish may result in the fish remaining in the coastal environment for a longer period, thereby making them more susceptible to predation.

Whilst the ASFB welcomed the proposal to adopt a soft start approach for piling during construction activities the lack of information on the duration of the soft start meant that it was difficult to provide accurate advice. However, the ASFB recommended that soft start piling should be a condition of any consent and should be of a duration that is appropriate to the swimming speeds of the fish to allow them time to move out of the zone of effect. Furthermore, the ASFB recommended that no impact piling should take place during the period from March to June (inclusive). The Company responds by highlighting the assessment within the ES which outlines that the significance of impact on salmon, caused by noise, is minor however the ASFB remain concerned and believe that this is a key area for further research and monitoring during the construction phase. Having proposed to adopt a soft start approach, the Company state that the duration of soft start is not yet known as it will be determined by the precise local ground conditions on site and foundation selection. The Company are committed to producing a CEMP as a condition and consideration to swimming speed of species in question will be included. This inclusion is welcomed by ASFB. When addressing the point raised regarding piling during the period from March to June, the Company highlight an assessment within the ES that concludes that a halt to piling over this period is not necessary given salmonids' low hearing sensitivity as well as the small area of their migratory area / marine habitat that is likely to receive noise exposure evidence at levels that may cause injury. The ASFB did not respond further on this point.

Concerns were also raised regarding the possibility if impacts from EMFs arising from the export cable to shore. The Department of Energy and Climate Change ("DECC") guidance recommends that cables are buried to a minimum of 1.5 metres so as to ensure the cable is kept below the most active biological layer. However the Company has stated that cable burial depth will vary across the site up to 1.5 metres. The ASFB requested that all cables should be buried to a minimum of 1.5 metres or, where this is not possible, cabling should be covered by placing a suitable shielding material above the cable to an equivalent depth. The company responded to this point by committing to bury cables to a depth of 1.5 metres where possible and, where not possible, to use rock armouring in order to provide similar distance between the cable and fish receptors. The ASFB replied to welcome this commitment by the Company and state their belief that it should form a condition of consent.

The lack of salmonid specific monitoring programme was noted by the ASFB who recommended that any monitoring strategies musty include pre-construction monitoring in order that baseline information on salmon and sea trout movement, abundance, swimming depth and feeding behaviour can be gathered. The ASFB called for more mitigation measures than cable protection / burial and soft start piling. The Company accepts that monitoring fish species will be part of a PEMP should consent be granted.

ASFB concluded by stating that they object to the Development until adequate monitoring and mitigations strategies have been put in place. The ASFB recommended that strategic research on the movement, abundance, swimming depth and feeding behaviour of salmon and sea trout should be undertaken as part of wider monitoring. One aspect that the ASFB felt should be considered

immediately was the installation of fish counters, particularly in SAC rivers, to allow real time collation of salmon abundance. This, the ASFB felt, should be a condition of any consent. The ASFB also recommended that developers should work together to fund strategic monitoring. Finally, ASFB recommended that an expert group be set up to consider the best way forward to resolve knowledge gaps and that the ASFB would be keen to participate in such a group.

These requests will be captured under wider conditions for environmental monitoring and mitigation as reflected in the draft decision letter and consent attached at **ANNEX D – DRAFT DECISION LETTER AND CONDITIONS, Annex 2**.

Bristow Helicopters did not object to the Development.

British Telecom did not object and did not offer any comments.

The Chamber of Shipping did not object to the Development and did not raise any objections to the Development in isolation, provided the identified mitigation measures in the Company's Navigational Risk Assessment ("NRA") were adhered to. However, the COS raised concerns regarding the cumulative impact from this Development and other proposals in the Firth of Forth area stating that the current project boundaries did not present a tolerable level of navigational safety risk. The COS noted that should the Development be approved then this would significantly reduce the likelihood of subsequent approval from the COS for the other proposals in the area.

A condition requiring that the Company adheres to the mitigation measures identified in the NRA is reflected in the draft decision letter and consent attached at **ANNEX D – DRAFT DECISION LETTER AND CONDITIONS, Annex 2**.

The **Civil Aviation Authority ("CAA")** did not object to the Development however requirements to light the turbines in accordance with appropriate CAA guidance must be a requirement of any consent. This condition is reflected in the draft decision letter and consent attached at **ANNEX D – DRAFT DECISION LETTER AND CONDITIONS**.

The **Esk District Salmon Fishery Board ("EDSFB")** fully supported the response form the ASFB and objected to the Development The Company issued a response to the points raised below to ESFB via MS-LOT to refer to the ASFB response thereafter.

Whilst the EDSFB welcomed the proposal to adopt a soft start approach for piling during construction activities the lack of information on the duration of the sort start meant it was difficult to provide accurate advice. However, the EDSFB recommended that sort start piling should be a condition of any consent and should be of a duration that is appropriate to the swimming speeds of the fish to allow them time to move out of the zone of effect. Furthermore, the EDSFB recommended that no impact piling should take place during the period from March to June (inclusive). The Company responded to this point that given the swimming speeds of fish, soft start is not considered to be an effective approach for fish in the vicinity of a piling operation, although it may enable them to flee from a localised area where noise

levels may be injurious. The Company also provides detail on each piling event which consists of a period of piling, a period of drilling and a further period of drilling over 120 minutes with one pile to be installed at a time and operating over a 24 hour period. The Company are committed to producing a CEMP as a condition and consideration to swimming speed of species in question will be included. This inclusion is welcomed by ASFB. When addressing the point raised regarding piling during the period from March to June, the Company highlight an assessment within the ES that concludes that a halt to piling over this period is not necessary given salmonids' low hearing sensitivity as well as the small area of their migratory area / marine habitat that is likely to receive noise exposure evidence at levels that may cause injury. The ASFB did not respond further on this point.

These requests will be captured under wider conditions for environmental monitoring and mitigation as reflected in the draft decision letter and consent attached at **ANNEX D – DRAFT DECISION LETTER AND CONDITIONS**, Annex 2.

The **Fife Fish Producers Organisation ("FFPO")** did not object to the Development however they supported the comments made by the Fishermen's Mutual Association (Pittenweem) Limited ("FMA") and the 10MUA and therefore it is inferred that the FFPO object by proxy. The FFPO commented that it was essential their members did not have any further restrictions placed upon their ability to pursue their fishing activities. The FFPO felt that there would be an economic loss to their members and that they would pursue compensation for loss of earnings.

The Company responded to the FFPO to provide copies of letters as sent to both the Fisherman's Mutual Association and 10MUA. Please see above for individual comments and relevant commitments and note that each of FMA and 10MUA did not specifically comment on the letters from the Company however now support the position of the SE-IFG, now known as the EC-IFG.

The **Firth of Forth Lobster Hatchery ("FOFLH")** did not object to the Development however they expressed concern that there had been no in-depth surveys or consideration of the benthic lobster population, specifically regarding the cable coming ashore at Thorntonloch.

The FOFLH also disagreed with the assessment of impacts on commercial fisheries which concluded impacts would be of minor significance. The use of lobster hatcheries along the coast was encouraged by the FOFLH to assist with alleviating some of the disruption the work might cause.

The Company responded to this to highlight the inclusion within the ES of extensive geophysical and benthic surveys including camera, video and grabs on the wind farm site and export cable route, including the inter-tidal area at Thorntonloch. Whilst the Company accept that there is likely to be some temporary displacement to fishermen at the site and export cable route area during construction, they commit to making all efforts to minimise this and outlined various measures including the use of onshore and offshore FLOs. The Company fully expect that lobster creel fishing at the wind farm site and within the vicinity of the export cable to be able to continue unhindered. The Company also made clear that they have worked with fishermen to create the FTOWDG-CFWG and a monitoring sub group to which they are

committed, through which different fishing sectors, including creelers, are brought together with developers and regulators to facilitate communication and agreed approaches.

The requirement for a FLO and for the Company to continue its membership in the FTOWDG-CFWG is reflected in the consent attached at **ANNEX D – DRAFT DECISION LETTER AND CONDITIONS, Annex 2**.

The **Fishermen's Mutual Association (Pittenweem) Limited** did not object to the Development however they raised a number of significant concerns regarding the proposed Development. The FMA requested that towed gear should not be excluded from the site of the Development except during construction, exclusion zones should be a maximum of 500 metres during construction and 50 metres at all other times, cables should be trenched and backfilled and subject to routine inspection and maintenance, a data gathering programme for commercial species in the inner and outer Firth of Forth should be initiated to monitor fish stocks, establishment of a FTOWDG-CFWG, the fishing industry should be consulted on monitoring and decommissioning plans and the seabed should be returned to its original state after decommissioning with the work only deemed to be complete after consultation with the fishing industry. The FMA also raised the issue of compensation being paid to fishermen who might suffer a loss of earnings or damage to gear as a result of the Development.

The Company responded to the comments raised by FMA to address each of the concerns raised. Within this response the Company outlined and clarified the use of a rolling safety zone of 500m around the construction works in the interests of safety and that it reserves the right to apply for a 50m safety zone around each operational turbine. The Company confirms that burial of cables is a key construction issue and highlighted the importance of cable maintenance. The Company confirmed there would be regular inspection followed by any remedial or repair work. In order to reduce the recognised risk of exposed cabling on fishing activity, the Company is committed to over-trawlability surveys and these will be agreed with FMA through either the FTOWDG-CFWG or individually through the Company.

It should be noted that the FMA did not respond to the comments provided by the Company, rather they moved to support the position of the SE-IFG, now known as EC-IFG.

Conditions relating to a Construction method Statement ("CMS") and Cable Plan ("CP") is reflected in the draft decision letter and consent attached at **ANNEX D – DRAFT DECISION LETTER AND CONDITIONS, Annex 2**

The Health and Safety Executive did not object to the Development and had no specific comments to make.

Historic Scotland ("HS") did not object to the Development and stated that they were content that, in respect of the offshore works, there will be no direct impacts on any terrestrial assets within their statutory remit. HS also considered indirect impacts on assets within their remit and concluded that there will be no significant adverse indirect or cumulative impact as a result of the Development.

HS noted that there were nine recorded or chartered wrecks identified within the offshore site and that seven of these sites were considered as 'live' sites as well as a number of anomalies of high and medium archaeological potential identified from the geophysical survey along the offshore site and cable corridor. HS stated that they were content with the predicted impacts on these sites during construction, operation and maintenance as well as the proposed mitigation measures which includes the production of a WSI and a Protocol for Archaeological Discoveries.

These protocols for the discovery and reporting of marine archaeology during development, maintenance and monitoring are reflected in the draft decision letter and consent attached at **ANNEX D – DRAFT DECISION LETTER AND CONDITIONS, Annex 2**

The **Joint Radio Company** did not object to the Development and cleared the proposal with respect to radio link infrastructure operated by Scottish Power.

Marine Scotland Compliance ("MSC") did not object to the Development however noted that the area proposed for the Development has historically been well used by demersal trawlers but this has now changed with more boats pursuing *nephrops*, scallops, squid and other shellfish. Whilst the number of vessels may have reduced, MSC advised that there are still a number of vessels using the area through a variety of different fishing methods.

MSC noted that the position of the export cable is likely to have more of an effect on vessels working from the Southern side of the Forth such as Dunbar, Port Seton and North Berwick.

MSC commented that the ES only refers to vessels greater than 15 metres in length which, for vessels working out of the Anstruther district, comprises of just one vessel. The rest of the fleet, approximately 104 vessels, are all less than 15 metres in length. These numbers do not include vessels that work from Arbroath which are covered by the Aberdeen MSC office.

Marine Scotland Science did not object to the Development however a number of different monitoring requirements were detailed in their response to both the ES and the SEIS.

With regard to marine mammal, benthic ecology and migratory fish aspects, MSS are in agreement with the advice as provided by SNH and the JNCC.

MSS is of the opinion that the geophysical survey work has been undertaken using operators who have a history of surveying in the marine environment on similarly scaled projects. The data has been collected to international standards, where appropriate, producing an excellent baseline dataset to guide site selection and impact assessment.

MSS found that the coastal baseline descriptions, modelling, and impact assessments conducted by Intertek and Metoc in support of the ES is comprehensive and rigorous. MSS stated that it shows an impressive understanding

of the relevant physical and coastal processes within the region – both at the near field and far-field scales and that the work is well backed up with relevant met-ocean measurements. Whilst no significant concerns were raised, MSS highlighted that scouring around the bases of jackets was likely to have the largest effect on the bed and suspended sediments, as well as temporarily for sandeels due to short term changes to the sediment transport as a result, and would encourage longer term monitoring of changes to the transport, erosion and deposition of finer grained sediment, and the possible development of bedforms after consultation with relevant biological/ecological experts

With specific regard to sandeels, MSS state that if gravity bases are to be utilised, then there is the possibility that sandeels will be vulnerable to habitat disturbance or loss during the preparation of ground for the gravity bases. Whilst sandeels were observed in the bird survey, MSS are in agreement with the conclusions of the ES that the development area is not of key importance for the population level although highlight that they may have importance for other species that prey upon them. Overall, MSS conclude that in terms of fish ecology they are in agreement with the impact of minor significance.

With regard to sediment settlement and smothering, whilst considering fish ecology, MSS agree with the general assessments made by the developer that there would be low significance to the population level however at the extremes of the proposed level of sediment deposition suggest that this would have a profound effect on animals in the immediate vicinity

With regards to noise on fish ecology, MSS are in agreement with the assessments made by the Company for both lethal or traumatic injury and behavioural response highlighting that most species with a high-medium sensitivity will have the ability to leave the area if the Company follow a proposed soft-start piling mitigation measure.

MSS find that with regard the export cable impacts, key impacts are highlighted and they are in general agreement with the assessed impact significances.

MSS suggest that with the levels of uncertainty surrounding EMF on fish, cables are buried to a depth of at least 1 metre where possible and state that it would be useful to monitor emitted EMF and associated fields for a period of time in order to aid understanding in this area.

MSS acknowledge the Company's commitment to use soft-start piling techniques to mitigate against lethal/traumatic injury from noise and suggest further measures such as barrier methods which may have potential benefits for other receptors such as marine mammals.

MSS recognise the commitment from the Company to carry out meaningful fish surveys within safety constraints and would be open to working with the Company to help develop these surveys where possible.

MSS comment that with regard to commercial fisheries, impacts from displaced fishing activity on fish and shellfish populations has not been assessed and that although this would be perceived to be of minor significance on a single site basis

there may be a higher concern when taken in context with other developments in the Firth of Forth and further afield.

With regards to commercial fisheries, MSS recommended that the Company aims to bury cables to depths of at least 1-1.5m, and where burial is not possible, then adequate cable protection should be employed as stated elsewhere in the ES.

MSS contributed towards the marine mammals section of the AA and expect the JNCC piling guidelines to be followed. MSS would look to develop strategies that would minimise the impacts of disturbance to all marine mammal species. MSS have also requested that monitoring be carried out to validate predictions made in their ES regarding levels of disturbance and their effect on populations of marine mammals. Conditions detailing required mitigation and monitoring are reflected in the draft decision letter and consent attached at **ANNEX D – DRAFT DECISION LETTER AND CONDITIONS, Annex 2.**

With regard to ornithology, MSS have provided significant input into the AA. MSS have worked with SNH, the JNCC, the Company, ICOL, SAWEL and SBWEL to allow a robust cumulative assessment for the Forth and Tay region. Details are provided in **ANNEX E – APPROPRIATE ASSESSMENT.**

The Maritime & Coastguard Agency did not object to the proposals however they noted that the Development had the potential to impact on navigation through displacement of vessel traffic in the area and called for careful monitoring of the potential effects that Development might have on vessel traffic. In response to this, the Company responded to advise they were working with the MCA and other developers in the Forth and Tay area in order to progress any necessary monitoring. The MCA accepted this and stated that they need to be able to monitor traffic activity and trends following the construction of the wind farm to establish if the predictions of the NRA have proven to be adequate, or if not, what further mitigation may be required. MCA request that a condition is included in any consent to address this.

The MCA noted that export cable routes, burial protection and cable protection are issues that are still to be developed and that due cognisance is required to address these issues, especially in navigable waters where depth may become significant. The MCA recommended avoiding existing charted anchorage areas. The Company responded to this point with a commitment to ensuring all export and inter-array cables are buried or sufficiently protected with rock dumping and mattresses. The MCA accepted this response and requested this be addressed by condition.

The creation of a full Emergency Response Cooperation Plan (“ERCoP”) remains to be fully completed and requires to be properly documented to satisfy the requirements of MCA Marine Guidance Note 371. The MCA stated that an approved ERCoP must be in place prior to any consent being determined. In response to this point, the Company provided a ‘skeleton’ ERCoP to MCA for review. MCA are content subject to construction not commencing until an agreed ERCOP has been signed by MCA.

The MCA requested the inclusion of conditions on any consent to ensure that navigational safety is not compromised. These conditions are reflected in the draft

decision letter and consent attached at **ANNEX D – DRAFT DECISION LETTER AND CONDITIONS, Annex 2**.

The **Ministry of Defence**, initially objected to the Development due to the Development causing unacceptable interference to Air Traffic Control ("ATC") radar at RAF Leuchars, Precision Approach Radar ("PAR") at Leuchars, and Air Defence ("AD") radar at Brizlee Wood.

After discussions with the Company, during which the Company submitted a technical proposal to overcome the unacceptable impacts of the proposed Development on ATC at RAF Leuchars, the MoD undertook a reassessment of the Development and confirmed that they were content to remove their objection. The reassessment concluded that the MoD had no concerns regarding the impact of the Development on the PAR at RAF Leuchars, the AD radar at Brizlee Wood and, subject to conditions being included on any consent, the ATC radar at Leuchars.

The MoD stated that there would be a requirement to light all turbines with 200 candela omni – directional red lighting or the new approved 2000cd/IR combination maritime lights at the highest practicable point.

The MoD confirmed that there would be no physical impacts from the Development on off shore defence interests.

These conditions are reflected in the draft decision letter and consent attached at **ANNEX D – DRAFT DECISION LETTER AND CONDITIONS, Annex 2**.

National Air Traffic Services ("NATS") did not raise any objection to the Development.

The Northern Lighthouse Board ("NLB") did not object to the Development and specified a number of lighting and marking requirements relating to the installation and operation of the Development that must be adhered to, however they advised exact requirements for the operational phase could not be provided until the final turbine layout has been produced. Furthermore the NLB advised that lighting and marking requirements for the decommissioning stage of the Development will be required and that there is an obligation for the Company to liaise with the NLB to agree appropriate measures at such a time as when the Development is decommissioned.

The NLB also stated a requirement for the nature and timescale of the works to be placed in Notice(s) to Mariners, Radio Navigation Warnings and publication in appropriate bulletins as well as appropriate markings for vessels engaged in the works. The NLB requires that there must be contingency measures in place to ensure adequate lighting and marking of the site is maintained and that faults are quickly returned to operational service. The NLB also advised of the potential requirement for the lighting and marking of the Development to be amended subject to other offshore proposals in the area. The Company is required to cooperate fully in such an event.

Finally, the NLB require that, once agreed, the final number, layout and positions of each turbine, along with any subsea infrastructure, is provided to the UK Hydrographic Office so that relevant nautical charts are correctly updated.

These conditions are reflected in the draft decision letter and consent attached at **ANNEX D – DRAFT DECISION LETTER AND CONDITIONS, Annex 2**.

The Royal Society for the Protection of Birds Scotland objected to the Development due to fundamental issues that the RSPB Scotland required to be addressed which included resolving inaccuracies and discrepancies in the presented data which leads to incorrect interpretation and assessment of potential effects, inappropriate application of the Rochdale envelope approach which makes appraising the Application difficult and lack of available information on other proposals in the area which does not allow for a robust cumulative impact assessment to be undertaken.

The RSPB Scotland stated that the reporting of information in the ES includes fundamental inaccuracies and discrepancies in the presented data which leads to incorrect interpretation and assessments of potential effects and conclusions.

The RSPB Scotland also noted the degree of flexibility between the minimum and maximum parameters offered by adopting the Rochdale envelope approach leads to widely varying conclusions for the same potential impacts. The RSPB Scotland claim that this meant it was difficult for them to judge the acceptability of the Development, as the worst case scenario results in unacceptable environmental impacts. The RSPB Scotland called for better definition of the Development parameters to increase the accuracy of the assessment.

At the time of the original application, the RSPB Scotland claimed that a lack of information on the other offshore wind developments proposed for this area, namely the ICOL, SAWEL and SBWEL proposals, meant that any cumulative impact assessment would not be as robust as it should be. The RSPB Scotland recommended postponing the cumulative impact assessment for the Development until such a time when sufficient information was made available. The RSPB Scotland also expressed concern that significant effects under the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2000 and the effects on integrity of the conversation objectives of the Natura network under the Conversation (Natural Habitats & c) Regulations 1994 (as amended) have not been adequately addressed in the environmental assessment as currently presented.

On receipt of the SEIS and subsequent meetings with the Company, the RSPB Scotland confirmed that the above inaccuracies and discrepancies had largely been addressed and that the further information was welcomed. However, the RSPB Scotland maintained their objection to the Development pending further information and discussion on flight height data and the publication of two research projects which were directly relevant to the Development. The RSPB Scotland stated that the above would provide important contextual information from which they would be able to reassess their position.

The RSPB Scotland requested that, if the Development was to be consented, that site management and monitoring plans should be a condition of any consent and that the RSPB Scotland wished to be consulted on these plans.

Further to the completion of the two research projects as mentioned, and the provision of SNCB advice, RSPB Scotland provided a cumulative response to the Forth and Tay region but highlighted in correspondence with MS-LOT before doing so that they were reluctant to provide a full and final response until such time as the Companies with applications within the region had committed to refining their design envelopes to reach a most likely scenario for the final build out. The RSPB Scotland states that the response provided clarifies their position and key concerns regarding the proposals.

On the basis of the provision of information as above, RSPB Scotland Scotland continues to object to the Forth and Tay offshore wind proposals for the following reasons:

1. RSPB Scotland believe that there has been insufficient time between information becoming available and the consultation deadline to fully assess all environmental information. They believe that this may be contrary to the requirements of the EIA regulations.

2. RSPB Scotland states that it cannot be ascertained that the environmental impacts of the proposals, alone and in-combination, would not adversely affect the integrity of the Forth Islands, Fowlsheugh and St Abbs to Fast Castle SPAs.

3. RSPB Scotland states that the environmental impacts, alone and in-combination, of the proposals would likely result in unacceptable harm to seabird species, most notably gannet, kittiwake and puffin. Furthermore, RSPB Scotland states that the national and regional population trends of some of these species are deteriorating, which exacerbates these concerns.

4. RSPB Scotland states that the high levels of uncertainty inherent in the methodologies applied to the assessment of environmental impacts and their subsequent interpretation means that a commensurate level of precaution needs to be included when considering whether it can be ascertained that there will not be an adverse effect of integrity of the SPAs. The RSPB Scotland state that this precaution has not been applied.

5. RSPB Scotland state that further environmental information and assessment is required to enable a robust consideration of the potential environmental effects of all the Forth and Tay proposals to support the decision making process.

RSPB Scotland states that should the Scottish Ministers be minded to consent some, or all of the turbines currently applied for, then without prejudice to their current objection, any consents must be made subject to conditions requiring an agreed programme of research and monitoring with the aim of validating the various model outputs and underpinning assumptions, particularly in terms of their predicted

effects on the SPA and their qualifying species. The RSPB Scotland confirms that they would be happy to be involved as a stakeholder to assist in advising on and steering research and monitoring programmes that are established as conditions of any consents.

Further to the response detailed above, on 26th March 2014, RSPB Scotland provided comment on the regional cumulative advice as provided by SNH and the JNCC to object to all Forth and Tay offshore wind proposals for the following reasons:

- a lack of time between information becoming available and the consultation deadline to fully assess all environmental information which it believes may be contrary to the requirements of the EIA Regulations;
- it cannot be ascertained that the environmental impacts of the proposals alone and in-combination, would not adversely affect the integrity of the Forth Islands, Fowlsheugh and St Abb's Head to Fast Castle SPA;
- RSPB Scotland believe that the environmental impacts, alone and in-combination, of the proposals would likely to result in unacceptable harm to seabird species, most notably gannet, kittiwake and puffin. RSPB Scotland highlights that the national and regional population trends of some of these species are deteriorating, exacerbating its concerns;
- RSPB Scotland believes that high levels of uncertainty inherent in the methodologies applied to the assessment of environmental impacts and their subsequent interpretation mean that a commensurate level of precaution needs to be included when considering whether it can be ascertained that there will not be an adverse effect of integrity of SPAs. RSPB Scotland does not feel that this precaution has been applied.
- RSPB Scotland feels that further environmental information and assessment is required to enable a robust consideration of the potential environmental effects of all the Forth and Tay proposals to support the decision-making process.

The Company responded to acknowledge the concerns raised by RSPB Scotland throughout the consultation process and to make commitments that affect both the extent of potential environmental impacts of the proposal and the robustness of monitoring undertaken post the granting of any consents. RSPB Scotland welcomes these commitments, most notably as the reduction in the number of turbines, and increase in hub heights, is likely to reduce the overall scale of environmental risks. Furthermore, RSPB Scotland supports the efforts to maximise the robustness of a monitoring programme and commitments to continued support of the Offshore Renewables Joint Industry programme ("ORJIP"). RSPB Scotland also responded to state that a primary focus should be ensuring that wider strategic monitoring programmes and priorities are supported by each individual consented project and that this will require consent conditions that ensure consistency across projects.

Information which has come forward to inform the AA including modelling work commissioned by Marine Scotland and information provided by the Company does not require consultation under the EIA regulations. Under the Habitats Regulations *"a person applying for consent shall provide such information as the competent authority may reasonable require for the purposes of the assessment";* there is no

statutory consultation period and the public do not need to be consulted. This information has however been shared with the RSPB Scotland. The AA completed for the Proposal has shown that effects from the Proposal alone and in combination with the other Forth and Tay developments are within acceptable limits and has concluded no adverse effect on integrity for any of the SPAs of concern. MS-LOT fully recognise the uncertainty in the assessment methodologies however feel that the assessment process has used the best available evidence. The assessment has also been highly precautionary as detailed in **ANNEX E – APPROPRIATE ASSESSMENT.** MS-LOT do not consider that further assessment would add value to the decision making process.

RSPB Scotland whilst not removing their objection, have been involved in talks with Marine Scotland relating to the acceptable capacity of development. Discussions have also been on-going to develop a National Strategic Bird Monitoring Framework ("NSBMF"). This NSBMF will be conditioned on all offshore wind farms consented by Marine Scotland in the future. Based on this framework, a condition relating to the local monitoring appropriate to the Development is reflected in the draft decision letter and consent attached at **ANNEX D – DRAFT DECISION LETTER AND CONDITIONS, Annex 2**.

The Royal Yachting Association ("RYA") stated that they did not feel that either the cable landfall or the layout of the wind farm and associated structures would pose any problems from a navigational perspective either during the day or at night.

The RYA did however note that it would not be supportive of the establishment of 50 metre operational safety zones around any offshore structures as part of the Development. Whilst accepting that temporary safety zones may be required during construction and specified maintenance or decommissioning of the Development, the RYA would object to any application to establish a permanent operational safety zone.

The Company responded to note that they accept that there will be a number of licensing and / or consent conditions required to cover the points raised by the RYA however maintain that whilst all efforts will be made to avoid applying for a 50m Safety Zone around structures this cannot be ruled out at this stage of the development process. The Company therefore reserves the right to apply for a 50m Safety Zone should it be deemed necessary. Safety Zones are a matter for DECC and will be assessed by DECC on a case by case basis taking into account site specific conditions.

The Scottish Fishermen's Federation objected to the Development unless it could be shown that the proposal would not be damaging to the fishing industry that utilises the area. The SFF also requested a number of conditions to be included on any consent.

The SFF welcomed the proposal for a Fisheries Working Group, the (FTOWDG-CFWG, and the potential to participate in such a group. The SFF advised that such a group should be formed as soon as possible so that mitigation and cooperation measures could be developed to achieve co-existence between the fishing industry and the Development. The Company responded to highlight the now formed

FTOWDG-CFWG and a monitoring sub-group which are now established with a work programme and meeting schedule in place. The SFF sits on this group.

The SFF disagreed with the assertion by the Company that through the exclusion of mobile fishing gear by the Development the area would be restored, citing the longstanding fishing effort in the area. The SFF stated that it was important to understand the significance of the area that would be lost to the Development on both the local industry and also that the fishing fleet may not have the ability to migrate to new fishing grounds elsewhere which would impact on the local economy. The Company responded to clarify that this assertion was made on the basis of the SNH response to the Scoping Report published in 2009, and does not reflect the Company's assessment of the current or future status of the benthic environment. The Company acknowledges that the surrounding area is an important ground for both local and national fishing fleets, and confirmed it is not their intention to exclude or otherwise prevent sea users from safely navigating or working within the wind farm area. The Company explains the use of a rolling 500m safety zone during construction and reserves the right to apply for a 50m safety zone around all installed structures to minimise the risk of danger, entanglement and damage to vessels or the structure once construction is completed. The Company has also committed to over-trawlability surveys as a means to ensuring that fishing activities can safely resume within the area following construction.

The SFF also disagreed with some statements in the NRA which claimed that the Development is not in a heavily fished area which contradicted parts of the Application elsewhere such as the chapter on commercial fisheries. The SFF called for a condition on any consent that involves the commencement of a scientific and socio economic assessment on whether the physical presence of the turbines impact on fish behaviour and whether they are displaced over time. The SFF also called for measures to be taken to verify the effects of displacement from the Development on the earnings of the fishing fleet and an outline of actions to mitigate losses. Considering the concern regarding data gathering on commercial fish stocks, the Company responded to state that work is being considered by the FTOWDG-CFWG, which includes monitoring plans to address the issues raised above. Marine Scotland are also undertaking two pieces of work – research to assess the potential social-economic impact of renewable energy developments at Scottish fleet and individual vessel scales, and also the commissioning of a piece of work to look at the actual impact on fisheries from displacement around the Forth and Tay and Moray Firth offshore wind farm developments should they be consented.

The SFF requested that the current 'Rochdale Envelope' be reduced and a final design statement finalised so the fishing industry can receive clarity on all aspects of the proposed construction. This should include the turbine type and size, spacing (the SFF expressed a preference for turbines to be situated as far apart as possible) and inter array cabling. Furthermore, the construction phase should also be agreed and timed in order to minimise disruption to the fishing fleet. When the Development is decommissioned the SFF called for an appropriate plan for decommissioning to be included as a condition on any consent which would involve complete removal and reinstatement of the sea bed. Should consent be granted, there will be opportunity for the SFF, and other fisheries organisations, to comment and further influence the construction, operation and decommissioning of the project through consultation with

the Scottish Ministers on various documents including, for example, the CMS, EMP, NRA, and VMP.

The SFF called for the development of a mechanism to disseminate information regarding the Development in accordance with the FLOWW guidelines. The SFF requested that the Company should enter into an agreement regarding damage caused by debris from the Development, and a clear procedure for compensation is put in place. The Company is committed to the continued use of a dedicated FLO as described in the FLOWW guidelines and currently has onshore FLOs in place representing the needs of the fishermen in the geographical areas and fisheries sectors potentially impacted by the development. Offshore FLOs have also been employed for geotechnical surveys and the Company recognises the use of fishermen as offshore FLOs to minimise impacts from activities.

The SFF also had a number of comments regarding cabling and pipelines citing a preference for them to be trenched and buried to the normal offshore industry standard depth, ideally the maximum burial depth possible. If this is not feasible then the next pursuable option should be rock dumping in line with industry standards with the use of concrete mattresses investigated as a last resort. In all instances the SFF required that appropriate trawl over procedures were undertaken as soon as possible after the work has been completed. The Company have confirmed that the effective burial of cables is a key construction issue for the development and all efforts will be made to achieve the maximum burial depth. Whilst not within the response to SFF, the Company has made clear to other consultees that where burial to a depth of 1.5 metres is not possible, there is a commitment to utilise rock dumping and mattressing. The risks of exposed cabling is recognised by the Company and commit to over-trawlability surveys to be undertaken with SFF agreement on methodology.

The SFF request that if any dredging was to be undertaken during the course of the Development then any such activity would not occur on identified spawning grounds for commercial fish species. The Company replied that dredging would only be required should gravity base foundations be deployed and that in so far as the Company is aware, there is limited potential for spawning grounds on the site and therefore unlikely that any dredging will take place on identified spawning grounds but commit to further consideration during the siting of turbines should gravity base foundations be selected.

Going forward the SFF expected to see reliable scientific assessments of any effects from EMFs on the habitats of scallops, *nephrops*, crab, starfish, lobsters and general demersal species. This issue has now been discussed at the FTOWDG-CFWG monitoring sub-group alongside other potential impacts and how effects could be monitored and measured. The Company is committed to considering this further and it will be considered as part of the monitoring work by the group.

The SFF requested that the Company also seek to design a strategy for economic and / or employment opportunities for local fisherman and fishing communities as part of a mitigation package. As stated above Marine Scotland are undertaking two pieces of work to consider the potential social-economic impact of renewable energy developments at Scottish fleet and individual vessel scales, and also the actual

impact on fisheries from displacement around the Forth and Tay and Moray Firth offshore wind farm developments should they be consented.

The SFF continue to state that as it is the intention of the proposed mitigation measures to be developed and defined through the medium of the FTOWDG-CFWG, they would expect an on-going commitment from the Scottish Ministers to monitor the group and ensure that its outputs continue to be meaningful and relevant to the process of mitigating the effects of the Development on the commercial fishing industry, with the full expectation that there will be an obligation on the Company to comply with that requirement.

The FTOWDG-CFWG has been set up and both the Company and the SFF attend. A condition for its continuation and one for the appointment of a Fisheries Liaison Officer is reflected in the draft decision letter and consent attached at

ANNEX D – DRAFT DECISION LETTER AND CONDITIONS, Annex 2.

The Scottish Seabird Centre ("SSC") did not object to the Development however they noted that the project was to be situated in a particularly sensitive area with major seabird and seal colonies nearby. The SSC supported the response from the RSPB Scotland on the need for further work on any likely environmental impact assessment and recommended that detailed monitoring should be undertaken from the start of construction continuing during operation to compare predicted impacts with actual impacts.

The **South East Inshore Fishery Group ("SEIFG")** later referred to as **East Coast Inshore Fishery Group ("ECIFG")** represents fishermen who fish commercially in the area between the Scottish/English border in the South and North Esk River near Montrose in the North. SEIFG provided two responses to the consultation dated 20 August 2012 and 06 November 2012. It was requested that the latter response

supersede the initial one however without confirmation from the sender of the initial response, both have been taken into consideration and presented separately below.

Their original response of 20 August 2012 did not object to the proposal however asked that the Company commit to a monitoring programme of all commercial species caught in the Inner and Outer Firth of Forth region that is to continue for the duration of the wind farm and to be overseen by Marine Scotland. This is to provide a benchmark and any economic impacts experienced by the fishing industry, as a result of the Development, to be recompensed by the Company via a ring fenced budget. The Company states that it is committed to the FTOWDG-CFWG which provides a forum to discuss any issues and potential mitigation in relation to the Development.

With regard to compensation, the Company states that funds will be allocated for compensation payments to fishermen who are displaced by construction activities and highlight statements by other fisheries bodies that they would expect developers to sign up to a system whereby agreement would be reached on who is responsible for any debris or damage caused by such, and a clear procedure for compensation is in place, this to be in line with FLOWW recommendations. The Company is fully committed to developing this procedure through the FTOWDG-CWFG and should a suitable system fail to be implemented from this group, commit to producing a bespoke system for the Neart na Gaoithe development. The matter of compensation between the Company and the respective fishermen is not part of this determination.

The second response, dated 06 November 2012, objected to the Development with major concerns surrounding the loss of fishing grounds, a lack of consultation with Fishermen's Associations and about snagging danger from unburied cables.

With regard to the loss of fishing grounds, the Company responded as per their response to the SFF i.e. to highlight the use of 500m rolling safety zones around construction works in the interests of safety and also that they retain the right to apply for a 50m safety zone around each structure once installed, again on safety grounds and also to minimise the risk of damage to vessels or the structure. The Company accept that temporary displacement of those fishing in the Development area during construction is inevitable but that all efforts will be made to minimise any displacement. As per the response to the original SEIFG comment, the Company states that funds will be allocated for compensation payments to fishermen who are displaced by construction activities.

The SEIFG raised a concern regarding the use of VMS data as this is only related to vessels over 15 metres in length and felt that the Application did not acknowledge that the majority of fishing vessels using the area affected by the Development are under 15 metres in length. SEIFG feel that this is an attempt to undermine the importance of the inshore fishery and questions whether reliance can be placed on the assessed low level of fishing activity in the area and the summary of predicted impacts contained within the Application. Further to this, SEIFG state that the figures used to express losses by fishermen are given as a percentage of national landings. The SEIFG argue that the actual losses suffered could be as much as 100% of small boat fishermen in the area and expressed concern that if commercial fishing was not able to resume within the wind farm owing to operational safety

zones then any displacement effect would become more significant than the “minor significance” as recorded in the Application. The under 15m vessels are considered within the Company’s ES where it is specifically highlighted that the majority of vessels operating in the region are under 15m in length. The Company also highlights within the ES where the landing value by vessel length can be found and shows that the under 10 metre and under 15 metre vessel landings are of great importance.

The SEIFG made recommendations for conditions to be included on any consent including the establishment of a regional working group to facilitate the future engagement of the fishing industry, cables should be buried to industry standard or appropriate protection used, a comprehensive fisheries assessment to establish the baseline data followed on by a continuous monitoring programme to assess the effect of the Development in fishing activity in the area should be implemented and a mechanism to assess the loss of fishing revenue due to displacement of the fleet and strategies to alleviate any losses.

The ECIFG commented that they still have some concerns regarding the potential timetable for over-trawlability surveys / reinstatements. The EC-IFG wish to see a phased re-opening of areas as soon as possible after each construction phase is complete, and would like clarification on how this could be achieved with a clear commitment from the Company to work with the FTOWDG-CFWG towards achieving this. The Company has stressed that they remain committed to the FTOWDG-CFWG and highlight that the terms of reference were agreed alongside the Company and fishing industry representatives.

The ECIFG is keen to see the results of the two surveys commissioned by MS as described in the Company’s response. In particular, ECIFG is interested in the potential social-economic impacts and also impacts of displacement in order that they can assess whether these will provide the baseline data for comprehensive fisheries assessment as requested in the original response.

The ECIFG also noted the Company’s stated aims to work with ECIFG and other fisheries bodies to minimise the potential impacts from the Development. The ECIFG formally requested that they are retained as a consultee / recipient of updates in addition to the FTOWDG-CWFG in order that all members remain informed.

ECIFG concluded that, on behalf of its members, it has to take the position that it is opposed to the development of offshore wind farms until it can be proved that such wind farms will not adversely affect the fishing industry.

The FTOWDG-CFWG is established and both the Company and the SFF are members. A condition for its continuation, and also one for the appointment of a Fisheries Liaison Officer is reflected in the draft decision letter and consent attached at

ANNEX D – DRAFT DECISION LETTER AND CONDITIONS, Annex 2.

Surfers Against Sewage ("SAS") did not object to the Development, however they noted that there was the possibility for the Development to impact on swell reaching the coast, particularly if gravity base foundations were to be used, and therefore impact upon wave regimes. Furthermore, swell could also be reduced further down the coast and SAS recommended that modelling was undertaken to assess the possible impact on the wave regime as a result of the Development. The Company has undertaken numerical modelling of predicted changes to wave heights from the proposed wind farm for both the offshore site and the cable route and the results presented within the ES. This study provides strong evidence of low to negligible effects on the wave climate, which would not, therefore, impact recreational surfing in the region.

SAS disagreed with the Company's conclusion that vulnerability of surfers is considered to be low due to alternative beaches and sites for surfing. SAS argued that, as each wave is unique, and even beaches close together and apparently similar in bathymetry will experience very different wave types, so an alternative beach or site may not offer a tangible replacement for the wave that may be lost as a result of the Development. SAS requested that the impacts from rock dumping to protect the cable should also be assessed. The Company have confirmed that access restrictions will be limited to a relatively short period on health and safety grounds whilst beach works and inshore cable laying are under way, and that consultation with stakeholders, including surfers, will be undertaken before works commence once the area and duration of restriction has been confirmed. The Company has stated that it will seek to keep any disturbance to access to Thorntonloch to a minimum. The ES concluded that the presence of the subsea cable and associated rock armour, with a raised profile of around 1 metre, would not cause significant effects, mainly as the seabed profile is known to be uneven in that area. At the request from SAS to remain a consultee throughout all stages of the planning process for the project, the Company have offered to add SAS to its stakeholder database to ensure they receive all notifications relating to the project.

The letter that the Company responded to the points above was provided to SAS on 22nd November 2013 with a deadline of 2 December 2013. SAS did not respond and a reminder was presented on 10th February with a deadline of 14th February within which it was stated that should MS-LOT not receive correspondence from SAS, it would be considered that all comments have been suitably addressed by the Company. There has been no further correspondence from SAS.

The **Tay District Salmon Fishery Board ("TDSFB")** objected to the Development. The TDSFB endorsed the response provided by the ASFB. Further to this, the TDSFB stated that the part of the coast where the Development is proposed does not experience strong winds and queried the siting of the project.

Transport Scotland, did not object to the Development had no comments to make on the Application.

Transport Scotland (Ports & Harbours) did not object to the Development had no comments to make on the Application.

Whale and Dolphin Conservation objected to the Development due to outstanding concerns regarding the uncertainty of potential negative effects on harbour seals and bottlenose dolphins and the integrity of the Firth of Tay and Eden SAC and the Moray Firth SAC respectively. Furthermore, WDC did not consider that the Development was compatible with the requirements of the Habitats Directive.

WDC recommended that Marine Scotland undertake an AA and that non Natura species, such as minke whales, harbour porpoise and white beaked dolphins, should also be given adequate consideration in any assessment.

Whilst WDC understood the Rochdale envelope approach being undertaken by the Company it was felt that this made it difficult for WDC to provide detailed comments on the Application.

WDC noted concerns regarding the use of vessels which utilise ducted propellers in relative proximity to the Firth of Tay and Eden Estuary SAC where impacts on harbour seals have been demonstrated, particularly on juveniles and pregnant / lactating females, where the population is already undergoing dramatic declines.

WDC recommended the implementation of a Seal Corkscrew Injury Monitoring Scheme ("SCIMS") including a marine mammal observer to search for seal carcasses to determine if injuries to seals are occurring. The SCIMS would also incorporate regular beach searches to locate any carcasses, that may wash up on the shore, as quickly as possible so that the cause of death may be determined. WDC advised that should any incident result in mortality during the construction phase then all activities should be halted immediately until an investigation can be completed.

WDC referred to studies in England where piling activity during the installation of an offshore wind farm coincided with a significant decline in the haul out count of harbour seals. WDC disagreed or expressed concern with some of the assessments of significance made in the Application including, but not limited to, potential for

Permanent Threshold Shift ("PTS") impacts on harbour seals from noise impacts arising from the Development, loss of individuals from the population as a result of PTS and changes to behaviour.

In such instances, WDC felt that the assessment of significance should be greater than what was stated in the Application. For example, permanent, or even temporary loss of hearing, may have significant effects on the breeding success for the population which is already in decline and therefore there would be a likely significant effect on the Firth of Tay and Eden Estuary SAC population. WDC called for any pile driving to take place outside of the harbour seal pupping and breeding season (June – August) to avoid displacement of pregnant and / or nursing females.

Whilst it is expected that bottlenose dolphins will exhibit strong avoidance of the area of the Development during pile driving, WDC recommended that monitoring should continue throughout construction to observe any potential displacement of animals as a result of pile driving and / or increased vessel activities.

WDC supported some of the mitigation measures proposed, such as soft start for piling, however they called for more mitigation measures to be proposed and noted that this is not a proven mitigation measure and it is not adequate to ensure that marine mammals are protected from injury, including PTS. WDC do not consider soft start to be industry best practice. WDC advised that if / when an animal is sighted within a predetermined radius of activities where an injury could occur then the activities should be shut down. If this radius cannot be seen and therefore cannot be effectively monitored then alternative and proven mitigation measures, such as the use of bubble curtains, should be utilised. WDC also did not encourage the use of acoustic mitigation devices particularly when the Development is in such close proximity to a harbour seal SAC.

WDC recommended a number of conditions for inclusion on any consent including, but not limited to, restrictions on the use of ducted propellers unless they are guarded, in field monitoring to ground truth collision modelling calculations, monitoring of the harbour seal population to detect any further declines due to all aspects of the Development, scientific monitoring and photo identification work in relation to bottlenose dolphins, involvement in the formulation of an Environmental Management Plan and the obtention of a licence to disturb EPS. WDC advised that a timetable needs to be developed that includes all proposed developments within the ranges of bottlenose dolphins, harbour and grey seals so that cumulative impacts are better understood and appropriate mitigation developed.

WDC acknowledge the Company's commitment to investigate noise reduction methods and their willingness to work towards resolving the issue of ducted propellers associated with seal mortalities. WDC also commented to note the on-going uncertainties as to effective and feasible mitigation measures to deal with both localised injury immediately around the source as well as wider disturbance issues for marine mammals.

WDC further wrote to Marine Scotland, via Client Earth, on 30 April 2014 to provide comments on advice provided to the Scottish Ministers by SNH and the JNCC. Within this response, WDC write to disagree with the conclusions of the advice on a

number of counts; particularly that the construction and operation of the Forth and Tay proposals, in combination with MORL and BOWL in the Moray Firth, will not have an adverse impact on site integrity of the Moray Firth SAC, subject to conditions. WDC believe that SNH and the JNCC have failed to apply the correct legal tests to assess whether the proposed wind farms, in combination with the Moray Firth wind farms, will adversely affect the integrity of the Moray Firth SAC. WDC also raise concerns about the advice on the Firth of Tay & Eden Estuary SAC with regard the rapidly declining harbour seal population. The points raised in this letter by WDC are fully addressed in **Appendix 1 ANNEX E – APPROPRIATE ASSESSMENT.**

The conditions suggested by WDC (where considered appropriate) are reflected in the draft decision letter and consent attached at **ANNEX D – DRAFT DECISION LETTER AND CONDITIONS, Annex 2.**

The **Arbroath Sailing & Boating Club**, **Bond Helicopters**, **CHC Helicopters**, **Dunbar Fisherman's Association**, **Dunbar Harbour Trust**, **Eyemouth Harbour Trust**, **Forth District Salmon Fishing Board**, **Forth Estuary Forum**, **Forth Ports**, **Inch Cape Offshore Limited**, **Joint Nature Conservation Committee**, **Marine Safety Forum**, **Marine Scotland Compliance Aberdeen**, **Marine Scotland Compliance Eyemouth**, **National Trust for Scotland**, **North Sea Regional Advisory Counci**l, **Planning Aid Scotland**, **Salmon Net Fishing Association of Scotland**, **Scallop Association**, **Scottish Canoe Association**, **Scottish Enterprise**, **Scottish Environment Link**, **Scottish Federation of Sea Anglers**, **Scottish Fisherman's Organisation**, **Scottish Surfing Federation**, **Scottish Whitefish Producers Association**, **Scottish Wildlife Trust**, **Seagreen Wind Energy**, **Torness Power Statio**n and the **Tweed District Salmon Fishing Board** were consulted but no responses were received.

Public Representations

A total of twenty three (23) representations were received from members of the public during both consultation periods. Of these, sixteen (16) object to the Development, five (5) support it, and two neither objected nor supported with one (1) related to the onshore cable route and subsequent onshore planning application and one (1) relating to information used to assess the Development's potential impact on bats.

A number of representations received were from members of the public who currently reside in the area local to the Development.

Members of the public who objected to the offshore wind farm stated concerns including, but not limited to, the visual impact of the Development, impact on tourism, failure to meet the requirements of the Aarhus Convention, inefficiency of the technology, the expense of constructing and operating wind farms, impacts on Ministry of Defence and other communications infrastructure, impacts on the marine environment including marine mammals, fish and benthic ecology as well as birds.

Representations which noted support for the project were of the belief that the Development would offer benefits such as the creation of jobs, economic

opportunities for the area and lead to a reduction in emissions from utilising a clean energy source. Additionally, it was felt that the visual impact was lessened due to the turbines being situated offshore compared to terrestrial projects.

Representations not providing a position of support or objection to the Development queried what studies had been undertaken to assess the possible impact on bats from the Development. Another representation was submitted that dealt with terrestrial interests covering possible disruption to a person's land during cable laying and removal operations. This representation deals with concerns out with the remit of Marine Scotland and was provided to the Planning Authority for their consideration of the onshore planning application.

The efficiency of wind energy, high subsidies and cost to the consumer
A number of respondents to the Application commented on a range of issues relating to the efficiency of wind energy. One respondent raised concerns regarding consumer paid subsidies and the direct effect on the cost of electricity. The Scottish Ministers consider that although the electrical output of wind farms is variable, and cannot be relied on as a constant source of power, the electricity generated by wind is a necessary component of a balanced energy mix which is large enough to match Scotland's demand. Power supplied from wind farms reduces the need for power from other sources and helps reduce fossil fuel consumption.

With regards to high subsidies, support schemes play an important role in the development of renewable electricity schemes, particularly for more immature technologies. Increased deployment of offshore wind turbines is anticipated to result in declining costs, as the industry learns more about the technical issues that arise in challenging conditions. Alongside this, a number of other factors will also impact the future costs, including steel prices, exchange rates, labour and vessel costs.

The challenge laid down to industry as part of the Offshore Wind Cost Reduction Task Force is to reduce the levelised cost of offshore wind to £100 per megawatt hour. This is clearly ambitious and will require developers to work in collaboration and consider innovative technology and working practices. Test and demonstration facilities will also continue to be crucial to the development of the industry and in particular in pursuing the cost reduction agenda.

The Scottish Ministers, therefore, consider they have sufficient information regarding the efficiency of wind energy and high subsidies, to reach a conclusion on the matter, and do not consider that it is appropriate to cause a public inquiry to be held to further investigate this.

Visual impacts of the Development
Adverse visual impact of the Development in its proposed location was raised in the outstanding objections to the Development. The Company in its ES indicates that the Development would have visual impacts that range from none to major depending upon where the viewer is situated. SNH, the Scottish Ministers' statutory nature conservation advisers who advise on, amongst other matters, visual impacts on designated landscape features, advised widespread and significant landscape, seascape, and visual impacts of the Development together with the ICOL, SAWEL and SBWEL proposals. These impacts would occur along the Scottish East coast

from St Cyrus in Aberdeenshire, through Angus and Fife, South to Dunbar in East Lothian on a scale, and to an extent, unprecedented within Scotland (onshore or offshore) in recent times. At its closest the Development is 15.5km from the shore with the ICOL development being approximately 15km from the shore, the SAWEL development being 27km from the shore and the SBWEL development being 38km from the shore. The four developments are likely to be perceived as a single wind farm lying offshore, parallel to the coast. The visual impacts are primarily caused by the Development or ICOL, depending on viewpoint, rather than SAWEL or SBWEL, due to their closer proximity to shore, with the Development being highlighted as being particularly visually prominent across the East Lothian horizon and as having a particularly severe effect on East Fife.

One objection queried the location of selected viewpoints and stated that the majority are at low elevation. However, viewpoints were selected on a regional basis through the Forth and Tay Offshore Wind Developers Group ("FTOWDG") through consultation and agreement with SNH and relevant Local Authorities. Another issue raised was with regard to lighting requirements whereby the wind farms have the potential to change the night-time character of seas and skies in the area where there is currently limited light pollution. SNH state that the Company, in combination with ICOL, would change the night time character of the sea, extending a lit-ribbon development from along the Fife and East Lothian coasts out into the Forth. SNH recommended that the final turbine layout should be agreed with the Scottish Ministers, and that visualisations for this final layout should be produced for statutory consultees and public information. Conditions requiring the submission of a Development Specification and Layout Plan, Design Statement, and a lighting and Marking Plan have been included in the draft decision letter and consent attached at **ANNEX D – DECISION LETTER AND CONDITIONS, Annex 2**.

East Lothian Council and Angus Council raised some concerns over the visual impact of the Development, both alone and cumulatively, as they considered that there would be significant impacts on landscape and seascape character. They did not agree with all impacts as presented by the Company within the ES or SEIS, and also upheld concerns regarding night time lighting. Their concerns were not sufficient however to cause them to object to the Development.

Marine Scotland officials carried out a site visit of a selection of viewpoints provided in the Company's Application and in the course of which were able to compare the views from those viewpoints using visual photomontages.

Impact upon the tourism industry

Concerns have been raised by respondents to the Application regarding the development's potential impact upon tourism, particularly relating to the visual aspect and the effects this will have on livelihoods associated with tourism.

In this respect, MS-LOT note that attitudes of tourists towards wind farms have been assessed in many studies. The results of stated preference studies have found that generally the majority of tourists were positive towards wind farms. Omnibus Research, commissioned by Visit Scotland in 2011, found that 80% of the survey respondents stated that a wind farm would not affect their decision to visit an area. The attitudes of recreational users have been researched to a lesser extent. Landry,

Allen, Cherry & Whitehead's 2012 study into the impact of wind farms on coastal recreational demand found that offshore wind farms overall had little impact on recreational visits by residents. However, there are individual differences within the data which, averaged out, show an overall limited impact. Whilst some residents said they would take fewer trips to the beach if there was a wind farm within view, others indicated that they would actually take more trips.

MS-LOT consider they have sufficient information regarding the potential impacts of the Development upon the tourism industry, to reach a conclusion on the matter, and therefore advise the Scottish Ministers that it is appropriate not to cause a public inquiry to be held to further investigate this.

Impact on shipping, aviation, MOD and communications

Representations received raised concerns that the Development might present a hazard to vessels navigating in the Forth and Tay, and have impacts on aviation, national defence as well as a proposed identified war graves site. MS-LOT consider that the information provided to them by, amongst others, the CoS, MCA and NLB, NATS, MOD, BT and JRC provides them with sufficient information on which to make a decision in this matter. MOD initially raised objections against the Development on the basis of the Development's impact upon air traffic services and MOD radar. Following discussions between the Company and these organisations objections were removed subject to conditions being placed on the consent at **ANNEX D – DRAFT DECISION LETTER AND CONDITIONS, Annex 2**.

MS-LOT consider they have sufficient information regarding the potential hazards of the Development to shipping, aviation and the MOD, to reach a conclusion on the matter, and therefore advise the Scottish Ministers that it is appropriate not to cause a public inquiry to be held to further investigate this.

Impact on marine wildlife, including birds

The impact on marine mammals, birds, benthic ecology and other marine life, as well as Natura concerns, was raised in the outstanding objections to the Development. The Company, in its ES and SEIS, assessed the potential impact of the Development on fauna and MS-LOT consulted various nature conservation bodies including SNH, the JNCC, the RSPB Scotland and WDC on these documents. RSPB Scotland and WDC have maintained their objection. Neither SNH nor the JNCC provided a position statement, however in the event that consent is granted have provided specified conditions. Such conditions have been included in this consent to ensure that impacts on wildlife are acceptable at **ANNEX D – DRAFT DECISION LETTER AND CONDITIONS, Annex 2**. MSS have reviewed the ES, SEIS, and the conditions, and consider that the conditions attached to the consent will allow impacts on marine wildlife to be within acceptable limits.

MS-LOT recognise that there is an outstanding objection from RSPB Scotland due to the potential impacts on several seabird species (most notably kittiwake, gannet and puffin). MS-LOT also recognise that there is an outstanding objection from WDC due to potential impacts on marine mammals (most notably bottlenose dolphins and harbour seals). Having carried out the AA (considering all the advice received from SNH, the JNCC and MSS) it can be ascertained with sufficient confidence that the Development, subject to appropriate conditions being included within the consent, will

not adversely affect site integrity of any of the identified SPAs and SACs assessed to have connectivity with the Development. The SNH and JNCC are in agreement with our conclusions for the marine mammal and freshwater fish SACs and in some instances the SPAs. There is disagreement on the conclusions of the following:

- Fowlsheugh SPA with respect to kittiwake
- Forth Islands SPA with respect to kittiwake, gannet, puffin and razorbill

This disagreement is regarding differences in assessment methods and the SNH and the JNCC reluctance to have the predicted effect close to the threshold. MS-LOT consider that the best available evidence has been used in the AA and that the assessment has been precautionary. A full explanation of the ornithology issues and justification for decisions regarding site integrity is provided in **ANNEX E – APPROPRIATE ASSESSMENT**.

MS-LOT consider they have sufficient information regarding the potential impacts of the Development on marine wildlife, to reach a conclusion on the matter, and therefore advise the Scottish Ministers that it is appropriate not to cause a public inquiry to be held to further investigate this.

Impact on Atlantic salmon and sea trout

Objections relating to potential effects on fish were raised during the public consultation exercise. Whilst not specifically in relation to Atlantic salmon or sea trout, the ASFB and the DSFBs also maintained their objections. The Company, in the ES and SEIS, recognised the uncertainties around the assessments of these species. The ASFB also recognise these uncertainties and believe they can only be overcome though strategic research. A strategy is being developed by Marine Scotland to address monitoring requirements for Atlantic salmon and sea trout at a national level. The Company has engaged with MS-LOT, MSS, and the ASFB, to address this issue. A condition for the Company to engage at a local level (the Forth and Tay) to the strategic salmon and trout monitoring strategy is reflected in the draft decision letter and consent attached at **ANNEX D – DRAFT DECISION LETTER AND CONDITIONS, Annex 2**.

MS-LOT consider that sufficient steps, including the development of national strategic monitoring, are being taken to address the uncertainties regarding the potential effects of the Development on Atlantic salmon and sea trout, to reach a conclusion on the matter, and therefore advise the Scottish Ministers that it is appropriate not to cause a public inquiry to be held to further investigate this.

Impact on commercial fishing

The SFF, SE-IFG/EC-IFG, FMA, 10MAU, FFPO and Forth Lobster Hatchery raised concerns and / or objections over impacts on fishing and this was also raised within a number of public representations objecting to the proposal. The Company in the ES assessed the loss of fishing grounds as minor significance with the wind farm area showing a low level of fishing compared with other areas in the Forth and Tay. The assessment also highlighted that there is a likelihood that some degree of fishing operations will be able to be safely resumed once construction is complete.

The Company have engaged with the SFF, and in conjunction with neighbouring wind farm developers, has formed the FTOWDG-CFWG. The FTOWDG-CFWG has been established to facilitate on-going dialogue throughout the pre-construction, construction and operational phases of the Development. The FTOWDG-CFWG has representation for all commercial fishing interests in the area and provides a forum to discuss any issues and potential mitigation in relation to the wind farm developments in the Forth and Tay. Conditions for the Company to continue in the FTOWDG-CFWG and mitigate hazards to fishing are reflected in the draft decision letter and consent attached at **ANNEX D – DRAFT DECISION LETTER AND CONDITIONS, Annex 2**. Notices to Mariners and notices placed through the Kingfisher Fortnightly Bulletins will be conditioned in the marine licences.

FMA, 10MAU (and by proxy FFPO) moved to support EC-IFG. Both SFF and EC-IFG maintain an objection to the Development however provide recommended conditions in the event that consent is granted.

MS-LOT consider they have sufficient information regarding the potential impacts of the Development on commercial fisheries, and that a mechanism is now in place to facilitate communication, and therefore advise the Scottish Ministers that it is appropriate not to cause a public inquiry to be held to further investigate this.

Impact on bats

One objection was raised in relation to bats through the public consultation process. The Company in the ES assessed the impact on bats and summarised that there was unlikely to be a pathway to an impact on bats and therefore no impacts were predicted. Nature conservation bodies SNH and the JNCC were consulted on the application and did not raise any concerns in relation to potential impacts on this species.

MS-LOT consider they have sufficient information regarding the potential impacts of the Development on bats, to reach a conclusion on the matter, and therefore advise the Scottish Ministers that it is appropriate not to cause a public inquiry to be held to further investigate this.

Failure to meet the requirements of the Aarhus convention

Concerns were raised that, in August 2013, the United Nations Economic Commission Europe (“UNECE”) declared that the UK government's National Renewable Energy Action Plan (“NREAP”) violated the laws that transpose the Aarhus Convention into the UK legal framework. In particular, the public had not been given full access to information on the impacts on people and the environment, nor had been given decision-making powers over their approval.

The Aarhus Convention is an international convention which protects the rights of individuals in relation to environmental matters in gaining access to information, public participation in decision-making, and access to justice. The UK is a signatory to the Convention, as is the EU.

On the single accusation relating to the UK Government – public participation in the Renewables Roadmap – the UK Government was found to be in breach of the Convention, as it had not conducted a Strategic Environmental Assessment (“SEA”)

or other public consultation. However, on the four accusations for which the Scottish Government had lead responsibility, including public participation in the preparation of plans, programmes and policies in Scotland, and public participation in relation to the section 36 consent of a wind farm proposal, the Scottish Government's position was upheld. The ruling confirmed that Scotland is in compliance with this international obligation.

MS-LOT considers that proper assessments have been undertaken for the Development and proper opportunity was afforded for consultation with stakeholders and members of the public, in compliance with the Public Participation Directive, to reach a conclusion on the matter. MS-LOT is committed to applying strict environmental assessment procedures. MS-LOT, therefore, advise the Scottish Ministers that it is appropriate not to cause a public inquiry to be held to further investigate this.

Sediment disturbance, transportation and deposition

One concern raised through the public consultation was regarding sediment disturbance, transportation and deposition and how this could affect spawning or nursery grounds for a number of fish species. Also raised was the potential for chemical contaminants within the sediment to be released.

The Company, in its ES and SEIS, assessed the potential impact of the Development on sediment disturbance and MS-LOT consulted various nature conservation bodies including SNH and the JNCC on these documents. Neither SNH nor the JNCC provided significant concerns with regards sediment impacts, however raised the requirement for pre-construction sandeel surveys in the event that consent is granted and have recommended that this forms part of a condition of consent. Such conditions have been included in this consent to ensure that impacts on wildlife are acceptable at **ANNEX D – DRAFT DECISION LETTER AND CONDITIONS, Annex 2**. MSS have reviewed the ES, SEIS, and the conditions, and consider that the conditions attached to the consent will allow impacts on marine wildlife to be within acceptable limits.

Sea bed mobilisation arising from the installation of offshore turbines has to be set in the context of on-going mobilisation events resulting from human activities. There are many activities undertaken in the marine environment that result in sea bed mobilisation including demersal trawling for fish and sea bed dredging to ensure safe navigational access in and out UK ports and harbours. These activities can occur on a much larger spatial scale than the installation of offshore renewable turbines. Also sea bed mobilisation will take place as a result natural process particularly during storm events.

MS-LOT consider that they have sufficient information regarding sediment disturbance, to reach a conclusion on the matter, and therefore advise the Scottish Ministers that it is appropriate not to cause a public inquiry to be held to further investigate this.

Decommissioning

A concern was raised regarding information on procedures and costs for decommissioning wind farms. Chapter 3 (sections 105 to 114) of Part 2 of the

Energy Act 2004 provides for the decommissioning of offshore installations. The scheme provides that the Secretary of State by notice requires a developer who wishes to construct or extend an offshore installation to submit to him (i.e. the Secretary of State) a decommissioning programme. Where the development in question is – wholly or partly – in Scottish waters (as in this Application) then the Secretary of State must consult the Scottish Ministers before issuing the notice to the developer.

Section 109 of the 2004 Act provides that where a decommissioning programme has been approved by the Secretary of State it shall be the duty of the person who submitted the programme to secure that it is carried out in full, and in accordance with any conditions which may be attached to the approval. It is an offence for a person to decommission in any way that is not in accordance with either the decommissioning programme or the agreement of the Secretary of State.

In order to ensure that costs of decommissioning are met, the Company is required to have a financial bond in place and, in cases where ownership transfers, the new owners will be tested on their ability to fund decommissioning.

MS-LOT consider that they have sufficient information regarding decommissioning to reach a conclusion on the matter, and therefore advise the Scottish Ministers that it is appropriate not to cause a public inquiry to be held to further investigate this.

Economic and employment benefits

The Company estimate that in Scotland the expenditure made by the proposed Development could generate Gross Value Added ("GVA") of between £119m (of which just under two-thirds is generated during construction phase, 10% during operation and just over 25% during decommissioning) and £570m (of which approximately 90% is generated during construction phase, approximately 3% during operations and the remainder during decommissioning)

The Company estimate that the Development could support between 470 jobs in the peak year of construction phase reducing to approximately 100 jobs per year for operations (this rises to 275 jobs per year for decommissioning) and 5,200 jobs in the peak year of construction phase, reducing to 145 jobs per year for operations (rising to approximately 350 jobs per year for decommissioning).

One objection raised the point that the numbers of jobs for Scotland is based on conjecture. It should be recognised however that at this stage, many development and procurement decisions are still to be made. Changes in the anticipated expenditure or procurement patterns from those anticipated during the assessment will change the associated estimates of employment and GVA. The effect on employment through the supply chain depends critically on the design, construction and operation decisions that are yet to be taken, and on the extent to which Scottish companies are able to secure contracts. The figures also assume that the full proposal of 450 MW is developed.

The Scottish Ministers have taken account of the economic information provided by the Company and consider that there are no reasons in relation to this that would require consent to be withheld.

Claims for emissions reductions
The Development will act as a major contributor for reducing the amount of CO_2 released in the atmosphere and hence help meet targets forming part of Scotland's commitments on climate change action to reduce greenhouse gases.

The total annual CO_2 saving from the 450 MW Development, once fully constructed and operational, is estimated by the Company to be an approximate maximum of 25.5 million – 29.9 million tonnes over the life of the project.

Calculation of the time required for the Development to generate enough carbon-free electricity to offset its own carbon footprint (known as the "CO_2 payback period"), based on a worst-case scenario, is estimated by the Company to be within 2 to 3 years from the start of installation.

Summary
MS-LOT has fully and carefully considered the Application and accompanying documents and all relevant responses from Consultees, as well as all the third party representations that have been received, with a view to determining whether a public inquiry should be held with respect to the Application. MS-LOT, therefore, consider that there are no significant issues which have not been adequately considered in the ES, the SEIS and in consultation responses from the closest onshore Planning Authorities, SEPA, the JNCC, SNH and other relevant bodies, together with all other objections and third party representations. MS-LOT, therefore, consider it has sufficient information to recommend to the Scottish Ministers that they are able to make an informed decision on the Application without the need for a Public Inquiry.

CALLS FOR A PUBLIC LOCAL INQUIRY ("PLI")

There is no presumption in law in favour of PLIs being held regarding applications for section 36 consent under the Electricity Act. The circumstances of the case are such that there is no statutory requirement under Schedule 8 to the Act for the Scottish Ministers to cause one to be held. The decision to hold a PLI in the 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.

Under paragraph 3(2) of Schedule 8 to the Act the Scottish Ministers must be persuaded that it is appropriate for them to hold an inquiry (either in addition to or instead of any other hearing or opportunity of stating objections to the application).

Consideration

When considering whether to cause a PLI to be held the Scottish Ministers may have regard to whether–

1. they have been provided with sufficient information to enable them to weigh up all of the conflicting issues and, without a public inquiry, whether they 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. they have sufficient information available to them on which to take their decision such that a public inquiry would not provide any further factual evidence which would cause them to change their view on the application.

The Scottish Ministers can draw upon information contained within –

1. the Environmental Statement;
2. the Supplementary Environmental Information Statement;
3. the representations from the Company;
4. the representations from consultees;
5. the representations made from members of the public; and
6. the Appropriate Assessment.

In all the circumstances, as outlined, the Scottish Ministers can be satisfied that they have sufficient information to weigh up the various competing considerations and properly take account of the representations the various parties have made without the need for an inquiry. The main conflicting issue concerns the assessments of the impacts of the Development, in combination, on bird populations. These issues have been fully addressed in **ANNEX E – APPROPRIATE ASSESSMENT**. RSPB Scotland maintain their objection as explained above, however the AA concluded that for the proposed Development on its own, and in combination with the other potential ICOL, SAWEL and SBWEL proposals (subject to conditions) predicted impacts on birds are within acceptable limits. In our opinion, a PLI would not provide further factual information which would alter the advice given by MSS, and consequently the conclusion of the AA.

It is clear that all interested parties (statutory consultees, consultees and other persons) have had more than sufficient opportunity to make representations upon the Application. Representations have been accepted, and have continued to be accepted, by MS LOT even following the expiry of the statutory consultation period. All such representations have been taken into account for the purposes of making a decision regarding the causing of a PLI to be held.

In light of the terms of the various documents that have been provided to MS LOT, taken together with all the other information on the subject that is publicly available, 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.

On the evidence that is before MS LOT it is considered sufficient to reach a decision that a PLI would not provide further factual evidence which would require the Scottish Ministers to take a different view on the substantive issues on the application for consent under section 36. As such, MS LOT concludes that Scottish Ministers possess sufficient information upon the Development in order to determine the Application.

Environmental Benefits and Carbon Payback

The Development will act as a major contributor for reducing the amount of CO_2 released in the atmosphere and hence help meet targets forming part of Scotland's commitments on climate change action to reduce greenhouse gases.

The total annual CO_2 saving from the 450 MW Development, once fully constructed and operational, is estimated by the Company to be an approximate maximum of 25.5 million – 29.9 million tonnes over the life of the project.

Calculation of the time required for the Development to generate enough carbon-free electricity to offset its own carbon footprint (known as the "CO_2 payback period"), based on a worst-case scenario, is estimated by the Company to be within 2 to 3 years from the start of installation.

If consented, the proposed project could result in an increase in the amount of renewable energy produced in Scotland and is consistent with the Government's policy on the promotion of renewable energy. Marine Scotland has estimated that the electricity generated by this development would provide energy equivalent to the needs of over 288,400 homes, approximately 10% of the total number of homes in Scotland.

Economic Benefits

Scottish Planning Policy ("SPP") advises that economic benefits are material issues which must be taken into account as part of the determination process.

SPP also confirms the Scottish Ministers aim to achieve a thriving renewables industry in Scotland. The focus being to enhance Scotland's manufacturing capacity, to develop new indigenous industries, particularly in rural areas, and to provide significant export opportunities. The planning system has a key role in supporting this aim and the Scottish Ministers should consider material details of how the Development can contribute to local or national economic development priorities as stated in SPP.

Although the planning system does not regulate off-shore development, Scottish Ministers will consider material details of how a development can contribute to local or national economic development priorities.

In order to assess the Gross Value Added ("GVA") impacts associated with the projects the Company used two scenarios: a 'low case' and a 'high case' as described below.

A 'low case' scenario was developed whereby the percentage of expenditure by project sub – phase and geography was described. This low case refers to the total value of contracts that have been delivered, or are expected to be delivered, from within each geography, assuming the current supply chain. This represents a conservative estimate of the supply chain.

A more optimistic 'high case' scenario was created using the same process as described for the low case to reflect the uncertainties involved and the long duration of project works. The high case scenario refers to the total value of contracts that

could be secured with a stronger supply chain. This assumes that some Scottish based firms not currently in a position to tender for work, but there is reason to expect them to be in the future, could secure contracts.

The Company undertook consultation with local authorities in the study area; Angus Council, Dundee City Council, Fife Council, City of Edinburgh Council and East Lothian Council and other organisations such as Scottish Enterprise and Visit Scotland in order to inform the assessment of the potential socioeconomic impacts of the project.

The GVA impacts associated with the proposed project over its lifetime are summarised as follows:

- **Low case scenario for the study area** - £55 million of GVA is generated in the study area over the project lifetime, of which over half is generated during the construction phase and just over 20% each is generated during operations and decommissioning;
- **High case scenario for study area -** total GVA potentially rises to just over £440m in the study area over the project lifetime, of which over 90% is generated during construction phase, approximately 3% during operations and the remainder during decommissioning;
- **Low case scenario for the whole of Scotland (including the study area)** - £119m of GVA is generated in Scotland over the project lifetime, of which just under two-thirds is generated during construction phase, 10% during operation and just over 25% during decommissioning;
- **High case scenario for the whole of Scotland (including the study area)** - the GVA potentially rises to over £570m in Scotland over the project lifetime, of which approximately 90% is generated during construction phase, approximately 3% during operations and the remainder during decommissioning.

The employment impacts associated with the proposed project are summarised as follows:

- **Low case scenario for study area** - the project is estimated to support just over 210 jobs in the peak year of construction phase reducing to approximately 100 jobs per year for operations. This rises to 110 jobs per year for decommissioning;
- **High case scenario for study area** - the project is estimated to support 4,250 jobs in the peak year of construction phase, reducing to 145 jobs per year for operations. This rises to 220 jobs per year for decommissioning;
- **Low case scenario for Scotland (including the study area**) - the project is estimated to support nearly 470 jobs in the peak year of construction phase reducing to approximately 100 jobs per year for operations. This rises to 275 jobs per year for decommissioning; and
- **High case scenario for Scotland (including the study area)** - the project is estimated to support just over 5,200 jobs in the peak year of construction phase, reducing to 145 jobs per year for operations. This rises to approximately 350 jobs per year for decommissioning.

Adrian Tait
Marine Scotland Licensing Operations Team
Marine Planning and Policy
31 July 2014

ANNEX C – ADVICE TO THE SCOTTISH MINISTERS AND RECOMMENDATION

APPLICATION FOR CONSENT UNDER SECTION 36 OF THE ELECTRICITY ACT 1989 TO CONSTRUCT AND OPERATE AN OFFSHORE WIND POWERED GENERATING STATION, THE NEART NA GAOITHE OFFSHORE WIND FARM, APPROXIMATELY 15.5 KM TO THE EAST OF FIFE NESS IN THE FIRTH OF FORTH

ADVICE TO THE SCOTTISH MINISTERS IN RELATION TO A PUBLIC LOCAL INQUIRY

A key issue is whether it is appropriate to cause a public inquiry to be held and whether the Scottish Ministers are capable of weighing up the various competing considerations and of properly taking account of the representations that the various parties have made without an inquiry.

Having regard to the considerations set out in **Annex B**, Marine Scotland Licensing Team ('MS-LOT') advice is that the Scottish Ministers are able to weigh up the various competing considerations and properly take account of the representations the various parties have made without the need for an inquiry.

The Ministers have sufficient evidence provided by the Company concerning the benefits of the Development, including the Environmental Statement ("ES") and the Supplementary Environmental Information Statement ("SEIS"), and representations from the Company, as well as representations from consultees and from members of the public, together with an Appropriate Assessment ("AA").

In the circumstances, the Scottish Ministers can be satisfied that:

1. they possess sufficient information upon the Development in order to determine the Application; and

2. an inquiry into the issues raised by consultees or members of the public would not be likely to provide any further factual information to assist the Scottish Ministers to resolve any issues raised by the Application or to change their views on these matters,

and, accordingly, may conclude that it is not appropriate to cause an inquiry to be held into these matters. **MS-LOT recommend that you determine that it is not appropriate to cause a PLI to be held**.

ADVICE IN RELATION TO THE DECISION WHETHER TO GRANT CONSENT UNDER SECTION 36 OF THE ELECTRICITY ACT 1989

MS-LOT considers that you have sufficient information to weigh the issues and that adequate opportunity was afforded for public representation.

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 this Application has had regard to the preservation of the environment and ecology and are of the view that you will have discharged your responsibilities in terms of Schedule 9 to the Electricity Act 1989 (as amended) ("the Electricity Act") in this respect, if you decide to grant consent.

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 all the mitigation through the attachment of conditions to the consent.

For the reasons set out in **Annex A**, **B**, and **E**, the Scottish Ministers may be satisfied to the appropriate test that the Development, alone, and in combination with ICOL, SAWEL and SBWEL), will not adversely affect site integrity of any European site assessed to have connectivity with the Development.

Taking into account the socio-economic benefits and the benefits of renewable energy generation, it is MS LOT recommendation that the Scottish Ministers' planning judgment should be that whilst you accept the environmental impacts, when weighing up that material consideration with the considerations mentioned in the next paragraph you can make an appropriate planning judgment nevertheless to grant consent, with conditions, to the Development in its proposed location.

The considerations mentioned in this paragraph are:-

1. The benefits that the Development would be expected to bring in terms of the contribution to the development of the renewable energy sector;
2. The need to achieve targets for renewable energy;
3. The economic and social importance of Scotland's renewable energy sector; and
4. The potential to unlock a variety of economic benefits.

You can be satisfied that this Development has had regard to the interference of recognised sea lanes essential to international navigation. None of the stakeholders responsible for navigational issues objected to the Application and were content that the Development has no impact upon recognised sea lanes essential to international navigation. Any obstruction or danger to navigation has been addressed through specific consent conditions at **ANNEX D – DRAFT DECISION LETTER AND CONDITIONS**.

MS-LOT is therefore of the view that you have discharged your responsibilities in terms of section 36B of the Electricity Act.

The Company did not make any application for a declaration under section 36A of the Electricity Act to extinguish, suspend, restrict or attach conditions (or restrict and

attach conditions) to the public rights of navigation and, therefore, you can be satisfied that you have discharged your responsibilities in terms of rights of navigation.

Application ii for a marine licence under the Marine (Scotland) Act 2010 for the Neart na Gaoithe Offshore Wind Farm has been considered alongside this Application. It will be determined and a decision issued in due course.
Application iii for a marine licence under the Marine (Scotland) Act 2010 for the Offshore Transmission Works and export cable to shore at Thorntinloch, has been considered alongside this Application. It will be determined and a decision issued alongside this consent.

Before any construction work may commence a licence allowing the disturbance of European Protected Species ("EPS") (cetaceans) will be required to be authorised by the Scottish Ministers under The Conservation (Natural Habitats, &c.) Regulations 1994. This will be applied for by the Company separately once the final layout of the wind farm and wind turbine generators specifications has been agreed.

Recommendation

> MS-LOT recommends that you determine to grant **consent under section 36 of the Electricity Act for the Neart na Gaoithe Offshore Wind Farm subject to the imposition of conditions**. The draft decision letter with conditions is enclosed (at **ANNEX D – DRAFT DECISION LETTER AND CONDITIONS**).

Adrian Tait
Marine Scotland Licensing Operations Team
Marine Planning and Policy
31 July 2014

ANNEX D – DRAFT DECISION LETTER AND CONDITIONS

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The Scottish Government
Riaghaltas na h-Alba

LEGACY 2014
XX COMMONWEALTH GAMES
SCOTLAND

Mr David Sweenie
Offshore Manager Scotland
Mainstream Renewable Power
C/O Shepperd and Wedderburn
191 West George Street
Glasgow
G2 2LB

2014

Dear Mr Sweenie,

CONSENT GRANTED BY THE SCOTTISH MINISTERS TO CONSTRUCT AND OPERATE THE NEART NA GAOITHE OFFSHORE WIND FARM ELECTRICITY GENERATING STATION, APPROXIMATELY 15.5 KM TO THE EAST OF FIFE NESS, IN THE FIRTH OF FORTH

Defined Terms used in this letter and Annex 1 & 2 are contained in **Annex 3**.

The following applications have been made to the Scottish Ministers for:

iv. A consent under section 36 of the Electricity Act 1989 (as amended) ("the Electricity Act") by Neart na Gaoithe Offshore Wind Limited (Company Number SC356223) ("the Company") and having its registered office at C/O Shepherd and Wedderburn LLP, 191 West George Street, Glasgow, G2 2LB for the Neart na Gaoithe Offshore Wind Farm in the Firth of Forth;

v. A marine licence to be considered under the Marine (Scotland) Act 2010 ("the 2010 Act") by Neart na Gaoithe Offshore Wind Limited to deposit any substance or object and to construct, alter or improve any works in relation to the Neart na Gaoithe Offshore Wind Farm; and

vi. A marine licence to be considered under the 2010 Act by Neart na Gaoithe Offshore Wind Limited to deposit any substance or object and to construct, alter or improve any works in relation to the Offshore Transmission Works within the Scottish marine area.

THE APPLICATION

I refer to applications at i. and ii. above made by Neart na Gaoithe Offshore Wind Limited ('the Company'), received on the 13th July 2012 for consent under section 36 of the Electricity Act for the construction and operation of Neart na Gaoithe Offshore Wind Farm in the Firth of Forth with a maximum generating capacity of **450 megawatts** ("MW") ("the Application").

In this letter, "the Development" means the proposed Neart na Gaoithe Offshore Wind Limited electricity generating station as described in **Annex 1** of this letter.

STATUTORY AND REGULATORY FRAMEWORK

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

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 (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).

The Electricity Act 1989

Any proposal to construct, extend or operate a generating station situated in the territorial sea (out to 12 nautical miles ("nm") from the shore), with a generation capacity in excess of 1 MW requires consent under Section 36 of the Electricity Act. A consent under section 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.

Paragraph 3 of Schedule 9 to the Electricity Act places a duty on licence holders or persons authorised by an exemption to generate, distribute, supply or participate in the transmission of electricity when formulating "relevant proposals" within the

meaning of paragraph 1 of Schedule 9 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. Such persons are statutorily obliged to do what they reasonably can to mitigate any effect which the proposals would have on these features.

Paragraph 3 of Schedule 9 to the Electricity Act also provides that the Scottish Ministers must have regard to the desirability of preserving natural beauty etc. and 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.

Under section 36B of the Electricity Act, the Scottish Ministers may not grant a consent in relation to any particular offshore generating 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 consent, 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 the subject of section 36 consent or activities for which it appears likely that such consents will be granted.

Under Schedule 8 to the Electricity Act and the Electricity (Applications for Consent) Regulations 1990 ("the 1990 Regulations"), notice of applications for section 36 consent must be published by the applicant in one or more local newspapers and in the Edinburgh Gazette to allow representations to be made to the application. Under Schedule 8 to the Electricity Act the Scottish Ministers must serve notice of application for consent upon any relevant Planning Authority.

Paragraph 2(2) of Schedule 8 to the Electricity Act provides that where a relevant Planning Authority notifies the Scottish Ministers that they object to an application for section 36 consent and where they do not withdraw their objection, then the Scottish Ministers must cause a public inquiry 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 public inquiry.

The location and extent of the proposed Development to which the Application relates (being wholly offshore) means that the Development is not within the area of any local Planning Authority. The Scottish Ministers are not, therefore, obliged under paragraph 2(2) of Schedule 8 to the Electricity Act to require a public inquiry to be

held. The nearest local Planning Authorities did not object to the Application. If they had objected to the Application, and even then if they did not withdraw their objections, the Scottish Ministers would not have been statutorily obliged to hold a public inquiry.

The Scottish Ministers are, however, required under paragraph 3(2) of Schedule 8 to the Electricity Act to consider all objections received, together with all other material considerations, with a view to determining whether a public inquiry should be held in respect of the application. Paragraph 3(2) of Schedule 8 provides that if the Scottish Ministers think it appropriate to do so, they shall cause a public inquiry to be held, either in addition to or instead of any other hearing or opportunity of stating objections to the Application.

The Scottish Ministers are satisfied that they have considered and applied all the necessary tests set out within the Electricity Act when assessing the Application. The Company, at the time of application, was not a licence holder or a person authorised by an exemption to generate, distribute, supply or participate in the transmission of electricity when formulating "relevant proposals" within the meaning of paragraph 1 of Schedule 9 to the Electricity Act. The Company obtained a generation licence during the period whilst the Scottish Ministers were determining the Application for consent. The Minister and his officials have, from the date of the Application for consent, approached matters on the basis that the same Schedule 9, paragraph 3(1) obligations as apply to licence holders and the specified exemption holders should also be applied to the Company.

The approach taken has been endorsed by the Outer House of the Court of Session where Lord Doherty in *Trump International Golf Club Scotland Limited and The Trump Organization against The Scottish Ministers and Aberdeen Offshore Wind Farm Limited* [2014] CSOH 22 opines that the Electricity Act and regulations made under it contemplate and authorise consent being granted to persons who need not be licence holders or persons with the benefit of an exemption. Lord Docherty's reasoning in that case was agreed by the Inner House of the Court of Session in the Opinion delivered by Lord Brodie in the reclaiming motion in the petition of *Sustainable Shetland v Scottish Ministers and Viking Energy Partnership* [2014] CSIH 60. The Company is, in any event, required to consider the protection of the environment under statutory regulations which are substantially similar to Schedule 9 to the Electricity Act, namely the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2000 ("the 2000 Regulations"), whether or not the Company is among the categories of persons described in Schedule 9, paragraph 3(1).

Marine (Scotland) Act 2010

The 2010 Act regulates the territorial sea adjacent to Scotland in terms of marine environment issues. As this Application falls within the Scottish marine area (essentially the territorial sea adjacent to Scotland, which extends out to 12 nm from the shore), it falls to the 2010 Act to regulate marine environmental issues in this area. 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.

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 the sustainable development, including the protection and, where appropriate, the enhancement of the health of the area. The Scottish Ministers when exercising any function that affects the Scottish marine area under the 2010 Act, must act in a way best calculated to mitigate, and adapt to, climate change.

Climate Change (Scotland) Act 2009

Under Part 2 of the 2010 Act, the Scottish Ministers must, when exercising any function that affects the Scottish marine area (essentially the territorial sea adjacent to Scotland) 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.

The Scottish Ministers are satisfied that in assessing the Application, they have acted in accordance with their general duties, and they have exercised their functions in compliance with the requirements of the Climate Change (Scotland) Act 2009 (as amended).

Environmental Impact Assessment Directive; The Electricity (Applications for Consent) Regulations 1990 and the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2000 (as amended)

The Environmental Impact Assessment Directive, which is targeted at projects which are likely to have significant effects on the environment, identifies projects which require an Environmental Impact Assessment ("EIA") to be undertaken. The Company identified the proposed Development as one requiring an Environmental Statement ("ES") in terms of the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2000 (as amended) ("the 2000 Regulations").

The proposal for the Development has been publicised, to include making the ES available to the public, in terms of the 2000 Regulations. The Scottish Ministers are satisfied that an ES has been produced and the applicable procedures regarding publicity and consultation all as laid down in the 1990 Regulations, the 2000 Regulations and the Marine Works (Environmental Impact Assessment) Regulations 2007 (as amended) have been followed.

The Scottish Ministers have, in compliance with the 2000 Regulations consulted with Scottish Natural Heritage ("SNH"), the Joint Nature Conservation Committee ("JNCC"), the Scottish Environment Protection Agency ("SEPA"), the Planning Authorities most local to the Development, and such other persons likely to be concerned by the proposed Development by reason of their specific environmental responsibilities on the terms of the Application in accordance with the regulatory requirements. The Scottish Ministers have taken into consideration the environmental information, including the ES and Supplementary Environmental Information Statement ("SEIS"), and the representations received from the statutory consultative bodies and from all other persons.

The Scottish Ministers have, in compliance with the 2000 Regulations, obtained the advice of the SEPA on matters relating to the protection of the water environment. This advice was received on 10th September 2012.

The Scottish Ministers have also consulted a wide range of relevant organisations, including colleagues within the Scottish Government on the Application, on the ES and as a result of the issues raised, upon the required SEIS.

The Scottish Ministers are satisfied that the regulatory requirements have been met.

The Habitats Directive and the Wild Birds Directive

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 which include 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 ("SACs") for those habitats listed in Annex I and for the species listed in Annex II, both Annexes to that Directive.

The Wild 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 developments 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]n 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.

Article 4 of the Wild Birds Directive provides *inter alia* as follows:

"1. The species mentioned in Annex I [of that Directive] shall be the subject of special conservation measures concerning their habitat in order to ensure their survival and reproduction in their area of distribution. […]

2. Member States shall take similar measures for regularly occurring migratory species not listed in Annex I [of that Directive], bearing in mind their need for protection in the geographical sea and land area where this Directive applies, as regards their breeding, moulting and wintering areas and staging posts along their migration routes. To this end, Member States shall pay particular attention to the protection of wetlands and particularly to wetlands of international importance.

[…]

4. 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."

Articles 6 & 7 of the Habitats Directive provide *inter alia* as follows:

"6.2 Member States shall take appropriate steps to avoid, in the special areas of conservation, the deterioration of natural habitats and the habitats of species as well as disturbance of the species for which the areas have been designated, in so far as such disturbance could be significant in relation to the objectives of this Directive.

6.3 Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to an appropriate assessment ("AA") of its implications for the site in view of the site's conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public.

6.4. If, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of a social or economic nature, the Member State shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted.

7. Obligations arising under Article 6 (2), (3) and (4) of this Directive shall replace any obligations arising under the first sentence of Article 4 (4) of Directive 79/409/EEC in respect of areas classified pursuant to Article 4 (1) or similarly recognized under Article 4 (2) thereof, as from the date of implementation of this Directive or the date of classification or recognition by a Member State under Directive 79/409/EEC, where the latter date is later."

The Habitats Directive and the Wild Birds Directive have, in relation to the marine environment, been transposed into Scots law by the Conservation (Natural Habitats, & c.) Regulations 1994 ("the 1994 Regulations"). As the Development is to be sited in the Scottish Territorial Sea, it is the 1994 Regulations which are applicable in respect of this application for section 36 consent.

The 1994 Regulations ("the Habitats Regulations") clearly implement the obligation in article 6(3) & (4) of the Habitats Directive, which by article 7 applies in place of the obligation found in the first sentence of article 4(4) of the Wild Birds Directive. In each case the "competent authority", which in this case is the Scottish Ministers, is

obliged to “make an appropriate assessment of the implications for the site in view of the site’s conservation objectives” (hereafter an “AA”). Such authority is also obliged to consult SNH and, for the purpose of regulation 48 of the 1994 Regulations, to have regard to any representations made by SNH.

Developments in, or adjacent to, 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”). The appraisal involves two stages which are set out as follows:

Stage 1 - Where a project is not connected with or necessary to the site’s management and it is likely to have a significant effect thereon (either individually or in combination with other projects), then an AA is required.

Stage 2 - In light of the AA of the project’s implications for the site in view of the site’s conservation objectives, the competent authority must ascertain to the requisite standard that the project will not adversely affect the integrity of the site, having regard to the manner in which it is proposed to be carried out and to any conditions or restrictions subject to which the consent is proposed to be granted.

SNH and the JNCC were of the opinion that the Development is likely to have a significant effect on the qualifying interests of certain Special Protected Areas (“SPAs”) and SAC sites, therefore an AA was required. The AA which has been undertaken concludes that the proposed Development, and the Inch Cape Offshore Limited (“ICOL”), Seagreen Alpha Offshore Wine Energy Limited (“SAWEL”) and Seagreen Bravo Offshore Wind Limited (“SBWEL”) developments will not, on their own or in combination with each other (or where appropriate for consideration, other developments already licenced), subject to conditions, adversely affect site integrity of the Buchan Ness to Collieston Coast SPA, Fowlsheugh SPA, Forth Islands SPA, St Abb’s Head to Fast Castle SPA, Moray Firth SAC, Firth of Tay and Eden Estuary SAC, Isle of May SAC, Berwickshire & North Northumberland Coast SAC, River South Esk SAC, River Tay SAC, River Dee SAC, River Teith SAC or River Tweed SAC.

SNH and the JNCC are in agreement with the conclusions of the AA for the marine mammal and freshwater fish SACs, and in some instances, the SPAs. There is disagreement on the conclusions of the following:

- Kittiwake at Fowlsheugh
- Kittiwake at Forth Islands
- Gannet at Forth Islands
- Puffin at Forth Islands
- Razorbill at Forth Islands

This disagreement is as a result of differences in assessment methods and the predicted effect.

The Scottish Ministers, as a competent authority, have complied with European Union (“EU”) obligations under the Habitats Directive and the Wild Birds Directive in

relation to the Development. Marine Scotland Licensing Operations Team ("MS-LOT"), on behalf of the Scottish Ministers, undertook an AA. In carrying out the AA, MS-LOT concludes that the Development will not adversely affect site integrity of any of the identified European protected sites assessed to have connectivity with the Development, and have imposed conditions on the grant of this consent ensuring that this is the case. The test in the *Waddenzee* judgement formed the basis for the approach taken (CJEU Case C-127/02 [2004] ECR I-7405), and the Scottish Ministers are certain that the Development will not adversely affect site integrity of the sites "where no reasonable scientific doubt remains as to the absence of such effects". The AA will be published and available on the Marine Scotland licensing page of the Scottish Government's website.

APPLICABLE POLICIES AND GUIDANCE

Marine area

The UK Marine Policy Statement 2011

The UK Marine Policy Statement 2011 ("the Statement") prepared and adopted in accordance with Chapter 1 of Part 3 of the 2009 Act requires that when the Scottish Ministers take authorisation decisions that affect, or might affect, the marine area they must do so in accordance with the Statement.

The Statement which was jointly adopted by the UK Administrations sets out the overall objectives for marine decision making. It specifies issues that decision-makers need to consider when examining and determining applications for energy infrastructure at sea, namely – the national level of need for energy infrastructure as set out in the Scottish National Planning Framework; the positive wider environmental, societal and economic benefits of low carbon electricity generation; that renewable energy resources can only be developed where the resource exists and where economically feasible; and the potential impact of inward investment in offshore wind energy related manufacturing and deployment activity. The associated opportunities on the regeneration of local and national economies need also to be considered.

Chapter 3, paragraphs 3.3.1 to 3.3.6, 3.3.16 to 3.3.19 and 3.3.22 to 3.3.30 of the Statement are relevant and have been considered by the Scottish Ministers as part of the assessment of the Application.

Existing terrestrial planning regimes generally extend to mean low water spring tides. The marine plan area boundaries extend up to the level of mean high water spring tides. The Statement clearly states that the new system of marine planning introduced across the UK will integrate with terrestrial planning. The Statement also makes it clear that the geographic overlap between the Marine Plan and existing plans will help organisations to work effectively together and to ensure that appropriate harmonisation of plans is achieved. The Scottish Ministers have, accordingly, had regard to the terms of relevant terrestrial planning policy documents and plans when assessing the Application for the purpose of ensuring consistency in approach.

The Scottish Ministers have had full regard to the Statement when assessing the Application. It is considered that the Development accords with the Statement.

Blue Seas-Green Energy: A Sectorial Plan for Offshore Wind Energy in Scottish Territorial Waters

The Scottish Government has used a marine planning approach to develop Blue Seas Green Energy – A Sectorial Marine Plan for Offshore Wind in Scottish Territorial Waters ("the Plan").

The Plan represents the Scottish Minister's vision for the delivery of energy from offshore wind resources within Scottish Territorial Waters (0 to 12 nautical miles). The Plan contains proposals for offshore wind development at the regional level up to 2020 and beyond. It seeks to maximise the benefits for Scotland, its communities and people and recognises the need for public acceptability in the development of offshore wind. It aims to strike a balance between economic, social and environmental needs and also recognises that there are national and regional challenges to overcome to facilitate development.

The draft Plan contained 10 short term (up to 2020) and 30 medium term (up to 2030) options including Neart na Gaoithe as a short term site in the East region. The sites were selected by developers and The Crown Estate Commissioners ("CEC") and awarded Exclusivity Agreements. The Scottish Ministers decided that 6 short term sites and 25 medium term areas of search should be progressed within the Plan. However, one of the six short term sites (Forth Array) has since been removed from the Plan due to the CEC withdrawing the exclusivity agreement for this site.

The Scottish Ministers further decided that 3 short term sites in the West and South-West regions were unsuitable for the development of offshore wind and should not be progressed as part of the Plan. These short term sites were considered unsuitable because of the presence of a wide range of constraints on a number of receptors (including communities, shipping, fishing, biodiversity, recreation, defence, economic impact, cultural heritage, seascapes and landscapes).

The main findings for the East (Firth of Forth) Offshore Wind Plan region was that this region has favourable conditions and significant potential for the development of offshore wind within Scottish Territorial Waters. The significant strategic issues to be resolved, according to the Plan, related to fishing and the environment. Other key issues to be addressed for the region included shipping and navigation, biodiversity, aviation and radar and defence activities. Evidence at this stage suggested that issues could be addressed through appropriate mitigation measures at the project level.
The Neart na Gaoithe short term site was seen to be suitable for development by 2020 (as well as the Inch Cape development in Scottish Territorial Waters and Seagreen Round 3 offshore wind development site just outside Scottish Territorial Waters adjacent to Neart na Gaoithe). The cumulative and in combination impacts of these developments were identified as requiring further consideration.

The Plan recommended that the Neart na Gaoithe short term option should be taken forward to the licensing stage. A key finding was that there is significant potential for this development in the short term, and it appears to be publicly and environmentally acceptable at the strategic level.
The Plan seeks to deliver the Scottish Ministers' policies for green energy, thereby helping to meet carbon reduction targets. The Plan underpins the promotion of economic development and competitiveness for Scotland and has been built using environmental and socio-economic assessments and consultation, both public and sectoral, as marine plan making tools.

The outcomes of Strategic Environmental Assessment ("SEA"), HRA, Socio-economic Assessment and Consultation Analysis informed the final Plan.

The Scottish Ministers consider that the Development accords with the Plan.

Draft National Marine Plan

A draft National Marine Plan, developed under the 2010 Act and the 2009 Act was subject to consultation which closed in November 2013. Marine Scotland Planning & Policy are now considering the responses and undertaking a consultation analysis exercise. When formally adopted, the Scottish Ministers must take authorisation and enforcement decisions which affect the marine environment in accordance with the Plan.

The draft National Marine Plan sets an objective to promote the sustainable development of offshore wind, wave and tidal renewable energy in the most suitable locations. It also contains specific policies relating to the mitigation of impacts on habitats and species; and in relation to treatment of cables.

The Scottish Ministers have had full regard to the draft national Marine Plan when assessing the Application. It is considered that the Development accords with the draft Plan.

Offshore Renewable Policy

Published in September 2010, Scotland's Offshore Wind Route Map sets out the opportunities, challenges and priority recommendations for action for the sector to realise Scotland's full potential for offshore wind. The refreshed version of this document, published in January 2013, highlighted the progress that has been made but pointed to the continuing challenges that need to be overcome. The Scottish Ministers remain fully committed to realising Scotland's offshore wind potential and to capture the biggest sustainable economic growth opportunity for a generation.

This Development, will contribute significantly to Scotland's renewable energy targets via its connection to the National Grid. It will also provide wider benefits to the offshore wind industry which are reflected within Scotland's Offshore Wind Route Map and the National Renewables Infrastructure Plan.

Terrestrial area

Existing terrestrial planning regimes generally extend to mean low water spring tides. The marine plan area boundaries extend up to the level of mean high water spring tides. The Statement clearly states that the new system of marine planning introduced across the UK will integrate with terrestrial planning. The Statement also makes it clear that the geographic overlap between the Marine Plan and existing plans will help organisations to work effectively together and to ensure that appropriate harmonisation of plans is achieved. The Scottish Ministers have, accordingly, had regard to the terms of relevant terrestrial planning policy documents and Plans when assessing the Application.

In addition to high level policy documents regarding the Scottish Government's policy on renewables (2020 Renewable Route Map for Scotland - Update (published 30 Oct 2012), the Scottish Ministers have had regard to the following documents.

Scottish Planning Policy

Scottish Planning Policy sets out the Scottish Government's planning policy on renewable energy development. 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, 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.

The Scottish Ministers are satisfied that these matters have been addressed in full both within the Application and within the responses received to the consultation by the closest onshore Planning Authorities, SEPA, SNH, the JNCC and other relevant bodies.

National Planning Framework 2

Scotland's National Planning Framework 2 ("NPF2") sets out strategic development priorities to support the Scottish Government's central purpose, namely sustainable economic growth. Relevant paragraphs to the Application are paragraphs 65, 144, 145, 146, and 147. NPF2 provides strong support for the development of renewable energy projects to meet ambitious targets to generate the equivalent of 100% of our gross annual electricity consumption from renewable sources and to establish Scotland as a leading location for the development of the renewable offshore wind sector.

National Planning Framework 3

During the determination of the Application, Scotland's National Planning Framework 3 ("NPF3") was published. NPF3 is the national spatial plan for delivering the Scottish Government's Economic Strategy. The Main Issues Report sets out the ambition for Scotland to be a low carbon country, and emphasises the role of

planning in enabling development of renewable energy onshore and offshore. National Development 4 ‘High Voltage Electricity Transmission Network’ is designed to facilitate electricity grid enhancements needed to support the increasing renewable energy generation, both on and offshore. NPF3 also supports development and investment in sites identified in the National Renewables Infrastructure Plan.

The Main Issues Report was published for consultation in April 2013 and the Proposed NPF3 was laid in the Scottish Parliament on 14th January 2014. This was subject, by statute, to sixty (60) day Parliamentary consideration ending on 22nd March 2014. The Scottish Government published the finalised NPF3 on 23rd June 2014.

NPF3 sets the context for development planning in Scotland and provides a framework for the spatial development of Scotland as a whole setting out the Scottish Governments development priorities over the next 20-30 years. It also identifies national developments which support the development strategy. Paragraphs relevant to the Application are 3.4, 3.6, 3.8, 3.9, 3.12, 3.14, 3.25, 3.32, 3.33, 3.34 and 3.41.

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. NPF3 also identifies targets to source 11% of heat demand and 10% of transport fuels from renewable sources by 2020.

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. NPF3 notes the Firth Coast form Cockenzie to Torness is a ‘potentially important energy hub’. It notes that there are significant plans for offshore wind to the east of the Firths of Forth and Tay and states; ‘Proposals for grid connections for these projects are now emerging, requiring undersea cabling connecting with converter stations and substations. We want developers to work together to minimise the number and impacts of these developments by combining infrastructure where possible’. NPF3 also recognises Cockenzie as a site with potentially significant opportunities for renewable energy related investment.

Fife Development Plan

Fife Council (“FC”) advised that due to the scale of the Development, in terms of turbine height and numbers, it requires to be assessed against the Fife Development Plan. This Plan comprises of the TAYplan Strategic Development Plan 2012-2032 and the Adopted St. Andrews and East Fife Local Plan 2012.

TAYplan Strategic Development Plan 2012-2032

The TAYplan Strategic Development Plan ("TAYplan SDP") sets out a spatial strategy which says where development should and should not go. It is designed to deliver the location related components of sustainable economic development, good quality places and effective resource management.

The Scottish Ministers consider that the TAYplan SDP is broadly supportive of the Development

Adopted St. Andrews and East Fife Local Plan 2012

The Adopted St. Andrews and East Fife Local Plan 2012 implements the strategic vision set out in the Fife Structure Plan as it applies to the St Andrews and East Fife area. It contains proposals to guide the area's development over the period until 2022.

The relevant policies in this Plan are E3, E8, E11, E12, E20, E21, E22, E23 and I1. The Scottish Ministers consider that the St Andrews and East Fife Local Plan is broadly supportive of the Development.

Fife Council's Supplementary Planning Guidance (SPG) on Wind Energy 2011

This supplementary Planning Guidance, whilst carrying less weight as a consideration than the TAYplan SDP, supplements the local plan policies. It indicates that proposals for wind farms/turbines will be assessed against the following constraints, any positive or adverse effects on them, and how any adverse effects can be overcome or minimised: Historic environment; areas designated for their regional and local natural heritage value; tourism and recreational interests; communities; buffer zones; aviation and defence interests; broad casting installations.

The Scottish Ministers consider that the Development has been assessed against these constraints.

East Lothian Local Plan 2008

East Lothian Council ("ELC") have advised that the policies of the East Lothian Local Plan do not apply to the offshore works as the plan only covers land to the Low Water Mark therefore the only aspect of the Development that this plan relates to is the inter-tidal works.

Where the cable makes landfall at Thorntonloch, a planning application will be made to East Lothian Council. The area concerned is covered by East Lothian Local Plan Policy DC1: Development in the Countryside and Undeveloped Coast; Policy C3: Protection of Open Space; NH4: Areas of Great Landscape Value and Policy NRG2: Torness Consultation Zone.

Angus Local Plan Review (Adopted 2009)

The Angus Local Plan Review sets out the land use planning response and policy framework which will contribute to ensuring that the physical, social and economic needs of all communities in Angus are provided for in a sustainable manner. Angus Council ("AC") have advised that the Angus Local Plan Review is not a relevant consideration as the Development is out with the area covered.

CONSULTATION

In accordance with the statutory requirements of the 1990 Regulations and the 2000 Regulations, notices of the Application had to be placed in the local and national press. The Scottish Ministers note that these requirements have been met. Notice of the Application for section 36 consent is required to be served on any relevant Planning Authority under Schedule 8 to the Electricity Act.

Notifications were sent to East Lothian Council (as the onshore Planning Authority where the transmission works export cable comes ashore at Thorntonloch) as well as to Fife Council (as the nearest onshore Planning Authority), Angus Council, Scottish Borders Council ("SBC") and Dundee City Council ("DCC") as well as to SNH, and SEPA.

A two-stage formal consultation process was undertaken by the Scottish Ministers. The first, which related to the application for section 36 consent, the marine licence applications (applications i, ii, and iii) and the ES, was commenced on 30th July 2012, and the second which related to the submission of further information in the form of a SEIS began on 21st June 2013.

Representations and Objections

A total of twenty three (23) representations were received from members of the public during both consultation periods. Of these, sixteen (16) object to the Development, five (5) support it, and two neither objected to nor supported the Development with one (1) relating to the onshore cable route and subsequent onshore planning application, and one (1) relating to information used to assess the Development's potential impact on bats.

A number of representations received were from members of the public who currently reside in the area local to the Development.

Members of the public who objected to the Development stated concerns including, but not limited to, the visual impact of the Development, impact on tourism, detrimental to human health, failure to meet the requirements of the Aarhus Convention, inefficiency of the technology, the expense of constructing and operating wind farms, impacts on the Ministry of Defence and other communications infrastructure, impacts on the marine environment including marine mammals, fish and benthic ecology as well as birds.

Representations which noted support for the project were of the belief that the Development would offer benefits such as the creation of jobs, economic opportunities for the area, and lead to a reduction in emissions from utilising a clean energy source. Additionally, it was felt that the visual impact was lessened due to the turbines being situated offshore compared to terrestrial projects.

Representations deemed to be neutral did not offer any support or objection to the Development however it was queried what studies had been undertaken to assess the possible impact on bats from the Development. Another representation was submitted that dealt with terrestrial interests covering possible disruption to a person's land during cable laying and removal operations. This representation deals with concerns out with the remit of Marine Scotland and was provided to the Planning Authority for their consideration of the onshore planning application.

Of the public representations made concerning the Application none were received from elected representatives.

Objections were received from, amongst others, the Royal Society for the Protection of Birds Scotland ("RSPB Scotland"), the Defence Infrastructure Organisation ("DIO") (Ministry of Defence ("MoD")), the Association of Salmon Fishery Boards ("ASFB"), the Esk District Salmon Fishery Board ("EDSFB"), the Tay District Salmon Fishery Board ("TDSFB"), and Whale and Dolphin Conservation ("WDC") the Scottish Fishermen's Federation ("SFF"), the East Coast Inshore Fisheries Group ("ECIFG") (also and previously referred to as the South East Inshore Fisheries Group ("SEIFG")) and the.

The DIO stated their willingness to withdraw their objections following a reassessment of the Development. The Scottish Ministers consider that conditions applied regarding marine mammals address concerns raised by WDC (**Annex 2**).

Objections from members of the public, the ASFB, EDSFB, TDSFB, WDC and the RSPB Scotland are being maintained. In light of these concerns, the Company has reduced the number of turbines in the Development from 125 to 75. The Company has also reduced the footprint area of the Development from 105km^2 to 82.7km^2. Scottish Ministers have applied conditions for monitoring and mitigation to this consent (**Annex 2**).

The SFF and ECIFG also objected to the Development, however have welcomed the proposal for a Fisheries Working Group and the potential to participate in such a group.

The Scottish Minsters have considered and had regard to all representations and objections received.

Material Considerations

In light of all the representations, objections and outstanding objections received by the Scottish Ministers in connection with the Application, the Scottish Ministers have carefully considered the material considerations, for the purposes of deciding

whether it is appropriate to cause a public inquiry to be held and for making a decision on the Application for consent under section 36 of the Electricity Act.

The Scottish Ministers consider that no further information is required to determine the Application.

Public Local Inquiry ("PLI")

Paragraph 2(2) of Schedule 8 to the Electricity Act provides that where a relevant planning authority notifies the Scottish Ministers that they object to an application for section 36 consent and where they do not withdraw their objection then the Scottish Ministers must cause a public inquiry 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 public inquiry.

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. The Scottish Ministers are not, therefore, obliged under paragraph 2(2) of Schedule 8 to the Electricity Act to require a public inquiry to be held. The nearest local planning authorities did not object to the Application. Even if they had objected to the Application, and even then if they did not withdraw their objection, the Scottish Ministers would not have been statutorily obliged to hold a public inquiry.

The Scottish Ministers are, however, required under paragraph 3(2) of Schedule 8 to the Electricity Act to consider all objections received, together with all other material considerations, with a view to determining whether a public inquiry should be held with respect to the Application. If the Scottish Ministers think it appropriate to do so, they shall cause a public inquiry to be held, either in addition to or instead of any other hearing or opportunity of stating objections to the Application.

The Scottish Ministers have received objections to the Development as outlined above, raising a number of issues. In summary, and in no particular order, the objections were related to the following issues:

- The efficiency of wind energy, high subsidies and cost to the consumer;
- Visual impacts of the Development;
- Impact upon the tourism industry;
- Impact on shipping, aviation, MOD and communications;
- Impact on marine wildlife, including birds;
- Impact on Atlantic salmon and sea trout;
- Impact on commercial fishing;
- Impact on bats;
- Failure to meet the requirements of the Aarhus convention;
- Sediment disturbance, transport and deposition;
- Decommissioning;
- Economic and employment benefits; and
- Emissions reductions.

The efficiency of wind energy, high subsidies and cost to the consumer

A number of respondents to the Application commented on a range of issues relating to the efficiency of wind energy and consumer paid subsidies. The Scottish Ministers consider that although the electrical output of wind farms is variable, and cannot be relied on as a constant source of power, the electricity generated by wind is a necessary component of a balanced energy mix which is large enough to match Scotland's demand. Power supplied from wind farms reduces the need for power from other sources and helps reduce fossil fuel consumption.

With regard to high subsidies, support schemes play an important role in the development of renewable electricity schemes, particularly for more immature technologies. Increased deployment of offshore wind turbines is anticipated to result in declining costs, as the industry learns more about the technical issues which arise in challenging conditions. Alongside this, a number of other factors will also impact the future costs, including steel prices, exchange rates, labour and vessel costs.

The challenge laid down to industry as part of the Offshore Wind Cost Reduction Task Force is to reduce the levelised cost of offshore wind to £100 per megawatt hour. This is clearly ambitious and will require developers to work in collaboration and consider innovative technology and working practices. Test and demonstration facilities will also continue to be crucial to the development of the industry and in particular in pursuing the cost reduction agenda.

The Scottish Ministers, therefore, consider they have sufficient information regarding the efficiency of wind energy and high subsidies, to reach a conclusion on the matter, and do not consider that it is appropriate to cause a public inquiry to be held to further investigate this.

Visual impacts of the Development

Adverse visual impact of the Development in its proposed location was raised in the outstanding objections to the Development. The Company in its ES indicates that the Development would have visual impacts that range from none to major depending upon where the viewer is situated. SNH, the Scottish Ministers' statutory nature conservation advisers who advise on, amongst other matters, visual impacts on designated landscape features, advised widespread and significant landscape, seascape, and visual impacts of the Development together with the ICOL, SAWEL and SBWEL proposals. These impacts would occur along the Scottish East coast from St Cyrus in Aberdeenshire, through Angus and Fife, South to Dunbar in East Lothian on a scale, and to an extent, unprecedented within Scotland (onshore or offshore) in recent times. At its closest the Development is 15.5km from the shore with the ICOL development being approximately 15km from the shore, the SAWEL development being 27km from the shore and the SBWEL development being 38km from the shore. The four developments are likely to be perceived as a single wind farm lying offshore, parallel to the coast. The visual impacts are primarily caused by the Development or ICOL, depending on viewpoint, rather than SAWEL or SBWEL, due to their closer proximity to shore, with the Development being highlighted as being particularly visually prominent across the East Lothian horizon and as having a particularly severe effect on East Fife. A change in the night-time character of seas and skies in the area where there is currently limited light pollution was also raised as a potential concern.

The Company's ES includes a number of visual photomontages that give an indication of the likely visual impacts. Although these are not definitive, the visualisation material acts as a tool to help inform the decision making process. Viewpoints were selected on a regional basis through the Forth and Tay Offshore Wind Developers Group ("FTOWDG") through consultation and agreement with SNH and relevant Local Authorities.

East Lothian Council and Angus Council raised some concerns over the visual impact of the Development, both alone and cumulatively, as they considered that there would be significant impacts on landscape and seascape character. They did not agree with all impacts as presented by the Company within the ES or SEIS, and also upheld concerns regarding night time lighting. Their concerns were not sufficient however to cause them to object to the Development.

Marine Scotland officials carried out a site visit of a selection of viewpoints provided in the Company's Application and in the course of which were able to compare the views from those viewpoints using visual photomontages.

The Scottish Ministers, therefore consider that they have sufficient information regarding the potential visual impacts of the Development, to reach a conclusion on the matter, and do not consider that it is appropriate to cause a public inquiry to be held to further investigate these impacts.

Impact upon the tourism industry

Concerns have been raised by respondents to the Application regarding the Development's potential impact upon tourism, particularly relating to the visual aspect and the effects this will have on livelihoods associated with tourism.

In this respect, the Scottish Ministers note that attitudes of tourists towards wind farms have been assessed in many studies. The results of stated preference studies have found that generally the majority of tourists were positive towards wind farms. Omnibus Research, commissioned by Visit Scotland in 2011, found that 80% of the survey respondents stated that a wind farm would not affect their decision to visit an area. The attitudes of recreational users have been researched to a lesser extent. Landry, Allen, Cherry & Whitehead's 2012 study into the impact of wind farms on coastal recreational demand found that offshore wind farms overall had little impact on recreational visits by residents. However, there are individual differences within the data which, averaged out, show an overall limited impact. Whilst some residents said they would take fewer trips to the beach if there was a wind farm within view, others indicated that they would actually take more trips.

The Scottish Ministers consider they have sufficient information regarding the potential impacts of the Development upon the tourism industry, to reach a conclusion on the matter, and therefore advise the Scottish Ministers that it is appropriate not to cause a public inquiry to be held to further investigate this.

Impact on shipping, aviation, MOD and communications

Representations received raised concerns that the Development might present a hazard to vessels navigating in the Forth and Tay, and have impacts on aviation,

national defence as well as a proposed identified war graves site. The Scottish Ministers consider that the information provided to them by, amongst others, the Chamber of Shipping ("CoS"), Marine Coastguard Agency ("MCA") and Northern Lighthouse Board ("NLB"), National Air Traffic Services ("NATS"), MoD, British Telecom ("BT") and Joint Radio Company ("JRC") provides them with sufficient information on which to make a decision in this matter. MOD initially raised objections against the Development on the basis of the Development's impact upon air traffic services and MOD radar. Following discussions between the Company and these organisations objections were removed subject to conditions being placed on the consent (**Annex 2**).

The Scottish Ministers consider they have sufficient information regarding the potential hazards of the Development to shipping, aviation and the MOD, to reach a conclusion on the matter, and do not consider that it is appropriate to cause a public inquiry to be held to further investigate this.

Impact on marine wildlife, including birds

The impact on marine mammals, birds, benthic ecology and other marine life, as well as Natura concerns, was raised in the outstanding objections to the Development. The Company, in its ES and SEIS, assessed the potential impact of the Development on fauna and MS-LOT consulted various nature conservation bodies including SNH, the JNCC, the RSPB Scotland and WDC on these documents. RSPB Scotland and WDC have maintained their objection. Neither SNH nor the JNCC provided a position statement, however in the event that consent is granted have provided specified conditions. Such conditions have been included in this consent to ensure that impacts on wildlife are acceptable (**Annex 2**). Marine Scotland Science ("MSS") have reviewed the ES, SEIS, and the conditions, and consider that the conditions attached to the consent will allow impacts on marine wildlife to be within acceptable limits.

The Scottish Ministers recognise that there is an outstanding objection from RSPB Scotland due to the potential impacts on several seabird species (most notably kittiwake, gannet and puffin). The Scottish Ministers also recognise that there is an outstanding objection from WDC due to potential impacts on marine mammals (most notably bottlenose dolphins and harbour seals). An AA completed by MS-LOT, concluded that the Development will not adversely affect site integrity of any SAC or SPAS considered to have connectivity with the Development. Conditions to mitigate and monitor the effects on marine wildlife form part of this consent (**Annex 2**).

The Scottish Ministers, therefore, consider they have sufficient information regarding the potential impacts of the Development on marine wildlife, including birds, to reach a conclusion on the matter, and do not consider that it is appropriate to cause a public inquiry to be held to further investigate this.

Impact on Atlantic salmon and sea trout

Objections relating to potential effects on fish were raised during the public consultation exercise. Whilst not specifically in relation to Atlantic salmon or sea trout, the ASFB and the DSFBs also maintained their objections. The Company, in the ES and SEIS, recognised the uncertainties around the assessments of these species. The ASFB also recognise these uncertainties and believe they can only be

overcome though strategic research. A strategy is being developed by Marine Scotland to address monitoring requirements for Atlantic salmon and sea trout at a national level. The Company has engaged with MS-LOT, MSS, and the ASFB, to address this issue. A condition for the Company to engage at a local level (the Forth and Tay) to the strategic salmon and trout monitoring strategy is contained in this consent (**Annex 2**).

The Scottish Ministers, therefore, consider that sufficient steps, including the development of national strategic monitoring, are being taken to address the uncertainties regarding the potential effects of the Development on Atlantic salmon and sea trout, to reach a conclusion on the matter, and do not consider that it is appropriate to cause a public inquiry to be held to further investigate this.

Impact on commercial fishing

The SFF, SEIFG/ECIFG, Fishermen's Mutual Association (Pittenweem) Ltd. ("FMA"), 10 Metre and Under Association ("10MAU"), Fife Fish Producers Organisation ("FFPO") and Firth of Forth Lobster Hatchery ("FFLH") raised concerns and / or objections over impacts on fishing and this was also raised within a number of public representations objecting to the proposal. The Company in the ES assessed the loss of fishing grounds as minor significance with the wind farm area showing a low level of fishing compared with other areas in the Forth and Tay. The assessment also highlighted that there is a likelihood that some degree of fishing operations will be able to be safely resumed once construction is complete.

The Company have engaged with the SFF, and in conjunction with neighbouring wind farm developers, has formed the Forth and Tay Offshore Wind Developers – Commercial Fisheries Working Group ("FTOWDG-CFWG"). The FTOWDG-CFWG has been established to facilitate on-going dialogue throughout the pre-construction, construction and operational phases of the Development. The FTOWDG-CFWG has representation for all commercial fishing interests in the area and provides a forum to discuss any issues and potential mitigation in relation to the wind farm developments in the Forth and Tay. Conditions for the Company to continue in the FTOWDG-CFWG and mitigate hazards to fishing are contained in this consent (**Annex 2**). Notices to Mariners and notices placed through the Kingfisher Fortnightly Bulletins is to be considered as a condition as part of the marine licence, the application for which will be determined in due course.

The Scottish Ministers, therefore, consider that they have sufficient information regarding the potential impacts of the Development on commercial fisheries, and that a mechanism is now in place to facilitate communication, and do not consider that it is appropriate to cause a public inquiry to be held to further investigate this.

Impact on bats

One objection was raised in relation to bats through the public consultation process. The Company in the ES assessed the impact on bats and summarised that there was unlikely to be a pathway to an impact on bats and therefore no impacts were predicted. Nature conservation bodies SNH and the JNCC were consulted on the application and did not raise any concerns in relation to potential impacts on this species.

The Scottish Ministers, therefore, consider they have sufficient information regarding the potential impacts of the Development on bats, to reach a conclusion on the matter, and do not consider that it is appropriate to cause a public inquiry to be held to further investigate this.

Failure to meet the requirements of the Aarhus convention

Concerns were raised that, in August 2013, the United Nations Economic Commission Europe ("UNECE") declared that the UK government's National Renewable Energy Action Plan ("NREAP") violated the laws that transpose the Aarhus Convention into the UK legal framework. In particular, the public had not been given full access to information on the impacts on people and the environment, nor had been given decision-making powers over their approval.

The Aarhus Convention is an international convention which protects the rights of individuals in relation to environmental matters in gaining access to information, public participation in decision-making, and access to justice. The UK is a signatory to the Convention, as is the EU.

On the single accusation relating to the UK Government – public participation in the Renewables Roadmap – the UK Government was found to be in breach of the Convention, as it had not conducted a Strategic Environmental Assessment ("SEA") or other public consultation. However, on the four accusations for which the Scottish Government had lead responsibility, including public participation in the preparation of plans, programmes and policies in Scotland, and public participation in relation to the section 36 consent of a wind farm proposal, the Scottish Government's position was upheld. The ruling confirmed that Scotland is in compliance with this international obligation.

The Scottish Ministers consider that proper assessments have been undertaken for this Development and proper opportunity was afforded for consultation with stakeholders and members of the public, in compliance with the Public Participation Directive, to reach a conclusion on the matter. The Scottish Ministers are committed to applying strict environmental assessment procedures. The Scottish Ministers, therefore, do not consider it appropriate to cause a public inquiry to be held to further investigate this.

Sediment disturbance, transportation and deposition

One concern raised through the public consultation was regarding sediment disturbance, transportation and deposition and how this could affect spawning or nursery grounds for a number of fish species. Also raised was the potential for chemical contaminants within the sediment to be released.

The Company, in its ES and SEIS, assessed the potential impact of the Development on sediment disturbance. During the consultation, neither SNH nor the JNCC provided significant concerns with regard to sediment impacts, however raised the requirement for pre-construction sandeel surveys in the event that consent is granted and have recommended that this forms part of a condition of consent. Such a condition has been included in this consent (**Annex 2**).

Sea bed mobilisation arising from the installation of offshore turbines has to be set in the context of on-going mobilisation events resulting from human activities. There are many activities undertaken in the marine environment that result in sea bed mobilisation including demersal trawling for fish and sea bed dredging to ensure safe navigational access in and out UK ports and harbours. These activities can occur on a much larger spatial scale than the installation of offshore renewable turbines. Also sea bed mobilisation will take place as a result natural process particularly during storm events.

The Scottish Ministers consider that they have sufficient information regarding sediment disturbance, to reach a conclusion on the matter, and therefore do not consider that it is appropriate to cause a public inquiry to be held to further investigate this.

Decommissioning

A concern was raised regarding information on procedures and costs for decommissioning wind farms. It is a statutory requirement (sections 105 to 114 of Part 2 of the Energy Act 2004) that Secretary of State may require developers of offshore renewable installations to produce a fully costed decommissioning programme detailing how they intend to remove the installation when it comes to the end of its useful life and how the costs of doing so will be funded.

Section 109 of the 2004 Act provides that where a decommissioning programme has been approved by the Secretary of State it shall be the duty of the person who submitted the programme to secure that it is carried out in full, and in accordance with any conditions which may be attached to the approval. It is an offence for a person to decommission in any way that is not in accordance with either the decommissioning programme or the agreement of the Secretary of State.

In order to ensure that costs of decommissioning are met, the Company is required to have a financial bond in place and, in cases where ownership transfers, the new owners will be tested on their ability to fund decommissioning.

The Scottish Ministers consider that they have sufficient information regarding decommissioning to reach a conclusion on the matter, and therefore do not consider that it is appropriate to cause a public inquiry to be held to further investigate this.

Economic and employment benefits

A representation received raised concerns that the numbers of jobs for Scotland estimated within the Company's ES was based on conjecture. The Scottish Ministers do recognise that at this stage, many development and procurement decisions are still to be made. Changes in the anticipated expenditure or procurement patterns from those anticipated during the assessment will change the associated estimates of employment and Gross Value Added ("GVA"). The effect on employment through the supply chain depends critically on the design, construction and operation decisions that are yet to be taken, and on the extent to which Scottish companies are able to secure contracts. The figures also assume that the full proposal of 450 MW is developed.

The Scottish Ministers, therefore, consider they have sufficient information regarding economic and employment benefits to reach a conclusion on the matter and do not consider that it is appropriate to cause a public inquiry to be held to further investigate this.

Claims for emissions reductions

A representation received raised concerns that the claims made by developers are fanciful and misleading. The Scottish Ministers consider the Development will act as a major contributor for reducing the amount of CO_2 released in the atmosphere and hence help meet targets forming part of Scotland's commitments on climate change action to reduce greenhouse gases.

The Scottish Ministers consider the proposed project could result in an increase in the amount of renewable energy produced in Scotland and is consistent with the Government's policy on the promotion of renewable energy. Marine Scotland have estimated that the electricity generated by the Development would provide energy equivalent to the needs of over 288,400 homes, approximately 10% of the total number of homes in Scotland.

The Scottish Ministers, therefore, consider they have sufficient information regarding emissions reductions to reach a conclusion on the matter and do not consider that it is appropriate to cause a public inquiry to be held to further investigate this.

Summary

In addition to the issues raised by the objections, as discussed above, the Scottish Ministers have considered all other material considerations with a view to determining whether a public inquiry should be held with respect to the Application. Those other material considerations are discussed in detail below, as part of the Scottish Ministers' consideration of the Application. The Scottish Ministers are satisfied that they have sufficient information to enable them to take those material considerations into proper account when making their final determination on this Application. The Scottish Ministers have had regard to the detailed information available to them from the Application, the ES, the SEIS and in the consultation responses received from the closest onshore Planning Authorities, SEPA, SNH and other relevant bodies, together with all other objections and representations. The Scottish Ministers do not consider that a PLI is required in order to inform them further in that regard.

DETERMINATION ON WHETHER TO CAUSE A PUBLIC INQUIRY TO BE HELD

In the circumstances, the Scottish Ministers are satisfied that:

1. they possess sufficient information upon which to determine the Application;
2. an inquiry into the issues raised by the objectors would not be likely to provide any further factual information to assist Ministers in determining the Application;
3. they have had regard to the various material considerations relevant to the Application, including issues raised by objections; and

4. the objectors have been afforded every opportunity to provide information and to make representations.

Accordingly, having regard to all material considerations in this Application and the nature of the outstanding objections, the Scottish Ministers have decided that it is not appropriate to cause a public inquiry to be held.

THE SCOTTISH MINISTERS' CONSIDERATION OF THE ENVIRONMENTAL INFORMATION

The Scottish Ministers are satisfied that an ES has been produced in accordance with the 2000 Regulations and the applicable procedures regarding publicity and consultation laid down in the 2000 Regulations have been followed.

The Scottish Ministers have taken into consideration the environmental information, including the ES and SEIS, and the representations received from the consultative bodies, including SNH, SEPA, and from Fife Council, Scottish Borders Council, East Lothian Council, Angus Council, Dundee Council and from all other persons.

The Company, at the time of submitting the Application, was not a licence holder or a person authorised by an exemption to generate, distribute, supply or participate in the transmission of electricity when formulating "relevant proposals" within the meaning of paragraph 1 of Schedule 9 to the Electricity Act. The Company obtained a generation licence during the period whilst the Scottish Ministers were determining the application for consent. The Scottish Ministers have, from the date of the Application for consent, approached matters on the basis that the same Schedule 9, paragraph 3(1) obligations as applied to licence holders and the specified exemption holders should also be applied to the Company. The Scottish Ministers have also, as per regulation 4(2) of the 2000 Regulations, taken into account all of the environmental information and are satisfied the Company has complied with their obligations under regulation 4(1) of those Regulations.

THE SCOTTISH MINISTERS' CONSIDERATION OF THE POSSIBLE EFFECTS ON A EUROPEAN SITE

When considering an application for section 36 consent under the Electricity Act, which might affect a European protected site, the competent authority must first determine whether a development is directly connected with or necessary for the beneficial conservation management of the site. If this is not the case, the competent authority must decide whether the development is likely to have a significant effect on the site. Under the Habitats Regulations, if it is considered that the development is likely to have a significant effect on a European protected site, then the competent authority must undertake an AA of its implications for the site in view of the site's conservation objectives.

With regards to the Development, SNH and the JNCC advised that the Development is likely to have a significant effect upon the qualifying interests of a number of sites, both SACs and SPAs. As the recognised competent authority under European legislation, the Scottish Ministers, through MS-LOT, have considered the relevant information and undertaken an AA. On the basis of the AA, MS-LOT concluded that the Development would not adversely affect the integrity of any of the designated

sites if the mitigation measures outlined were implemented by means of enforceable conditions attached to this consent (**Annex 2**). Under the Habitats Regulations the relevant statutory nature conservation bodies must be consulted. This has been carried out and SNH and the JNCC are in agreement with the cumulative assessment conclusions for the marine mammal and freshwater fish SACs and in some instances the SPAs. There is disagreement on conclusions of the following:

- Kittiwake at Fowlsheugh
- Kittiwake at Forth Islands
- Gannet at Forth Islands
- Puffin at Forth Islands
- Razorbill at Forth Islands

In the case of this Development the key decision for the Scottish Ministers has been the test laid down under article 6(3) of the Habitats Directive (and transposed by the Habitats Regulations) which applies to the effects of projects on both SACs and SPAs. The Scottish Ministers are satisfied that the test in article 6(3) is met, and that the relevant provisions in the Habitats Directive, the Wild Birds Directive and the Habitats Regulations are being complied with. The precautionary principle, which is inherent in article 6 of the Habitats Directive and is evident from the approach taken in the AA, has been applied and complied with.

The Scottish Ministers are convinced that, by the attachment of conditions to the consent, the Development will not adversely affect site integrity of the European protected sites included within the AA. The Scottish Ministers are satisfied that no reasonable scientific doubt remains as to the absence of such effects and that the most up-to-date scientific data available has been used.

A recent announcement by the Scottish Government has highlighted the Outer Firth of Forth and Tay Complex as a draft marine SPA as it meets the SNH and the JNCC selection guidelines. A formal consultation will be undertaken towards the end of 2014 / beginning of 2015. Following consultation it is possible that this area could become a designated marine SPA towards the end of 2015. At this stage a further AA may be required if Likely Significant Effects ("LSE") on the qualifying features is identified from the Development. Under the Habitats regulations this must be carried out as soon as is reasonably practicable following designation.

THE SCOTTISH MINISTERS' CONSIDERATION OF THE APPLICATION

The Scottish Ministers' consideration of the Application and the material considerations are set out below.

For the reasons already set out above, the Scottish Ministers are satisfied that the Development finds support from the applicable policies and guidance. The Scottish Ministers are also satisfied that all applicable Acts and Regulations have been complied with, and that the Development will not adversely affect site integrity of any European protected site.

The impacts on birds

SNH, the JNCC and the RSPB Scotland expressed concerns about the potential impact of the Development in combination with the SAWEL, SBWEL and ICOL developments on several bird species using the Firth of Forth. Advice from SNH and the JNCC on the 7th March 2014 was that they could not conclude with reasonable certainty that there would be no adverse effect arising from the Forth and Tay wind farms on the site integrity of Forth Islands or Fowlsheugh SPAs. RSPB Scotland object to the Forth and Tay wind farms, due to the unacceptable harm to seabird species. The species highlighted by SNH, the JNCC, and RSPB Scotland to be of most concern due to the cumulative impacts of the Forth and Tay wind farms were kittiwake, gannet and puffin. Concerns over gannet were mainly in relation to collision risk with the WTGs during operation whereas concerns over puffin were in relation to displacement of these species from the wind farm sites. Kittiwake were principally affected by displacement and barrier effects, with collision effects making a relatively small contribution to the estimated impacts.

These species along with guillemot, razorbill, herring gull, lesser black-backed gull, fulmar and common and Arctic tern were considered in the AA. The AA requires to assess the implications of the Development (in combination with the SAWEL, SBWEL and ICOL proposals, and including mitigation measures) for each site in view of the site's conservation objectives. SNH and the JNCC have advised that in the case of bird species the relevant conservation objective in the present case is to ensure the long-term maintenance of the population of the relevant qualifying bird species as a viable component of the relevant SPA. This is because that objective not only encompasses direct impacts to the species, such as significant disturbance when birds are out with the SPA, but it can also address indirect impacts, such as the degradation or loss of supporting habitats which are out with the SPA but which help maintain the population of the species of the SPA in the long-term. Such an assessment requires the use of data and scientific method to estimate two key values: first, to predict the impact of the Development (in combination with the SAWEL, SWBEL and ICOL proposals, and including mitigation measures) on the population of the qualifying species; and second, to quantify the level of impact that such populations could sustain without there being an adverse effect on the population of the species as a viable component of the site (i.e. an acceptable level of population change or "impact threshold", whether caused by increased mortality or decreased productivity). In the case of offshore wind farms, such impacts on bird species principally occur by virtue of two key effects, namely (i) increased mortality by direct collision of birds with a wind turbine and/or (ii) decreased productivity by displacement/barrier of birds from their foraging area (full details are provided in the AA).

The impacts from the Development were detailed by the Company and further refined by MSS, SNH and the JNCC. Several methods were used by SNH, the JNCC and MSS to determine levels of acceptable change. The AA concluded that the proposed Development, ICOL, SAWEL and SBWEL will not, on their own or in combination with each other (or where appropriate for consideration, other developments already licenced), subject to conditions, adversely affect site integrity of the Buchan Ness to Collieston Coast SPA, Fowlsheugh SPA, Forth Islands SPA or St Abb's Head to Fast Castle SPA.

SNH and the JNCC disagreed with some of the conclusions of the AA and advised that no adverse effect on site integrity could not be concluded for:

- Fowlsheugh SPA with respect to kittiwake
- Forth Islands SPA with respect to kittiwake, gannet, puffin and razorbill

The reasons for the differences in the conclusions made by the AA and SNH and the JNCC were mainly due to the different methods used to estimate thresholds and the SNH and the JNCC view that where species are known to be declining that the levels of predicted effects should not come close to the identified thresholds. MSS advice is that the thresholds take account of the trajectories of all species assessed and it is therefore appropriate to conclude no adverse effect on site integrity if the predicted effect is below the identified threshold. The AA used the most up to date and best available evidence in reaching its conclusions.

SNH and the JNCC also highlighted that effects on species not covered under HRA also require consideration (i.e. individuals breeding out with SPAs and non-breeding individuals). For some species, e.g. kittiwake, a considerable number of smaller colonies exist outside of the SPA boundaries. Whilst it is possible for effects to be attributed to these colonies, the setting of thresholds in the same manner as with the SPA populations becomes problematic due to the paucity of data from the colonies, their small size, and the questionable value of any population models that could therefore be produced. Assessments therefore focused upon the SPA populations as these were identified in advice from SNH and the JNCC as being of greatest concern.

Following a meeting held on 7th July 2014 between Marine Scotland and SNH, SNH followed up with a letter of 11th July which stated they had the opportunity to review and discuss aspects of their advice where conclusions reached by SNH & JNCC on Special Protection Areas are at variance from those reached by Marine Scotland Science. This was done in an effort to understand the nature and origin of the differences, and the extent to which they were germane to the decisions facing the Scottish Ministers with regards to this Application and the other applications for wind farms in the Forth and Tay.

In the letter, SNH noted that there was agreement between their advisers on the vast majority of the issues raised by the Forth and Tay proposals in terms of their effects on the natural heritage and in particular on protected species of seabird. SNH also noted there were precautionary elements in the approaches taken and the models recommended by SNH & JNCC, and by Marine Scotland Science.

SNH stated that what level of precaution is appropriate is not a matter that can be determined precisely, and judgements have to be made. They went on to say that this is a new and fast developing area of scientific study and that approaches are continually developing and being tested. Many of the methods underpinning assessment (such as collision risk modelling) are based on assumptions for which it may take a long time to get field data to provide verification. So again judgements had to be made where empirical analysis is unable to provide certainty.

SNH outlined several areas of ornithology monitoring which they recommended should be included in any consent granted. These are:

- the avoidance behaviour of breeding seabirds around turbines;
- flight height distributions of seabirds at wind farm sites;
- displacement of kittiwake, puffin and other auks from wind farm sites; and
- effects on survival and productivity at relevant breeding colonies.

The Scottish Ministers consider that, having taken account of the information provided by the Company, the responses of the consultative bodies, the AA completed, and having regard to the mitigation measures and conditions proposed, there are no outstanding concerns in relation to the Development's impact on birds which would require consent to be withheld.

The impacts on fish and shellfish

The consultation responses from the ASFB, the TDSFB, and the EDSFB confirmed objections to the Development from each. The three organisations raised concerns regarding the uncertainty over the potential impacts on migratory fish and their belief that there is insufficient information to make an adequate assessment of the potential effect on salmonid populations.

The key issues included subsea noise during construction and operation, EMFs arising from cabling and operation of the devices, disturbance or degradation of the benthic environment and aggregation effects.

A condition requiring a comprehensive monitoring programme has been included within this consent (**Annex 2**) and MSS are undertaking strategic research on migratory fish which the Company will contribute to at a local level (Firth of Forth). SNH identified several river SACs where the Development is likely to have a significant effect on the qualifying interests. This required MS-LOT, on behalf of the Scottish Ministers, to undertake an AA in view of the conservation objectives for each SAC. The AA concluded that subject to certain conditions, including appropriate mitigation and monitoring, the Development could be implemented without adversely effecting site integrity. Such conditions have been included by the Scottish Ministers within this consent (**Annex 2**). To mitigate the impacts of noise, the Company must produce a Construction Method Statement ("CMS") and Environmental Management Plan ("EMP") for the approval of the Scottish Ministers, and to mitigate against potential Electro Magnetic Fields ("EMF"), the Company has committed to burying cables to a minimum of 1.5 metres where possible, and where this is not possible, to use rock armouring in order to provide similar distance between cables and fish receptors.

SNH raised some concerns over the potential impacts on cod, herring and sandeels and requested that the Company conduct a post consent/pre construction sandeel survey to ascertain the distribution and density of sandeels across their site and provide additional baseline information. This would then be used in conjunction with a post construction survey to validate the ES assessments of low impact to sandeels. MSS highlighted that scouring around the bases of jackets was likely to have the largest effect on the bed and suspended sediments, as well as temporarily for sandeels due to short term changes to the sediment transport as a result

although also highlighted that should the Company choose to utilise Gravity Base Foundations there may be some localised loss of habitat for sandeels due to the requirement for dredging and the area covered by each base. MSS did advise that the Development area is not of key importance to the species.

The Scottish Ministers consider that, having taken account of the information provided by the Company, the responses of the consultative bodies, and having regard to the mitigation measures and conditions proposed, there are no outstanding concerns in relation to the Development's impact on fish species and shellfish which would require consent to be withheld.

The impacts on marine mammals

The Scottish Ministers note that techniques used in the construction of most offshore renewable energy installations have the potential to impact on marine mammals. SNH and the JNCC concluded that, subject to conditions, there would be no long-term effects from underwater noise disturbance on the bottlenose dolphin population from the Moray Firth SAC, or the harbour seal population from the Firth of Tay & Eden Estuary SAC. It was also concluded that there would be no long-term effects from underwater noise disturbance on the grey seal population from the Isle of May or Berwickshire & Northumberland Coast SACs and thus no adverse effect on site integrity. SNH and the JNCC agreed with all the conclusions reached in the AA with respect to marine mammals.

Impacts on other cetacean species including harbour porpoise, minke whale and white beaked dolphin were also considered by SNH and the JNCC who advised that the temporary disturbance/ displacement caused by the Development and the other proposed Forth and Tay wind farms has the potential to affect the animals energy budget. However these species are wide-ranging, and the spatial scale and temporary nature of the disturbance from wind farm piling and other construction activity is very small when compared to the range and movements of these species. SNH and the JNCC advised that disturbance to these species will not be detrimental to the maintenance of these populations at a favourable conservation status in their natural range.

Concerns were raised regarding potential corkscrew injuries to harbour seals. Discussions are ongoing between MSS and SNH over the cause and effect of corkscrew injuries to seals but there is not sufficient evidence at this time to attribute this type of injury to one particular source. A potential source may be a ducted propeller, such as a Kort nozzle or some types of Azimuth thrusters. Such systems are common to a wide range of ships including tugs, self-propelled barges and rigs, various types of offshore support vessels and research boats.

SNH and the JNCC have previously advised that it has not been established whether there is a link between the use of ducted propellers and the corkscrew injuries which have been recorded in seal species over the last couple of years. Research in this regard has been commissioned by Marine Scotland and SNH, and is currently being undertaken by the Sea Mammal Research Unit ("SMRU"). SNH and the JNCC will be consulted on the Vessel Management Plan ("VMP") which is a condition of this consent, as will such other advisors and organisations as may be required at the discretion of the Scottish Ministers. This plan will detail the mitigation measures

proposed by the Company to reduce the probability of injuries of this type occurring to seals as a direct result of vessels associated with the Development. Scottish Ministers are satisfied that the mitigation and monitoring included in the conditions attached to this consent (**Annex 2**) will suffice.

A European Protected Species ("EPS") licence will be required by the Company prior to construction and a Marine Mammal Monitoring Programme ("MMMP") is required as part of the Project Environmental Monitoring Programme ("PEMP") condition of this consent.

The Scottish Ministers consider that, having taken account of the information provided by the Company, the responses of the consultative bodies, and having regard to the mitigation measures and conditions proposed, there are no outstanding concerns in relation to the Development's impact on marine mammals which would require consent to be withheld.

The impacts on benthic ecology and habitat interests

Benthic surveys undertaken by the Company did not identify any Priority Marine Features within the wind farm site or cable corridor. As such no concerns regarding benthic ecology were raised by SNH, the JNCC or MSS.

The Scottish Ministers consider that, having taken account of the information provided by the Company, the responses of the consultative bodies, and having regard to the mitigation measures and conditions proposed, there are no outstanding concerns in relation to the Development's impact on benthic ecology and habitat interests which would require consent to be withheld.

Sediment disturbance, transport and deposition

The Company, in its ES and SEIS, assessed the potential impact of the Development on sediment disturbance. Neither SNH nor the JNCC provided significant concerns with regard to sediment impacts, however did recommend a requirement for pre-construction sandeel surveys in the event that consent is granted. This requirement is reflected in conditions of this consent **(Annex 2)**.

Sea bed mobilisation arising from the installation of offshore turbines has to be set in the context of on-going mobilisation events resulting from human activities. There are many activities undertaken in the marine environment that result in sea bed mobilisation including demersal trawling for fish and sea bed dredging to ensure safe navigational access in and out UK ports and harbours. These activities can occur on a much larger spatial scale than the installation of offshore renewable turbines. Also sea bed mobilisation will take place as a result of natural processes particularly during storm events.

The Scottish Ministers consider that they have sufficient information regarding sediment disturbance, to reach a conclusion on the matter, and therefore there are no outstanding concerns relating to sediment disturbance, transport and deposition which would require consent to be withheld.

The impact on bats

The Company in the ES assessed the impact on bats and summarised that there was unlikely to be a pathway to an impact on bats and therefore no impacts were predicted. Nature conservation bodies SNH and the JNCC were consulted on the application and did not raise any concerns in relation to potential impacts on this species.

Scottish Ministers consider that, having taken account of the information provided by the Company, the responses of the consultative bodies, there are no outstanding concerns in relation to the Development's impact on bats which would require consent to be withheld.

The impacts on commercial fishing activity

Regarding commercial fishing activity, the SFF, ECIFG, 10MAU, FMA, FFPO and Forth lobster hatchery raised concerns regarding the impact on traditional fishing grounds.

The Scottish Ministers are aware that there will be temporary displacement of those fishing in the Development area during construction however the Company has agreed that all efforts will be made to minimise any displacement.

A FTOWDG-CFWG has been established to facilitate on-going dialogue throughout all phases of the Development. This group represents all commercial fishing interests in the area, including SFF and ECIFG. The participation in and the continuation of this group, and also the appointment of a Fisheries Liaison Officer ("FLO") are reflected in conditions of this consent **(Annex 2)**. The Company have stressed that they remain committed to the FTOWDG-CFWG and highlight that the terms of reference were agreed alongside fishing industry representatives.

The Scottish Ministers consider that, having taken account of the information provided by the Company, the responses of the consultative bodies, and having regard to the mitigation measures and conditions proposed, there are no outstanding concerns in relation to the Development's impact on commercial fishing activity which would require consent to be withheld.

The impacts on shipping and navigational safety

The CoS had no objections to the Development and found that the Company had taken every step to accommodate existing shipping patterns and minimise diversions. The CoS did have concerns regarding cumulative impacts with other potential developments in the Forth and Tay, however these were not significant enough to object.

The NLB did not object to the Development and highlighted lighting and marking requirements and also that the nature and timescale of the works to be placed in Notice(s) to Mariners, Radio Navigation Warnings and publication in appropriate bulletins. The Lighting and Marking requirements will form part of the Development Specification and Layout Plan ("DSLP") once submitted by the Company. Submission of a DSLP is a condition of this consent **(Annex 2)** Notice(s) to Mariners will be a condition contained within the Marine Licence

Neither the MCA nor the Royal Yachting Association Scotland ("RYA Scotland") had any concerns regarding navigational issues.

The Scottish Ministers consider that, having taken account of the information provided by the Company, the responses of the consultative bodies, and having regard to the mitigation measures and conditions proposed, there are no outstanding concerns in relation to the Development's impact on shipping and navigational safety which would require consent to be withheld.

The impacts on aviation
NATS did not object to the Development.

The DIO did initially object to the Development due to the Development potentially causing unacceptable interference to Air Traffic Control ("ATC") radar at RAF Leuchars, Precision Approach Radar ("PAR") at Leuchars, and Air Defence ("AD") radar at Brizlee Wood.

After discussions with the Company, during which the Company submitted a technical proposal to overcome the unacceptable impacts of the proposed Development on ATC at RAF Leuchars, the MoD undertook a reassessment of the Development and confirmed that they were content to remove their objection. The reassessment concluded that the MoD had no concerns regarding the impact of the Development on the PAR at RAF Leuchars, the AD radar at Brizlee Wood and, subject to conditions being included on any consent, the ATC radar at Leuchars.

The DIO confirmed that there would be no physical impacts from the Development on offshore defence interests.

The Scottish Ministers consider that, having taken account of the information provided by the Company, the responses of the consultative bodies, and having regard to the mitigation measures and conditions proposed, there are no outstanding concerns in relation to the Development's impact on aviation which would require consent to be withheld.

The impacts on recreation and tourism
Some concerns have been raised through the public consultation regarding the Development's potential impact upon tourism resulting from its landscape and visual impacts.

In this respect, MS-LOT note that attitudes of tourists towards wind farms have been assessed in many studies. The results of stated preference studies have found that generally the majority of tourists were positive towards wind farms. Omnibus Research, commissioned by Visit Scotland in 2011, found that 80% of the survey respondents stated that a wind farm would not affect their decision to visit an area. The attitudes of recreational users have been researched to a lesser extent. Landry, Allen, Cherry & Whitehead's 2012 study into the impact of wind farms on coastal recreational demand found that offshore wind farms overall had little impact on recreational visits by residents. However, there are individual differences within the data which, averaged out, show an overall limited impact. Whilst some residents said

they would take fewer trips to the beach if there was a wind farm within view, others indicated that they would actually take more trips.

The Scottish Ministers consider that, having taken account of the information provided by the Company, the responses of consultative bodies, and having regard to the mitigation measures and conditions proposed, there are no outstanding concerns in relation to the Development's impact on recreation and tourism which would require consent to be withheld.

Visual impacts of the Development

SNH, the Scottish Ministers statutory advisors on visual impacts and designated landscape features, was consulted and did not object to the proposed Development on the grounds of visual impacts. SNH did state however that the key landscape, seascape and visual impacts of the Development, together with the ICOL, SAWEL and SBWEL proposals to develop another three offshore wind farms adjacent to the Development site, would cause widespread and significant adverse landscape and visual impacts along the Scottish East coast from St Cyrus in Aberdeenshire, through Angus and Fife, South to Dunbar in East Lothian.

SNH highlighted that the main impacts of the Development would be experienced along three stretches of coast: South Aberdeenshire/Angus; East Fife; and East Lothian. Furthermore, in combination with ICOL, SAWEL and SBWEL, the Development would result in significant cumulative effects on views and coastal character. The Development would have a particularly significant effect on the East Fife coastline given its proximity.

SNH also advised that the Development (mainly in combination with ICOL) would change the night time character of the sea, extending lit-ribbon development from along the Fife and East Lothian coasts out into the Forth.

SNH recommended that landscape consultants continue to be involved post-consent to work with the project and engineering teams to scope and finalise the wind farm design. It is also stated that visualisations could be provided post-consent to illustrate the finalised wind farm from key representative viewpoints which would be for public information only and not for consultation.

East Lothian Council and Angus Council also both raised concerns regarding the potential visual impacts of the Development. These concerns were not however sufficient to cause either Council to object to the Development.

The Scottish Ministers recognise that the Development will be a prominent new feature on the seascape from the Fife coastline.

Marine Scotland officials have undertaken a site visit of a selection of viewpoints provided in the Company's Application. During these visits, officials were able to compare the views from those viewpoints using the visual photomontages in the Company's ES.

The Scottish Ministers consider that, having taken account of the information provided by the Company, the responses of the consultative bodies, and having regard to the mitigation measures and conditions proposed, there are no outstanding concerns in relation to the Development's visual impact which would require consent to be withheld.

Cumulative impacts of the Development

The close proximity of the Development to the proposed adjacent ICOL and SAWEL and SBWEL proposals has meant that cumulative impacts have raised significant concerns. The issue of potential cumulative impact on landscape and visual amenity was considered by SNH and the Planning Authorities with a number of concerns raised, however not enough to merit any objections to the Development.

Cumulative impacts on marine wildlife was raised by several organisations including, amongst others, SNH, the JNCC, RSPB Scotland, WDC, and the ASFB. Cumulative impacts on birds, marine mammals and fish interests have been fully considered in this consent and conditions put in place to minimise the impacts and ensure that residual impacts are within acceptable limits (**Annex 2**).

The cumulative impacts on certain bird species has led to the original design envelope being reduced to ensure that any impacts are within calculated acceptable levels (the number of turbines being reduced from the 125 applied for to the 75 consented, the Development footprint area was also reduced by the Company from 105km2 to 82.7km2). The cumulative impacts on any protected species or habitats have also been considered in the AA, undertaken by MS-LOT, on behalf of the Scottish Ministers. Cumulative impacts on commercial fisheries were also raised by the SFF, however a working group ("FTOWDG-CFWG") has been established in order to discuss and address any issues. A condition to ensure the Company continues its membership of the working group and its commitment to any mitigation strategy forms part of this consent (**Annex 2**).

The Scottish Ministers consider that, having taken account of the information provided by the Company, the responses of the consultative bodies, and having regard to the mitigation measures and conditions proposed, there are no outstanding concerns in relation to the cumulative impact of this Development with other developments in the Forth and Tay region which would require consent to be withheld.

The efficiency of wind energy

No form of electricity generation is 100% efficient and wind farms, in comparison with other generators, are relatively efficient. Less than half the energy of the fuel going into a conventional thermal power station is turned into useful electricity – a lot of it ends up as ash, nuclear waste or air pollution harmful to health as well as carbon dioxide. Also, the fuel for a wind farm does not need to be mined, refined or shipped and transported from foreign countries. The Scottish Ministers consider that although the electrical output of wind farms is variable, and cannot be relied on as a constant source of power, the electricity generated by wind is a necessary component of a balanced energy mix which is large enough to match Scotland's demand. Power supplied from wind farms reduces the need for power from other sources and helps reduce fossil fuel consumption.

The Scottish Ministers consider that, having taken account of the information provided by the Company and representations received, there are no outstanding concerns in relation to the efficiency of wind energy which would require consent to be withheld.

The development of renewable energy

The Scottish Ministers must ensure that the development of the offshore wind sector is achieved in a sustainable manner in the seas around Scotland. This Development forms part of the Scottish Territorial Waters Round of offshore wind farm sites to be consented in Scotland and as such will raise confidence within the offshore wind industry that Scotland is delivering on its commitment to maximise offshore wind potential. This Development will also benefit the national and local supply chains. The Scottish Ministers aim to achieve a thriving renewables industry in Scotland, the focus being to enhance Scotland's manufacturing capacity, to develop new indigenous industries, and to provide significant export opportunities.

This 450 MW Development has the potential to annually generate renewable electricity equivalent to the demand from approximately 288,400 homes. This increase in the amount of renewable energy produced in Scotland is entirely consistent with the Scottish Government's policy on the promotion of renewable energy and its target for renewable sources to generate the equivalent of 100% of Scotland's gross annual electricity consumption by 2020. Scotland requires a mix of energy infrastructure in order to achieve energy security at the same time as moving towards a low carbon economy. Due to the intermittent nature of renewables generation, a balanced electricity mix is required to support the security of supply requirements. This does not mean an energy mix where Scotland will be 100% reliable on renewables generation by 2020; but it supports Scotland's plan to remain a net exporter of electricity.

The Scottish Ministers consider that, having taken account of the information provided by the Company and representations received, there are no outstanding concerns in relation to the development of renewable energy which would require consent to be withheld.

The proposed location of the Development

The Scottish Ministers consider that the Company has carefully considered the location of the Development and selected the Firth of Forth due to its many advantages. In February 2009 The Crown Estate ("TCE") announced an Exclusivity Agreement with the Company. The suitability of the site was further affirmed in May 2010 with the Scottish Government's publication of the Strategic Environmental Assessment ("SEA") in the Draft Plan for Offshore Wind Energy in Scotland which confirmed that all ten Scottish Territorial Waters 2009 lease round sites could be developed between 2010 and 2020 if "appropriate mitigation is implemented to avoid, minimise and offset significant environmental impacts". The Marine Renewable Energy and the Natural Heritage: an Overview and Policy Statement SNH, 2004) and Matching Renewable Electricity Generation and Demand (Scottish Government, 2006) indicated the Firth of Forth Area was favoured for development of large scale offshore wind farms. In 2008 the Company identified the wind farm site as a suitable site for offshore wind farm development; there are a number of reasons for the site being suitable:

- Seabed of less than 60m in depth;
- Economic distance from major grid connection points and ports;
- Avoidance of excessive wave heights;
- Avoidance of remote areas; and
- Avoidance of known major ecological constraints.

In March 2011 Blue Seas – Green Energy, A Sectoral Marine Plan for Offshore Wind Energy in Scottish Territorial Waters was published by Marine Scotland. The Final Plan in this document included 6 of the 10 sites initially put forward by TCE. Kintyre; Forth Array; Bell Rock and Solway Firth were not included in the Final Plan. BOWL was included in the Final Plan as a short-term site.

The Scottish Ministers consider that, having taken account of the information provided by the Company, the responses of the consultative bodies and members of the public, there are no outstanding concerns with regards to the proposed location of the Development which would require consent to be withheld.

Decommissioning

Some concerns were raised through the public consultation regarding procedures and costs for decommissioning wind farms. Chapter 3 (sections 105 to 114) of Part 2 of the Energy Act 2004 provides for the decommissioning of offshore installations. The scheme provides that the Secretary of State, by notice, requires a developer who wishes to construct or extend an offshore installation to submit to him a decommissioning programme. Where the development in question is – wholly or partly – in Scottish waters, then the Secretary of State must consult the Scottish Ministers before issuing the notice to the developer.

Section 109 of the 2004 Act provides that where a decommissioning programme has been approved by the Secretary of State it shall be the duty of the person who submitted the programme to secure that it is carried out in full, and in accordance with any conditions which may be attached to the approval. It is an offence for a person to decommission in any way that is not in accordance with either the decommissioning programme or the agreement of the Secretary of State.

In order to ensure that costs of decommissioning are met, the Company is required to have a financial bond in place and, in cases where ownership transfers, the new owners will be tested on their ability to fund decommissioning.

The Scottish Ministers consider that, having taken account of the information provided by the Company, and the representations received, there would be no outstanding concerns in relation to decommissioning which would require consent to be withheld.

Economic benefits

The Company estimate that in Scotland the expenditure made by the proposed Development could generate GVA of between £119m (of which just under two-thirds is generated during construction phase, 10% during operation and just over 25% during decommissioning) and £570m (of which approximately 90% is generated during construction phase, approximately 3% during operations and the remainder during decommissioning)

The Company estimate that the Development could support between 470 jobs in the peak year of construction phase reducing to approximately 100 jobs per year for operations (this rises to 275 jobs per year for decommissioning) and 5,200 jobs in the peak year of construction phase, reducing to 145 jobs per year for operations (rising to approximately 350 jobs per year for decommissioning).

The above estimates are based on 2 scenarios:

1. a 'low case' scenario whereby the percentage of expenditure by project sub – phase and geography was described. This low case refers to the total value of contracts that have been delivered, or are expected to be delivered, from within each geography, assuming the current supply chain. This represents a conservative estimate of the supply chain.

2. a 'high case' scenario using the same process as for the low case to reflect the uncertainties involved and the long duration of project works. The high case scenario refers to the total value of contracts that could be secured with a stronger supply chain. This assumes that some Scottish based firms not currently in a position to tender for work, but there is reason to expect them to be in the future, could secure contracts.

It should be recognised however that at this stage, many development and procurement decisions are still to be made. Changes in the anticipated expenditure or procurement patterns from those anticipated during the assessment will change the associated estimates of employment and GVA. The effect on employment through the supply chain depends critically on the design, construction and operation decisions that are yet to be taken, and on the extent to which Scottish companies are able to secure contracts. The figures also assume that the full proposal of 450 MW is developed.

The Scottish Ministers have taken account of the economic information provided by the Company and consider that there are no reasons in relation to this which would require consent to be withheld.

Summary

The Scottish Ministers consider the following as principal issues material to the merits of the section 36 consent application made under the Electricity Act:

- The Company has provided adequate environmental information for the Scottish Ministers to judge the impacts of the Development;

- The Company's ES, SEIS and the consultation process has identified what can be done to mitigate the potential impacts of the Development;

- The matters specified in regulation 4(1) of the 2000 Regulations have been adequately addressed by means of the submission of the Company's ES and SEIS, and the Scottish Ministers have judged that the likely environmental

impacts of the Development, subject to the conditions included in this consent (**Annex 2**), are acceptable;

- The Scottish Ministers are satisfied that the Development can be satisfactorily decommissioned and will take steps to ensure that where any decommissioning programme is required under the Energy Act 2004, such programme is prepared in a timely fashion by imposing a condition requiring its submission to the Secretary of State before the Commencement of the Development (**Annex 2**);

- The Scottish Ministers have considered material details of how the Development can contribute to local or national economic development priorities and the Scottish Government's renewable energy policies;

- The Scottish Ministers have considered fully and carefully the Application and accompanying documents, the SEIS, all relevant responses from consultees and the twenty five (25) public representations received; and

- On the basis of the AA, the Scottish Ministers have ascertained to the appropriate level of scientific certainty that the Development (in combination with the other potential Forth and Tay proposals, and in light of mitigating measures and conditions proposed) will not adversely affect site integrity of any European protected sites, in view of such sites' conservation objectives.

THE SCOTTISH MINISTERS' DETERMINATION

Subject to the conditions set out in **Annex 2** to this Decision, the Scottish Ministers **GRANT CONSENT** under section 36 of the Electricity Act for the construction and operation of the Development, with a permitted capacity of up to **450 MW** (as described in **ANNEX 1**).

Deemed planning for the onshore ancillary development was not applied for by the Company.

In accordance with the 2000 Regulations, the Company must publicise this determination for two successive weeks in the Edinburgh Gazette and one or more newspapers circulating in the locality of the Development.

In reaching their decision, the Scottish Ministers have had regard to all, representations and relevant material considerations, and, subject to the conditions included in this consent (**Annex 2**), are satisfied that it is appropriate for the Company to construct and operate the generating station in the manner described in **Annex 1**.

Copies of this letter and consent have been sent to Fife Council, Scottish Borders Council, East Lothian Council, Angus Council, and Dundee Council. This letter has also been published on the Marine Scotland licensing page of the Scottish Government's website –

http://www.scotland.gov.uk/Topics/marine/Licensing/marine/scoping

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 applications for judicial review can be found at Chapter 58 of the Court of Session rules on the website of the Scottish Courts –

http://www.scotcourts.gov.uk/rules-and-practice/rules-of-court/court-of-session-rules

Your local Citizens' Advice Bureau or your solicitor will be able to advise you about the applicable procedures.

Yours sincerely,

JAMES McKIE
Leader, Marine Scotland Licensing Operations Team
A member of the staff of the Scottish Ministers
DATE

ANNEX 1

Description Of The Development

An offshore wind turbine generating station, located as shown in Figure 1 below, with a gross electrical output capacity of up to 450 MW comprising:

1. not more than 75 three-bladed horizontal axis wind turbines each with a maximum blade tip height of up to 197 metres and a maximum rated capacity of up to 6MW;
2. for each WTG, a jacket or gravity base foundation;
3. for each WTG, a transition piece (including access ladders / fences and landing platforms), turbine tower, blades and nacelle; and
4. inter array cabling between the turbines and the offshore substation platforms,

and, except to the extent modified by the foregoing, all as specified in the application letter and the project description contained in the accompanying Environmental Statement (Chapter 5 of the ES as supplemented by Technical Appendix 1 of the SEIS) but subject always to the conditions specified in **Annex 2** of this consent.

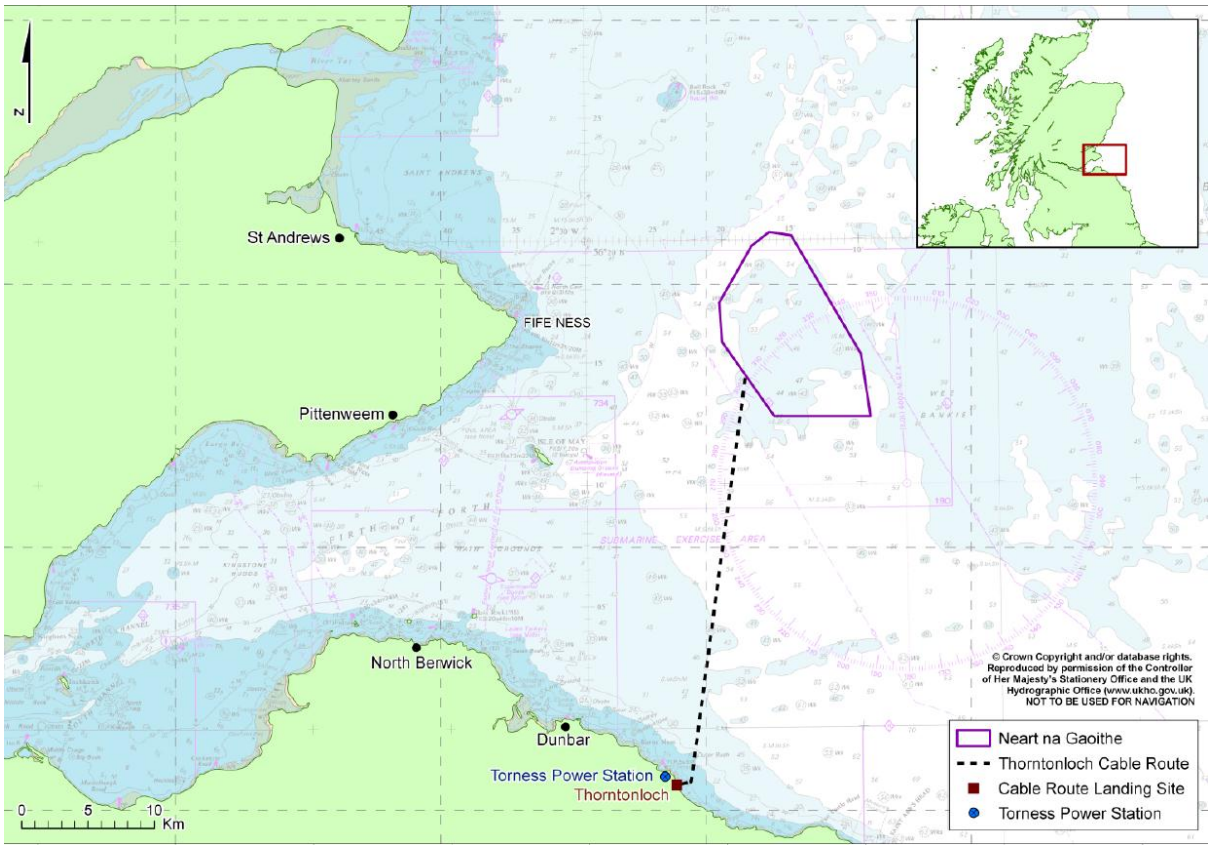


Figure 1: location of offshore wind turbine generating station

ANNEX 2

CONDITIONS OF THE SECTION 36 CONSENT

The consent granted in accordance with section 36 of the Electricity Act 1989 is subject to the following conditions:

1. The consent is for a period from the date this consent is granted until the date occurring 25 years after the Final Commissioning of the Development. Written confirmation of the date of the Final Commissioning of the Development must be provided by the Company to the Scottish Ministers, the Planning Authorities, SNH and the JNCC no later than one calendar month after the Final Commissioning of the Development. Where the Scottish Ministers deem the Development to be complete on a date prior to the date when all wind turbine generators forming the Development have supplied electricity on a commercial basis to the National Grid then, the Scottish Ministers will provide written confirmation of the date of the Final Commissioning of the Development to the Company, the Planning Authority, SNH and the JNCC no later than one calendar month after the date on which the Scottish Ministers deem the Development to be complete.

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

2. The Commencement of the Development must be a date no later than 5 years from the date this consent is granted, or such later date from the date of the granting of this consent as the Scottish Ministers may hereafter direct in writing.

Reason: *To ensure that the Commencement of the Development is undertaken within a reasonable timescale after consent is granted.*

3. Where the Secretary of State has, following consultation with the Scottish Ministers, given notice requiring the Company to submit to the Secretary of State a Decommissioning Programme, pursuant to section 105(2) and (5) of the Energy Act 2004, then construction may not begin on the site of the Development until after the Company has submitted to the Secretary of State a Decommissioning Programme in compliance with that notice.

Reason: *To ensure that a decommissioning programme is submitted to the Secretary of State where the Secretary of State has, following consultation with the Scottish Ministers, so required before any construction commences.*

4. The Company is not permitted to assign this consent without the prior written authorisation of the Scottish Ministers. The Scottish Ministers may grant (with or without conditions) or refuse such authorisation as they, at their own discretion, see fit. The consent is not capable of being assigned, alienated or transferred otherwise than in accordance with the foregoing procedure.

Reason: *To safeguard the obligations of the consent if assigned to another company.*

5. In the event that for a continuous period of 12 months or more any WTG installed and commissioned and forming part of the Development fails to produce electricity on a commercial basis to the National Grid then, unless otherwise agreed in writing by the Scottish Ministers and after consultation with the Company and any advisors as required at the discretion of the Scottish Ministers, any such WTG may be deemed by the Scottish Ministers to cease to be required. If so deemed, the WTG must be decommissioned and the area of the Site containing that WTG must be reinstated by the Company in accordance with the procedures laid out within the Company's Decommissioning Programme, within the period of 24 months from the date of the deeming decision by the Scottish Ministers..

Reason: *To ensure that any redundant WTGs are removed from the Site in the interests of safety, amenity and environmental protection.*

6. If any serious health and safety incident occurs on the Site requiring the Company to report it to the Health and Safety Executive then the Company must also notify the Scottish Ministers of the incident within 24 hours of the company becoming aware of an incident occurring.

Reason: *To inform the Scottish Ministers of any serious health and safety incident occurring on the Site.*

7. The Development must be constructed and operated in accordance with the terms of the Application and related documents, including the accompanying ES, the SEIS and Annex 1 of this letter, except in so far as amended by the terms of this section 36 consent.

Reason: *To ensure that the Development is carried out in accordance with the Application documentation.*

8. 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 inspection.*

9. The Company must, no later than 6 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 SNH, the JNCC, SEPA, MCA, NLB, RSPB Scotland, the Planning Authority and any such other advisors or organisations as may be required at the discretion of the Scottish Ministers. The Development must, at all times, be constructed in accordance with the approved CoP (as updated and amended from time to time by the Company). Any updates or amendments made to the CoP by the Company must be submitted, in writing, by the Company to the Scottish Ministers for their written approval.

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. The Company must, no later than 6 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, the JNCC, SEPA, MCA, NLB, RSPB Scotland, the Planning Authority and any such other advisors or organisations as may be required at the discretion of the Scottish Ministers. The CMS must set out the construction procedures and good working practices for installing the Development. The CMS must also include 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. The CMS must be in accordance with the construction methods assessed in the ES and must include details of how the construction related mitigation steps proposed in the ES are to be delivered. The Development must, at all times, be constructed in accordance with the approved CMS (as updated and amended from time to time by the Company). Any updates or amendments made to the CMS by the Company must be submitted, in writing, by the Company to the Scottish Ministers for their written approval.

The CMS 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. The event that pile foundations are to be used, the Company must, no later than 6 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, the JNCC and any such other advisors as may be required at the discretion of the Scottish Ministers. The Development must, at all times, be constructed in accordance with the approved PS (as updated and amended from time to time by the Company). Any updates or

amendments made to the PS by the Company must be submitted, in writing, by the Company to the Scottish Ministers for their written approval.

The PS must include:

a. Full details of the proposed method and anticipated duration of pile-driving at all locations;
b. Details of soft-start piling procedures and anticipated maximum piling energy required at each pile location; and
c. Details of any mitigation 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 reflect any surveys 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 of the following species: bottlenose dolphin; harbour seal; grey seal; Atlantic salmon; cod; and herring.

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. The Company must, no later than 6 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, CoS, SNH, the JNCC, SFF, ECIFG, Civil Aviation Authority ("CAA") and any such other advisors or organisations as may be required at the discretion of the Scottish Ministers. The Development must, at all times, be constructed in accordance with the approved DSLP (as updated and amended from time to time by the Company). Any updates or amendments made to the DSLP by the Company must be submitted, in writing, by the Company to the Scottish Ministers for their written approval.

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

a. A plan showing the proposed 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 World Geodetic System 1984 ("WGS84") format;
c. A table or diagram of each WTG dimensions including - height to blade tip (measured above Lowest Astronomical Tide ("LAT"), height to hub (measured above LAT to the centreline of the generator shaft), rotor diameter and maximum rotation speed;

d. The generating capacity of each WTG used on the Site and a confirmed generating capacity for the Site overall;
e. The finishes for each WTG (see condition 19 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. The Company must, prior to the Commencement of the Development, submit a Design Statement ("DS"), in writing, to the Scottish Ministers that includes representative wind farm visualisations from key viewpoints agreed with the Scottish Ministers, based upon the final DSLP as approved by the Scottish Ministers (as updated and amended from time to time by the Company). The DS must be provided, for information only, to the Planning Authorities, and SNH, the JNCC and any such other advisors or organisations as may be required at the discretion of the Scottish Ministers. The DS must be prepared and signed off by at least one qualified landscape architect, instructed by the Company prior to submission to the Scottish Ministers.

Reason: *To inform interested parties of the final wind farm scheme proposed to be built.*

14. The Company must, no later than 6 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, the JNCC, SEPA, RSPB Scotland, WDC, ASFB and any such other advisors or organisations as may be required at the discretion of the Scottish Ministers. The Development must, at all times, be constructed and operated in accordance with the approved EMP (as updated and amended from time to time by the Company). Any updates or amendments made to the EMP by the Company must be submitted, in writing, by the Company to the Scottish Ministers for their written approval.

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 condition 3).

The EMP must be in accordance with the ES and SEIS 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 ES and pre-consent and pre-construction surveys, and include the relevant parts of the CMS (refer to condition 10);
b. Pollution prevention measures and contingency plans;
c. Management measures to prevent the introduction of invasive non-native marine species;
d. Measures to minimise, recycle, reuse and dispose of waste streams; and
e. The reporting mechanisms that will be used to provide the Scottish Ministers and relevant stakeholders (including, but not limited to, SNH, the JNCC, SEPA, RSPB Scotland, MCA and NLB) with regular updates on construction activity, including any environmental issues that have been encountered and how these have been addressed.

The Company must, no later than 3 months prior to the Final Commissioning of the Development, submit an updated EMP, in writing, to cover the operation and maintenance activities for the Development to the Scottish Ministers for their written approval. Such approval may be given only following consultation with SNH, the JNCC, SEPA, RSPB Scotland and any such other advisors or organisations as may be required at the discretion of the Scottish Ministers. The EMP must be regularly reviewed by the Company and the Forth and Tay Regional Advisory Group ("FTRAG") (referred to in condition 24 over the lifespan of the Development, and be kept up to date (in relation to the likes of construction methods and operations of the Development in terms of up to date working practices) by the Company in consultation with the FTRAG

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

Reason: *To mitigate the impacts on the environmental interests during construction and operation.*

15. The Company must, no later than 6 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, the JNCC, WDC and any such other advisors or organisations as may be required at the discretion of the Scottish Ministers. The Development must, at all times, be constructed and operated in accordance with the approved VMP (as updated and amended from time to time by the Company). Any updates or amendments made to the VMP by the Company must be submitted, in writing, by the Company to the Scottish Ministers for their written approval:

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

a. The number, types and specification of vessels required;
b. Working practices to minimise the use of ducted propellers;
c. How vessel management will be coordinated, particularly during construction but also during operation; and
d. Location of working port(s), 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.

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, as soon as practicable, to the Scottish Ministers 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 disturbance or impact to marine mammals and birds.*

16. The Company must, no later than 3 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 JNCC, SNH, SEPA, MCA, NLB, RSPB Scotland, the Planning Authority, SFF, ECIFG 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.

Operation and maintenance of the Development must, at all times, proceed in accordance with the approved OMP (as updated and amended from time to time by the Company). Any updates or amendments made to the OMP by the Company must be submitted, in writing, by the Company to the Scottish Ministers for their written approval.

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 of the offshore generating station.*

17. The Company must, no later than 6 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. Emergency response and coordination arrangements for the construction, operation and decommissioning phases of the Development; and
g. 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 371, and its annexes that may be appropriate to the Development, or any other relevant document which may supersede said guidance. The Development must, at all times, be constructed and operated in accordance with the approved NSP (as updated and amended from time to time by the Company). Any updates or amendments made to the NSP by the Company must be submitted, in writing, by the Company to the Scottish Ministers for their written approval.

Reason: *To mitigate the navigational risk to other legitimate users of the sea.*

18. The Company must, no later than 6 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, the JNCC, MCA, SFF, ECIFG 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 ES. The Development must, at all times, be constructed and operated in accordance with the approved CaP (as updated and amended from time to time by the Company). Any updates or amendments made to the CaP by the Company must be submitted, in writing, by the Company to the Scottish Ministers for their written approval.

The CaP must include the following:

a. Details of the location and cable laying techniques for the inter array cables;
b. The results of survey 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 suitable protection measures.

e. Methodologies for over trawl surveys 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.

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

19. The Company must, no later than 6 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 MCA, NLB, CAA MoD 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 said guidance prior to the approval of the LMP. The LMP must also detail the navigational lighting requirements detailed in IALA Recommendation O-139 or any other documents that may supersede said guidance prior to approval of the LMP.

The Company must provide the LMP, for information, to the Planning Authorities, SNH, the JNCC and any other bodies as may be required at the discretion of the Scottish Ministers. The Development must, at all times, be constructed and operated in accordance with the approved LMP (as updated and amended from time to time by the Company). Any updates or amendments made to the LMP by the Company must be submitted, in writing, by the Company to the Scottish Ministers for their written approval.

Reason: *To ensure safe marking and lighting of the offshore generating station.*

20. 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. No WTGs shall become operational until:

a. The mitigation measures that are required under the approved ATC Scheme have been implemented;
b. Any performance criteria, all as specified in the approved ATC Scheme as requiring to be satisfied, have been so satisfied; and
c. The implementation and satisfaction of the performance criteria have been approved by the Scottish Ministers in consultation with the MoD.

The Company must, at all times, comply with all obligations under the approved ATC Scheme.

Reason: *To mitigate the adverse impacts of the Development on the air traffic control radar at RAF Leuchars and the operations of the MoD.*

21. The Company must, prior to the Commencement of the Development, and following confirmation of the approved DSLP by the Scottish Ministers (refer to condition 13), provide the positions and maximum heights of the WTGs and construction equipment above 150m LAT and any offshore substation platform to the United Kingdom Hydrographic Office ("UKHO") for aviation and nautical charting purposes. The Company must, within 1 month of the Final Commissioning of the Development, provide the positions and maximum heights of the WTGs to the UKHO co-ordinates accurate to three decimal places of minutes of arc for aviation and nautical charting purposes.

Reason: *For aviation and navigational safety.*

22. The Company must, no later than 6 months prior to the Commencement of the Development submit a Traffic and Transportation Plan ("TTP") 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 TTP must set out a mitigation strategy for the impact of road based traffic and transportation associated with the construction of the Development. The Development must, at all times, be constructed and operated in accordance with the approved TTP (as updated and amended from time to time, following written approval by the Scottish Ministers).

Reason: *To maintain the free flow and safety of the Trunk Road network.*

23. The Company must, no later than 6 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, the JNCC, RSPB Scotland, WDC, ASFB and any other ecological 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.

Monitoring must be done in such a way as to ensure that the data which is collected allows useful and valid comparisons as 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 Scottish Ministers may agree that monitoring may be reduced or ceased before the end of the lifespan of the Development.

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 surveys as relevant in terms of the ES and any subsequent surveys for:

    1. Birds;
    2. Sandeels;
    3. Marine fish;
    4. Diadromous fish;
    5. Benthic communities; and
    6. Seabed scour and local sediment deposition.

b. The participation by the Company in surveys to be carried out in relation to marine mammals as set out in the MMMP; and
c. The participation by the Company in a National Strategic Bird Monitoring Framework ("NSBMF") and surveys to be carried out in relation to regional and / or strategic bird monitoring including but not necessarily limited to:

    1. The avoidance behaviour of breeding seabirds around turbines;
    2. Flight height distributions of seabirds at wind farm sites;
    3. Displacement of kittiwake, puffin and other auks from wind farm sites; and
    4. Effects on survival and productivity at relevant breeding colonies

All initial methodologies for the above monitoring must be approved, in writing, by the Scottish Ministers and, where appropriate, in consultation with the FTRAG referred to in condition 24 of this consent. Any pre-consent surveys carried out by the Company to address any of the above species may be used in part to discharge this condition subject to written approval by the Scottish Ministers.

The PEMP is a live document and must be regularly reviewed by the Scottish Ministers, at timescales to be determined by the Scottish Ministers, in consultation with the FTRAG 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 FTRAG and any other ecological, or such other advisors as may be required at the discretion of the Scottish Ministers. The PEMP, as amended from time to time, must be fully implemented by the Company at all times.

The Company must submit written reports and associated raw data of such monitoring surveys to the Scottish Ministers at timescales to be determined by the Scottish Ministers in consultation with the FTRAG. 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.

Reason: *To ensure that appropriate and effective monitoring of the impacts of the Development is undertaken.*

24. The Company must participate in any Forth and Tay Regional Advisory Group ("FTRAG") 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, diadromous fish, marine mammals and commercial fish. Should a Scottish Strategic Marine Environment Group ("SSMEG") be established (refer to condition 25), the responsibilities and obligations being delivered by the FTRAG will be subsumed by the SSMEG at a timescale to be determined by the Scottish Ministers.

Reason: *To ensure effective environmental monitoring and mitigation is undertaken at a regional scale.*

25. The Company must participate in any Scottish Strategic Marine Environment Group ("SSMEG") established by the Scottish Ministers for the purposes of advising the Scottish Ministers on research, monitoring and mitigation programmes for, but not limited to, ornithology, diadromous fish, marine mammals and commercial fish.

Reason: *To ensure effective environmental monitoring and mitigation is undertaken at a National scale.*

26. 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 and the JNCC, appoint an Ecological Clerk of Works ("ECoW"). The ECoW must be appointed in time to review and approve the final draft version of the first plan or programme submitted under this consent to the Scottish Ministers for approval, until the Final Commissioning of the Development.

The responsibilities of the ECoW must include, but not be limited to:

a. Quality assurance of final draft versions of all plans and programmes required under this consent;
b. Providing advice to the Company on compliance with consent conditions, including the conditions relating to the CMS, the EMP, the PEMP, the PS (if required), the CaP and the VMP;
c. Monitoring compliance with the CMS, the EMP, the PEMP, the PS (if required), the CaP and the VMP;
d. Providing reports on point c) above to the Scottish Ministers at timescales to be determined by the Scottish Ministers; and

e. Inducting site personnel on site / works environmental policy and procedures.

Reason: *To ensure that appropriate and effective monitoring of the impacts of the Development is undertaken.*

27. The Company must, to the satisfaction of the Scottish Ministers, participate in the monitoring requirements as laid out in the 'National Research and Monitoring Strategy for Diadromous Fish' so far as they apply at a local level. The extent and nature of the Company's participation is to be agreed by the Scottish Ministers in consultation with the FTRAG.

Reason: *To ensure effective monitoring of the effects on migratory fish at a local level.*

28. The Company must, no later than 6 months prior to the Commencement of the Development, submit a Commercial Fisheries Mitigation Strategy ("CFMS"), in writing, to the Scottish Ministers for their written approval.

The Company must remain a member of the Forth and Tay Offshore Wind Developers Group-Commercial Fisheries Working Group or any successor group formed to facilitate commercial fisheries dialogue in the Forth and Tay region.

The Company must include in the CFMS a mitigation strategy for each commercial fishery that Ministers are reasonably satisfied would be adversely affected by the Development.

The Company must implement all mitigation measures committed to be carried out by the Company in terms of the CFMS. The Company must require all of its contractors, and sub-contractors, to co-operate with the fishing industry to ensure the effective implementation of the CFMS.

Reason: *To mitigate the impact on commercial fishermen.*

29. Prior to the Commencement of the Development, a FLO, approved by Scottish Ministers in consultation with the FTOWDG-CFWG, must be appointed by the Company for the period from Commencement of the Development until the Final Commissioning of the Development. The Company must notify the Scottish Ministers of the identity and credentials of the FLO before Commencement of the Development by including such details 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 project and any amendments to the CMS and site environmental procedures;
b. 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 mitigate the impact on commercial fishermen.*

30. The Company must, no later than 6 months prior to the Commencement of the Development, submit a Marine Archaeology Reporting Protocol 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 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.*

31. The Company must, prior to the submission of the DS to the Scottish Ministers, submit an optimal design of the Development, in writing, to the Scottish Ministers for their written approval. Such approval may only be granted following consultation with SNH and the JNCC, and any such other advisors or organisations as may be required at the discretion of the Scottish Ministers. The optimal design of the Development must be undertaken using the Centre for Ecology and Hydrography ("CEH") displacement model to minimise the barrier and displacement effects on kittiwake. The optimal design of the Development must demonstrate a reduction to the negative effect on adult survival of kittiwakes from Forth Islands SPA by 0.2%. The Development must, at all times, be constructed and operated in accordance with the approved optimal design.

Reason: *To ensure there is no adverse effect on the integrity of the Forth Islands SPA in relation to kittiwakes.*

ANNEX 3

DEFINITIONS AND GLOSSARY OF TERMS

In this decision letter and in Annex 1 and 2:

"AA" means Appropriate Assessment;

"AD" means Air Defence;

"the Application" means the Application letters and Environmental Statement submitted to the Scottish Ministers, by the Company on 13 July 2012 and Supplementary Environmental Information Statement submitted to the Scottish Ministers by the Company on 15 April 2013 for consent under section 36 of the Electricity Act for the construction and operation of Neart na Gaoithe Offshore Wind Farm in the Firth of Forth with a maximum generating capacity of 450 megawatts;

"ATC" means Air Traffic Control;

"ATC Scheme" means Air Traffic Control Radar Mitigation Scheme. A detailed Scheme to mitigate the adverse impacts of the Development on the air traffic control radar at RAF Leuchars and the air surveillance and control operations of the Defence Infrastructure Organisation (Ministry of Defence). The Scheme will set out the appropriate measures to be implemented to that end;

"BT" means British Telecom;

"CEH displacement model" means Centre for Ecology and Hydrography time and energy expenditure model to investigate the potential displacement / barrier effects on seabird species that could arise from the proposed wind farms;

"Commencement of the Development" means the date on which the first vessel arrives on Site to begin construction;

"Commissioning of the first WTG" means the date on which the first wind turbine generator forming the Development has supplied electricity on a commercial basis to the National Grid;

"the Company" means Neart na Gaoithe Offshore Wind Limited, Company Registration No. SC356223; and having its registered office at C/O Shepherd and Wedderburn, 191 West George Street, Glasgow, G2 2LB for the Neart na Gaoithe Offshore Wind Farm in the Firth of Forth;

"the Development" means the Neart na Gaoithe Offshore Wind Limited electricity generating station in the Firth of Forth, as described in **Annex 1** of this letter;

"ECoW" means Ecological Clerk of Works;

"EIA" means Environmental Impact Assessment;

“EMF” means electromagnetic fields;

“EPS” means European Protected Species;

“ES” means the Environmental Statement submitted to the Scottish Ministers by the Company on 13 July 2012 as part of the Application defined above;

“EU” means European Union;

“Final Commissioning of the Development” means the date on which all wind turbine generators forming the Development have supplied electricity on a commercial basis to the National Grid, or such earlier date as the Scottish Ministers deem the Development to be complete;

“FLO” means Fisheries Liaison Officer;

“FTOWDG–CFWG” means Forth and Tay Offshore Wind Developers Group – Commercial Fisheries Working Group. A group formed, and set up, to develop the Commercial Fisheries Mitigation Strategy, and as a forum to facilitate on-going dialogue with the commercial fishing industry;

“FTRAG” means the Forth and Tay Regional Advisory Group. A group yet to be formed, responsible for overseeing monitoring and mitigation on a regional scale, set up by the Scottish Ministers;

“GIS” means Geographic Information System;

“GVA” means Gross Value Added, a measure of contribution to the economy of each individual producer, industry or sector in the United Kingdom;

“GW” means gigawatt;

“HAT” means Highest Astronomical Tide;

“HRA” means Habitats Regulations Appraisal;

“IALA Recommendation O-139” means the International Association of Marine Aids to Navigation and Lighthouse Authorities Recommendation O-139 On the Marking of Man Made Offshore Structures;

“JRC” means Joint Radio Company;

“Marine Guidance Note 371” means the maritime and Coastguard Agency Marine Guidance Note 371 Offshore Renewable Energy Installations (OREI’s) – Guidance on UK Navigational Practice, Safety and Emergency Response Issues;

“MW” means megawatt.

“nm” means nautical miles;

“NRA” means Navigational Risk Assessment;

“PAR” means Precision Approach Radar;

“The Plan” means Blue Seas Green Energy – A Sectorial Marine Plan for Offshore Wind in Scottish Territorial Waters.

“the Planning Authorities” means Fife Council, East Lothian Council, Angus Council, Scottish Borders Council and Dundee Council;’

“Planning Authority” means East Lothian Council;

“PLI” means Public Local Inquiry;

“SAC” means Special Area of Conservation;

“Scottish Atlantic Salmon, Sea Trout and European Eel Monitoring Strategy” means a strategy that will be formulated from the MSS Report 05/13 – ‘The Scope of Research Requirements for Atlantic Salmon, Sea Trout and European Eel in the Context of Offshore Renewables’ to monitor migratory fish at a strategic level;

“Scottish marine area” has the meaning given in Section 322 in the Marine and Coastal Access Act 2009 (as amended);

“SEA” means Strategic Environmental Assessment;

“SEIS” means the Supplementary Environmental Information Statement submitted to the Scottish Ministers by the Company on 7 June 2013 as part of the Application as defined above;

“the Site” means the area outlined in red in **Figure 1**, attached to this consent at **Annex 1**;

“SPA” means Special Protection Area;

“SSMEG” means Strategic Scottish Marine Environment Group. A group yet to be formed, responsible for overseeing monitoring and mitigation on a National scale, set up by the Scottish Ministers;

“WGS84” means the World Geodetic System 1984; and

“WTG” means wind turbine generator.

<u>Organisations and Companies</u>

“10MAU” means 10 Metre and Under Association;

“AC” means Angus Council;

“ASFB” means The Association of Salmon Fishery Boards;

“CAA” means The Civil Aviation Authority;

“CEC” means The Crown Estate Commissioners;

“CoS” means The Chamber of Shipping;

“DCC” means Dundee City Council;

“DECC” means Department of Energy and Climate Change;

“DIO” means The Defence Infrastructure Organisation (Ministry of Defence);

“ECIFG” means East Coast Inshore Fisheries Group (Previously as South East Inshore Fishery Group in this document);

“EDSFB” means Esk District Salmon Fishery Board;

“ELC” means East Lothian Council, the Planning Authority for the onshore works;

“FC” means Fife Council, the nearest onshore Planning Authority;

“FFPO” means Fife Fish Producers Organisation;

“FMA” means Fishermen’s Mutual Association (Pittenweem) Ltd.;

“FFLH” means Firth of Forth Lobster Hatchery;

“IALA” means International Association of Marine Aids to Navigation and Lighthouse Authorities;

“ICOL” means Inch Cape Offshore Limited;

“JNCC” means The Joint Nature Conservation Committee;

“MCA” means The Maritime and Coastguard Agency;

“MOD” means Ministry of Defence;

“MMO” means Marine Management Organisation;

“MS-LOT” means Marine Scotland Licensing Operations Team;

“MSS” means Marine Scotland Science;

“NATS” means National Air Traffic Service;

“NLB” means The Northern Lighthouse Board;

“NREAP” means UK Government's National Renewable Energy Action Plan;

“RSPB Scotland” means The Royal Society for the Protection of Birds Scotland;

“RYA Scotland” means Royal Yachting Association Scotland;

“SAWEL” means Seagreen Alpha Wind Energy Limited;

“SAS” means Surfers Against Sewage;

“SBC” means Scottish Borders Council;

“SBWEL” means Seagreen Bravo Wind Energy Limited;

“SCA” means the Scottish Canoe Association;

“SEIFG” means South East Inshore Fisheries Group (latterly referred as East Coast Inshore Fisheries Group in this document);

“SEPA" means The Scottish Environment Protection Agency;

“SFF” means The Scottish Fishermen’s Federation;

“SMRU” means Sea Mammal Research Unit;

"SNH" means Scottish Natural Heritage;

“TCE” means The Crown Estate;

“TDSFB” means Tay District Salmon Fishery Board;

“UNECE” means United Nations Economic Commission for Europe;

“UKHO” means United Kingdom Hydrographic Office; and

“WDC” means Whale and Dolphin Conservation;

Plans, Programmes and Statements

“CaP” means Cable Plan;

“CFMS” means Commercial Fisheries Mitigation Strategy;

“CMS” means Construction Method Statement;

“CoP” means Construction Programme;

“DIO Scheme” means Air Traffic Control Radar Mitigation Scheme;

“DS” means Design Statement;

"DSLP" means Development Specification and Layout Plan;

"EMP" means Environmental Management Plan;

"LMP" means Lighting and Marking Plan;

"MMMP" means Marine Mammal Monitoring Programme which is a programme to be put in place by the licensee to monitor the effects of the Neart na Goithe Offshore Limited wind farm on marine mammals in co-ordination (through the Forth and Tay Regional Advisory Group ("FTRAG")) with other MMMPs to be developed by other Forth and Tay projects, as required by the Licensing Authority.

"NPF2" means Scotland's National Planning Framework 2;

"NPF3" means Scotland's National Planning Framework 3;

"NSP" means Navigational Safety Plan;

"OMP" means Operation and Maintenance Programme;

"PEMP" means Project Environmental Monitoring Programme;

"PS" means Piling Strategy;

"the Statement" means The UK Marine Policy Statement 2011;

"TTP" means Traffic and Transportation Plan; and

"VMP" means Vessel Management Plan.

Legislation

"Wild Birds Directive" means Council Directive 79/409/EEC of 2nd 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);

"Habitats Directive" means Council Directive 92/43/EEC of 21st May 1992 on the conservation of natural habitats and wild fauna and flora (as amended);

"the Habitats Regulations" means the Conservation (Natural Habitats, & c.) Regulations 1994 (as amended) and the Offshore Marine Conservation (Natural Habitats, & c.) Regulations 2007 (as amended);

"the 1994 Regulations" means the Conservation (Natural Habitats, & c.) Regulations 1994 (as amended);

“the 2000 Regulations” means the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2000 (as amended);

“the 2007 Regulations” means the Offshore Marine Conservation (Natural Habitats, & c.) Regulations 2007 (as amended);

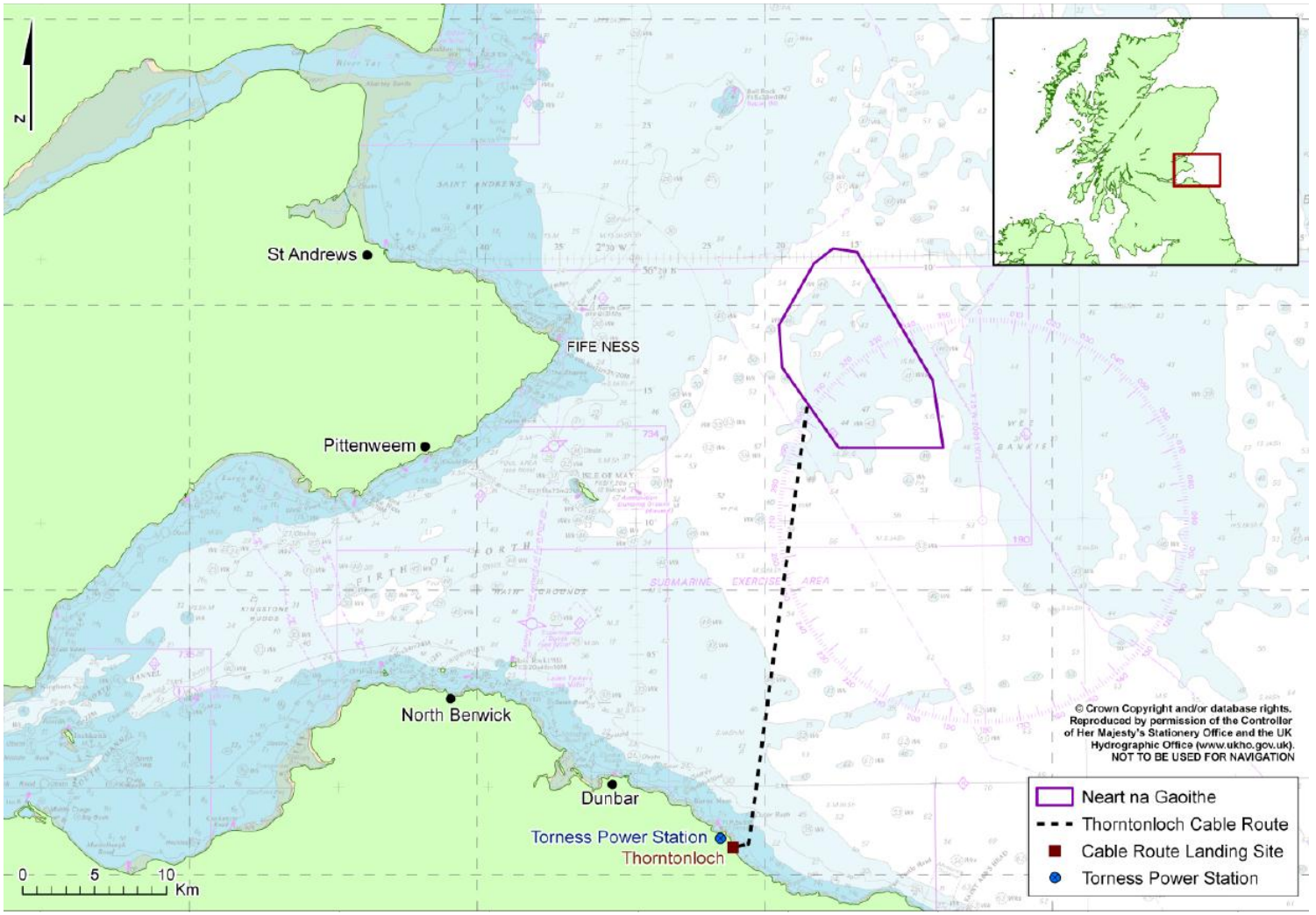
“the 2009 Act” means Marine and Coastal Access Act 2009 (as amended); and

“the 2010 Act” means Marine (Scotland) Act 2010.

JAMES McKIE
LEADER, LICENSING OPERATIONS TEAM
A member of the staff of the Scottish Ministers

ANNEX 3

LOCATION OF PROJECT



Phase 1 area for turbine and potential cable deployment

ANNEX E – APPROPRIATE ASSESSMENT

APPLICATION FOR CONSENT UNDER SECTION 36 OF THE ELECTRICITY ACT 1989 AND APPLICATIONS FOR MARINE LICENCES UNDER THE MARINE (SCOTLAND) ACT 2010 FOR THE CONSTRUCTION AND OPERATION OF THE NEART NA GAOITHE OFFSHORE WINDFARM.

APPLICATIONS FOR CONSENT UNDER SECTION 36 OF THE ELECTRICITY ACT 1989 AND APPLICATIONS FOR MARINE LICENCES UNDER THE MARINE (SCOTLAND) ACT 2010 FOR THE CONSTRUCTION AND OPERATION OF THE INCH CAPE OFFSHORE WINDFARM.

APPLICATION FOR CONSENT UNDER SECTION 36 OF THE ELECTRICITY ACT 1989 AND APPLICATIONS FOR MARINE LICENCES UNDER THE MARINE (SCOTLAND) ACT 2010 AND THE MARINE AND COASTAL ACCESS ACT 2009 FOR THE CONSTRUCTION AND OPERATION OF THE SEAGREEN ALPHA OFFSHORE WINDFARM.

APPLICATION FOR CONSENT UNDER SECTION 36 OF THE ELECTRICITY ACT 1989 AND APPLICATIONS FOR MARINE LICENCES UNDER THE MARINE (SCOTLAND) ACT 2010 AND THE MARINE AND COASTAL ACCESS ACT 2009 FOR THE CONSTRUCTION AND OPERATION OF THE SEAGREEN BRAVO OFFSHORE WINDFARM.

MARINE SCOTLAND'S CONSIDERATION OF A PROPOSAL AFFECTING DESIGNATED SPECIAL AREAS OF CONSERVATION ("SACs") OR SPECIAL PROTECTION AREAS ("SPAs")

SITE DETAILS:

Neart na Gaoithe Offshore Windfarm Limited development ("NNGOWL"), approximately 15.5 km to the east of Fife Ness in the outer Firth of Forth.

Inch Cape Offshore Limited development ("ICOL"), approximately 15 km to the east off the Angus Coastline.

Seagreen Alpha Wind Energy Limited development ("SAWEL"), approximately 27 km off the Angus coastline.

Seagreen Bravo Wind Energy Limited development ("SBWEL"), approximately 38 km off the Angus coastline.

These developments when considered collectively are referred to as "the Forth and Tay Developments".

APPROPRIATE ASSESSMENT CONCLUSION: Marine Scotland Licensing Operations Team ("MS-LOT") concludes that, based upon the content of the

following assessment the proposed NNGOWL, ICOL, SAWEL and SBWEL developments will not, on their own or in combination with each other (or where appropriate for consideration, other developments already licenced),, adversely affect the integrity of the Buchan Ness to Collieston Coast SPA, Fowlsheugh SPA, Forth Islands SPA, St Abb's Head to Fast Castle SPA, Moray Firth SAC, Firth of Tay and Eden Estuary SAC, Isle of May SAC, Berwickshire & North Northumberland Coast SAC, River South Esk SAC, River Tay SAC, River Dee SAC, River Teith SAC or River Tweed SAC (where each SPA or SAC is taken as a whole), provided that the conditions set out in 3d are complied with.

Following Marine Scotland Science ("MSS") advice, MS-LOT consider that the most up to date and best scientific evidence available has been used in reaching the conclusion that the developments will not adversely affect the integrity of these sites and are satisfied that no reasonable scientific doubt remains.

Introduction

This is a record of the Appropriate Assessment ("AA") of the NNGOWL, ICOL, SAWEL and SBWEL developments and their associated offshore transmission works. The assessment has been undertaken by MS-LOT and MSS on behalf of the Scottish Ministers. This assessment is required to be undertaken under Council Directive 92/43/EEC on the conservation of natural habitats of wild fauna and flora ("the Habitats Directive") and Council Directive 79/409/EEC on the conservation of wild birds (as amended, and codified by Directive 2009/147/EC of the European Parliament and of the Council) ("the Wild Birds Directive") as implemented, in particular, by Regulation 25 of the Offshore Marine Conservation (Natural Habitats, &c.) Regulations 2007 for projects beyond 12 nautical miles ("nm") from the mainland of Scotland and by Regulation 48 of the Conservation (Natural Habitats, &c.) Regulations 1994 for projects within 12 nm of the mainland before the Scottish Ministers may decide to give consent to the developments. As the NNGOWL and ICOL developments are located within 12 nm and because the assessment is a cumulative assessment with SAWEL and SBWEL, which are both out with 12 nm, both sets of regulations ("the Habitats Regulations") apply to this assessment.

MS-LOT, on behalf of the Scottish Ministers as the 'competent authority' under the Habitats Regulations, has to be satisfied that the projects will not adversely affect the integrity of any European protected sites (SACs and SPAs) before it may recommend the grant of consent for the projects. The precautionary principle requires to be applied when complying with obligations under the Habitats Directive and in preparing an AA. In accordance with the ECJ case of *Waddenzee*[1] the Scottish Ministers may only authorise a development if they are certain that it will not adversely affect the integrity of European protected sites; and "that is the case where no reasonable scientific doubt remains as to the absence of such effects".

A detailed AA has been undertaken and Scottish Natural Heritage ("SNH") and the Joint Nature Conservation Committee ("JNCC") have been consulted, as is required, under the Habitats Regulations. Those Regulations allow for the competent authority to consult the general public on the AA if they consider it appropriate. This has not

[1] ECJ Case no - C-127/02 – judgment issued on 07.09.2004.

been done as the general public have already had the opportunity to respond to the applications through the Environmental Impact Assessment ("EIA") process where information regarding the potential impacts on European protected sites was available in the Environmental Statements ("ESs") provided for NNGOWL, ICOL, SAWEL and SBWEL. The Supplementary Environmental Information Statements ("SEISs") submitted for NNGOWL, SAWEL and SBWEL were also made publically available and consulted on. Although representations were received from members of the public raising concerns about ornithology and marine mammals, these were not in relation to the potential impacts on SPAs and SACs from these developments, therefore it is not deemed appropriate to consult the general public further. Consultation responses regarding Natura issues were received from the Royal Society for the Protection of Birds, Scotland ("RSPB Scotland"), Whale and Dolphin Conservation ("WDC") and the Association of Salmon Fishery Boards ("ASFB"). In a response to MS-LOT (dated 26th March 2014) concerning the regional assessment completed by the Statutory Nature Conservation Bodies ("the SNCBs" – SNH and the JNCC), RSPB Scotland expressed significant concerns regarding the potential effects on several seabird species and criticised the assessment methods being used. The RSPB Scotland letter predated a range of mitigation measures proposed by the developers to reduce effects upon seabird populations. The points raised by RSPB Scotland are addressed in Appendix 1. WDC in a letter through Client Earth (dated 30th April 2014) to MS-LOT criticised the approach taken by the SNCB's with regard to the marine mammal assessment, again points raised by WDC are addressed in Appendix 1.

A map showing the locations of the Forth and Tay Developments along with the European protected sites which are considered in this assessment is presented below.

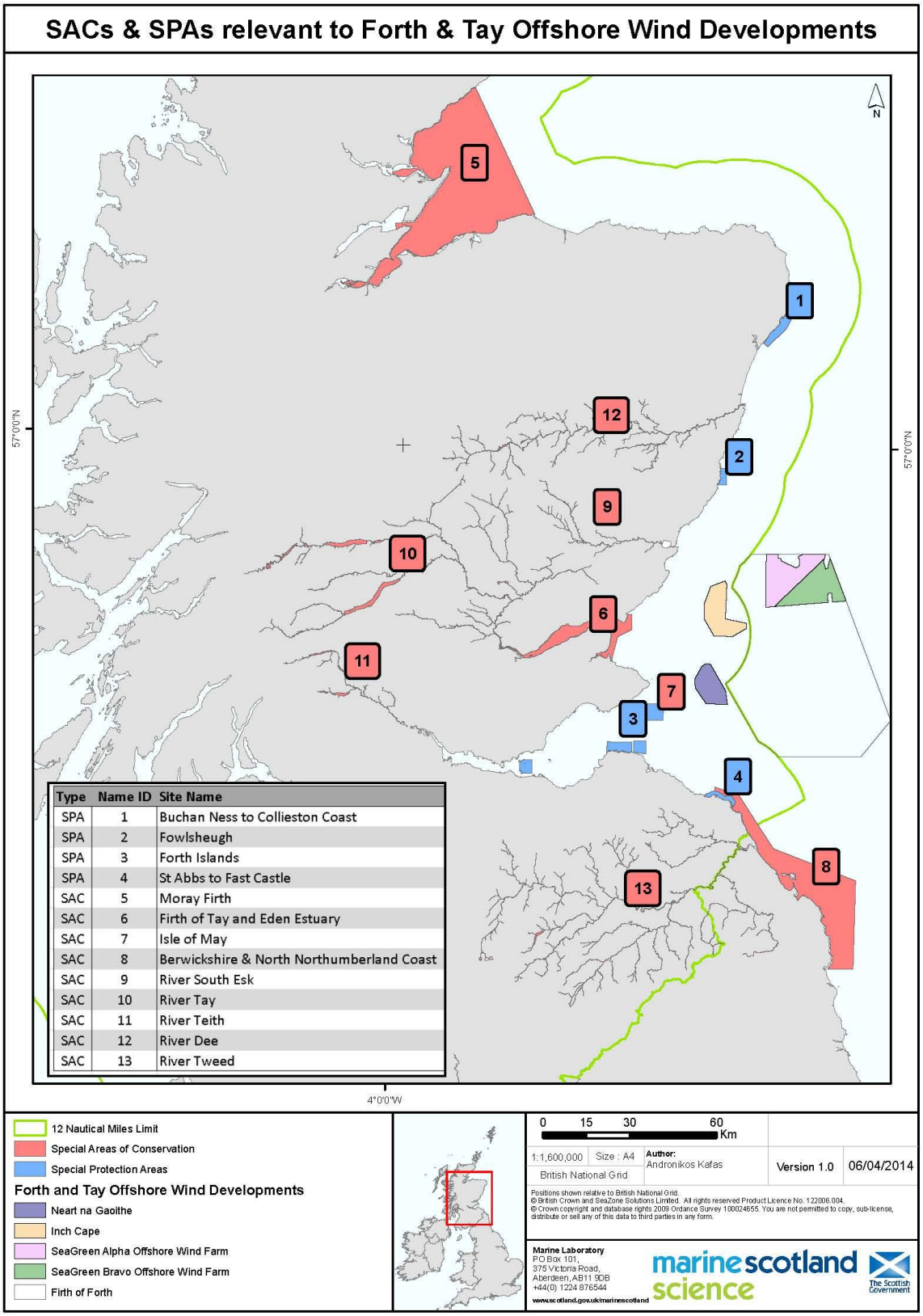


Figure 1: locations of the Forth and Tay Developments along with the European protected sites which are considered in this assessment

Section 1a. provides links to the Scottish Natural Heritage Interactive ("SNHi") website where the background information on the sites being considered in this assessment is available. Section 1b. details the qualifying features of the SACs and SPAs in this assessment. The conservation objectives being considered are detailed in section 1c. For the qualifying interests where likely significant effect ("LSE") has been identified (section 3b), the appropriate assessment assesses whether or not the relevant conservation objectives will be achieved. This enables a conclusion to be made in relation to whether or not the Forth and Tay Developments, either alone or in combination with each other and other projects, will adversely affect the integrity of the sites which have been assessed.

1a. Name of Natura site affected & current status available from:

1. Buchan Ness to Collieston Coast SPA http://gateway.snh.gov.uk/sitelink/siteinfo.jsp?pa_code=8473
2. Fowlsheugh SPA http://gateway.snh.gov.uk/sitelink/siteinfo.jsp?pa_code=8505
3. Forth Islands SPA http://gateway.snh.gov.uk/sitelink/siteinfo.jsp?pa_code=8500
4. St Abb's Head to Fast Castle SPA http://gateway.snh.gov.uk/sitelink/siteinfo.jsp?pa_code=8579
5. Moray Firth SAC http://gateway.snh.gov.uk/sitelink/siteinfo.jsp?pa_code=8327
6. Firth of Tay and Eden Estuary SAC http://gateway.snh.gov.uk/sitelink/siteinfo.jsp?pa_code=8257
7. Isle of May SAC http://gateway.snh.gov.uk/sitelink/siteinfo.jsp?pa_code=8278
8. Berwickshire & North Northumberland Coast SAC http://gateway.snh.gov.uk/sitelink/siteinfo.jsp?pa_code=8207
9. River South Esk SAC http://gateway.snh.gov.uk/sitelink/siteinfo.jsp?pa_code=8364
10. River Tay SAC http://gateway.snh.gov.uk/sitelink/siteinfo.jsp?pa_code=8366
11. River Teith SAC http://gateway.snh.gov.uk/sitelink/siteinfo.jsp?pa_code=8368
12. River Dee SAC http://gateway.snh.gov.uk/sitelink/siteinfo.jsp?pa_code=8357
13. River Tweed SAC http://gateway.snh.gov.uk/sitelink/siteinfo.jsp?pa_code=8369

1b. Qualifying interests of each Natura site:

1. Buchan Ness to Collieston Coast SPA ▪ Fulmar (breeding) ▪ Guillemot (breeding) ▪ Herring gull (breeding) ▪ Kittiwake (breeding) ▪ Shag (breeding) ▪ Seabird assemblage (breeding)	**2. Fowlsheugh SPA** ▪ Fulmar (breeding) ▪ Guillemot (breeding) ▪ Herring gull (breeding) ▪ Kittiwake (breeding) ▪ Razorbill (breeding) ▪ Seabird assemblage (breeding)
3. Forth Islands SPA ▪ Arctic tern (breeding) ▪ Common tern (breeding) ▪ Cormorant (breeding) ▪ Fulmar (breeding) ▪ Gannet (breeding) ▪ Guillemot (breeding) ▪ Herring gull (breeding) ▪ Kittiwake (breeding) ▪ Lesser black-backed gull (breeding) ▪ Puffin (breeding) ▪ Razorbill (breeding) ▪ Roseate tern (breeding) ▪ Sandwich tern (breeding) ▪ Shag (breeding) ▪ Seabird assemblage (breeding)	**4. St Abb's Head to Fast Castle SPA** ▪ Guillemot (breeding) ▪ Herring gull (breeding) ▪ Kittiwake (breeding) ▪ Razorbill (breeding) ▪ Shag (breeding) ▪ Seabird assemblage (breeding)
5. Moray Firth SAC ▪ Bottlenose dolphin ▪ Subtidal sandbanks	**6. Firth of Tay and Eden Estuary SAC** ▪ Common (harbour) seal ▪ Estuaries ▪ Intertidal mudflats and sandflats ▪ Subtidal sandbanks
7. Isle of May SAC ▪ Grey seal ▪ Reefs	**8. Berwickshire & North Northumberland Coast SAC** ▪ Grey seal ▪ Intertidal mudflats and sandflats ▪ Reefs ▪ Sea caves ▪ Shallow inlets and bays
9. River South Esk SAC ▪ Atlantic salmon ▪ Freshwater pearl mussel	**10. River Tay SAC** ▪ Atlantic salmon ▪ Sea lamprey ▪ Brook Lamprey ▪ River Lamprey

	▪ Otter ▪ Clear-water lakes or lochs with aquatic vegetation and poor to moderate nutrient levels
11. River Teith SAC ▪ Atlantic salmon ▪ Sea lamprey ▪ Brook Lamprey ▪ River Lamprey	**12. River Dee SAC** ▪ Atlantic salmon ▪ Freshwater pearl mussel ▪ Otter
13. River Tweed SAC ▪ Atlantic salmon ▪ Sea lamprey ▪ Brook Lamprey ▪ River Lamprey ▪ Otter ▪ Rivers with floating vegetation often dominated by water-crowfoot	

1c. Conservation objectives for qualifying interests:

In their scoping advice the SNCBs advised that it is important to recognise that the conservation objectives primarily offer site-based protection and that some of the objectives will not directly apply to species when they are not present within the boundaries of the SPA or SAC in question.

The SNCBs advice (dated 7th March 2014) to MS-LOT in relation to the Forth and Tay Developments is that for the SPAs the relevant conservation objective for this appropriate assessment is to ensure the long-term maintenance of the population as a viable component of each SPA under consideration. The SNCBs also advised that this was the relevant conservation objective for the marine mammals being considered and that the other conservation objectives did not require consideration as they relate to maintenance of favourable conditions at each of the SACs. For the same reasons MS-LOT consider that this is also the relevant conservation objective to be considered in relation to the freshwater SACs.

Buchan Ness to Collieston Coast, Fowlsheugh, Forth Islands and St Abb's Head to Fast Castle SPAs – breeding seabirds

To avoid deterioration of the habitats of the qualifying species 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

*As the potential effects of the proposed development, as identified, occur outside the SPA itself, any disturbance to the qualifying interests is only considered to be significant in terms of the relevant conservation objective if it could undermine the conservation objectives relating to population viability.

Moray Firth SAC - Bottlenose dolphin

To avoid deterioration of the habitats of the qualifying species 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

*As the potential effects of the proposed development, as identified, occur outside the SAC itself, any disturbance to the qualifying interests is only considered to be significant in terms of the relevant conservation objective if it could undermine the conservation objectives relating to population viability.

Firth of Tay and Eden Estuary SAC – Harbour seal, and Isle of May and Berwickshire & North Northumberland Coast SACs – Grey seal

To avoid deterioration of the habitats of the qualifying species 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

*As the potential effects of the proposed development, as identified, occur outside the SAC itself, any disturbance to the qualifying interests is only considered to be significant in terms of the relevant conservation objective if it could undermine the conservation objectives relating to population viability.

River South Esk, River Tay, River Teith, River Dee and River Tweed SACs – Migratory fish and Freshwater Pearl Mussel

To avoid deterioration of the habitats of the qualifying species 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 each species that the following are maintained in the long term:

(i) Population of the species, including range of genetic types for salmon, as a viable component of the SACs*

(ii) Distribution of the species within site

(iii) Distribution and extent of habitats supporting each species

(iv) Structure, function and supporting processes of habitats supporting each species

(v) No significant disturbance of the species

And for freshwater pearl mussel in particular, to ensure that the following are maintained in the long term:

(vi) Distribution and viability of freshwater pearl mussel host species*

(vii) Structure, function and supporting processes of habitats supporting freshwater pearl mussel host species

*As the potential effects of the proposed development, as identified, occur outside the SAC itself, any disturbance to the qualifying interests is only considered to be significant in terms of the relevant conservation objective if it could undermine the conservation objectives relating to population viability.

PROPOSAL DETAILS

2a. Proposal titles

NNGOWL, ICOL,SAWEL, SBWEL, all in Scottish waters within the Forth and Tay region.

2b. Advice from SNCBs

MS-LOT received advice from the SNCBs regarding the Forth & Tay wind farms on 7th March 2014. This advice addresses the cumulative impacts of the Forth and Tay Developments. It is the key response to refer to as it supercedes the earlier SNCB advice on individual applications. Further advice was received on the 15th April 2014, 30th May 2014, 6th, 10th and 17th June 2014 and the 2nd, 4th,11th and 16th July 2014.

The earlier advice from the SNCBs in relation to NNGOWL alone (28th November 2012) predates the submission of the SEIS for this proposal and no longer has relevance in respect of this appropriate assessment. (It now only has relevance in respect of advice on methods to install the export cable landfall – discussed in section 5 of that response.) Likewise an early response on the 28th March 2013 to the SAWEL and SBWEL applications has also been superseded by the cumulative advice.

SNCBs advice along with advice from MSS is available to view at the Marine Scotland Interactive Website.

2c. Details of proposed operation:

As a consequence of the assessment process, iterative changes to the project envelopes were confirmed by Forth and Tay offshore wind farm developers. These mitigation measures mean that different sections of this assessment consider different project envelopes. Details are provided in the relevant sections. Details of the proposals and project envelopes are described below:

NNGOWL

Installation and operation of a proposed wind farm, 'Neart na Gaoithe', located 15.5 km to the east of Fife Ness and 16 km from the Isle of May in the outer Firth of Forth. The company estimates that water depths across the site range from approximately 40 m to 60 m. The export cables from the site are proposed to travel southwest from the development and make landfall at Thorntonloch beach to the South of Torness Power Station. The consent, if granted, will be for a period of 25 years.

The original application was for a design envelope of up to 125 wind turbine generators ("WTGs"), and a maximum generating capacity of up to 450 MW. The company later confirmed (in early 2014) that the maximum number of turbines would be 90. On the 10th of April 2014 the company confirmed that the maximum number of turbines would be 75. The original footprint of the development was 105km^2, however with the reduction in turbine numbers this was also reduced to

82.7km^2.

For each WTG, there will be a substructure, either steel jackets with pin piles or gravity base. For each WTG, there will be a transition piece (including access ladders / fences and landing platforms), turbine tower and nacelle.

Also included in the infrastructure is:

- Up to two Offshore Substation Platforms ("OSPs");
- Between 85-140 km of inter-array cabling linking turbines and OSPs
- Two export cables
- Scour and Cable protection

The construction programme is expected to cover a period of 1.5 years. No date is yet available for commencement of construction, but it is likely to commence in 2015/2016.

A full project description can be found in chapter 5 of the NNGOWL ES and Technical Appendix 1 of the SEIS.

ICOL

Installation and operation of the ICOL wind farms which are located 15 km to the east off the Angus coastline, to the east of the Firth of Tay (two section 36 consents have been applied for however, for the purposes of this assessment the two developments are considered together as there are no details on how the site will be split between the two wind farms). The total area of the development is 150 km^2. The company estimates that water depths across the site range from approximately 40 m to 57 m. The export cables from the site are proposed to reach a landfall location in East Lothian. Two potential landfall areas have been identified near Cockenzie or Seton Sands. One of these options will be selected as part of the detailed design process. The consent, if granted, will be for a period of 25 years.

The original application was for a design envelope of up to 213 WTGs, and a maximum generating capacity of up to 1,050 MW. The company later confirmed (in early 2014) that the maximum number of turbines would be 110 and that the maximum generating capacity would be 784 MW

For each WTG, there will be a substructure, either steel jackets with driven piles, suction piles, drilled piles or gravity base, or a larger gravity base structure. For each WTG, there will be a transition piece (including access ladders / fences and landing platforms), turbine tower and nacelle.

Also included in the infrastructure is:

- Up to 5 Offshore Substation Platforms ("OSPs");
- Between 147 - 353 km of inter-array cabling linking turbines and OSPs
- Up to 6 offshore export cables
- Scour and Cable protection

- 3 meteorological masts
- 3 metocean buoys

The construction programme is expected to cover a period of 2-3 years. No date is yet available for commencement of construction, but it is likely to commence in 2017.

A full project description can be found in chapter 7, volume 1A of the ICOL ES.

SAWEL and SBEWL

Installation and operation of the SAWEL and SBWEL Wind Farms which are located 27 km and 38 km to the east off the Angus coastline respectively. The total areas of the developments is 197 km^2 and 194 km^2 respectively. The export cables from the sites are proposed to reach a landfall location at Carnoustie (approximately 70 km from the SAWEL site). The consent, if granted, will be for a period of 25 years.

The original applications were for a design envelope of up to 75 WTGs, and a maximum generating capacity of up to 525 MW for each of SAWEL and SBWEL.

For each WTG, there will be a jacket substructure and foundations (either driven piles, suction piles or gravity bases). For each WTG, there will be a transition piece (including access ladders / fences and landing platforms), turbine tower and nacelle.

Also included in the infrastructure for the SAWEL and SWBEL projects combined is:

- Up to five Offshore Substation Platforms (“OSPs”);
- Approximately 710 km of inter-array cabling linking turbines and OSPs
- Up to six export cables
- Up to six meteorological masts
- Scour protection and cable protection

The construction programme is expected to cover a period of approximately 4 years. No date is yet available for commencement of construction, but it is likely to commence in 2017.

A full project description can be found in chapter 5 of the Seagreen ES. SAWEL and SBWEL have committed to increasing the airgap between the rotor blades and the sea by 4m from Lowest Astronomical Tide (“LAT”). The minimum turbine spacing will be 1000m.

ASSESSMENT IN RELATION TO REGULATION 25 OF THE OFFSHORE MARINE CONSERVATION (NATURAL HABITATS, &C.) REGULATIONS 2007 AND REGULATION 48 OF THE CONSERVATION (NATURAL HABITATS, &C.) REGULATIONS 1994

3a. Is the operation directly connected with or necessary to conservation management of the site?

The operations are not connected with or necessary to conservation management of the sites.

3b. Is the operation likely to have a significant effect on the qualifying interest?

During the scoping phase of the EIA processes for the Forth and Tay Developments, the SNCBs advised that there may be a LSE on several SPAs and SACs. Details can be found in the individual scoping opinions using the following links:

NNGOWL Scoping Opinion
ICOL Scoping Opinion
SAWEL and SBWEL Scoping Opinion

This initial list of SPAs and SACs was revised to those sites that are detailed in 1b following dialogue between the applicants and MS-LOT and consideration of the survey work presented in the applicant's ESs. Final details on the list of SPAs and SACs to be included in the AA was provided by the SNCBs in their advice dated 7th March 2014.

SPAs

During the consultation phase of the section 36 and marine licence application process, the SNCBs advised on 7th March 2014 that the proposed Forth and Tay Developments both alone and in-combination with each other are likely to have a significant effect on the following qualifying features and SPAs, by virtue of either collision risk and/or displacement:

- Collision risk and/or displacement to kittiwake of Buchan Ness to Collieston Coast, Forth Islands, Fowlsheugh and St Abb's Head to Fast Castle SPAs.
- Collision risk and/or displacement to gannet of Forth Islands SPA.
- Displacement to Atlantic puffin of Forth Islands SPA.
- Displacement to common guillemot of Buchan Ness to Collieston Coast, Forth Islands, Fowlsheugh and St Abb's Head to Fast Castle SPAs.
- Displacement to razorbill of Forth Islands, Fowlsheugh and St Abb's Head to Fast Castle SPAs.
- Collision risk to herring gull of Buchan Ness to Collieston Coast, Forth Islands, Fowlsheugh and St Abb's Head to Fast Castle SPAs.
- Collision risk to lesser black-backed gull of Forth Islands SPA.
- Collision risk and/or displacement to Northern fulmar of Buchan Ness to

Collieston Coast, Forth Islands and Fowlsheugh SPAs.

- Collision risk and/or displacement to common & Arctic tern species of Forth Islands SPA (NNGOWL and ICOL only).

The remaining species listed in the SPA citations in 1b are scoped out of further consideration in this AA as no LSE was identified - these species were either not recorded in significant numbers on-site, or else there is no pathway for significant impact and/or there is no connectivity with any SPAs.

The Firth of Forth SPA, designated for wintering wildfowl and waders, and post-breeding Sandwich terns is close to the Forth and Tay Development sites. The SNCBs advised no LSE for this SPA; they support the strategic collision risk assessment commissioned by Marine Scotland and undertaken by the Wildfowl & Wetlands Trust ("WWT") and MacArthur Green Ltd. This project presents a strategic assessment of potential collision risk to migrating wildfowl, waders and other non-seabird species from all current offshore wind farm proposals in Scotland and Robin Rigg, in operation. The modelling confirms that the risk presented by the Forth and Tay Developments would not be significant on their own, nor cumulatively with each other or recently consented Moray Firth offshore wind farms (Beatrice Offshore Wind Farm Limited ("BOWL") and the Moray Offshore Renewables Limited ("MORL") developments), to any of these migratory non-seabird populations. The SNCBs have also advised that there is no connectivity between post-breeding Sandwich terns and the Forth and Tay Development sites. Therefore this qualifying interest of the Forth Islands SPA is not considered further in this assessment.

SACs

During the consultation phase of the section 36 and marine licence application process, the SNCBs advised on 7th March 2014 that the proposed Forth and Tay Developments both alone and in-combination with each other are likely to have a significant effect on several of the qualifying features of the SACs listed in 1b. These are listed below along with the effects to be considered for the different species. The SNCBs identified three river SACs where LSE could not be ruled out (River South Esk, River Tay and River Teith). Due to uncertainty surrounding the origin of potentially impacted Atlantic salmon, two additional river SACs (River Dee and River Tweed), which were advised by the ASFB as being at risk, are also considered in this assessment.

- Bottlenose dolphins as the qualifying feature of the Moray Firth SAC. The dolphins range widely beyond the SAC along the east coast of Scotland. Modelling indicates that the noise emitted from pile-driving turbine and substation foundations could extend beyond the wind farm footprints and reach the coastal waters used by dolphins. It is unlikely that noise from other construction activity (which isn't predicted to extend beyond the wind farm sites), could give rise to significant disturbance of bottlenose dolphin. Nor is the noise emitted from operational turbines a significant concern. There may be impacts on the prey species of dolphin, either from placement of infrastructure or due to noise.

- Harbour seals as a qualifying feature of the Firth of Tay and Eden Estuary SAC. Harbour seals range beyond the SAC and may forage in, or transit through, the areas where the wind farms are proposed. Seals could be disturbed by pile-driving noise in particular, but boat movements, cable-laying, rock-dumping and other activities associated with wind farm construction may also affect them. There may be impacts on the prey species of seals, either from placement of infrastructure or due to noise.

- Grey seals as a qualifying feature of the Isle of May SAC and the Berwickshire & North Northumberland Coast SAC. Grey seals range beyond these SACs and may forage in, or transit through, the areas where the wind farms are proposed. Seals could be disturbed by pile-driving noise in particular, but boat movements, cable-laying, rock-dumping and other activities associated with wind farm construction may also affect them. There may be impacts on the prey species of seals, either from placement of infrastructure or due to noise.

- Atlantic salmon as a qualifying feature of the River South Esk, River Tay, River Teith, River Dee and River Tweed SACs due to disturbance from construction noise and possible effects of electro-magnetic fields ("EMF") arising from installed cables. The SNCBs have advised that they have considered the location of the export cable routes and proposed landfall points for each proposal and are satisfied that construction work associated with this cable installation would not result in likely significant effects to salmon. Also operational noise from wind turbines will not result in likely significant effects to salmon.

- Freshwater pearl mussel ("FWPM") as the qualifying feature of the River South Esk and River Dee SACs. Atlantic salmon (and other salmonids) are integral to the life cycle of FWPM, therefore any impacts to Atlantic salmon that prevent them from returning to their natal rivers may have a resulting effect on FWPM populations.

- Lamprey species as qualifying features of the River Tay, River Teith and River Tweed SACs due to disturbance from construction noise and possible effects of EMF arising from installed cables. The SNCBs have advised that they have considered the location of the export cable routes and proposed landfall points for each proposal and are satisfied that construction work associated with this cable installation would not result in likely significant effects to lamprey species. Also operational noise from wind turbines will not result in likely significant effects to sea lamprey.

The remaining species and habitats listed in the SAC citations in 1b are scoped out of further consideration in this AA as no LSE was identified.

Otters, as qualifying features of the River Tay, River Dee and River Tweed SACs, are not considered further in this assessment as they are a riverine or coastal species. The location of the wind farms being 15 km (minimum) out to sea from the coast, are significantly out with the habitat of otters. The location of the landfalls of all the Forth and Tay offshore wind farm proposals are sufficiently far from river

SACs to conclude no LSE for otters.

3c. APPROPRIATE ASSESSMENT of the implications for the site in view of the site's conservation objectives.

The scope of the assessment envelope went through a number of changes during the assessment process. Assessments based on earlier project iterations identified unacceptably high levels of effect, resulting in a range of mitigation measures being put forward by developers (e.g. reduced numbers of turbines). The assessment for marine mammals is based on the worst case scenarios (i.e. the highest numbers of turbines). This is due to the information on design envelopes which was available when the marine mammal modelling was carried out. Assessments for bird species are based on narrower envelopes (see below).

Ornithology

Advice received from the SNCBs and MSS was based on wind farm iterations that changed over time due to mitigation measures identified by the developers (see *Table 1*). Since receiving the SNCB advice on 7th March 2014 NNGOWL have confirmed that their maximum number of turbines will be 75, and ICOL have confirmed that their maximum number of turbines will be 110. SAWEL and SBWEL have also confirmed a rise in the minimum turbine clearance from LAT of 4 m. The SNCBs provided updated advice on

- 15th April 2014 updating previous advice on the gannet threshold.
- 6th June 2014 which included consideration of the lower numbers of WTGs being proposed by the developers, the reduction in footprint by NNGOWL and the Johnston *et al* flight height data.
- 10th June 2014 regarding the most appropriate displacement rates for kittiwake at the SAWEL and SBWEL sites.
- 2nd July 2014 which detailed the Collision Risk Models to include the rise in the minimum turbine clearance from LAT of 4 m by SAWEL and SBWEL.
- 4th July 2014 regarding the most appropriate displacement rates for puffin at the SAWEL, SBWEL and ICOL sites for use in the common currency.
- 11th July 2014 letter advising that the closer effects are to thresholds the greater the risks of adverse effects and providing detail on appropriate monitoring.
- 16th July 2014 regarding the most appropriate displacement rates for auks and kittiwake at the SAWEL, SBWEL and ICOL sites.

The assessment for birds which has been completed by MSS and MS-LOT is based on these revised turbine numbers and clearance height for collision risk. For kittiwake, displacement effects are based on the worst case scenarios as described above for NNGOWL and ICOL, however for SAWEL and SBWEL the lower displacement rates due to substantially greater WTG spacing as advised by the SNCBs in an email dated 10th June 2014 have been used in the kittiwake assessment. For puffin, the CEH displacement model assumes the worst case displacement rate of 60% for all projects, whilst the common currency

displacement assessment uses that displacement rates advised by the SNCBs on July 4th & 16th 2014 (see below).

Table 1: summary of iterative changes in assessment envelope.

Project	Parameter	SNCB Advice 7 March 2014	MSS advice April 10 2014	SNCB Advice 6 June 2014	SNCB Advice June 10 2014	MSS advice June 12 2014	SNCB Advice July 4 & 16 2014	Appropriate Assessment
All Projects	Flight height data	Cook et al 2012	Johnston et al 2014	Johnston et al 2014		Johnston et al 2014		Johnston et al 2014
	CRM Band Option	2 & 3	3	2 & 3		3		3
	CRM Avoidance Rate	98%	98% (& 95%)	98%		98% (& 95%)		98% (& 95%)
	Auk displacement rate (CEH model)	60%	60%	60%	60% but see SNCB and MSS advice of June 2014 indicating lower displacement rates for some projects			
	Threshold setting method	ruABC & 5% P of decline (gannet) & PBR & proxy species	ABC & ruABC & PVA P of decline (gannet)	ruABC & 5% P of decline (gannet) & PBR & proxy species				ABC & ruABC & PVA P of decline (gannet)
NNGOWL	Turbine No.	90	75	75	75	75		75
	Footprint (km2)	105	105	105	83	83		83
	Effect of mitigation to reduce kittiwake adult survival effect at Forth Islands SPA	0	0	0		0.2%		0.2%
	Puffin displacement rate (Common Currency)	60%	60%	60%	60%	60%	60%	60%
	kittiwake displacement rate (CEH model)	40%	40%	40%	40%	40%	40%	40%
ICOL	Turbine No.	213	110	110	110	110		110
	Footprint (km2)	150	150	150	150	150		150
	Auk displacement rate (CEH	60%	60%	60%	60%	53%		60%
	Puffin displacement rate (Common Currency)	60%	60%	60%	60%	53%	50%	50%
	kittiwake displacement rate (CEH model)	40%	40%	40%	40%	35%	30-40%	35%
SAWEL	Turbine No.	75	75	75	75	75		75
	Footprint (km2)	197	197	197	197	197		197
	Air gap increase	0	0	0		4m		4m
	Auk displacement rate (CEH model)	60%	60%	60%	50%	40%	40%	60%
	Puffin displacement rate (Common Currency)	60%	60%	60%	60%	40%	40%	40%
	kittiwake displacement rate (CEH model)	40%	40%	40%	30%	26%	30%	30%
SBWEL	Turbine No.	75	75	75	75	75		75
	Footprint (km2)	194	194	194	194	194		194
	Air gap increase	0	0	0		4m		4m
	Auk displacement rate (CEH model)	60%	60%	60%	50%	40%	40%	60%
	Puffin displacement rate (Common Currency)	60%	60%	60%	60%	40%	40%	40%
	kittiwake displacement rate (CEH model)	40%	40%	40%	30%	26%	30%	30%

The Scope of In Combination Effects

For certain species, where considered appropriate, in-combination impacts have also been considered from projects further afield:

Aberdeen Bay Offshore Wind farm - to be located 2 to 4.5 km off the coast at Blackdog, Aberdeenshire, comprising 11 turbines with a generating capacity of up to 100MW. This development was consented in 2013 construction has not yet

commenced, consent is for a period of 22 years. This proposal is relevant to consider in respect of kittiwake at Buchan Ness to Collieston Coast SPA and Fowlsheugh SPA.

Methil Wind Turbine – to be located on the coast at Methil, Fife. A single turbine with a generating capacity of up to 7MW. This development is currently operating and has consent to operate for a period of up to 5 years.

Blyth Offshore Wind farm – located just off the Northumberland coast, comprising 2 turbines with a generating capacity of 4MW. This small development has been operating since 2000. This proposal is relevant to consider in respect of gannet at Forth Islands SPA.

Blyth Offshore Wind Demonstration Site - located just off the Northumberland coast, comprising 15 turbines with a generating capacity of up to 100MW. This development was consented in 2013. This proposal is relevant to consider in respect of gannet at Forth Islands SPA.

Teesside Offshore Wind farm – located off the coast of Teesside, England, comprising 27 turbines with a generating capacity of 62MW. Construction was completed in 2013, and the turbines are currently operating. This proposal is relevant to consider in respect of gannet at Forth Islands SPA.

The SNCBs in their advice to MS-LOT dated 6th June 2014 agreed with the inclusion of these developments in the in-combination assessment. The SNCBs highlighted that it has not been possible to check the detail of the underpinning calculations. Marine Scotland have given qualitative consideration of Option 1 (basic version) of the Band CRM done for these sites. MSS advice is that whilst the ideal would be to apply Option 3 for these sites adopting a common currency, this is not practically achievable with the information available. Neither is it necessary to reach a conclusion (see below for discussion on Band CRM Options).

Assessment Methods

Background information on the bird species considered in this assessment can be found at http://seabird.wikispaces.com/

As detailed in section 1c, as the potential effects identified occur outside of the SPAs themselves, the relevant conservation objective for each qualifying interest is to “ensure the population of the species as a viable component of the site” is maintained in the long term. In order to assess the potential effects of the Forth and Tay Developments, alone and in combination, on the achievement of the conservation objective the assessments for relevant species involved:

1.) estimation of the level of predicted effect; and
2.) setting a precautionary level of acceptable change to the population given the statutory requirements. Where it can be shown that the populations of all qualifying interests of concern can be maintained within the thresholds of change it can be concluded that the proposed developments will not adversely affect site integrity.

In their ESs the Forth and Tay developers used varying methods of assessment (e.g. reference populations, collision risk models, methods for apportioning effects to SPA populations, assessment of displacement impacts), making a clear and transparent cumulative assessment extremely difficult. Developers also adopted various approaches to rationalise the acceptability of the effects in their Habitats Regulations Appraisal ("HRA") reports. In order to address this and allow for a more robust cumulative assessment a common currency approach has been used. The SNCBs and MSS have worked together with the developers to establish common approaches and methods which are discussed further below.

1). Estimation of the level of predicted effect

The main effects to bird species are due to:
a). Collision with Turbines (of greatest relevance to species which may regularly fly at the same height as the rotating blades e.g. gulls and gannet), and
b). Displacement and Barrier Effects resulting in birds either being displaced from foraging areas or having to fly around a wind farm to reach a foraging area (of greatest relevance to species with more limited foraging ranges or greater flight energetic costs e.g. kittiwake and puffin).

a.) Collision with Turbines – The Forth and Tay developers all presented Band Collision Risk Models ("CRMs") in their ESs, and in the case of NNGOWL, SAWEL and SBWEL in their SEISs. The SNCBs and MSS support the use of Band CRMs. Band (2012) provides guidance on how to use the CRM for seabird species in respect of offshore wind farms. It includes a 'basic' model (Options 1 and 2) and an 'extended' version (Option 3) as described below:

Option 1 – The 'Basic' model. It assumes a uniform distribution of flight heights and collision risk between lowest and highest levels of the rotors. It also uses figures for the proportion of birds at risk height derived from site-specific surveys.

Option 2 – As Option 1 but the proportion of birds at risk height is derived from modelled flight height data. Johnston et al (2014 *corrigendum*) provides the most up to date information on modelled flight heights and effectively supersedes the previous flight height model (Cook *et al*, 2012).

Option 3 – The 'Extended' model. This differs methodologically from the 'Basic' model in that it does not assume that the density of flying birds is uniform across all heights between the minimum and maximum rotor swept height. Instead, this option uses flight height values for specific height bands (1m flight bands by default) from modelled data to calculate collision rate in each part of the rotor swept area and then integrates that across the rotor disk. It accounts for a number of factors that change with height across the rotor swept area which together result in the collision risk varying with height. For example, the breadth of the circle (and therefore the number of birds flying through the circle) varies with height and the collision risk on transit through the swept area also depends on height (due to for example, variation in rotor speed across the radius). If the density of birds in flight also varies with height (as observed in most seabird species) rather than being uniform, then the result is a different number of predicted collisions than if the flight height distribution were assumed to be uniform (as in Options 1 and 2). The author

of the Band model has clearly stated that the extended model undertakes the more correct calculation and should be used in preference over the basic model where appropriate flight height data allow (emailed note to Avoidance Rate Review project steering group received 14/5/14).

The Forth and Tay developers presented various combinations of these CRMs in their ESs and SEISs. These initial assessments informed the development of both a common currency, and mitigation e.g. through reduced turbine numbers, both of which are necessary considerations for this appropriate assessment.

In their advice to MS-LOT dated 7th March 2014, the SNCBs presented the collisions attributed to the Forth and Tay Developments using both Options 2 and 3 of the Band model using Cook *et al* (2012) modelled flight height data. Option 3 was used in the appropriate assessments recently completed for the BOWL and MORL developments in the Moray Firth. The Renewables Scientific Advice Group ("RSAG" – comprising SNH, JNCC and MSS) met on 25th and 28th June 2013, and considered the use of the outputs from Option 3 in the Moray Firth assessments appropriate. Flight height data were also not available in appropriate flight height bands for SAWEL and SBWEL for use in Option 1 of the CRM.

Since the SNCB advice was received on 7th March 2014, Johnston *et al* (2014 *corrigendum*) has been made available. The Johnston *et al* analysis models the same flight height data as modelled by Cook *et al* (2012) but undertakes the analysis of data using a sample unit of site rather than survey. Some sites had multiple years of survey and this approach overcomes the apparent issue with the Cook *et al* height distributions of individual surveys having an undue influence on derived flight heights.

Where possible, comparison of outputs from Options 1 and 2 was undertaken to identify whether substantial differences in values and therefore flight heights between the site data and the pooled modelled Johnston *et al* 2014 data used in Option 2 and Option 3 existed. There was substantial difference between the number of kittiwake estimated to collide when comparing the ICOL values for Option 1 and 2, with twenty-two times more birds estimated to collide using the modelled flight height data (Option 2) than site-specific data (Option 1) i.e. the ICOL data suggested that substantially less kittiwake were flying within the rotor swept area. There were no reasons to suspect that site specific drivers at ICOL would cause flight heights to differ from the modelled data. It was also accepted that pooling robustness was likely to result in the Johnston *et al* 2014 data being more robust to errors (but not systematic bias) in flight height estimation. Any systematic bias in flight height estimates either from the site specific data or that used by modelled data would be carried through the CRM calculations, regardless of the Option used.

The Johnston *et al* work has been published in a peer-reviewed scientific journal and is considered by MSS to provide the best available evidence. This view was endorsed by the SNCBs in their advice of June 6th 2014. The SNCBs recommended that Option 2 outputs are also used in the assessment. A further revision of the CRM using Option 2 was provided by the SNCBs on 2nd July 2014 which included the commitment by SAWEL and SBWEL to increase the air gap

between the rotor blades and the sea by 4m from LAT. MSS advised that Option 3 provides the most realistic evidence base for use in this AA. The assessment is based on Option 3 outputs.

The Band 2012 CRMs are very sensitive to the avoidance rates used. There has been a debate about whether the default 98% avoidance rate, which has historically been used and applied in conjunction with the 'basic' model (Options 1 and 2), and was used with Option 3 for the BOWL and MORL development appropriate assessments in the Moray Firth,is also appropriate for use with the 'extended' model (Option 3). MSS are currently leading a research project to review seabird avoidance rates for use in these models. The British Trust for Ornithology (BTO) are undertaking the work with a steering group comprised of SNCBs, RSPB and ecological consultants. The draft report to MSS gives support for calculating avoidance rates separately for the basic and extended models. The SNCBs advice (dated 7th March 2014) was issued before the draft report was available and was thus based on a 98% avoidance rate. Although MSS consider the 98% avoidance rate to be appropriate for use in this assessment they also consider it is appropriate to present results for Option 3 assuming an avoidance rate of 95%. This adds additional precaution to the assessment and allows conclusions to be made on the impacts from collision risk where no reasonable scientific doubt remains.

The assessment is intended to be precautionary in its estimation of effect to ensure that its conclusions are also precautionary in nature. In addition to the choice of avoidance rate, precaution is provided by the density estimates not including a factor to account for attraction to survey vessels of species known to associate with fishing vessels i.e. gannet, kittiwake, and large gulls. This attraction is likely to lead to higher density estimates of these species and thus higher numbers predicted to collide with the turbines.

In summary, this assessment is based upon estimates of the breeding season collision effect using extended Band model Option 3 with Johnston *et al* (2014 *corrigendum*) and an assumed avoidance rate of 98%. The same conclusions are also reached using a more precautionary avoidance rate of 95%.

b.) Displacement and Barrier Effects – It is recognised that increased activity in a sea area, or the establishment of structures such as wind farms, has the potential to displace birds. Initial monitoring of other European offshore wind farms shows contrasting results between species and for the same species, (e.g. Leopold *et al*., 2011, Canning *et al*., 2012, Furness *et al.*, 2013). Most of this monitoring focuses on the non-breeding season as this is when the wind farms being monitored were considered to have greatest impact. There is little available data to inform assessment of displacement / barrier effects to seabirds during the breeding season. There is limited understanding of the individual or population level effects of displacement or barrier effects, via increased energetic costs, reduced nest attendance or provisioning of chicks.

It is recognised that the assessment of displacement/ barrier effects is particularly challenging. In October 2012 Marine Scotland therefore commissioned the Centre

for Ecology and Hydrography ("CEH") to develop a time and energy expenditure model (Searle *et al*, 2014) to investigate the potential displacement / barrier effects on seabird species that could arise from the proposed wind farms. This modelling was undertaken for guillemot, razorbill, puffin, kittiwake and gannet, addressing these possible responses to the presence of a wind farm:

- displacement, where birds that otherwise wanted to forage in the area decide to forage elsewhere, and
- barrier effects, where birds that want to forage in locations beyond the wind farm decide to fly around it rather than through it. A 1km buffer has been applied to each of the Forth & Tay wind farm footprints supplied by the developers.

The modelling assumes a 60% displacement / barrier rate for auk species and gannet, and either 30% or 40% for kittiwake, as initially advised by the SNCBs (but see below). It is informed by available tracking data for each species and provides outputs for two types of assumed prey distribution:

- 'Flat' which assumes an even (homogeneous) distribution of prey across the region.
- GPS which uses bird tracking data to inform variable (heterogeneous) prey distribution.

CEH have advised that the flat and GPS modelled outputs encompass the range of possible displacement / barrier effects. In their advice of June 6th 2014 the SNCBs indicated that the decision on which outputs were used should be based on the sample size of tagged birds, number of years for which tagging data were available and the confidence that CEH had in the estimates of effects. This rationale has been used in this assessment.

The CEH displacement modelling only considers the consequences of adult breeding birds being displaced or extending flights to avoid entering a wind farm, with effects on adult body mass, nest attendance and chick provisioning rate all being estimated. A limitation of the model is that it does not assess the effect of reduced fledging weight on subsequent chick survival and recruitment into the population of breeding adults. It was however considered that due to very limited available data there were substantial difficulties in attempting to quantify this effect, and that the effect was likely to be very small due to naturally relatively high mortality within the first year.

There are two versions of the displacement model, the 'full' and the 'lite'. The 'full' model was most biologically realistic but modelled the energetic consequences of barrier effects in an unrealistic manner, was computationally expensive to run, and was unable to run scenarios with large sets of simulated birds. The 'lite' model was developed to address these issues and the final simulations used both 'full' and 'lite' versions of the foraging model to capitalise on their respective strengths.

CEH advise that 'lite' model output version 0 gives the most realistic calculation of barrier effects compared to version 1, however, the 'full' model better captures the available foraging options for birds in the presence of a wind farm. CEH have

therefore calculated an adjustment factor that allows the full model outputs to be used, but incorporates the better estimate of barrier effects derived from the 'lite' model. Both the adjustment method and corrected outputs have been provided by CEH to the project steering group (represented by SNCBs, developers' ecological consultants and RSPB) and it is these which the SNCBs and MSS have used in their advice.

The CEH displacement outputs address the cumulative development scenario of all four Forth and Tay wind farms in combination as well as each individual wind farm in isolation (provided for all species, excepting gannet). The SNCB advice of June 6th 2014 and this Appropriate Assessment are based on the final version of the CEH displacement report.

SNCB advice on June 10th 2014 and the 4th and 16th July 2014 indicated that due to greater turbine spacing at some projects it would be appropriate for lower displacement rates to be used in the estimation of effects. MSS advice on 12th June 2014 also indicated that due to the greater turbine spacing at SAWEL and SBWEL and the substantial increase in WTG spacing at ICOL following their reduction in turbine number from 213 to 110, reduced displacement rates should be applied to these projects in the cumulative impact assessment. The SNCB advice on displacement rates (see *Table 2*) have been used for the puffin common currency assessment of displacement. For the CEH displacement models, the original displacement/barrier rates advised by the SNCBs (40% kittiwake and 60% auks, gannet and large gulls) have been used with the exception of kittiwake at SAWEL and SBWEL where displacement rates of 30% have been assumed. Incorporation of the revised displacement rates advised by MSS and the SNCBs would require the re-running of the CEH models. Instead, the displacement rates used in the CEH model for kittiwake at ICOL, SAWEL and SBWEL are viewed as precautionary based on the rates advised by MSS.

Table 2: Summary of displacement rates advised by the SNCBs and MSS, and those used in the CEH displacement models.

	Development Area (km2)	No. WTG	MSS Advice	SNCB Advice	MSS Advice	SNCB Advice	Auk, gannet and large gull	Kittiwake
NNGOWL	83	75	60	60	40	40	60	40
SAWEL	197	75	40	40	26	30	60	30
SBWEL	194	75	40	40	26	30	60	30
ICOL	150	110	53	50	35	30-40	60	40

As with collision risk modelling the CEH modelling of displacement is considered to have been applied in a precautionary manner, to ensure the overall assessment is precautionary. The two main areas of precaution in the use of the displacement model are:

1. The assumption that the displacement/barrier rate is constant across the entire 1km buffer rather than declining with increasing distance from the wind farm boundary.
2. With the exception of kittiwake at SAWEL and SBWEL, the displacement/ barrier rates assumed in the CEH models are based on those originally advised by the SNCBs and do not therefore take into account the reductions

advised by MSS and the SNCBs to account for the mitigating effects of increased turbine spacing (see Table 2).

2.) Setting a precautionary level of acceptable change

Several methods have been used to set and sense-check thresholds of acceptable change and these are discussed below:

- Population Modelling;
- Interpreting population model outputs using Acceptable Biological Change ("ABC");
- Interpreting population model outputs using reduced uncertainty Acceptable Biological Change ("ruABC");
- Interpreting gannet population model using the probability of population decline at the end of the 25 year period of effect being lower than the starting population;
- Interpreting puffin population model using the probability of population decline in any year of the 25 year period of effect;
- Potential Biological Removal ("PBR");
- Ratios of median change to populations with and without the acceptable effects.

Population Modelling

Marine Scotland contracted CEH in October 2012 to produce population models (Freeman *et al*, 2014) for several species (kittiwake, guillemot, razorbill, puffin, herring gull) using colony counts from 1985 to 2012 inclusive, along with productivity and survival data. The Bayesian framework used by CEH enabled fitting in 'state-space' form, which allows for 'observation error' and environmental stochasticity (variations in environmental conditions) simultaneously within the same model. Where data made it feasible to do so, Integrated Population Modelling ("IPM") was undertaken which provides the additional advantage that all sources of data contribute to the estimates of all parameters, such that sampling uncertainty is correctly accounted for. State-space models were undertaken on all species. IPMs were also undertaken on guillemots and razorbills.

The baseline models were fitted to, and compared with, past colony counts to assess their validity. Generally, the models fitted colony counts well, especially for those colonies which had been counted annually, the exception being the puffin model. Consequently, CEH advised caution in relation to the puffin model's use in any assessment of wind farm impacts on the puffin population at Forth Islands SPA and for this reason the CEH puffin model outputs have not been used in the setting of thresholds for this species.

A number of impact scenarios were modelled for each population. Annual adult survival and productivity rates were reduced for a 25 year period, corresponding to the operation of a wind farm, and a five year 'recovery' period during which no reduction in survival and productivity beyond natural mortality was also modelled. Survival and productivity was reduced, as follows:

- adult annual survival rates: reduction of 1%, 2%, 3% or 4%;
- annual productivity: reduction of 1%, 5%, 10% or 20%; and
- both annual survival and productivity: 1% survival, 1% productivity; 2% survival, 5% productivity; 3% survival, 10% productivity; 4% survival, 20% productivity.

Population model outputs are in the format of annual predicted population sizes from 2015 to 2045. In order to set thresholds the SNCBs excluded the 5 year recovery period and used the outputs at year 2040 as the final population. This assessment is based upon a 25 year period of effect with no post wind farm recovery period assumed as advised by the SNCBs.

The models were designed to incorporate natural variability in the key vital rates. Each run of the model therefore gave slightly different outputs due to the variance incorporated into the stochastic population model. In order to express this variability the median population size each year plus quantiles of the multiple runs for each scenario were presented. The quantiles provided by the CEH outputs were 5%, 33%, 50%, 66% and 95%. These outputs were used to set thresholds of acceptable change for kittiwake, guillemot, razorbill and herring gull as follows:

Interpreting population model outputs using Acceptable Biological Change ("ABC")

The ABC tool was previously applied in the BOWL and MORL appropriate assessments. This tool establishes an acceptable level of change based on the forecast trajectory assuming no additional adult mortality. An outline of the ABC tool is attached in Appendix 2 of this assessment.

The tool uses the Intergovernmental Panel on Climate Change ("IPCC") terminology to determine thresholds of acceptable change. With the CEH population models, application of ABC used the median forecast of 0.5. The median value sits within the IPCC 'about as likely as not' category (probability range of 0.333-0.667). The magnitude of acceptable effect is taken as the difference between the median forecast and the 33% quantile under baseline conditions i.e. in the absence of any additional effect.

Interpreting population model outputs using reduced uncertainty Acceptable Biological Change ("ruABC")

The SNCBs recommended adopting a variation to the original ABC tool. The objective of the modification is to address a known limitation of the ABC method that results in larger decreases in adult survival being determined 'acceptable' for models which have higher variation or uncertainty. This is a concern when the variation is likely to be an artefact of sampling error with respect to the population in question rather than true natural variability. Setting thresholds that allow for natural fluctuations in population sizes is important, but it is also important to minimise the impact of sampling error.

To overcome this effect the ruABC method uses uncertainty in the larger regional population models produced by CEH to adjust the threshold of acceptable change

in SPA specific models. ruABC is calculated by taking the difference between the median and the 33% quantile as a proportion of the median using the regional model. This measure is then multiplied against the median population size of the colony of interest, and the standard ABC calculation is then applied to the resultant value. The underlying rationale of the approach is that by applying the regional model measure of uncertainty to all SPA-specific models, natural variation in population size is retained but sampling error is minimised. For the majority but not all species and SPAs modelled by CEH, the ruABC approach results in lower thresholds of acceptable change. The SNCBs applied ruABC to determine thresholds for all populations that were modelled by CEH, except puffin.

MSS have advised that whilst the underlying rationale that the effects of natural variation will tend to act at larger spatial scales is likely to be often the case, change can occur at multiple spatial scales including very localised areas. It is for this reason that SPA-specific PVAs were developed for the Forth and Tay, rather than single regional models. Applying ruABC to kittiwake at St Abb's Head to Fast Castle SPA, for which there are regular count data, would have the peculiar result of increasing the threshold for a population despite the ABC approach (which capitalises on the good site-specific data included in the PVA) indicating that a lower threshold would be appropriate. Given the downward trajectory of the population it would be inappropriate to dilute the evidence from the colony with regional analysis in order to justify a greater level of effect through the use of ruABC.

In summary, reliance upon regional scale models means that the ruABC tool is not able to provide a higher standard of evidence than good quality colony scale PVAs. Use of ruABC is justified where there is good reason e.g. limited colony information being available or data quality concerns at the colony scale. Table 2.1 on page 7 of the CEH report provides a summary of data for each model. MSS advise use of ABC for those colonies with counts that are a regular census (a count of the whole colony) or subplot survey (a count of part of the colony) and ruABC if counts are sporadic or supporting information on the colony limited (*Table 3*).

Table 3: MSS advice on the use of ABC or ruABC thresholds (SNCBs advise that ruABC should be used in all circumstances).

Species	SPA	ABC/ruABC
kittiwake	Forth Islands	ABC
	St. Abbs	ABC
	Fowlsheugh	ruABC
	Buchan Ness	ruABC
guillemot	Forth Islands	ABC
	St. Abbs	ABC
	Fowlsheugh	ABC
	Buchan Ness	ruABC
razorbill	Forth Islands	ABC
	St. Abbs	ABC
	Fowlsheugh	ruABC
herring gull	Forth Islands	ABC
	St. Abbs	ABC

Interpolation between adult survival and productivity ABC thresholds

The thresholds established using either ABC or ruABC are taken from the CEH simulations that investigated combined changes to adult survival and productivity (e.g. 1% +1%, 2% + 5%, etc.). Interpolation between the integers presented by CEH allows thresholds to be set that fall between the categories of change modelled and the SNCB advice was based on this approach. However, a maximum allowable population level effect could be reached through a range of combinations of adult survival and chick productivity reductions that are not captured by the interpolated values (e.g. a reduction might be driven by change to only productivity or only adult survival). To accommodate an assessment that is based upon the estimated effects, MSS advised a second stage to the interpolation of thresholds that allows the productivity effects estimated by the CEH model to be taken into consideration in setting the threshold for adult survival. This has the advantage of matching the level of reduced productivity in the threshold calculation to that estimated, and also of providing an adult survival threshold that can be used as the focus of mitigation and assessment. Further details of this interpolation method are provided in Appendix 3.

The SNCBs advised that ruABC thresholds, using their approach to interpolation, be used for all species and SPAs where available whilst MSS advised that the derived thresholds (using their extended interpolation) presented below in dark grey are used in the assessment (*Table 4*).

Table 4: Summary of auk and kittiwake thresholds derived ABC and ruABC approaches

Species	SPA Population	SNCB threshold ruABC decrease in adult survival	SNCB threshold ruABC decrease in productivity	MSS threshold ABC derived adult survival decrease*	MSS threshold ruABC derived adult survival decrease*
KITTIWAKE					
Forth Islands	7552	-1.5%	-3.0%	**-2.4%**	
St Abbs	12635	-1.6%	-3.4%	**-2.0%**	
Fowlsheugh	18674	-1.3%	-2.3%		**-1.3%**
Buchan Ness	25084	-1.6%	-3.2%		**-2.4%**
GUILLEMOT					
Forth Islands	29169	-0.6%	-0.6%	**-0.9%**	
St Abbs	58617	-0.8%	-0.8%	**-1.3%**	
Fowlsheugh	60193	-0.6%	-0.6%	**-1.1%**	
Buchan Ness	25857	-0.5%	-0.5%		**-0.5%**
RAZORBILL					
Forth Islands	4950	-0.9%	-0.9%	**-0.9%**	
St Abbs	4588	-1.3%	-2.0%	**-1.7%**	
Fowlsheugh	7048	-1.0%	-1.0%		**-1.2%**

* Interpolation between adult survival and productivity thresholds applied

Potential Biological Removal ("PBR")

PBR was used by the SNCBs to inform the puffin thresholds. The PBR equation is based on a simple form of population modelling, which was first formulated for

marine mammals (Wade 1998) to estimate allowable by-catch. PBR requires the setting of a recovery factor (f), the value of which is a conservation management decision. Rationales in support of choice of f values rely upon criteria that are open to debate. PBR calculates the number of additional mortalities that can be sustained annually by a population, accepting the assumptions and goals of the method. However there are concerns relating to the realism of PBR's assumptions about population dynamics. MSS recommend that reliance upon PBR should be limited to those scenarios where it constitutes the best available evidence, and this is unlikely to include scenarios where bespoke population models are available. Although not used by MSS or MS-LOT in reaching conclusions, the PBR f values are presented in table 5 below.

Presentation of threshold values using different metrics and methods

The population forecasts produced by the PVAs can be used to explore the consequences for the population assuming levels of effects in comparison to forecasts without those effects. The ratio between the two (without/with effects), which is a "counterfactual", does not of itself provide a threshold or acceptable change. It is an additional metric by which predicted impacts, or thresholds may be considered (see *Table 5*).

It is important that metrics are used in the appropriate context:

- With the exception of the St Abb's guillemot, the population models do not account for any density dependence of growth or survival. At lower population densities, competition for resources tends to decline, and growth rate or demographic rates increase). The models will over-estimate levels of increase and decrease and, in this respect, represent worst case scenarios in terms of the forecast changes;
- The numbers presented in *Table 5* (with the exception of puffin) refer to the maximum allowable effects, not the effects estimated by the assessment. The estimated effects are less than the thresholds and in addition the magnitude of the effects have been estimated in a precautionary manner;
- Some of the populations are forecast to decline over the 25 year period in the absence of any wind farms, most likely as a consequence of reductions in food supply owing to factors that cannot be controlled at a local level, such as climate change. These changes are far greater than the magnitude of the estimated effects associated with the wind farm proposals e.g. the median Fowlsheugh kittiwake population is forecast to decline by up to 85% during the 25 year period in the absence of any wind farms. Consideration of the likely outcomes to the populations is informed by an understanding of the variance associated with the baseline forecasts. This provides meaningful context. In the case of the Fowlsheugh kittiwake population for example, based on the PVA outputs, a reduction of up to the range between 78% and 88% is as likely as not in the absence of any wind farms. Assuming the maximum allowable reduction in annual adult survival rate for kittiwake at Fowlsheugh in the presence of wind farms of -1.3%, a reduction of up to between 83% and 91% is as likely as not.
- Taking the example of Fowlsheugh kittiwake and considering only the median values, the population is forecast to decline by up to 85% in the absence of a wind farm and by up to 89% (a difference of -4%) assuming

the maximum allowable reduction in annual adult survival of -1.3%. However, the ratio of the end population assuming maximum allowable effect: end population excluding any wind farm effect is 0.73, potentially being interpreted as suggesting a 27% decline to the population. It is therefore important that these values are taken in context.

Table 5: Comparison of forecast changes to the starting population for key species and SPAs in the absence of wind farm effects and assuming the maximum allowable reduction in annual adult survival, and equivalent PBR f-values required to obtain the same thresholds of change.

Species	SPA Population (Individuals)	Maximum allowable reduction in annual adult survival rate	The outcome range that is as likely as not in the absence of wind farm as a percentage of starting population	The outcome range that is as likely as not assuming the maximum allowable effect as a percentage of starting population	Ratio of end population assuming the maximum allowable effect: end population without any wind farm	Equivalent PBR f-value
KITTIWAKE						
Forth Islands	7552	-2.4%	45-81%	29-55%	0.69	0.40
St Abbs	12635	-2.0%	28-39%	19-28%	0.72	0.30
Fowlsheugh	18674	-1.3%	12-22%	9-17%	0.79	0.20
Buchan Ness	25084	-2.4%	48-78%	31-52%	0.66	0.22
GUILLEMOT						
Forth Islands	29169	-0.9%	122-142%	103-123%	0.88	0.30
St Abbs	58617	-1.3%	111-131%	95-112%	0.88	0.45
Fowlsheugh	60193	-1.1%	99-127%	86-109%	0.99	0.30
Buchan Ness	25857	-0.5%	104-123%	94-105%	0.93	0.30
RAZORBILL						
Forth Islands	4950	-0.9%	167-212%	146-181%	0.88	0.25
St Abbs	4588	-1.7%	89-117%	71-94%	0.78	0.34
Fowlsheugh	7048	-1.2%	35-53%	27-40%	0.79	0.30
GANNET*						
Forth Islands	110964	-1.2%	112-164%	87-129%	0.79	0.25
PUFFIN**						
Forth Islands	62231	-2.0%	369-397%	278-301%	0.75	0.25

** For gannet % range is 95% confidence limits due to the format of the PVA outputs*

*** For puffin the % reduction in adult survival is that estimated using the common currency table as an upper threshold was not set for this species*

Summary of population modelling approaches

All the methods described are considered to be precautionary and in compliance with the statutory requirements in that they allow assessments on the maintenance of the populations as viable components of protected sites (the primary conservation objective under consideration) to be carried out, enabling conclusions on site integrity to be reached. Where a choice of method is available, the approach that provides the best available evidence has been used.

A common feature of these methods is that they establish baselines for the assessment that are future points in time. Consequently, assessments in relation to the statutory requirements are based on modelled scenarios. A number of the populations assessed have declined over recent time. Seabird population sizes and trends in the UK are thought to be principally regulated by food supply. There is considerable uncertainty over the range of factors that contribute to variations in food availability over time, with several of the factors thought to operate over large spatial scales (e.g. climate change). Future research may inform our understanding of seabird population management over larger spatial scales. The underlying drivers of population change are not considered to be a consequence of activities

that require cumulative assessment under the terms of the Habitats Regulations. The inherent uncertainties associated with the populations and their trends are taken into account by the assessment methods used.

Combining and apportioning effects to breeding colonies

Where the predicted collision or displacement effects are derived from boat-based data, they are apportioned to the different SPAs using the draft SNH method on apportioning. The CEH displacement modelling does not use boat-based data or the SNH apportioning method, rather GPS data are used to determine the foraging destinations of individual birds breeding at each SPA. For species impacted by both collision and displacement, the collision effects were summed with the displacement effects. The summed effect is compared against the thresholds of change to inform an overall conclusion with regard to potential for adverse effect on site integrity.

Assessments conclusion for each species and colony

The results of application of the assessment methods described above are presented for each species, as a qualifying interest of the relevant colony SPA. Conclusions are reached on site integrity with respect to the individual qualifying features of the sites being considered; and an overall conclusion on site integrity considering all qualifying features is also provided.

In their advice dated 6th June 2014, the SNCB's presented in Appendices 2a & 2b the predicted effects of the Forth and Tay Developments individually and in combination, and their thresholds calculated for each of the species and SPA of concern. This SNCB advice used Johnston *et al* (2014 corrigendum) to assess collision risk, with updated advice received on the 2nd July including the 4m increase in turbine clearance above LAT committed to by SAWEL and SBWEL. The SNCB advice of 6th June and 2nd July only presents values for Option 2. As such, it differs from the content of this assessment. (see *Table 1*at start of section 3c).

Appendices 5 & 6 provide a summary of the divergences in the advice on assessment methods and conclusions between the SNCBs and MSS.

Kittiwake - Buchan Ness to Collieston Coast, Forth Islands, Fowlsheugh, St Abb's Head to Fast Castle SPAs

In their advice dated 7th March 2014 the SNCBs provided information on the population trends for kittiwake:

- Scottish and UK trends show a strong decline (-47%) for kittiwake between 2000 and 2012, following a shallower but significant decline at the end of the 20th century (-25% between the 1985-88 and 1999-2002 census periods).
- Although individual colonies vary, the common pattern is for a strong, possibly increasing, rate of decline. The population models developed by CEH predicted all four kittiwake colonies to decline between 45% and 90% over the next 30 years (Freeman *et al*. 2014).
- The numbers breeding at Forth Islands, Fowlsheugh and St Abb's Head to

Fast Castle SPAs have declined in line with these general trends.

- Recent counts from Buchan Ness to Collieston Coast SPA are not available but numbers declined from 14091 pairs in 2000 to 12542 pairs in 2007.

Looking over a longer time period, kittiwake populations in the Forth and Tay region experienced a period of rapid growth during the 1960's-1980's before declining during the late 20th century and early 21st century (*Figure 2*). The RSPB have concluded that climate change is a key driver of declines in UK seabird populations, including kittiwake.

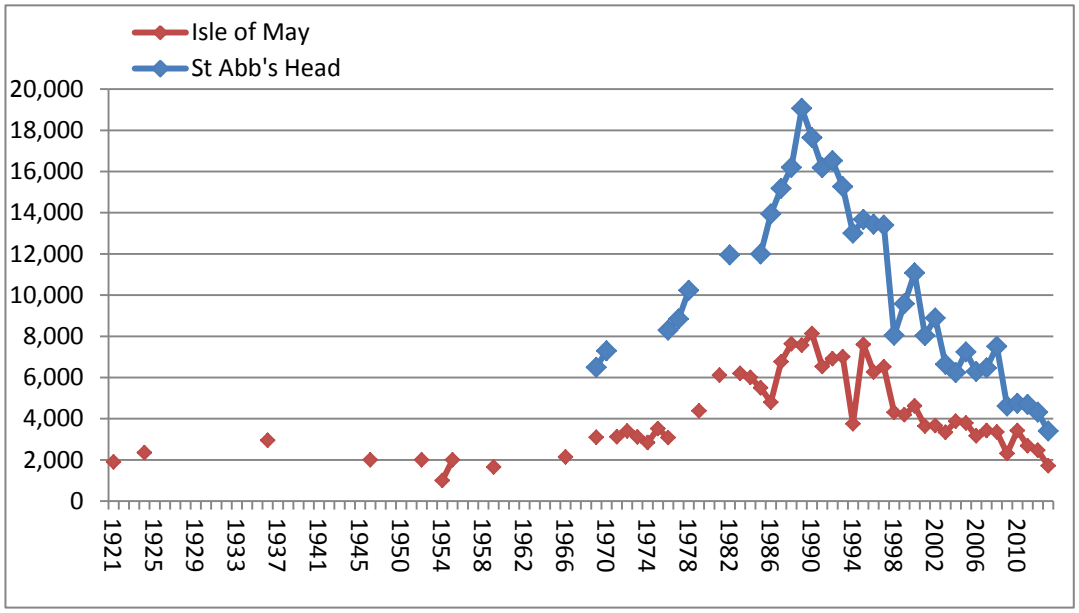


Figure 2: Kittiwake populations at the Isle of May and St Abb's Head 1921- 2013 (from Mainstream letter 26 March 2014 and derived from Harris & Galbraith 1983, Harris 1994, SMP 2014, Da Prato & Da Prato 1980, Rideout & Paterson 1997)

The conclusion reached by the SNCBs (based on Option 2 of the Band CRM and ruABC threshold) was that the combined effects of the Forth and Tay Developments would adversely affect the integrity of the Forth Islands and Fowlsheugh SPAs. This advice did not take into consideration NNGOWL's requirement (through a condition of s36 consent, copied as condition 13 below) to reduce their negative effect on adult survival of kittiwakes from Forth Islands SPA by 0.2% nor the reduction in displacement/barrier rates at SAWEL and SBWEL due to the greater WTG spacing. Taking account of these issues the combined effects, whilst reduced, would still exceed the ruABC threshold advised by the SNCBs. Displacement model outputs using the reduced displacement rates at ICOL advised by the SNCBs and MSS due to their halving of the number of WTGs were not available for this assessment and so effects at ICOL should be seen as precautionary.

The effect identified on kittiwake is the combined effect from both collision and displacement (*Table 6*). As explained above the collision effect is based on the most likely scenarios (i.e. reduced turbine numbers and increased clearance height).The displacement effect is based on the most likely scenarios for

NNGOWL, SAWEL and SBWEL, and the worst case scenario for ICOL. The relative importance of the collision and displacement effects differed between the SPAs. The results of the assessment completed by MSS are presented below with effects and thresholds using the common metric of reduction in adult survival rate (as a percentage point change). The assessment is based on percentage point changes to adult survival rates as it is considered that this is the most useful metric for assessing the impacts to long lived species such as seabirds. The adult survival threshold has been derived through interpolation of the CEH population outputs having ensured that the productivity effects are already accounted for using the same approach.

Table 6: Summary of estimated collision and displacement/ barrier effects on kittiwake SPAs from the four wind farm projects (see Table 3 for thresholds).

SPA	Effect	TOTAL	SAWEL	SBWEL	ICOL	NNGOWL
Buchan Ness	**Displacement (Ad. Survival)**					
	Adjusted model FLAT	0.00	0.00	0.00	0.00	0.00
	Collision					
	Option 3 95%	-0.07	-0.02	-0.03	-0.02	0.00
	Option 3 98%	-0.03	-0.01	-0.01	-0.01	0.00
	TOTAL					
	Option 3 95%	**-0.07**	**-0.02**	**-0.03**	**-0.02**	**0.00**
	Option 3 98%	**-0.03**	**-0.01**	**-0.01**	**-0.01**	**0.00**
Fowlsheugh	**Displacement (Ad. Survival)**					
	Adjusted model Flat	-0.35	-0.39	-0.18	0.00	0.00
	Collision					
	Option 3 95%	-0.78	-0.28	-0.29	-0.23	-0.01
	Option 3 98%	-0.31	-0.11	-0.12	-0.09	0.00
	TOTAL					
	Option 3 95%	**-1.14**	**-0.67**	**-0.47**	**-0.23**	**-0.01**
	Option 3 98%	**-0.66**	**-0.50**	**-0.30**	**-0.09**	**0.00**
Forth Islands	**Displacement (Ad. Survival)**					
	Adjusted model GPS	-1.42	-0.26	-0.20	-0.47	-0.88
	Collision					
	Option 3 95%	-0.37	-0.05	-0.06	-0.15	-0.11
	Option 3 98%	-0.14	-0.02	-0.02	-0.06	-0.04
	TOTAL					
	Option 3 95%	**-1.78**	**-0.31**	**-0.26**	**-0.62**	**-0.99**
	Option 3 98%	**-1.56**	**-0.28**	**-0.22**	**-0.53**	**-0.92**
St Abbs	**Displacement (Ad. Survival)**					
	Adjusted model Flat	-0.18	0.00	-0.05	0.00	-0.05
	Collisions					
	Option 3 95%	-0.30	-0.07	-0.07	-0.10	-0.05
	Option 3 98%	-0.12	-0.03	-0.03	-0.04	-0.02
	TOTAL					
	Option 3 95%	**-0.48**	**-0.07**	**-0.12**	**-0.10**	**-0.10**
	Option 3 98%	**-0.30**	**-0.03**	**-0.08**	**-0.04**	**-0.07**

For kittiwake the displacement model accounts for the majority of the identified effect in relation to NNGOWL and Forth Islands SPA, and CEH conclude that this effect is primarily due to barrier effects rather than displacement. The barrier effect of the NNGOWL project accounts for the largest proportion of the overall cumulative effects on kittiwake at Forth Islands SPA. To mitigate this effect as much as reasonably possible; the CEH modelling of the final construction design must demonstrate a reduction to the negative effect on adult survival of kittiwakes from Forth Islands SPA by 0.2% from NNGOWL. This assessment is based on an

assumed rate of 40% for displacement and barrier effects for NNGOWL and ICOL and 30% displacement for SAWEL and SBWEL.

Other projects whose potential for cumulative effects are given more qualitative consideration are the offshore wind demonstration projects at: Aberdeen Bay and Methil. Collision risk modelling has been undertaken for these sites using the basic Band model. The Methil turbine is estimated to have less than 2 kittiwake collide per year. At Aberdeen Bay Offshore Wind farm the breeding season adult mortality was predicted to be 25 birds which is attributable to Buchan Ness to Collieston Coast SPA (19 birds) and Fowlsheugh SPA (6 birds), equating to 0.008% of the populations at each SPA. The additional effects associated with these projects have not been included in a common currency for the purposes of this assessment as the magnitude of the effects are considered to be negligible.

Despite the different assessment methods being used, MSS and the SNCBs agree that the proposed Forth and Tay Developments will not adversely affect the integrity of the Buchan Ness to Collieston Coast SPA or the St. Abb's Head to Fast Castle SPA with respect to kittiwake. SNCB advice however is that an assessment adopting their approaches for ruABC and also use of Option 2 collision risk modelling at 98% avoidance rate is unable to demonstrate no adverse effect on site integrity to kittiwake at Forth Islands SPA and Fowlsheugh SPA. MSS advice is that no adverse affect to the integrity of kittiwake colonies is demonstrated using the best available evidence which includes the MSS derived thresholds (using either ABC or ruABC as detailed in Table 3 and their interpolation method) and Option 3 of the Band CRM at 98% and 95% avoidance rates.

For kittiwake different conclusions regarding the Forth Islands and Fowlsheugh SPAs are reached by the SNCBs and MSS due to different methods being used to set thresholds, and also different Options of the Band CRM model being used. The details provided on pages 20-21 of this assessment lead MS-LOT to consider that Option 3 of the Band CRM is the most appropriate. MS-LOT also consider that MSS provide good reasons for why their method for setting the threshold is the most appropriate as detailed on pages 26-27. In addition the estimated effects are likely to be over-estimates as the reduced displacement rate for the ICOL site as advised by the SNCBs and MSS has not been used in the modelling. MS-LOT therefore concludes that the Forth and Tay offshore wind farm proposals alone or in combination with the demonstration projects at Aberdeen Bay and Methil will not adversely affect the site integrity of the Buchan Ness to Collieston Coast, Fowlsheugh, Forth Islands and St. Abb's Head to Fast Castle SPAs with respect to kittiwake, provided that the conditions included in 3d are complied with.

<u>Gannet – Forth Islands SPA</u>

In their advice dated 7th March 2014 the SNCBs provided information on population trends for gannet:

- UK gannet populations are exhibiting significant positive growth rates, continuing a long period of expansion over the past 100 years.
- Scotland holds 182,511 apparently occupied nests ("AONs") of gannets and

the Bass Rock is the largest, most important colony on the Scottish east coast.

- The Bass Rock (Forth Islands SPA) gannet population has doubled from 21,591 AONs in 1985 to 48,065 AONs in 2004, and increased further to 55,482 AONs at the time of the last census in 2009.

The work commissioned by the Crown Estate for Strategic Ornithological Support services ("SOSS") report 04 (WWT 2012) aimed to build a gannet population model that could assess impacts of additional mortality from collisions with wind farms on gannets in UK waters. Two forms of an age-based stochastic matrix model were developed under the SOSS contract, one with density dependence and the other with no density dependence. Both models gave similar results and the model authors recommended using the density-independent model. Colony-specific demographic rates were generally lacking and, where available, showed no significant difference to the generic UK-wide population model, so a non-colony specific model was developed.

The original SOSS model assumed collisions across all age classes within the population model, apportioning impacts according to prevalence of that age class in the population. However, c. 97% of gannets recorded within the wind farm footprints of all the Forth & Tay development proposals were adult plumaged birds. Consequently, the model was reworked, with only adult gannets suffering assumed mortality from wind farm collisions. The collision estimates were calculated using adult birds only, but this is precautionary in its approach as it assumes that all adult plumaged birds are part of the breeding population.

The Bass Rock gannet population, which forms the entire northern gannet breeding population of Forth Islands SPA, has been increasing and this is forecast to continue. Population size may ultimately be regulated by available colony space on Bass Rock, or potentially by food availability. The metric used for establishing a threshold is the probability that the population size at the end point will be lower than the starting population. The utility of this metric is that it informs an interpretation that considers the likelihood the population trajectory will change as a consequence of the effects. Following MSS advice (April 2014) this assessment has been based on thresholds derived from outputs from the PVA that modelled:

- additional adult mortality only,
- a starting population based on the 2009 census data,
- 25 years of wind farm operation but no post wind farm recovery period,
- the Probability of the population size at the end of the 25 year period being lower than the starting population.

The estimated effects were then calculated as a % of the SPA population for each wind farm cumulatively (

Table 7).

Table 7: Summary of estimated collision and displacement/ barrier effects on gannet at Forth Islands SPA from the four wind farm projects.

SPA	Effect	TOTAL	SAWEL	SBWEL	ICOL	NNGOWL
Forth Islands	**Displacement**					
	GPS Model	-0.04%	-0.02%	-0.01%	-0.01%	-0.01%
	Collision					
	Option 3 95%	-1.02%	-0.30%	-0.19%	-0.32%	-0.20%
	Option 3 98%	-0.41%	-0.12%	-0.08%	-0.13%	-0.08%
	TOTAL					
	Option 3 95%	**-1.05%**	**-0.32%**	**-0.20%**	**-0.33%**	**-0.21%**
	Option 3 98%	**-0.44%**	**-0.14%**	**-0.08%**	**-0.14%**	**-0.09%**

Interpretation of the population model outputs has provided a threshold of -1.17% using the following approach:

- SNCBs and MSS recommend a threshold that limits the likelihood of population change to a 0.05 likelihood of the population decreasing by 5% from the starting population size. Applied to the updated population model, this results in a threshold of 'acceptable' annual mortality of a -1.17% in the adult survival rate. This advice was received from the SNCBs via email on the 15th April 2014.

The SNCBs and MSS are in agreement regarding the appropriate threshold for gannet of -1.17%, which provides appropriate safeguard that the outcome for the gannet population it would be extremely unlikely to be a decline. This threshold would result in the median ratio value for end population with allowable effect: end population without allowable effect of 0.81. A PBR f-value of 0.25 would be required to produce the same threshold (as detailed in table 5).

The CEH displacement model identified a negligible displacement effect, assuming a displacement rate of 60% and this has been combined with the collision estimates to provide the project specific and cumulative effect totals.

The cumulative total of collisions for gannet using the basic Band model are presented in the appropriate assessments for Blyth Offshore Wind Demonstrator undertaken by the MMO in 2013, for Blyth Offshore Demonstration project combined with the existing offshore turbines at Blyth and the Teesside project. The annual predicted mortality is 30, with the assessment recording that breeding birds would be most likely to be from Bass Rock which is within the Forth Islands SPA. This is a low number when considered against the identified threshold of -1.17%. The Aberdeen Bay appropriate assessment records up to 17 collisions per year for the Aberdeen Offshore Wind Farm using the basic Band model, and indicates that

the majority of these birds are likely to be from Troup Head on the Moray coast.

SNCB advice is that an assessment adopting Option 2 of the Band CRM at 98% avoidance rate is unable to demonstrate no adverse effect on site integrity to gannet at Forth Islands. MSS advice is that no adverse effect to the integrity of gannet at Forth Islands is demonstrated using the best available evidence which includes Option 3 of the Band CRM at 98 and 95% avoidance rates.
For gannet it is the use of different options of the Band CRM model which results in different conclusions between the SNCBs and MSS. The details provided on pages 20-21 of this assessment lead MS-LOT to consider that Option 3 of the Band CRM is the most appropriate. Therefore, MS-LOT concludes that the Forth and Tay offshore wind farm proposals will not adversely affect the site integrity of the Forth Islands SPA with respect to gannet, either alone or in-combination with the recently consented Aberdeen Offshore Wind Farm, Blyth Offshore Wind Demonstrator and the constructed Blyth and Teesside Offshore Wind Farm developments.

Puffin – Forth Islands SPA

In their advice dated 7th March 2014 the SNCBs provided information on the populations trends for puffin:

- The UK population at the time of Seabird 2000 was just over 500,000 pairs, following steady and significant increases from previous censuses. The most recent estimate of the Scottish population is 493,000 pairs.
- Puffins in the Forth Islands SPA are some of the most intensively studied in the world, but recent volatility in numbers (periods of increase and population crashes) has frustrated attempts to understand local population dynamics.
- On the Isle of May (the site that holds the majority of the SPA puffin population) a strongly increasing population (12,000 in 1984 and 20,106 in 1992) dropped from 69,300 apparently occupied burrows ("AOBs") in 2003 to 44,971 AOBs in 2009 and increased slightly in 2013 to 46,200 AOBs.
- Within the SPA, the other large colony at Craigleith dropped from 28,000 pairs in 1999 to 12,100 pairs in 2003 and then further to just 4,500 pairs in 2009.
- Overall, the Forth Islands SPA population was most recently estimated as 50,282 pairs.

The assessment of puffin encountered two issues that influenced the overall approach:

1. The principle effect is assumed to be in relation to displacement, however the reliability of the displacement model's results for puffin are unclear. Two prey distributions were used in the CEH displacement models. The GPS prey distribution assumes that the birds have perfect knowledge of the location of their prey, whilst the flat prey distribution assumes that the birds have no prior knowledge of prey distribution. CEH have indicated that they would expect the truth to be somewhere between the two extremes, but that the former may be more realistic. For all other species, there is relatively little difference between the

outputs from the two prey distributions, but in puffin the differences diverge noticeably, with flat prey distribution effects being considerably larger (

Table 8).

Table 8: Summary of displacement/ barrier effects on adult survival of puffin at Forth Islands SPA estimated using CEH displacement model assuming homogeneous and heterogeneous prey distributions.*

CEH Model Prey Type	Cumulative effect (Adult Survival)
Forth Islands (flat)	**-3.32%**
Forth Islands (GPS)	-0.04%

* Changes to productivity are incorporated into the assessment but are not presented to simplify presentation of results

Both prey models use puffin tracking data. The tracking study used in the puffin displacement model undertaken on the Isle of May was limited to seven birds during a single breeding season. This low sample size was further exacerbated by these birds behaving differently from a set of 'control' birds that were not tagged (Harris et al. 2012). Whilst it is possible that the puffin tracking data may under-represent foraging trips of shorter duration, it is unclear how this effects the relative use of the sea near or far from the colony. Due to this very small sample size and the apparent behavioural response of the tagged birds, the SNCBs consider that the GPS prey model outputs should not be used for puffin. However, both flat and GPS prey distribution models used the GPS data to determine foraging locations. It is therefore unclear why it would be appropriate to use outputs using one prey distribution but not the other as both use the GPS tracking data to inform the distribution of the birds. MSS advised that it would be unreliable to assess the displacement and barrier effects using the CEH model given the limitations of the data from tagged birds. The SNCBs advised that only the displacement model outputs for the cumulative wind farm scenario should be used for puffin, but that the outputs for each individual wind farm should not be used in any ranking. However, as the cumulative effects estimates use the same input data as the individual wind farm estimates, MSS consider that it would be unsafe to use the former but disregard the latter.

For these reasons, MSS advised MS-LOT that for puffin only, the displacement model outputs should not be used in the assessment and the common currency approach to estimating the displacement effects used in the Moray Firth should be considered. This approach has the advantage of using at-sea abundance estimates derived from site surveys to be incorporated into the assessment. It makes a small number of assumptions about the birds present at sea in terms of apportioning to specific colonies, proportion of birds that are breeding adults and the proportion displaced that either fail to breed successfully or die.

The common currency approach for puffin (see Appendix 4) makes very similar assumptions to that used in the Moray Firth. In their advice of June 10th 2014 the SNCBs indicate that both the proportion of immatures and the proportion of non

breeding adults should be dramatically reduced based on information from the long term study on the Isle of May. However, MSS advised that the information presented by the SNCBs did not provide justification for the suggested changes (MSS advice June 23rd 2014). At a meeting between the SNCBs and MS-LOT on the 27th June 2014 agreement was reached on the most appropriate parameters for use in the puffin common currency.

The results of the common currency assessment of the displacement effect are presented as either declines in adult survival, or alternatively as declines in productivity (see *Table 9* and Appendix 4).

Table 9: Summary of displacement/ barrier effects on puffin at Forth Islands SPA estimated using the common currency approach.

Forth Islands	Total	SAWEL	SBWEL	ICOL	NNGOWL
adult survival	-2.01%	-0.43%	-0.51%	-0.50%	-0.57%
productivity	-4.02%	-0.86%	-1.02%	-1.00%	-1.14%

The assumptions used for the common currency assessment are considered to be precautionary: the mean maximum abundance estimate of all birds are used to estimate numbers displaced, it is assumed that either 50% of displaced birds will die, or that 100% of displaced birds will fail to breed successfully, and that each displaced bird represents a separate pair.

2. CEH attempted to model the puffin population at Forth Islands SPA, using the same form of modelling that was used for other species, but they reported low confidence in the reliability of the model outputs. Puffins, as burrow nesters, are difficult to count and the Forth Islands population has only been counted every c. 5 years since 1980. The eight counts of the population between 1980 and 2013 suggest that the population is increasing rapidly (a five-fold increase since 1980), with an exceptionally high count in 1993, followed by a decrease at the next census. These generally increasing yet widely fluctuating counts cause the model to predict the puffin population to continue increasing at a fast rate. It predicts a population greater than 100,000 AOBs by 2025, with wide credibility intervals illustrating the uncertainty around the forecast. In reality, density dependent population regulation will slow the rate of increase at some point, e.g. areas suitable for burrows may become limiting. However, without knowing the form the population regulation will take and at what population size it will occur, it is difficult to predict future population size for this puffin population with any confidence.

The SNCBs therefore set thresholds for puffin using a combination of PBR and using the ruABC thresholds for proxy species (razorbills and guillemots as these are the species most closely related to puffin). CEH recommended using proxy species' thresholds with caution, it is recognised that razorbills and guillemots differ from puffins in a number of ways, for example nesting on cliff ledges, rather than in burrows, thus their demographics and thresholds may differ. The SNCBs acknowledge this and many of the limitations associated with the proxy approach. They recommend a threshold of -1.4% for the adult survival rate which is in the middle of the range of thresholds they calculated (-0.5% to -2.5%). The threshold of -1.4% equates to a PBR value calculated assuming age of first breeding at 7

years and a recovery factor of 0.3. MSS advised that adopting the same approaches, but applying them to ABC rather than ruABC for proxies, and calculating PBR using age of first breeding at 5 years (which is consistent with the formula's assumption of maximum productivity) gives a value of -1.7% assuming an f-value of 0.3. MSS also advise that adoption of a recovery factor of more than 0.3 would be appropriate for this puffin population, which is thought to be increasing. The threshold range obtained by MSS is -0.8% to -2.9%.

MSS commissioned MacArthur Green to produce a PVA for Forth Islands puffin (Trinder, May 2014). The model design is based on that used for gannet. Compared to the CEH model it is computationally simpler and avoids the need to fit historic counts. This provides a projection that contains less uncertainty than the CEH model, which was one of the key concerns raised with respect to the CEH modelled outputs. The MacArthur Green model is also density independent; and the projected trajectory is very similar to the CEH model: strong population growth towards a population size that is likely to be an overestimate. Owing to the strong growth forecast, the model outputs were insensitive to the metric used to interpret the gannet model (probability of end population being lower than start population size). For this reason, the metric used for interpretation was the probability of the population being lower than the starting population in any of the 25 years of wind farm effects.

In advice provided by the SNCBs on the 4th July 2014, concerns were raised regarding the MacArthur Green puffin PVA as the SNCBs queried if an age class was not included within the model. MSS, having sought clarification from MacArthur Green, have advised that all the age classes are contained in the model (email of 4th July 2014 MSS to MS-LOT). The other point raised by the SNCBs was that juvenile survival rate is assumed to equal adult survival rate. MSS recognise this, and advise that whilst likely to be biologically unrealistic (juvenile survival would be expected to be less than adult survival) this approach represents appropriate use of the best available evidence.

The MacArthur Green puffin PVA (May, 2014) was used to inform understanding of the potential risk to the puffin population. The baseline population growth rate was 1.064 (i.e. an annual growth rate of 6.4%). The risk of decline in any year of the simulation is 5.6% under baseline conditions. Assuming a reduction of 2.01% to the adult survival rate, the probability of decline of 5% in any year would increase to less than 1%. Assuming a reduction of 4.02% to the productivity rate, the probability of a 5% decline in any year would increase to less than 1%. MSS advice is that these magnitudes of change do not increase the risk of the population declining during the period of effects to levels that differ meaningfully from baseline conditions. Based upon the outputs of the population model, a reduction in adult survival of 2.01%, or a reduction in productivity of 4.02% as estimated by the common currency approach to displacement would not affect the population as a viable component of the site. The estimated effect from the common currency would result in the median ratio value for end population with estimated wind farm effect: end population without wind farm effect of 0.75. A PBR f-value of 0.25 would be required to produce the same effect (as detailed in table 5).

SNCB advice is that an assessment based upon their use of PBR and proxy species to establish thresholds, combined with the estimation of effects using flat outputs of the CEH displacement model and/or their recommended assumptions using the common currency approach is unable to demonstrate no adverse effect on site integrity to the Forth Islands SPA with respect to puffin. MSS advice is that no adverse effect to the integrity of the Forth Islands SPA with respect to puffin is demonstrated using the best available evidence which includes the MacArthur Green puffin population model and the common currency approach, as used in the Moray Firth appropriate assessment.

Having considered the advice provided by the SNCBs and MSS regarding the different assessment methods for puffin, MS-LOT acknowledge the issues advised by CEH over the use of their model of puffin and the limitations advised by MSS of reliance upon use of proxy species and PBR for setting thresholds. MS-LOT consider that the justification provided by MSS on the use of the common currency for estimating effects and the MacArthur Green model for looking at the population consequences use the best available evidence and the most suitable techniques. MS-LOT therefore concludes that the Forth and Tay wind farm proposals will not adversely affect the site integrity of the Forth Islands SPA with respect to puffin, either alone or in combination. No other projects have been identified as having an effect which requires an in combination assessment for puffin.

Razorbill - Forth Islands, Fowlsheugh, St Abb's Head to Fast Castle SPAs

In their advice dated 7th March 2014 the SNCBs provided information on the populations trends for razorbill:

- UK razorbill populations increased strongly between 1970 to 2000, but (like guillemot) then slowed (only a 3% increase between 2000 and 2012).
- The most recent population estimate for Scotland is 93,300 pairs.
- Of the three SPAs under consideration, Fowlsheugh holds the high number of razorbills (5,260 birds in 2012) showing a slight declined from the peak count of 6,827 individuals in 1992.

Razorbill are not considered to be at risk of collision due to their low flight heights - none were recorded at collision risk height during any of the Forth and Tay boat surveys carried out by the developers.

Displacement modelling identified practically no effects upon razorbill at Fowlsheugh and St. Abb's Head to Fast Castle SPAs. An effect of -0.8% decline in adult survival is modelled for razorbill at Forth Islands SPA from the Forth and Tay Developments combined. The modelled effects assume a displacement rate of 60% at all sites.

Despite the different assessment methods used, the SNCBs and MSS agree that the Forth and Tay Developments will not adversely affect the integrity of the Fowlsheugh and St. Abb's Head to Fast Castle SPAs with respect to razorbill. SNCB advice is that adverse effect on site integrity of the Forth Islands SPA with respect to razorbill cannot be ruled out. MSS advice is that no adverse effect on

site integrity of the Forth Islands SPA with respect to razorbill is demonstrated based on the thresholds that they advise (*Table 5*) and their view that the thresholds take account of the trajectories of the species assessed and therefore as long as the threshold is not exceeded a conclusion of no adverse effect on site integrity is appropriate. MSS also consider that there is uninformative precaution built into the estimation of the effect: e.g. the reduced displacement rates advised by MSS and the SNCBs for SAWEL, SBWEL and ICOL have not been accounted for.

For razorbill different conclusions regarding the Forth Islands SPA are reached by the SNCBs and MSS due to different methods being used to set thresholds. The SNCBs used ruABC whereas MSS used ABC and the interpolation method. MS-LOT consider that MSS has used the most appropriate method for setting thresholds due to the reasons described on page 26-27 of this assessment. MS-LOT also recognise that the estimated effects are likely to be over-estimates due to the modelling not taking account of the reduced displacement rates advised by the SNCBs and MSS at the SAWEL, SBWEL and ICOL sites. MS-LOT therefore concludes that the Forth and Tay offshore wind farm projects will not adversely affect the site integrity of the Forth Islands, Fowlsheugh and St. Abb's Head to Fast Castle SPAs with respect to razorbill, either alone or in combination. No other projects have been identified as having a magnitude of effect which requires in combination assessment for razorbill.

Guillemot - Buchan Ness to Collieston Coast, Forth Islands, Fowlsheugh, St Abb's Head to Fast Castle SPAs

In their advice dated 7th March 2014 the SNCBs provided information on the populations trends for guillemot:

- UK guillemot populations increased strongly between 1970 and 2000, but then slowed markedly in the last decade (4% increase between 2002 and 2012), following declines in productivity in the early 2000s.
- In Scotland, guillemot numbers declined by 24% between 1986 and 2011, with 791,400 pairs estimated to be breeding in Scotland in 2012.
- The four SPAs under assessment here held an estimated 163,920 birds in their most recent counts.

Guillemot are not considered to be at risk of collision due to their low flight heights - none were recorded at collision risk height during any of the Forth and Tay boat surveys carried out by the developers.

The effects of displacement upon guillemot were modelled for the colonies at Buchan Ness to Collieston Coast, Fowlsheugh, Forth Islands and St. Abb's Head to Fast Castle SPAs. No effects were identified, either alone or in combination, with the exception of the NNGOWL project on Forth Islands SPA. The effect of -0.3% decline in adult survival is below the identified threshold using ABC of -0.8%. The SNCBs advised that the Forth and Tay Developments would not adversely affect the integrity the four SPAs with respect to guillemot. MSS agree with this conclusion.

MS-LOT concludes that the Forth and Tay offshore wind farm projects will not adversely affect the site integrity of the Forth Islands, Buchan Ness to Collieston Coast, Fowlsheugh and St. Abb's Head to Fast Castle SPAs with respect to guillemot, either alone or in combination. No other projects further afield have been identified as having a magnitude of effect which requires in combination assessment for guillemot.

Herring gull - Buchan Ness to Collieston Coast, Forth Islands, Fowlsheugh, St Abb's Head to Fast Castle SPAs

In their advice dated 7th March 2014 the SNCBs provided information on the populations trends for herring gull:

- The number of herring gulls breeding in the UK has fallen rapidly since 1970 when current widespread monitoring started. Between 1970 and 1985 the population declined by 48%, followed by a shallower decline to the year 2000 and then a rapid decline again since the start of this century.
- In Scotland the population fell by more than half (-58%) between 1986 and 2011. There are 72,100 pairs currently estimated to breed in Scotland.
- The fortunes of herring gull at the four SPAs mirror this trend. Since 1986 all 4 have shown declines in the populations inhabiting the sites, although the declines have generally been smaller than those seen overall nationally.

NNGOWL, SAWEL and SBWEL recorded herring gull on-site during the breeding season, flying at collision risk height, so assessment for these proposals has been undertaken. ICOL recorded extremely low numbers of herring gull on site.

Collision risk modelling identified practically no effects upon herring gull at Buchan Ness to Collieston Coast, Forth Islands, Fowlsheugh and St. Abb's Head to Fast Castle SPAs. An effect of -0.1% decline in adult survival for Forth Islands SPA from NNGOWL was identified but this is against a threshold of -2.0%. The SNCBs advised that the Forth and Tay Developments would not adversely affect the integrity of the four SPAs with respect to herring gull. MSS agree with this conclusion. At Aberdeen Bay offshore wind farm the breeding season adult mortality was predicted to be 11 birds of which 2 birds were attributed to Buchan Ness to Collieston Coast SPA and 1 bird to Fowlsheugh SPA.

MS-LOT concludes that the Forth and Tay offshore wind farm projects will not adversely affect the site integrity of the Buchan Ness to Collieston Coast, Forth Islands, Fowlsheugh and St. Abb's Head to Fast Castle SPAs with respect to herring gull, either alone or in combination including with Aberdeen Bay Offshore Wind Farm.

Lesser black-backed gull – Forth Islands SPA

In their advice dated 7th March 2014 the SNCBs provided information on the populations trends for lesser black-backed gull:

- The population of lesser black-backed gulls in Scotland is currently estimated to be 25,000 pairs.

- In the UK as a whole following a period of increase from 1970 to 2000 (29% increase between 1970 and 1985 and 40% between 1985 and 2000) there has been a strong decline since (-51% since 2000).
- All the colonies within the Forth Islands SPA were last counted in 2002 when there were 2011 pairs of lesser black-backed gulls breeding. Since then there have been several partial counts of some islands, which do not reveal any strong trend in the local population. Previous to 2002 all sites except Bass Rock (which only held 1 pair in 2002) were counted in 1999 – the total that year being 2496 pairs. In 2012 Isle of May alone held 2310 pairs.

NNGOWL, SAWEL and SBWEL recorded lesser black-backed gull on-site during the breeding season, flying at collision risk height, so assessment for these proposals has been undertaken. ICOL recorded extremely low numbers of lesser black-backed gull on site.

Collision risk modelling identified practically no effects upon lesser black-backed gull at Forth Islands SPA. An effect of < -0.1% decline in adult survival for Forth Islands SPA from NNGOWL was identified but this is against a threshold of -1.8%. The SNCBs advised that the Forth and Tay Developments would not adversely affect the integrity of the Forth Islands SPA with respect to lesser black-backed gull. MSS agree with this conclusion.

MS-LOT concludes that Forth and Tay offshore wind farm projects will not adversely affect the site integrity of the Forth Islands SPA, with respect to lesser black-backed gull, either alone or in combination. No other projects have been identified as having a magnitude of effect which requires in combination assessment for lesser black-backed gull.

Fulmar - Buchan Ness to Collieston Coast, Forth Islands, Fowlsheugh SPAs

In their advice dated 7th March 2014 the SNCBs provided information on the populations trends for fulmar:

- The fulmar population has undergone a huge increase since the mid 1800s, when the only two breeding sites were in Iceland and on St Kilda.
- By 2004 there were an estimated 501,600 pairs in the UK, with the Scottish total being 486,000 pairs in 2007. This increase is thought to have been fuelled by discards from commercial fishing activity. After growing by 77% between 1970 and 1985, there was a small decline in the UK population between 1985 and 2000, followed by a steeper (13%) decline to 2012. The Scottish population declined by 7% between 1986 and 2011, productivity has declined over the same period.
- The three SPAs with fulmar as a qualifying interest reflect the general trend in populations, although recent declines have been greater than the national average. At Buchan Ness to Collieston Coast SPA the population peaked in 1995 at 2823 pairs, but had declined to 1389 pairs by 2007, at Fowlsheugh there were 416 pairs in 1992, declining to 119 pairs in 2012. The Forth Islands SPA held 1053 pairs in 1997, but then the population has fallen steadily to 569 by 2012.

Survey work completed by the Forth and Tay developers found insignificant numbers of fulmar at collision risk height, therefore the main potential for impact is considered to be from displacement. The SNCBs advised that fulmar have large foraging ranges and are adapted for efficient gliding flight, so that the energetic costs of covering extra distances due to displacement will be small and will not give rise to significant impacts on this species. The SNCBs advised that the Forth and Tay developments would not adversely affect the integrity the three SPAs with respect to fulmar. MSS agree with this conclusion. At Aberdeen Bay Offshore Wind farm the effect on adult mortality was predicted to be only 7 birds per year.

MS-LOT concludes that the Forth and Tay offshore wind farm projects will not adversely affect the site integrity of Forth Islands, Buchan Ness to Collieston Coast and Fowlsheugh SPAs with respect to fulmar, either alone or in combination.

Common and Arctic Tern – Forth Islands SPA

In their advice dated 7th March 2014 the SNCBs provided information on the populations trends for common and Arctic tern:

- Arctic terns are much more numerous in Scotland than common terns, approximately 88% of the UK population of 53,400 pairs of Arctic tern breed in Scotland, whereas only 40% of the UKs 11,800 pairs of common terns breed here.
- Both species increased between 1970 and 1985 (Arctic tern by 50%, common tern by 9%), but both have suffered substantial reductions in numbers since (Arctic tern down by 36% since 1985 and common tern by 35%). The declines are due mainly to a sustained period of low of productivity blamed on low prey abundance in summer.
- In the Forth Islands SPA both species formerly bred on a number of the islands. The main colonies are on the Isle of May and Inchmickery, with a fairly large common tern colony on Long Craig. Common terns were most numerous at the end of the 1990s (533 pairs in 1999), with Arctic tern numbers peaking in 2001 (916 pairs). Since then both have declined and in 2012 only 20 pairs of common terns and 250 pairs of Arctic terns nested in the SPA.

NNGOWL and ICOL recorded low numbers of common and Arctic tern on-site during the breeding season. There was no connectivity between these species and SAWEL or SBWEL. The SNCBs advised that the Forth and Tay Developments would not adversely affect the integrity of the Forth Islands SPA with respect to common or Arctic tern. MSS agree with this conclusion.

MS-LOT concludes that the Forth and Tay offshore wind farm projects will not adversely affect the site integrity of Forth Islands SPA with respect to Arctic tern and common tern, either alone or in combination.

Overall Conclusions on Site Integrity

In the assessments above MS-LOT 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 the effects of the Forth and Tay Developments on the populations were found to be within acceptable thresholds for all the species being considered in this assessment MS-LOT concluded that the Forth and Tay Developments will not adversely affect the integrity of the SPAs with respect to the individual qualifying features.

Having determined that the NNGOWL, ICOL, SAWEL and SBWEL Developments will not have a negative effect on the constitutive elements of the sites concerned, on having regard to the reasons for which the sites were designated and their associated conservation objectives, MS-LOT concludes that the proposed developments will not, on their own or in combination with each other (or where appropriate for consideration, other developments already licensed), adversely affect the integrity of the Buchan Ness to Collieston Coast SPA, the Fowlsheugh SPA, the Forth Islands SPA or the St Abb's Head to Fast Castle SPA (where each SPA is taken as a whole), subject to the compliance of conditions.

Following MSS advice, MS-LOT consider that the most up to date and best scientific evidence available has been used in reaching the conclusion that any decision to approve the NNGOWL, ICOL, SAWEL and SBWEL Developments will not adversely affect integrity of the sites concerned and are satisfied that no reasonable scientific doubt remains.

References

Band, B. 2012. Using a collision risk model to assess bird collision risks for offshore wind farms. Report to The Crown Estate, SOSS-02.

Canning, S., Lye, G., Givens, L., Pendlebury, C. 2012. Analysis of Marine Ecology Monitoring Plan Data from the Robin Rigg Offshore Wind Farm, Scotland (Operational Year 2) Technical report, Birds. Report: 1012206. Natural Power Ltd.

Cook, A.S.C.P., Johnston, A., Wright, L.J., and Burton, N.H.K. 2012. A review of flight heights and avoidance rates of birds in relation to offshore wind farms. BTO Research Report No. 618

Da Prato, S.R.D & Da Prato, E.S. 1980. The Seabirds of Berwickshire. Scottish Birds, Vol. 11, No. 1.

Freeman, S., Searle, K., Bogdanova, M., Wanless, S. & Daunt, F. (2014) Population dynamics of Forth & Tay breeding seabirds: Review of available models and modelling of key breeding populations. Centre for Ecology & Hydrology draft final report, MSQ-0006, to Marine Scotland Science, March 2014. CEH, Edinburgh.

Furness, R.W. Wade, H.M., Masden, E.A. 2013. Assessing vulnerability of marine bird populations to offshore wind farms. Journal of Environmental Management 119, 56-66

Harris, M.P., Bogdanova, M.I, Daunt, F. and Wanless, S. 2012. Using GPS technology to assess feeding areas of Atlantic Puffins Fratercula arctica. Ringing

and Migration 27(1): 43-49

Harris, M.P., and Galbraith, H. 1983. Seabird populations of the Isle of May. Scottish Birds 12: 174-180

Harris, M.P. 1994. Seabird monitoring on the Isle of May 1994. ITE.

Johnston, A., Cook, A.S.C.P., Wright, L.J., Humphreys, E.M. & Burton, N.H.K. 2014. Modelling flight heights of marine birds to more accurately assess collision risk with offshore wind turbines. Journal of Applied Ecology 51: 31-41.

Leopold, MF, Dijkman, L. 2011. Local birds in and around the Offshore Wind Farm Egmond aan Zee (OWEZ). Report number C187/11.

Leopold, M.F., van Bemmelen, R. and Zuur, A. 2012. Responses of Local Birds to the Offshore Wind Farms PAWP and OWEZ off the Dutch mainland coast. IMARES Wageningen UR Report number C151/12

Rideout, K., and Patterson, S. 1997. St Abb's Head annual report to Scottish Natural Heritage (Forth and Borders). Scottish Natural Heritage, Galashiels

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.

SMP (Seabird Monitoring Programme). 2014. Online Seabird Colony Database. Available at: http://www.jncc.gov.uk/smp/

Trinder, M. May 2014. Forth Islands Puffin PVA: Projected Population Size and Probability of decline with combinations of reduced survival and productivity. Report to Marine Scotland.

Wade, P.R., 1998. Calculating limits to the allowable human-caused mortality of cetaceans and pinnipeds. Marine Mammal Science. 14: 1–37.

WWT Consulting Ltd., RPS & MacArthur Green Ltd. 2012. Demographic data, population model and outputs. The Crown Estate, Strategic Ornithological Support Services, Report SOSS-04 Gannet Population Viability Analysis. Wildfowl & Wetlands Trust (Consulting) Ltd., Slimbridge, Gloucestershire.

SACs
Bottlenose dolphin - Moray Firth SAC

Summary

The principal conservation objective to consider is the maintenance of the bottlenose dolphin population as a viable component of the Moray Firth SAC. This encompasses any significant disturbance to individuals while they are outside the SAC, such as underwater noise impacts arising from wind farm construction.

The potential underwater noise impacts to bottlenose dolphins during construction have been modelled. Predicted zones of disturbance from pile-driving the turbine foundations are predicted to extend into areas used by bottlenose dolphins.

Further modelling of whether any resulting disturbance to individuals from wind farm pile driving construction could lead to population level effects was undertaken by Prof Paul Thompson (University of Aberdeen and Marine Scotland Science Advisory Board) on request by MSS (Thompson & Brookes, 2014). This modelling found that there are no long-term effects from underwater noise disturbance on the bottlenose dolphin population of the Moray Firth SAC.

The potential for disturbance from, for example, the installation of export cable routes, may if necessary be managed through construction programming, including for example a vessel management plan (refer to conditions identified in Section 3(d)). The conclusion of this assessment is that the Forth and Tay offshore wind farms in combination with previously consented offshore wind farms and port redevelopments will, subject to the compliance of conditions set out in 3d, **not adversely affect site integrity of the Moray Firth SAC**. Conditions to further mitigate the effects of noise are identified in Section 3(d).

<u>The scope of in combination effects</u>

Other developments have been identified as having LSE on bottlenose dolphins from the Moray Firth SAC as a consequence of noisy construction activities and these are included in the in combination assessment:

1. BOWL and MORL Offshore Wind Farms in the Moray Firth – Installation and operation of up to 140 WTGs (BOWL) and up to186 WTGs (MORL) in the outer Moray Firth. The utility of modelling the cumulative effects of these consented projects combined with the Forth and Tay projects to inform a cumulative assessment was agreed between the SNCBs and MSS.

2. Aberdeen Bay Offshore Wind Farm - Installation and operation of a European Offshore Wind Deployment Centre consisting of 11 turbines, inter-array and export cables. To be located 2-4.5 km off the coast at Blackdog, Aberdeenshire, and likely to be constructed in 2016-2017. The licensee predicts that the installation of the 11 turbines will take place over a period of approximately 2 weeks and at most 4 turbines might be installed using piling techniques. The relatively small magnitude of the effects combined with mitigation measures required by the consent means that population consequences are not likely to be measurable in a modelling framework.

3. Global Energy Nigg Ltd (“GEN”) : South quayside proposal, Nigg – The south quayside extension will comprise of a solid berthing structure, with structural steel combi sheet piles forming the external perimeter and in-filled with material dredged from the seabed local to the proposed works. Most of the piling will be undertaken with vibro-piling and the remainder undertaken through impact piling. The construction will extend the south quayside some 135m to 155m into the adjacent Cromarty Firth, and provide an additional 750m to 800m of berthing facilities for

vessels. The dredge burden associated with the south quayside extension amounts to approximately 240,000m³ - 250,000m³. Dredge material is targeted for offshore disposal at the long established disposal ground at the "Sutors". The marine licence for this development has recently been issued. The AA for the proposal concluded that, subject to the compliance of conditions, it would **not adversely affect site integrity of the Moray Firth SAC**.

4. CFPA: Berth development, Invergordon
The proposal involves the construction of an additional deep water berth and lay-down area by widening of the existing finger of the Queen's Dock and construction of a 150m berth structure for the south end of the finger. The project involves dredging of approximately 20,000 – 25,000m³ with disposal at "Sutors"; vibro and impact piling; 3.48 hectares of land reclamation and block paving. The marine licence for this development has recently been issued. The AA for the proposal concluded that, subject to the compliance of conditions, it would **not adversely affect site integrity of the Moray Firth SAC**.

5. POAL: Port development, Ardersier
The proposal involves the construction of new deep water quay facilities and an associated dredged access channel. The new quay wall will comprise of a combi-wall construction, a combination of tubular and sheet piling, driven to the required design depth. All piling works are to take place using vibro-piling techniques. The amount of material from the capital dredge will be in the region of 2,000,000m³. Proposals for the use of this material are currently under consideration and are likely to involve all, or the vast majority of the dredge material, being brought ashore. The details of the method of construction are not known at this time. At the current time a revision to the marine licence application is pending.

Mitigation measures being adopted through discharging of consent conditions at Nigg and Invergordon mean that the effects of impact piling will be considerably less than was assumed as a "worse case" scenario in the appropriate assessments for those projects. The quantity of impact piling will be significantly less (e.g. now expected to be maximum of 15 days of piling at Nigg and Invergordon instead of the 51 assessed). Any impact piling will avoid sensitive times of year. Additionally noise thresholds have been set to mitigate the risk of a disturbance effect to known foraging areas e.g. Sutors. The relatively small magnitude of the effects combined with mitigation measures required by the consent means that population consequences arising from the port redevelopments are not likely to be meaningfully measurable in a cumulative modelling framework.

<u>Details of assessment</u>

The conservation objectives for the Moray Firth SAC in relation to the bottlenose dolphin are detailed in section 1c.

SNCB advice is the proposals under discussion may potentially affect objectives (i). MSS advice is that the assessment undertaken against objective (i) also encompasses objective (v).

<u>SNCB and MSS advice on assessment</u>

a) Reference population

The relevant population unit for bottlenose dolphins is the “Coastal East Scotland” unit, which extends to 12 nm, from the north coast of the Scottish mainland (including Orkney) to the border with England (UK SNCB 2013). This is because there is strong evidence of a large degree of connectivity between animals in the SAC and animals regularly using other areas, extending to the Forth. This is consistent with the approach taken in relation to other proposals (e.g. offshore wind farms, seismic surveys, harbour maintenance works) where assessments are routinely made at the whole east coast population scale.

The current estimate is 195 animals, with 95% highest posterior density intervals (Bayesian equivalent to confidence intervals) ranging from 162 to 253 (Cheney et al. 2013).

b) Level of effect and assessment framework

The Forth & Tay developers have each modelled potential impacts to bottlenose dolphin arising from pile-driving at the four proposed wind farm sites during construction. They have modelled a range of scenarios for these sites, individually and in combination. The model outputs – the zones of predicted impacts – are highly dependent on factors such as pile size, blow energy, location of piles and number of piles driven simultaneously. For the ‘worst case’ scenarios, the predicted zones of noise disturbance / displacement could reach the coastal waters used by bottlenose dolphins. The temporary disturbance / displacement of individual animals has the potential to affect their energy budgets with potential consequences on their health and vital rates.

A cumulative assessment was undertaken in January 2014 by Prof Paul Thompson based on modelling assumptions agreed by MSS and the SNCBs to form a cumulative worst case scenario. The approach used the same project envelopes as MORL E and ICOL I for the Forth & Tay. Subsequent to this both the Moray Firth and the Forth and Tay developers have confirmed reduced numbers of turbines. VORTEX was used to model the viability of the east coast bottlenose dolphin population using the PVA model previously published in Thompson et al. (2000). The model allows for stochastic effects, and so each time it is run, slightly different results will be achieved.

This model was based upon best available demographic and life history values, adjusted to produce, on average, a population that was stable or very slightly increasing, to reflect our understanding of the current population trend (Cheney et al. 2012). This baseline scenario was run 1000 times to provide a distribution of final population sizes after 25 years. The revised cumulative scenarios could then be compared with this baseline by running each scenario 100 times and presenting both the population trajectories and a histogram of final population sizes. Additionally, the mean population size and 95% confidence intervals can be plotted to allow easier comparison between scenarios.

Potential worst case impacts of displacement were implemented by harvesting

calves or adults respectively from the population to simulate the types of effects of behavioural displacement that were used in the Moray Firth seal assessment framework (Thompson et al. 2013).

Displacement was assumed to result in a reduction in reproduction, proportional to the proportion of the population that was displaced in each construction year. As outlined in more detail in relation to harbour seal assessments, this is highly conservative to provide a worst case scenario.

Calculations were based on there being an average of 4 female and 4 male calves produced in each year from a stable population of 196 bottlenose dolphins, so if 100% of the population was displaced, all 8 calves were harvested the next year. This impact was always implemented as worst case, rounding up numbers of calves harvested and always taking more females than males if there were an odd number of calves.

The results indicate that there could be short to medium term impacts on bottlenose dolphin during the estimated five years of construction, however, there should be no significant long-term effect on the population over the modelled period of 25 years. The predicted population outcomes for the impacted scenario (median of 193 individuals) are similar to those predicted for the baseline with no piling (median of 202). The effects shown indicate that the long-term viability of the population is unlikely to be adversely affected by the Forth & Tay proposals in combination with BOWL and MORL in the Moray Firth.

The SNCBs and MSS have advised that, subject to the compliance of conditions set out in 3d**,** impacts arising from the offshore wind farms in the Forth and Tay in combination with other previously consented developments will **not adversely affect site integrity.**

c) Mitigation and monitoring
It is likely that bottlenose dolphins will experience disturbance as a result of each project independently, and cumulatively. Developers should therefore take steps to mitigate this where possible by adhering to JNCC guidelines on piling.

Monitoring of both noise levels and bottlenose dolphin responses to the noise should be undertaken to confirm the assessment of the extent to which dolphins may be disturbed and to improve the knowledge base to inform future licensing decisions. This should preferentially be undertaken with acoustic methods for detecting dolphins, since they will provide greater power to detect change than visual methods (e.g. Thompson et al. 2013).

<u>Conclusion</u>

MS-LOT concludes that the Forth and Tay projects in-combination with the projects already consented, namely – BOWL, MORL, Aberdeen Bay Offshore Wind Farm, GEN South Quayside, Nigg and CFPA berth development, Invergordon – will, subject to the compliance of conditions set out in 3d, not adversely affect the site integrity of the Moray Firth SAC with respect to bottlenose dolphins. Since the modelling work was completed both NNGOWL

and ICOL have both confirmed a reduced number of turbines, therefore the effects will be less than that modelled.

References

Cheney, B., Corkrey, R., Quick, N.J., Janik, V.M., Islas-Villanueva, V., Hammond, P.S. & Thompson, P.M. (2012) Site condition monitoring of bottlenose dolphins within the Moray Firth Special Area of Conservation: 2008-2010. *Scottish Natural Heritage Commissioned Report No. 512*

Cheney, B., Thompson, P.M., Ingram, S.N., Hammond, P.S., Stevick, P.T., Durban, J.W., Culloch, R.M., Elwen, S.H., Mandleberg, L., Janik, V.M., Quick, N.J., Islas-Villanueva, V., Robinson, K.P., Costa, M., Eisfeld, S.M., Walters, A., Phillips, C., Weir, C.R., Evans, P.G.H., Anderwald, P., Reid, R.J., Reid, J.B., Wilson, B. (2013) Integrating multiple data sources to assess the distribution and abundance of bottlenose dolphins *Tursiops truncatus* in Scottish water. *Mammal Review*, **43**, 71-88

Thompson, P.M., & Brookes, K.L. (Jan, 2014) Cumulative bottlenose dolphin modelling for east coast of Scotland renewable developments. Advice commissioned by Marine Scotland Science.

Thompson, P.M., Hastie, G.D., Nedwell, J., Barham, R., Brookes, K.L., Cordes, L.S., Bailey, H. & McLean, N. (2013) Framework for assessing impacts of pile-driving noise from offshore wind farm construction on a harbour seal population. *Environmental Impact Assessment Review*, **43**, 73-85.

Thompson, P.M., Wilson, B., Grellier, K. & Hammond, P.S. (2000) Combining power analysis and population viability analysis to compare traditional and precautionary approaches to conservation of coastal cetaceans. *Conservation Biology*, **14**, 1253-1263

Harbour seals - Firth of Tay & Eden Estuary SAC.

The harbour seal impact assessment framework initially developed for the Moray Firth (Thompson et al. 2013) has been applied to the Forth and Tay wind farm projects. This framework considers whether any noise impacts to individuals would result in population level effects. These effects are all based on the assumption that disturbance will affect breeding success. No direct mortality is predicted as a result of construction.

The Forth & Tay developers have modelled the zones of predicted impacts in relation to noise injury and disturbance for harbour seal. The framework uses a dose response curve to determine the proportion of the population exposed to noise levels sufficient to cause disturbance. The breeding success (number of pups) of the population is reduced by the same proportion. The number of animals predicted to receive noise levels sufficient to induce PTS was also calculated and these animals were assumed to have a 25% mortality rate (through for example a reduced ability to detect predators). The loss of these adults (through PTS) and pups (through disturbance) was included in a population model.

The reference population used for the harbour seal framework assessment is the east coast management unit, which includes the population at the Firth of Tay & Eden Estuary SAC. This SAC population is in severe decline, as modelled by SMRU (using data from 2011) on behalf of SNH and Marine Scotland. The counts from 2012 and 2013 indicate that the actual rate of decline may be faster than that predicted through the modelling. The drivers of this decline are not sufficiently well understood to enable measures to be undertaken to reverse it, but Marine Scotland is funding a broad programme of research to address these questions.

The number of seals that could potentially suffer PTS or that could be disturbed/displaced is calculated by overlaying the 'worst case' zones of each predicted impact with estimates of seal density derived from the Sea Mammal Research Unit ("SMRU") 'at sea' usage maps. Each of the Forth & Tay developers has considered the population consequences of these impacts, with ICOL and SAWEL and SBWEL providing population models to help inform assessment (ES Appendix 14D and HRA Appendix 6, respectively). This work concluded that potential noise impacts to harbour seals arising from the Forth & Tay offshore wind farm proposals will make no material difference to the predicted decline of this species in the east coast management unit. Pile-driving, as modelled, is the noisiest and most disturbing activity during construction. The SNCBs confirm that other impacts such as indirect effects on prey, or disturbance to seals from boat movements, cable-laying or rock-dumping are unlikely to result in population-level effects.

Advice from the SNCBs and MSS is that this framework constitutes an appropriate approach to impact assessment for harbour seals. It sets out a process for considering the outcomes of noise disturbance and behavioural displacement as a reduction in the individual fitness of animals and then models the consequences of this for the population, using reproductive success as the key parameter that is affected. Key areas of scientific uncertainty are highlighted, including their significance to the assessment framework. The advice is that the construction and operation of these proposed offshore wind farms in the Forth & Tay will not adversely affect the site integrity of the Firth of Tay & Eden Estuary SAC, subject to the compliance of conditions set out in Section 3(d).

In-Combination Impacts

The SNCBs note that there may be a link between the use of vessels with ducted propellers and fatal injuries (corkscrew lacerations) to harbour seals recorded over the last couple of years. The SNCBs and MSS advise that this issue could be addressed via a 'Vessel Management Plan', secured via condition. Marine Scotland and SNH have commissioned research from SMRU on this issue.

The potential for in-combination effects with port development in the Tay estuary has not been taken any further because at the time of their submissions there were too few details about what work would be undertaken. The redevelopment of the port at Dundee is at the scoping stage , and the Forth and Tay offshore wind farms will be included in the cumulative impact assessment for Dundee port if it progresses to application.

Having considered advice from the SNCBs and MSS, MS-LOT concludes that the Forth and Tay Developments, either alone or in-combination, will not adversely affect the integrity of the Firth of Tay and Eden Estuary SAC, subject to the compliance of conditions set out in 3d. Again the SNCB advice was based on the worst case scenarios and NNGOWL and ICOL have since confirmed a reduced number of turbines, thus the effects will be less than those predicted.

References

Thompson, P.M., Hastie, G.D., Nedwell, J., Barham, R., Brookes, K.L., Cordes, L.S., Bailey, H. & McLean N. (2013) Framework for assessing impacts of pile-driving noise from offshore wind farm construction on a harbour seal population. *Environmental Impact Assessment Review*, **43**, 73-85.

Grey seals - Isle of May SAC and the Berwickshire & North Northumberland Coast SAC.

The SNCBs and MSS advised that for the purposes of HRA the reference population for grey seals should be the east coast management unit, which includes the relevant populations in each of these SACs.

The advice is that the Forth & Tay applicants have modelled the zones of predicted impacts in relation to noise injury and disturbance for grey seal. Depending on the wind farm / piling scenarios modelled, the zones of predicted impacts could overlap with areas that seals may use. However, these noise impacts to individuals, along with effects on prey species and/or disturbance to seals arising from other construction activities, will not significantly affect the grey seal population of the east coast management unit. The SAC populations and the population overall are robust and currently increasing and will not suffer any long-term impacts from wind farm construction.

The SNCBs and MSS consider that conditions in respect of bottlenose dolphin and harbour seal will also address potential noise disturbance and other construction impacts of these wind farm proposals on grey seal.

Having considered advice from the SNCBs and MSS, MS-LOT concludes that the Forth and Tay Developments, either alone or in-combination, will not adversely affect the integrity of the Isle of May or the Berwickshire & North Northumberland Coast SACs, subject to the compliance of conditions in 3d.

Atlantic Salmon - River South Esk, River Tay, River Teith, River Dee, River Tweed SACs

The relevant conservation objective to consider is whether or not the wind farm proposals in the Forth and Tay would, alone or in combination, result in any impacts on the viability of Atlantic salmon populations supported by the above SACs.

It is considered that underwater noise from piling foundations would be the most significant effect. However, due to lack of knowledge concerning migratory movements of Atlantic salmon in Scottish waters, and the effects of underwater noise on Atlantic salmon behaviour, it is not considered feasible to ascertain whether any noise disturbance to individual salmon could result in population level change at SACs. It should be noted that these knowledge gaps could not reasonably be remedied by scientific research for the purpose of these applications. It is considered feasible to avoid adversely affecting site integrity of any sites by agreement of working practice and mitigation that relate to the effects via conditions to address the following issues:
1. Soft start for piling work - to help mobile fish move out of the area and thereby assist in mitigating against noise disturbance to individuals during construction.

2. Piling schedules and construction programmes should be designed to reduce impacts on Atlantic salmon. They should be further discussed, post-consent, between MS-LOT, MSS, the ASFB, the SNCBs and developers, once layouts, numbers and foundation choices have been confirmed. It is noted that the zone of predicted noise impacts for Atlantic salmon is based on a 'worst case' scenario which will not occur.

3. Strategic monitoring and research will help to improve the knowledge base on salmon population ecology and migratory movements in Scottish waters and may help inform mitigation.

The installation of the export cables close to shore could take a matter of days so that mitigation, or avoidance, of impacts to smolts could be possible by timing the work to avoid peak smolt runs (if the timing of these can be established). This mitigation should be progressed in post-consent discussions between MS-LOT, MSS, the ASFB, the SNCBs and developers. In relation to potential cumulative impacts arising from the EMF around intra-array and export cables, proposed mitigation to shield / bury cables will help to reduce EMF. For Atlantic salmon, it is recommended that deeper burial depth or directional drilling removes the risk of any operational effect. The SNCBs advised up to 3m, where possible and appropriate i.e. for export cables in shallower water approaching landfall (water depths of up to ~20m). Where cable burial or directional drilling is not possible, rock armouring or a similar protective layer should be considered.

It is considered that potential impacts from cable installation can be reduced or avoided and that while there may be some noise disturbance to individual salmon, the effects do not risk the viability of SAC populations; but do merit further research and quantification. The SNCBs have advised that operational noise will not result in likely significant effects to salmon.

MSS advice is that the resilience of populations to both short term and longer term change in numbers of salmon successfully migrating, and returning to spawn, will vary from river to river and with different stock components. MSS consider that with the adoption of mitigation measures there will be no adverse effects on the integrity of these SAC populations.

Having considered advice from the SNCBs and MSS, MS-LOT concludes that

the Forth and Tay offshore wind farm proposals, in combination or individually, will not adversely affect site integrity of these five SACs with respect to Atlantic salmon provided that the conditions detailed in 3d are complied with.

In-combination Impacts

MS-LOT has also considered the in-combination impacts with the MeyGen Phase 1 development, the Aberdeen Bay offshore wind farm and with the Moray Firth wind farm projects, as these developments were also considered to have LSE on the qualifying features of all or some of the river SACs being considered in this assessment. Both the Moray Firth and Aberdeen Bay Offshore wind farms have conditions attached to the consents to mitigate potential impacts to Atlantic Salmon. The AA completed for MeyGen Phase 1 concluded that the MeyGen development will not adversely affect site integrity if conditions designed to reduce impacts were adhered to. Collision risk with the tidal turbines was identified as an issue; however the limit of the first phase to 6 turbines will mitigate this.

Due to the limited knowledge surrounding Atlantic salmon migration routes and behaviour there is some uncertainty regarding the natal rivers that potentially affected Atlantic salmon belong to. For the purposes of this assessment, MS-LOT have followed the advice of the SNCBs and consider that in showing that the proposed developments will not adversely affect site integrity for the rivers closest to the developments, this addresses Natura concerns which other consultees may have regarding further afield River SACs.

Freshwater Pearl Mussel ("FWPM") - River Dee and River South Esk SACs

Atlantic salmon (and other salmonids) are integral to the life cycle of FWPM, therefore any impacts to Atlantic salmon that prevent them from returning to their natal rivers may have a resulting effect on FWPM populations. Potential indirect impacts to FWPM populations will be addressed via mitigation to avoid adverse impacts to Atlantic salmon populations as outlined above. As there will not be population level effects to Atlantic salmon, nor significant effects to other salmonid species, the SNCBs advised that there will be no indirect effects on FWPM in the River South Esk.

Having considered advice from the SNCBs and MSS, MS-LOT concludes that the Forth and Tay offshore wind farm proposals, in combination or individually, will not adversely affect site integrity of the River South Esk SAC with respect to the FWPM provided that the conditions detailed in section 3d are complied with.

In-Combination Impacts

MS-LOT have also considered the in-combination impacts with the MeyGen Phase 1 development and the Aberdeen Bay Offshore Wind Farm and Moray Firth wind farms due to the reasons detailed above. The conclusion is that **the Forth and**

Tay offshore wind farm proposals in-combination with these other developments will not adversely affect site integrity of the River Dee and River South Esk SACs with respect to FWPM provided that the conditions detailed in section 3d are complied with.

Sea Lamprey, River Lamprey and Brook Lamprey - River Tay, River Tweed and River Teith SACs

The assessment considers the commitment from Forth and Tay wind farm projects to adopt soft-start piling methods to help mitigate any noise disturbance during construction and burial of cables to reduce EMF during operation. These mitigation methods will further reduce impacts to individual animals. The relevant conservation objective to consider is whether or not the proposed developments would result in any impacts on the viability of the lamprey populations of the River Tay, River Tweed and River Teith SACs. While there may be some level of noise disturbance to individuals during construction, and the potential for EMF to be detectable by sea lamprey, it is concluded that the developments will not adversely affect site integrity with respect to sea lamprey once the mitigation measures are incorporated. MS-LOT is satisfied that operational noise would not result in likely significant effects to sea lamprey.

Having considered advice from the SNCBs and MSS, MS-LOT concludes that the Forth and Tay offshore wind farm proposals, in combination or individually, will not adversely affect site integrity of the River Tay, River Tweed and River Teith SACs with respect to lamprey, either alone or in combination with other regulated activities provided that the conditions detailed in section 3d are complied with.

In-combination Impacts

There are no other developments which require an in combination assessment for lamprey.

Conclusions

Having determined that the NNGOWL, ICOL, SAWEL and SBWEL Developments will not have a negative effect on the constitutive elements of the sites concerned, on having regard to the reasons for which the sites were designated and their associated conservation objectives, MS-LOT concludes that the proposed developments will not, on their own or in combination with each other (or where appropriate for consideration, other developments already licensed) adversely affect the integrity of the Buchan Ness to Collieston Coast SPA, Fowlsheugh SPA, Forth Islands SPA, St Abb's Head to Fast Castle SPA, Moray Firth SAC, Firth of Tay and Eden Estuary SAC, Isle of May SAC, Berwickshire & North Northumberland Coast SAC, River South Esk SAC, River Tay SAC, River Dee SAC, River Teith SAC or River Tweed SAC (where each SPA or SAC is taken as a whole), subject to the compliance of conditions.

Following MSS advice, MS-LOT consider that the most up to date and best scientific evidence available has been used in reaching the conclusion that any decision to approve the NNGOWL, ICOL, SAWEL and SBWEL Developments will not adversely affect the integrity of the sites concerned and are satisfied that no reasonable scientific doubt remains.

3d. Conditions proposed.
Indicate conditions/modifications required to ensure adverse effects are avoided, & reasons for these.

All the conditions below except for condition 13 are applicable to all the Forth and Tay Developments. Condition 13 applies only to NNGOWL.

Condition:	*Reason:*
1). The Company must, no later than 6 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 SNH, the JNCC, SEPA, MCA, NLB, RSPB Scotland, the Planning Authority and any such other advisors or organisations as may be required at the discretion of the Scottish Ministers. The Development must, at all times, be constructed in accordance with the approved CoP (as updated and amended from time to time by the Company). Any updates or amendments made to the CoP by the Company must be submitted, in writing, by the Company to the Scottish Ministers for their written approval. The CoP must set out: f. The proposed date for Commencement of Development; g. The proposed timings for mobilisation of plant and delivery of materials, including details of onshore lay-down areas; h. The proposed timings and sequencing of construction work for all elements of the Development infrastructure; i. Contingency planning for poor weather or other unforeseen delays; and e. The scheduled date for Final Commissioning of the Development.	To confirm the timing and programming of construction.
2). The Company must, no later than 6 months prior to	To ensure the appropriate

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, the JNCC, SEPA, MCA, NLB, RSPB Scotland, the Planning Authority and any such other advisors or organisations as may be required at the discretion of the Scottish Ministers. The CMS must set out the construction procedures and good working practices for installing the Development. The CMS must be in accordance with the construction methods assessed in the ES and must include details of how the construction related mitigation steps proposed in the ES are to be delivered. The Development must, at all times, be constructed in accordance with the approved CMS (as updated and amended from time to time by the Company). Any updates or amendments made to the CMS by the Company must be submitted, in writing, by the Company to the Scottish Ministers for their written approval. The CMS must, so far as is reasonably practicable, be consistent with the DS, the EMP, the VMP, the Navigational Safety Plan ("NSP"), the Piling Strategy ("PS"), the CaP and the Lighting and Marking Plan ("LMP").	construction management of the Development, taking into account mitigation measures to protect Natura interests
3). The event that pile foundations are to be used, the Company must, no later than 6 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, the JNCC and any such other advisors as may be required at the discretion of the Scottish Ministers. The Development must, at all times, be constructed in accordance with the approved PS (as updated and amended from time to time by the Company). Any updates or amendments made to the PS by the Company must be submitted, in writing, by the Company to the Scottish Ministers for their written approval. The PS must include: d. Full details of the proposed method and anticipated duration of pile-driving at all locations; e. Details of soft-start piling procedures and anticipated maximum piling energy	To mitigate the underwater noise impacts arising from piling activity

required at each pile location; and f. Details of mitigation and monitoring to be employed during pile-driving, as agreed by the Scottish Ministers. The PS must be in accordance with the ES and reflect any surveys 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 of the following species: bottlenose dolphin; harbour seal; grey seal; Atlantic salmon; cod; and herring. The PS must, so far as is reasonably practicable, be consistent with the EMP, the PEMP and the CMS.	
4). The Company must, no later than 6 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, the JNCC, SEPA, RSPB Scotland, WDC, ASFB and any such other advisors or organisations as may be required at the discretion of the Scottish Ministers. The Development must, at all times, be constructed and operated in accordance with the approved EMP (as updated and amended from time to time by the Company). Any updates or amendments made to the EMP by the Company must be submitted, in writing, by the Company to the Scottish Ministers for their written approval. 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 condition 3). The EMP must be in accordance with the ES and SEIS as it relates to environmental management measures. The EMP must set out the roles, responsibilities and chain of command for the	To mitigate the impacts on the Natura interests during construction and operation.

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 ES and pre-consent and pre-construction surveys, and include the relevant parts of the CMS; g. Pollution prevention measures and contingency plans; h. Management measures to prevent the introduction of invasive non-native marine species; i. Measures to minimise, recycle, reuse and dispose of waste streams; and j. The reporting mechanisms that will be used to provide the Scottish Ministers and relevant stakeholders (including, but not limited to, SNH, the JNCC, SEPA, RSPB Scotland, MCA and NLB) with regular updates on construction activity, including any environmental issues that have been encountered and how these have been addressed. The Company must, no later than 3 months prior to the Final Commissioning of the Development, submit an updated EMP, in writing, to cover the operation and maintenance activities for the Development to the Scottish Ministers for their written approval. Such approval may be given only following consultation with SNH, the JNCC, SEPA, RSPB Scotland and any such other advisors or organisations as may be required at the discretion of the Scottish Ministers. The EMP must be regularly reviewed by the Company and the Forth and Tay Regional Advisory Group ("FTRAG") over the lifespan of the Development, and be kept up to date (in relation to the likes of construction methods and operations of the Development in terms of up to date working practices) by the Company in consultation with the FTRAG The EMP must be informed, so far as is reasonably practicable, by the baseline surveys undertaken as part of the ES and the PEMP.	

5). The Company must, no later than 6 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, the JNCC, WDC and any such other advisors or organisations as may be required at the discretion of the Scottish Ministers. The Development must, at all times, be constructed and operated in accordance with the approved VMP (as updated and amended from time to time by the Company). Any updates or amendments made to the VMP by the Company must be submitted, in writing, by the Company to the Scottish Ministers for their written approval: The VMP must include, but not be limited to, the following details: e. The number, types and specification of vessels required; f. Working practices to minimise the unnecessary use of ducted propellers; g. How vessel management will be coordinated, particularly during construction but also during operation; and h. Location of working port(s), how often vessels will be required to transit between port(s) and the site and indicative vessel transit corridors proposed to be used. 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, as soon as practicable, to the Scottish Ministers 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.	To mitigate disturbance or impact to marine mammals and birds
6). The Company must, no later than 3 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	To safeguard Natura interests during operation of the offshore generating station.

with the JNCC, SNH, SEPA, MCA, NLB, RSPB Scotland, the Planning Authority, 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. Operation and maintenance of the Development must, at all times, proceed in accordance with the approved OMP (as updated and amended from time to time by the Company). Any updates or amendments made to the OMP by the Company must be submitted, in writing, by the Company to the Scottish Ministers for their written approval. 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.	
7). The Company must, no later than 6 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, the JNCC, MCA, SFF, ECIFG 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 ES. The Development must, at all times, be constructed and operated in accordance with the approved CaP (as updated and amended from time to time by the Company). Any updates or amendments made to the CaP by the Company must be submitted, in writing, by the Company to the Scottish Ministers for their written approval. The CaP must include the following: g. Details of the location and cable laying techniques for the inter array cables; h. The results of survey work (including geophysical, geotechnical and benthic surveys) which will help inform cable routing; i. Technical specification of inter array cables, including a desk based assessment of attenuation of electro-	To ensure Natura issues are considered for the location and construction of the inter array cables.

magnetic field strengths and shielding; j. A burial risk assessment to ascertain if burial depths can be achieved. In locations where this is not possible then suitable protection measures must be provided; k. Methodologies (eg for over trawl surveys 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 l. Measures to address and report to the Scottish Ministers exposure of inter array cables.	
8). The Company must, no later than 6 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, the JNCC, RSPB Scotland, WDC, ASFB and any other ecological advisors as required at the discretion of the Scottish Ministers. The PEMP must be in accordance with the ES 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. Monitoring should be done in such a way as to ensure that the data which is collected allows useful and valid comparisons as between different phases of the Development. Monitoring may also serve the purpose of verifying key predictions in the ES. Additional monitoring may be required in the event that further potential adverse environmental effects are identified for which no predictions were made in the ES. The Scottish Ministers may agree that monitoring may cease before the end of the lifespan of the Development. The PEMP must cover, but not be limited to the following matters: d. Pre-construction, construction (if	To ensure that appropriate and effective monitoring of the impacts of the Development is undertaken

considered appropriate by the Scottish Ministers) and post-construction monitoring surveys as relevant in terms of the ES and any subsequent surveys for: 7. Birds; 8. Sandeels; 9. Marine Fish; 10. Diadromous fish; 11. Benthic communities; and 12. Seabed scour and local sediment deposition. e. The participation by the Company in surveys to be carried out in relation to marine mammals as set out in the MMMP; and f. The participation by the Company in a National Strategic Bird Monitoring Framework ("NSBMF") and surveys to be carried out in relation to regional and / or strategic bird monitoring including but not limited to: 5. the avoidance behaviour of breeding seabirds around turbines; 6. flight height distributions of seabirds at wind farm sites; 7. displacement of kittiwake, puffin and other auks from wind farm sites; and 8. effects on survival and productivity at relevant breeding colonies All the initial methodologies for the above monitoring must be approved, in writing, by the Scottish Ministers and, where appropriate, in consultation with the FTRAG. Any pre-consent surveys carried out by the Company to address any of the above species may be used in part to discharge this condition. The PEMP is a live document and must be regularly reviewed by the Scottish Ministers, at timescales to be determined by the Scottish Ministers, in consultation with the FTRAG 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 FTRAG and any other ecological, or such other advisors as may be required at the discretion of the Scottish Ministers. The PEMP, as amended from time to time, must be fully implemented by the Company at all times. The Company must submit written reports of such monitoring surveys to the Scottish Ministers at timescales to be determined by the Scottish Ministers in consultation with the FTRAG. 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.	
9). The Company must participate in any Forth and Tay Regional Advisory Group ("FTRAG") 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, diadromous fish, marine mammals and commercial fish. Should a SSMEG be established (refer to condition 10), the responsibilities and obligations being delivered by the FTRAG will be subsumed by the SSMEG at a timescale to be determined by the Scottish Ministers.	To ensure effective environmental monitoring and mitigation is undertaken at a regional scale
10). The Company must participate in any Scottish Strategic Marine Environment Group ("SSMEG") established by the Scottish Ministers for the purposes of advising the Scottish Ministers on research, monitoring and mitigation programmes for, but not limited to, ornithology, diadromous fish, marine mammals and commercial fish.	To ensure effective environmental monitoring and mitigation is undertaken at a national scale
11). 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 and the JNCC, appoint an Ecological Clerk of Works ("ECoW"). An ECoW must be appointed no later than 9 months post consent and the position remain until the Final Commissioning of the Development The responsibilities of the ECoW must include, but not be limited to: f. Quality assurance of final draft versions of all plans and programmes required under this consent;	To ensure that appropriate and effective monitoring of the impacts of the Development is undertaken

g. Providing advice to the Company on compliance with consent conditions, including the conditions relating to the CMS, the EMP, the PEMP, the PS (if required), the CaP and the VMP; h. Monitoring compliance with the CMS, the EMP, the PEMP, the PS (if required), the CaP and the VMP; i. Providing reports on point c) above to the Scottish Ministers at timescales to be determined by the Scottish Ministers; and j. Inducting site personnel on site / works environmental policy and procedures.	
12). The Company must, to the satisfaction of the Scottish Ministers, participate in the monitoring requirements as laid out in the 'National Research and Monitoring Strategy for Diadromous Fish' so far as they apply at a local level. The extent and nature of the Company's participation is to be agreed by the Scottish Ministers in consultation with the FTRAG.	To ensure effective monitoring of the effects on migratory fish at a local level (Forth and Tay)
13).*The Company must, prior to the submission of the Design Statement ("DS") to the Scottish Ministers, submit an optimal design of the Development, in writing, to the Scottish Ministers for their written approval. Such approval may only be granted following consultation with SNH and the JNCC, and any such other advisors or organisations as may be required at the discretion of the Scottish Ministers. The optimal design of the Development must be undertaken using the Centre for Ecology and Hydrography ("CEH") displacement model to minimise the barrier and displacement effects on kittiwake. The optimal design of the Development must demonstrate a reduction to the negative effect on adult survival of kittiwakes from Forth Islands SPA by 0.2%. The Development must, at all times, be constructed and operated in accordance with the approved optimal design. * *applies only to NNGOWL*	To ensure there is no adverse effect on the integrity of the Forth Islands SPA in relation to kittiwakes.

Name of assessor:	Finlay Bennet
Date:	16/07/2014
Name of approver:	Gayle Holland
Date:	21/07/2014

Appendix 1 – Addressing concerns raised by RSPB Scotland and WDC

RSPB Scotland

RSPB Scotland have responded to each of the Forth and Tay wind farm consultations separately and also provided a regional response to MS-LOT on 26th March 2014 following consideration of the SNCB advice and assessment methods. A further response relating to the MacArthur Green model for setting gannet threshold was received by MS-LOT on 1st May 2014. The concerns raised are discussed below:

Collision Risk Models

RSPB Scotland raised concerns over the CRMs due to:

- Lack of validation of the model;
- Accuracy of input data and use of generic data;
- Inappropriate use of avoidance rate; and
- Expression of uncertainty

RSPB Scotland recommended the use of Option 1 of the Band CRM at 98% avoidance rate.

Marine Scotland consider that the Band Collision Risk Model provides the best available method for quantifying the potential collision risk of birds with offshore wind farms. The author of the Band model has recently made it clear in correspondence to the Avoidance Rate Review project steering group (on which RSPB are represented) that in his view the extended model is undertaking the more correct calculation. This is because the 'extended' version does not assume a uniform density of birds throughout the risk height i.e. it accounts for the fact that there may be very different numbers of birds crossing the lower parts of the rotor than the upper. This pattern is widely observed in seabirds, with a high proportion flying at relatively low heights that coincide with the lower parts of the rotor. The extended version of the Band model therefore provides the best available model for estimating collision risk. A detailed discussion on the Band Model Options is provided at pages 19-20 of this AA.

Where possible, comparison of outputs from Options 1 and 2 was undertaken to identify whether substantial differences in values and therefore flight heights between the site data and the pooled modelled data used in Option a and 3 existed. There was substantial difference between the number of kittiwake estimated to collide when comparing the ICOL values for Option 1 and 2, with twenty-two times more birds estimated to collide using the modelled flight height data (Option 2) than site-specific data (Option 1) i.e. the ICOL data suggested that substantially less kittiwake were flying within the rotor swept area. There were no reasons to suspect that site specific drivers at ICOL would cause flight heights to differ from the modelled data. It was also accepted that pooling robustness was likely to result in modelled data being more robust to errors (but not systematic bias) in flight height estimation, and so it was felt appropriate to use the Johnston *et al* 2014 flight height data.

RSPB Scotland highlight that they do not accept the outputs of Option 3 using a 98% avoidance rate. Marine Scotland consider this avoidance rate to be appropriate, however have also presented results and conclusions using Option 3 and a 95% avoidance rate. This AA concludes that the Forth and Tay Developments will not adversely affect the integrity of any of the SPAs being considered using both 98% and 95% avoidance rates in Option 3 of the CRM.

In order to address uncertainty RSPB Scotland suggested that it would be appropriate to use 95% confidence limits presented in Cook *et al* (2012) to rerun the Band model and thereby estimate the range of uncertainty associated with flight height. The uncertainty around the flight height estimates presented in Johnston *et al* 2014 are clearly presented in their paper, and this uncertainty has been taken into consideration in the assessment alongside the range of other uncertainties encountered when estimating the magnitude of any impacts. However, since no mechanism currently exists to quantify the various sources of uncertainty present, this has been done in a qualitative manner. In the future Marine Scotland would be very keen to develop quantitative methods for accounting for the various sources of uncertainty.

Marine Scotland are committed to reducing uncertainties surrounding seabird flight heights and avoidance rates, for example though our participation in Offshore Renewables Joint Industry Programme ("ORJIP") and other activities. When new information becomes available this will of course be appropriately incorporated into assessments.

Displacement

RSPB Scotland recognise that the CEH final draft report on the displacement and barrier effects does represent "the best scientific knowledge in the field" in terms of its application to the Forth and Tay wind farm proposals, both in its methodology, and also in the caveats attached by the authors to its outputs. In particular, the work necessarily incorporates a number of uncertainties arising from a lack of data underpinning some of the assumptions made in the modelling (for example, the relationship between adult body mass and survival). RSPB Scotland echo the comments of the report's authors at sections 4.2 and 4.3 that the outputs should be "interpreted with considerable caution." Marine Scotland consider that this has been done. The authors' recommendations in relation to interpretation of the outputs have been followed. In addition the assessment does not rely on the outputs for puffin where significant concerns were raised by the authors. The CEH report identifies current knowledge gaps that will help inform future research priorities.

Population Viability Analysis ("PVA")

RSPB Scotland welcome the contribution made by the CEH PVA for the Forth and Tay in assisting with the with the assessment of predicted environmental impacts associated with the proposed offshore wind farms on the SPAs and qualifying seabird species. RSPB Scotland are broadly satisfied with the PVA, recognising that it incorporates additional mortality from collision and/or displacement for adult birds, only during the breeding season, for the range of 0-4% reduction in adult survival

and reductions in breeding productivity ranging from 0-20%. The range of reductions incorporated in the PVA is of adequate magnitude to account for the predicted range of additional mortality arising from the applicants' assessments of collision and displacement. RSPB Scotland reserve judgement on whether the PVA incorporates the appropriate range of reductions in adult survival due to concerns already detailed over the CRM. RSPB Scotland advised that the PVA outputs would be of limited assistance in assessing effects on puffin. As detailed in this AA the puffin assessment did not rely on the CEH PVAs.

Cumulative/ in-combination Effects

RSPB Scotland raised concerns regarding the ability of Marine Scotland to undertake a comprehensive in-combination assessment as part of the HRA and are unclear how non-breeding impacts are being considered in the context of the Forth and Tay proposals. SNCB advice was that the SPA's being considered are protected for breeding seabird colonies and that the scope of the in-combination assessments being completed for the Forth and Tay wind farms should consider the breeding season effects. Marine Scotland have included other projects in the assessment where it is considered that there is the potential for in-combination effects during the breeding season including Aberdeen Bay Offshore Windfarm, Methil Demonstrator, Blyth Offshore Wind Demonstration Site, Blyth Offshore Windfarm and Teeside Offshore Windfarm. Marine Scotland Science advise that gannet from the Bass Rock colony (Forth Islands SPA) are the species that is likely to have the largest foraging distances from the SPA during the breeding season. The best available evidence of gannet's breeding colony foraging area published in the journal Science is Wakefield *et al* (2013), and this analysis demonstrates that the Dogger Bank area is unlikely to form part of the dominant foraging grounds of breeding gannet from Bass Rock. Marine Scotland recognise that there is potential connectivity between breeding colonies in Scotland and offshore wind farms that are out with the foraging range during the breeding season. Marine Scotland are also mindful of the considerable uncertainty that would be associated with apportioning out of breeding season effects to breeding colonies. As a first step, we consider that assessing non-breeding season effects against non-breeding season populations is more appropriate, given the current evidence base. As RSPB are aware, Natural England have contracted MacArthur Green to define regional non-breeding season populations, which will assist with these assessments in the future.

Reduced Uncertainty ABC & PBR - Interpretation of Effects

RSPB Scotland consider that PBR is a wholly inappropriate tool for use in these assessments and ABC is not sufficiently precautionary. Marine Scotland have not relied on PBR for reaching any conclusions on site integrity in this AA. RSPB Scotland raise concerns at the arbitrary nature of thresholds adopted by MSS and the fact that these do not necessarily have any biological basis. MSS advise that the ABC tool has been developed to help in the setting of thresholds using the outputs from PVAs. It was developed to provide a clear and transparent approach for using outputs from PVAs. MSS are of the view that, where available, PVAs provide the best available evidence for informing thresholds.

MSS are aware of the ratio of the population size at the end of the wind farm to the population at the end of the same period in the absence of a wind farm (as used by the RSPB in the examination of the Hornsea 1 project). This metric adds to the range of other metrics available for potential use in setting a threshold or determining whether an estimated effect is acceptable or not. MSS note that whilst this counterfactual provides a descriptive metric, it is not of itself a method of determining whether a predicted level of effect is acceptable. MSS recognise that many metrics may have merits, however question the idea that the relative size at end of forecast period is necessarily the most useful. The metric lacks the context provided by those that use changes in probability, and there is no clear approach for the interpretation or use of counterfactual. RSPB acknowledge the limitations of models to forecast reliably over longer periods of time, which raises issues of what timescale the counterfactual might suitably be applied over.

The ecology and biology that informs the theoretical basis of ABC is contained within the population models upon which it relies. These models should use the best available evidence for modelling ecological and biological processes. MSS acknowledge that allowing for a specific level of change is ultimately a societal choice that is heuristic. This is no different to many other choices that the Birds and Habitats Directives require: such as those that inform the designation of protected area boundaries. MSS note that RSPB have expressed a preference for using the ratio of end population size (counterfactuals) and these figures have been presented in this AA. MSS are not aware of a method for translating this metric into an acceptable level of effect that would avoid being arbitrary.

Reasonable Timescales for Consultation

RSPB Scotland consider that work which has been undertaken following the last opportunity for public consultation (in October 2013) under the EIA regulations comprises additional environmental information and as such requires statutory public consultation under the EIA regulations (Electricity Works (EIA) (Scotland) Regulations 2000 and the EIA (Scotland) Regulations 1999 - both as amended). The work to which they refer is:

- establishment of common currency and re-assessment of collision risk using revised model parameters and CRM options by SNH
- outputs from CEH commissioned research

MS-LOT do not agree with this view. The work which has been carried out by the Forth and Tay Developers, MSS and the SNCB's was undertaken to inform the AA to allow a more robust cumulative assessment and therefore should be considered under the Habitats Regulations. The regional AA has been carried out under Regulation 48 of the Conservation (Natural Habitats, & c.) Regulations 1994 and Regulation 25 of The Offshore Marine Conservation (Natural Habitats, &c.) Regulations 2007. As the NNGOWL and ICOL developments are within Scottish Territorial Waters, and the SAWEL and SBWEL developments are out with 12 nautical miles, both sets of regulations apply. Under these regulations "a person applying to a competent authority for any consent, permission or other authorisation shall provide such information as the competent authority may reasonably require for

the purposes of the assessment". There is no statutory requirement under these regulations for public consultation. It should be noted that MS-LOT previously required both NNGOWL and SAWEL and SBWEL to submit further information where it was our advice that the information should be considered under the EIA regulations. NNGOWL and SAWEL and SBWEL submitted addendums in June 2013 and October 2013 respectively under regulation 13 of the Electricity Works (EIA) (Scotland) Regulations 2000 (as amended). These were consulted on as per the requirements set out in regulation 14. The models used to inform the AA have been shared with the RSPB, and MS-LOT and MSS have engaged with the RSPB Scotland to keep them informed of the assessment process.

Bass Rock Population Viability Analysis for Gannets (letter dated 1st May 2104)
RSPB Scotland recommend using the counterfactual of population size, or in other words: the ratio of end population size. The reason being they consider this metric to be the most suitable, as they consider it more robust to model error than the metrics presented with the probability of decline and probability that the final population will be smaller than the starting population.

The AA is based on the probability that the final population will be smaller than the starting population, with the threshold being that there should be no more than a 5% probability that the final population will be smaller than the starting population. This was advised by the SNCBs and also MSS. This metric is routinely used in assessments where populations are forecast to increase.

A fundamental issue associated with RSPB Scotland's recommended metric of counterfactual of end populations is that there are no recommendations, from any organisation on what or how a threshold should be established using the metric. The metric has however been presented for information in this AA.

One of RSPB Scotland's concerns relates to the uncertainty in relation to the magnitude of effect. A precautionary approach to assessing the effect is taken in the AA. The utility of testing the sensitivity of any metric to this is therefore questionable.

WDC and Client Earth

WDC and Client Earth wrote to Marine Scotland on 30th April 2014 raising concerns over the advice provided by the SNCBs on 7th March 2014 with regard to marine mammals. The WDC and Client Earth concerns related to the bottlenose dolphin qualifying interest of the Moray Firth SAC and the harbour seal qualifying interest of the Firth of Tay and Eden Estuary SAC. The concerns raised are summarised below.

For bottlenose dolphins the main concerns raised were that:
1. That the conservation objectives in relation to the Moray Firth SAC have not been adequately addressed.
2. That a short to medium term impact is not acceptable and that operational noise of wind turbines may constitute a long term impact

For harbour seals the main concerns raised were that:

3. That the harbour seal population of the Firth of Tay and Eden Estuary SAC is already in decline
4. The potential impact of spiral lacerations to seals (termed “corkscrew seals”) as a result of vessel movements.

MS-LOT received correspondence from SNH (email of 3rd July 2014) and MSS (advice note of 4th July 2014) regarding the WDC and Client Earth letter.

1. The conservation objectives in relation to the Moray Firth SAC have not been adequately addressed.
SNH advised that as authors of conservation objectives for Natura sites SNH remains of the view that, in most situations (including the Forth and Tay offshore wind farm proposals) it is only the conservation objective regarding maintaining the population as a viable component of the SAC that requires detailed assessment for projects taking place some distance from the site boundary. Other conservation objectives that might be directly affected within the site by activities occurring outwith would normally be assessed in an HRA but we do not consider this to be the case for impacts of the Forth and Tay wind farms on the Moray Firth SAC. MSS agreed and advised that the developments are proposed to occur at least 200km by sea from the SAC, and as such, assessment of any objective other than the maintenance of the population of the species as a viable component of the SAC is not appropriate.

2. A short to medium term impact is not acceptable and that operational noise of wind turbines may constitute a long term impact
SNH advised that all of the conservation objectives for the Moray Firth SAC relate to maintenance of condition in the “long-term”. The time period equating to long-term is not defined in the conservation objectives. SNH have interpreted a predicted short-term negative impact over the 5 years of the construction period, followed by a full recovery within a 25 year timespan as being acceptable. In this respect WDC/ClientEarth take a different perspective from SNH. MS-LOT are not aware of any judicial authority which supports an argument that temporary impacts upon protected sites over a five year period would breach EU nature conservation obligations. Advocate General Sharpston in the Sweetman case did not specify how long a temporary loss of amenity had to be in place for it to fall within the first or third situations outlined in paragraphs 58 to 61 of the Opinion, and in any case did not rule on the third situation preferring this point to be decided in a later case. In any event in the Sweetman case the feature affected was a key element of the protected sites’ conservation objectives, and the proposed development was to take place within the protected site itself, a very different set of circumstances to those present in the Forth and Tay Offshore Wind Farm Proposals. MSS have advised that the current status of the SAC is favourable (recovered), and that the current population trend was found to be highly likely to be stable or increasing (Cheney et al. 2013). It should also be recognised that the population modelling (Thompson and Brookes 2014) used the initial, broad design envelope, worst case scenarios for all developments, and several of these developments have subsequently been scaled back. Consequently, the model outcomes represent a worst case that is unlikely to be realised.

WDC also raise the point that operational noise from the wind farms may affect bottlenose dolphins over the long term. Recent work commissioned by MSS showed

that bottlenose dolphins would be unlikely to hear the noise produced by wind turbines on jacket foundations (the most likely type to be used) above background at distances of 1km or more from the turbine, even in strong wind conditions (Marmo *et al*. 2013). MSS therefore advise that this impact is unlikely to affect bottlenose dolphins, particularly given their typical preference for coastal habitats.

3. The harbour seal population of the Firth of Tay and Eden Estuary SAC is already in decline

SNH are in agreement with WDC that the harbour seal population at the Firth of Tay and Eden Estuary is in a highly unfavourable condition and research is underway to attempt to determine causes and hence potential remedial measures. It was SNH's assessment that the construction and operation of offshore wind farms in the outer Forth and Tay will have no measurable impact on site integrity in relation to population viability. WDC/ClientEarth and SNH disagree on this interpretation. MSS advised that noise impacts from the construction of proposed wind farms in the Forth and Tay will make no material difference to the predicted population trend. This is based on modelling undertaken by the developers, which shows very little difference between the underlying population trend and that under a scenario including pile driving noise. The modelling had to be carried out assuming that the impact occurred from 2008, since predicted numbers of animals at the likely time of construction are too small to model.

4. The potential impact of spiral lacerations to seals (termed "corkscrew seals") as a result of vessel movements

MSS advised that they agree with the advice provided by the SNCBs (on 7th March 2014) that the most appropriate mitigation against spiral lacerations to seals is through a vessel management plan. These lacerations are likely to be caused through interactions between seals and ducted propellers (Thompson *et al.* 2013) , which are commonly used on many vessels, including those that might be used for wind farm construction. At the current time, the developers do not know which vessels they will be using, or from which ports they will be operating. It is therefore not possible for the SNCBs or MSS to provide detailed comments on the plans at this time. It is most appropriate for such discussions to take place once clearer proposals concerning the practicalities involved are available in draft vessel management plans. Marine Scotland is also funding work investigating the mechanisms by which seals may sustain these fatal injuries, and potential mitigation options. We therefore believe that vessel management plans should be developed using the most up to date information at that time, rather than the incomplete information currently available.

References

Cheney, B.J *et al*. (2013) Integrating multiple data sources to assess the distribution and abundance of bottlenose dolphins *Tursiops truncatus* in Scottish waters. Mammal Review, 43, 71-88

Marmo, B., Roberts, I, Buckingham, M.P., King, S., & Booth, C,. (2013) Modelling of noise effects of operational offshore wind turbines including noise transmission through various foundation types. Scottish Marine and Freshwater Science, **4** (5) http://www.scotland.gov.uk/Resource/0044/00441685.pdf

Thompson, D., Culloch, R., Milne, R. (2013) Current state of knowledge of the extent, causes and population effects of unusual mortality events in Scottish seals. SMRU report to Scottish Government, USD1 &USD6.
http://www.smru.st-and.ac.uk/documents/1282.pdf

Thompson, P.M & Brookes, K.L. (2014) Cumulative bottlenose dolphin modelling for east coast of Scotland renewable developments (available from Marine Scotland Science)

Wakefield *et a*l (2013), Space partitioning without territoriality in gannets. Science Vol. 341 pages 69 & 70.

Appendix 2

Outline of the Acceptable Biological Change ("ABC") concept for using population model forecasts to inform assessment of managed effects upon populations

Introduction

This appendix outlines a tool called Acceptable Biological Change that uses probabilistic forecasts from population models to inform management decisions. ABC is a risk based approach to the management of populations, allowing a consistent and transparent approach to be taken in the context of the best available evidence and the uncertainty associated with population models. ABC ensures that the predicted population size following an activity e.g. the construction and operation of a wind farm might reasonably be observed in the absence of that activity.

The ABC Approach

Effects of managed activities on populations can be assessed by the construction of population models. Data on the historical changes to the population's size and vital rates (productivity and survival) are used to provide forecasts of future population change. The models can forecast the population assuming the status quo as well as scenarios assuming a range of changes in vital rates e.g. adult survival that may result from managed activities. Population forecasts can be presented as either a deterministic output (in year *x* the population size will be *y*) or as a probabilistic output (in year *x* the probability that the population size will be *y* or less, is *z*). The ABC tool requires probabilistic outputs from population models that provide probabilities of population change (appropriate magnitudes of change must be established) assuming the status quo and a range of impact scenarios.

The ABC tool constrains the acceptable level of change i.e. increases in the probability of a decline occurring between two quantiles taken from a probabilistic forecast. The selection of the quantiles used by ABC is based upon guidance produced by the Intergovernmental Panel on Climate Change ("IPCC") on the consistent use of language in relation to the treatment of uncertainties http://www.ipcc.ch/pdf/supporting-material/uncertainty-guidance-note.pdf (Mastrandrea *et al*, 2010) – see Table 1 below. Usually, ABC will limit allowable change to be the difference between the 0.5 median and the 0.333 quantiles. The 0.5 median being the quantile that is the midpoint of the "as likely as not" category; and the 0.333 quantile being the quantile that is at the lower limit of the "about as likely as not" category using the IPCC's definitions. The ABC tool therefore allows for additional effects which are equivalent to up to a one third change in the probable outcomes to occur.

Table 1. IPCC calibrated language for describing and quantifying uncertainty

Likelihood Scale	
Term	**Probability of outcome population size being less than a specific quantity (P)**
Virtually certain	99-100% probability
Extremely likely	95-100% probability
Very likely	90-100% probability
Likely	66-100% probability
About as likely as not	33-66% probability
Unlikely	0-33% probability
Very unlikely	0-10% probability
Extremely unlikely	0–5% probability
Exceptionally unlikely	0–1% probability

As with any method of determining the significance of an effect, the timescales over which the effect is being assessed must be determined, and the population forecast configured accordingly. This could be when the managed activity ceases, or some agreed point in time after to account of any recovery towards baseline conditions. The rationale for the choice of timescale should be agreed and presented.

Appendix 3 – MSS Interpolation method

The MSS interpolation method allows for specified magnitudes of effect to be matched against the "about as likely as not" threshold. MSS first calculate the percentage point decrease in chick survival that brings about the same decrease in future population size as a 1% decrease in adult survival. This ratio is used to convert the difference between the chick survival threshold and the predicted reduction in chick survival to an adult survival rate. The SNCBs advised that it is inappropriate to use this approach without more consideration and testing of the underlying assumptions.

The SNCBs advised that the method assumes a linear relationship between decreases in adult or chick survival and population size and this may not be true. The method does not take account of any non-linearity and the population consequences of the higher thresholds have not been tested within the current PVA models undertaken to date. Additionally, the method does not consider any interaction effect between concurrent reductions in adult and chick survival. The assumption that the effects of reductions to chick and adult survival on future population size are interchangeable according to the linear ratio remains to be empirically tested.

MSS agree that assuming a linear relationship will introduce error. The magnitude of the error will be many times (potentially orders of magnitude) less than the error the SNCBs recommend is accepted by not adopting the approach. Error associated with assuming a linear change in rate, is already introduced into the assessment by the SNCBs approach to interpolating thresholds.

The SNCBs also raised concerns that the MSS method increases the risk of impacts coming up to or going beyond the productivity threshold identified.

MSS advice is that the approach does not result in higher thresholds as stated, but in a more realistic interpolation of the adult survival and chick productivity rates with respect to the threshold. The interpolation is applied so that if the productivity threshold is reduced there is a corresponding increase to the adult survival threshold.

The SNCBs also highlighted that the relationship between chick mortality and adult mortality is a feature of the population dynamics of a population, related to age at first breeding and juvenile/immature survival, e.g. if for every seven chicks hatched, only one will reach maturity, the scalar ratio will be 7:1. Whilst Furness et al. (2013) demonstrated that this relationship generally holds true within a species, there will be considerable intra-specific variation among colonies,

MSS have considered the effect of the introduced error. The goodness of fit using the linear trendline is compared to use of a polynomial trend line. This has been investigated for 2 species at opposite ends of the ratio scaler range. Kittiwake Forth Islands which has a 4:1 ratio and guillemot Forth Islands which has a 23:1 ratio.

MSS advice is that the linear trendline provides an extremely good fit. Even in the example of guillemot Forth Islands the R^2 value of 0.9925 demonstrates that the variability of the data is explained by the fit of the line. The assessment which uses adult survival rates to one decimal place should not be sensitive to this level of error.

As expected the polynomial trendline derives higher R^2 values. The relationship between the linear and the polynomial trendlines is quantified. At low integer values (e.g. between 0 and 1 as used by the interpolation method) the linear trendline will over-estimate the population change compared to the polynomial trendline. At higher integer values (e.g. between 4 and 5) the opposite is the case.

MSS advice is that the assessments are not sensitive to the magnitude of the error associated with use of the interpolation method. The highest R^2 values are in relation to the outputs from kittiwake colonies which, owing to their lower ratio values, are more sensitive to application of the method.

MSS note that additional options are to use the polynomial function within the ratio scalar spread sheet, or to re-run the population models for the specific effects of interest. Marine Scotland would be able to commission CEH to re-run the models for a range of agreed scenarios. The results will not be available for use in this assessment.

The assessment is based on the thresholds of acceptable change, which are the level of variability that is about as likely as not to occur without introducing anthropogenic effects during the breeding season. As such there is no uncertainty about the threshold and how it is used in the assessment. In addition the effects are over-estimated in this assessment to provide insurance that they will not exceed the threshold.

MSS view is that the interpolation method used is not a new or novel method. The amount of error contained in the assessment is reduced through its use.

Appendix 4 – common currency values for puffin

PUFFIN	FORTH ISLANDS SPA														
	NNGOWL		SAWEL		SBWEL		ICOL		TOTAL	SPA Pop	NNGOWL	SAWEL	SBWEL	ICOL	TOTAL
	Factor	Inds	Factor	Inds	Factor	Inds	Factor	Inds	Inds	Inds	%	%	%	%	%
Mean Seasonal Max		2938		3419		4034		3152	**13543**	100564	-2.9	-3.4	-4.0	-3.1	-13.5
Proportion displaced	**0.6**	1763	**0.4**	1367.6	**0.4**	1614	**0.5**	1576	**6320**		-1.8	-1.4	-1.6	-1.6	-6.3
Prop SPA	**0.998**	1759	**0.976**	1334.8	**0.976**	1575	**0.984**	1551	**6220**		-1.7	-1.3	-1.6	-1.5	-6.2
Prop non-breeding and/or immature	**0.35**	1144	**0.35**	867.61	**0.35**	1024	**0.35**	1008	**4043**		-1.1	-0.9	-1.0	-1.0	-4.0
Prop Die	**0.5**	572	**0.5**	433.8	**0.5**	512	**0.5**	504	2021		-0.6	-0.4	-0.5	-0.5	-2.0
Prop fail to breed successfully	**1**	1144	**1**	867.61	**1**	1024	**1**	1008	4043		-1.1	-0.9	-1.0	-1.0	-4.0
Productivity 1 Indiv = 1 Pair	**1**	1144	**1**	867.61	**1**	1024	**1**	1008	**4043**		-1.1	-0.9	-1.0	-1.0	-4.0

Adult survival effects
Productivity effect

N.B. Effects are on adult survival **OR** productivity not both in combination

Appendix 5 – Summary of Divergence between SNCB and MSS advice

Factor	SNCB Advised Approach	MSS Advised Approach	Approach taken in AA	Planned/ current activities to address/ reduce areas of divergence
CRM Band Option	Options 2 and 3	Option 3	Option 3	- Review of avoidance behaviour data and calculation for the first time of Avoidance Rates using Basic (Option 2) and Extended (Option 3) under way under contract to Marine Scotland. - Offshore Renewables Joint Industry Programme (ORJIP) gathering data on avoidance behaviour under way. - Collection of flight height data using e.g. laser rangefinders, tags
CRM Avoidance Rate	98%	98% (& 95%)	98% (& 95%)	
CEH puffin displacement model used in assessment	Should be included within assessment	Should be disregarded due to issues with data	Not used in assessment	- Monitoring effects of wind farms on puffin populations - Additional puffin tagging when technology permits
In combination effects	Application of CRM for all projects (advice June 6th 2014)	Due to very small magnitude of effects, qualitative assesment of other projects sufficient.	Qualitative assesment undertaken	- Development of Cumulative Impact Assessment (CIA) database that allows estimated effects to be updated for use in future CIAs as estimation of effects methods develop.
Threshold setting method	ruABC, PBR, proxy species	ABC & ruABC	ABC & ruABC	- Further exploration and assessment of methods for setting thresholds
Accounting for predicted productivity effects being higher/ lower than those modelled by CEH	Not accounted for	Interpolated	Interpolated	
Threshold Use	The threshold should not be approached but no indication of how close to a threshold would be acceptable	The threshold should not be exceeded	The threshold should not be exceeded	- Monitoring wind farm effects on key species - Monitoring interactions (including displacement, collision, barrier effects) between key species and wind farms
Threshold (adult survival)				
Kittiwake Forth Islands SPA	-1.5%	-2.2%	-2.2%	
Kittiwake Fowlsheugh SPA	-1.3%	-1.3%	-1.3%	
Kittiwake St Abbs SPA	-1.6%	-2.0%	-2.0%	
Kittiwake Buchan Ness SPA	-1.6%	-2.4%	-2.4%	
Gannet Forth Islands SPA	1300 (using 5% risk of population decline)	1300 probabilities of declines of 1% and 5% below starting population	1300	
Guillemot Forth Islands SPA	-0.6%	-0.9%	-0.9%	
Guillemot Fowlsheugh SPA	-0.6%	-1.1%	-1.1%	
Guillemot St Abbs SPA	-0.8%	-1.3%	-1.3%	
Guillemot Buchan Ness SPA	-0.5%	-0.5%	-0.5%	
Razorbill Forth Islands SPA	-0.9%	-0.9%	-0.9%	
Razorbill Fowlsheugh SPA	-1.0%	-1.2%	-1.2%	
Razorbill St Abbs SPA	-1.3%	-1.7%	-1.7%	
Puffin Forth Islands SPA	-1.4%	not provided	not provided	

Appendix 6 – Summary of Divergence in conclusions based on SNCB and MSS advice

SPA & Species	Conclusion based on SNCB advice	Conclusion based on MSS advice	AA conclusion	Reasons for Divergence
Kittiwake Forth Islands SPA	Adverse impact on site integrity	No adverse impact on site integrity	No adverse impact on site integrity	SNCB threshold from ruABC without accounting for estimated displacement effect. To a lesser degree also due to use of Option 2 CRM advised by SNCBs.
Kittiwake Fowlsheugh SPA	Adverse impact on site integrity	No adverse impact on site integrity	No adverse impact on site integrity	SNCB threshold from ruABC without accounting for estimated displacement effect. To a lesser degree also due to use of Option 2 CRM advised by SNCBs.
Gannet Forth Islands SPA	Adverse impact on site integrity	No adverse impact on site integrity	No adverse impact on site integrity	Use of Option 2 at 98% advised by SNCBs, Option 3 at 98% and 95% by MSS
Razorbill Forth Islands SPA	Unable to advise no adverse impact on site integrity	No adverse impact on site integrity	No adverse impact on site integrity	SNCB threshold from ruABC, MSS threshold from ABC
Puffin Forth Islands SPA	Adverse impact on site integrity	No adverse impact on site integrity	No adverse impact on site integrity	SNCB advise use of CEH displacement model whish MSS advise against using. Proportion immature and non breeding adult advised by SNCBs for common currency approach substantially reduced compared to Moray Firth assessments and MSS advice.

ANNEX F – PUBLIC REPRESENTATIONS

APPLICATION FOR CONSENT UNDER SECTION 36 OF THE ELECTRICITY ACT 1989 FOR THE CONSTRUCTION AND OPERATION OF THE NEART NA GAOITHE OFFSHORE WIND FARM ELECTRICITY GENERATING STATION, APPROXIMATELY 15.5 KM TO THE EAST OF FIFE NESS IN THE FIRTH OF FORTH

Summary

Public Representations

A total of twenty three (23) representations were received from members of the public during both consultation periods. Of these, sixteen (16) object to the Development, five (5) support it, and two neither objected nor supported with one (1) related to the onshore cable route and subsequent onshore planning application, and one (1) relating to information used to assess the Development's potential impact on bats.

A number of representations received were from members of the public who currently reside in the area local to the Development.

Members of the public who objected to the offshore wind farm stated concerns including, but not limited to, the visual impact of the Development, impact on tourism, failure to meet the requirements of the Aarhus Convention, inefficiency of the technology, the expense of constructing and operating wind farms, impacts on Ministry of Defence and other communications infrastructure, impacts on the marine environment including marine mammals, fish and benthic ecology as well as birds.

Representations which noted support for the project were of the belief that the Development would offer benefits such as the creation of jobs, economic opportunities for the area and lead to a reduction in emissions from utilising a clean energy source. Additionally, it was felt that the visual impact was lessened due to the turbines being situated offshore compared to terrestrial projects.

Representations not providing a position of support or objection to the Development queried what studies had been undertaken to assess the possible impact on bats from the Development. Another representation was submitted that dealt with terrestrial interests covering possible disruption to a person's land during cable laying and removal operations. This representation deals with concerns out with the remit of Marine Scotland and was provided to the Planning Authority for their consideration of the onshore planning application.

ANNEX G – PROJECT LOCATION

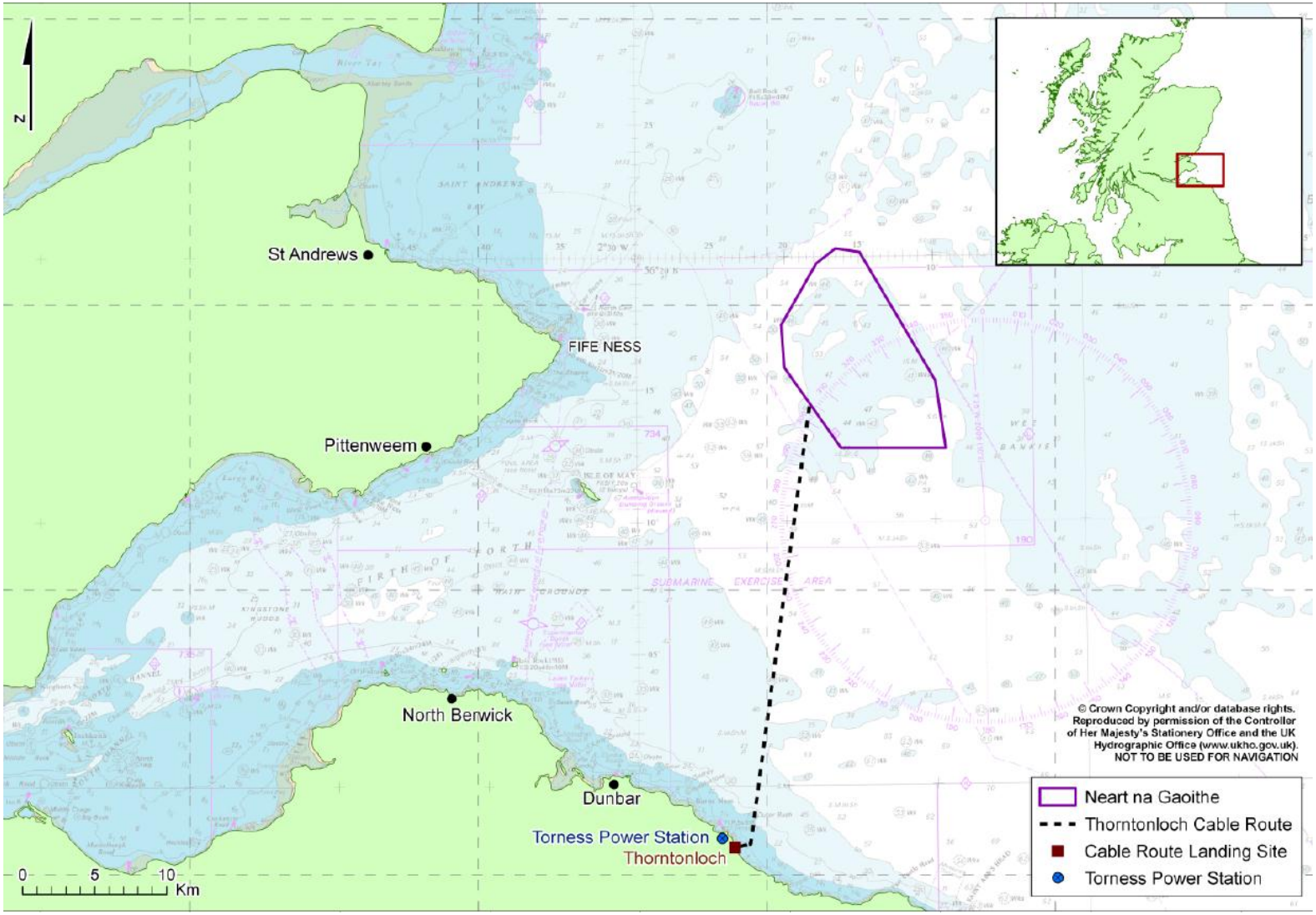


Figure 1. Phase 1 area for turbine and potential cable deployment