

From: Joao Queiros  
Marine Scotland Licensing Operations Team  
Marine Scotland  
07<sup>th</sup> October 2014

Minister for Energy, Enterprise and Tourism

**APPLICATIONS FOR TWO CONSENTS UNDER SECTION 36 OF THE ELECTRICITY ACT 1989 FOR THE CONSTRUCTION AND OPERATION OF TWO OFFSHORE GENERATING STATIONS, THE SEAGREEN ALPHA AND SEAGREEN BRAVO OFFSHORE WIND FARMS, 27 AND 38 KILOMETRES EAST OF THE ANGUS COASTLINE RESPECTIVELY.**

**Purpose**

To seek your determination on the Applications submitted by Seagreen Wind Energy Limited (Company Number 06873902) (“the Company”) (“SWEL”) on behalf of Seagreen Alpha Wind Energy Limited (“SAWEL”) (Company Number 07185533) and Seagreen Bravo Wind Energy Limited (“SBWEL”) (Company Number 07185543) (“the Applicants”), for two consents under section 36 of the Electricity Act 1989 (“the Electricity Act”) to construct and operate two offshore wind farms, to the east of the Angus coastline, with a combined maximum generating capacity of up to 1050 megawatts (“MW”).

Should you determine that it is appropriate to consent either one or both of the Applications, for the purposes of the determination letter(s) the Company will be SAWEL or SBWEL respectively.

**Priority**

Routine

**Background**

On 15<sup>th</sup> October 2012 the Company submitted the Applications on behalf of SAWEL and SBWEL for consent to construct and operate the Seagreen Alpha and Seagreen Bravo Offshore Wind Farms in the Firth of Forth Zone 2 Round 3 lease area in the UK Renewable Energy Zone (“the Zone”).

The SAWEL and SBWEL sites are located approximately 27 km and 38 km offshore respectively from the nearest landfall on the Angus coastline. The location and boundary between the sites is shown in Figure 1, and also at **ANNEX G – DEVELOPMENT LOCATION**. The total area within the SAWEL and SBWEL site boundary is 197 km<sup>2</sup> and 194 km<sup>2</sup>, respectively.

The Applications submitted were to construct and operate two offshore wind generating stations (SAWEL and SBWEL) which together constitute Seagreen

Phase 1 (“the Proposal”) with a maximum generating capacity of up to 1050 MW. Consent is sought for up to 150 wind turbine generators (“WTGs”) and associated infrastructure including, but not limited to, inter-array cabling to the connection point on the offshore sub-station platforms. The generating capacity of the individual WTGs has not been defined, and is dependent upon a number of factors, including the choice of WTG, the final foundation and substructure design, and any mitigation measure to reduce the predicted impacts of the Proposal. The generating capacity of the individual WTGs will therefore be finalised at a later stage post determination of the Applications. There are three main substructure and foundation options defined within the Project Design Envelope (also referred to as Design Envelope or Rochdale Envelope) for supporting the WTG structures. These are:

- A four leg steel jacket with driven piles;
- A four leg steel jacket with suction piles; or
- Gravity Base Structure (“GBS”).

In tandem with the consultation on the two section 36 consent Applications, Marine Scotland Licensing Operations Team (“MS-LOT”) has consulted on two marine licence applications, submitted on 15<sup>th</sup> October 2012 for the Proposal, concerning the deposit of the associated infrastructure.

At that time, the Company also submitted a single marine licence application to license the deposit of any substance or object and to construct, alter or improve any works in relation to the Seagreen Transmission Asset (“STA”) which comprises the offshore substation platforms and the export cables that transmit the electricity generated by the offshore wind farm projects back to shore at Carnoustie.

The two marine licence applications for the Proposal and the marine licence application for the STA are being considered under the Marine and Coastal Access Act 2009 and the Marine (Scotland) Act 2010. These applications will be determined in due course. MS-LOT is satisfied that there are no outstanding issues preventing the issue of these marine licences.

As a result of issues raised during the consultation process, supplementary environmental information was required. The Supplementary Environmental Information Statement (“SEIS”) which included a Habitats Regulations Appraisal (“HRA”) was submitted by the Company on 18<sup>th</sup> October 2013. The SEIS to these Applications included further information on the assessment of potential effects on protected bird, marine mammal and fish species as a result of the Proposal and in combination with other developments in the Forth and Tay, the Moray Firth and other projects listed in the SEIS. Modelling exercises were undertaken to estimate the magnitude of potential impacts on the qualifying interests of Special Protected Areas (“SPAs”) and Special Areas of Conservation (“SACs”).

In accordance with standard procedure and statutory and regulatory requirements, these Applications have been advertised in line with the legislative requirements and have 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 if 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 Proposal was submitted by the Company to Angus Council in May 2013. Angus Council granted planning permission for this application, subject to conditions in December 2013.

## **CONSIDERATION OF THE APPLICATIONS**

MS-LOT is satisfied that whilst the Proposal 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 Proposal will bring.

As well as delivering renewable electricity to the National Grid, this Proposal will make a significant contribution to the renewables obligation and climate change targets in Scotland. If licensed and consented, the Proposal once fully constructed and operational could provide energy equivalent to the needs of approximately 670,000 homes.

The Company estimate that as individual projects SAWEL and SBWEL would each have the potential to contribute Gross Value Added (“GVA”) between a low case of £60 million and a high case of £241 million in Scotland. The Capital Expenditure (“CAPEX”) would be spent over the 4 year construction period. The Proposal developed in its entirety would contribute between a low case of £80 million and a high case of £321 million GVA in Scotland. In addition, there would be between £0 (low case) and £192 million (high case) GVA generated in the rest of Great Britain.

The Operating Expenditure (“OPEX”) is estimated to be £75,000 per MW per annum, with an anticipated operational lifespan of the project of 25 years commencing from 2019.

If the Proposal were to progress as a whole, this OPEX would generate an annual GVA of between a low case of £17.4 million and a high case of £35.2 million in Scotland. Background and consultation information for the Proposal is set out at **ANNEX B – BACKGROUND INFORMATION AND SCOTTISH MINISTERS’ CONSIDERATIONS**.

### **Consultation Summary**

The Joint Nature Conservation Committee (“JNCC”) and Scottish Natural Heritage (“SNH”) raised some concerns regarding the environmental impacts of this Proposal; both organisations recommended planning conditions should the Scottish Ministers grant consent. These conditions are reflected in **ANNEX D(a) and D(b) – DRAFT DECISION LETTER AND CONDITIONS**. The JNCC and SNH agreed with the conclusions reached in the Appropriate Assessment (“AA”) regarding impacts on relevant marine mammal and freshwater fish species as qualifying interests of SACs

and in some instances on the SPAs. 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 Association of Salmon Fishery Boards (“ASFB”), the Ministry of Defence (“MOD”), National Air Traffic Services (“NATS”), Aberdeen International Airport (AIA), the Royal Society for the Protection of Birds Scotland (“RSPB Scotland”), the Scottish Fishermen’s Federation (“SFF”) and the and Whale and Dolphin Conservation (“WDC”).

Further discussion between the Company, NATS, AIA and the MOD resulted in these organisations withdrawing their objections subject to appropriate conditions and / or agreements being put in place to minimise the impact(s) of the Proposal.

Following the receipt of the SEIS, and further discussion between the Company and the other named consultees above, objections are being maintained from the ASFB, RSPB Scotland, SFF and WDC. The RSPB Scotland has raised several concerns mainly regarding the impacts upon kittiwake, gannet and puffin. In order to minimise the predicted impacts, the Company has committed to increasing the clearance of the rotor blades by 4 metres from Lowest Astronomical Tide (“LAT”) and having a minimum turbine spacing of 1000 metres. Conditions are also being implemented as part of this consent to further minimise the potential impacts of the Proposal (**ANNEX D(a) and D(b) – DRAFT DECISION LETTER AND CONDITIONS, Annex 2**).

Objections from members of the public are being maintained.

### **Public Representations**

A total of three (3) valid public representations were received during the course of the public consultation exercise for the SEIS. Of these, two (2) have objected and one (1) is in support of the Proposal.

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 these Applications to agree the appropriate means of announcing the decision.

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

## **RECOMMENDATION**

The Proposal 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 considerations 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 local inquiry to be held, and to grant consent under section 36 of the Electricity Act 1989 for the 525 MW Seagreen Alpha Offshore Wind Farm and grant consent under section 36 of the Electricity Act 1989 for the 525 MW Seagreen Bravo Offshore Wind Farm**

**Please note:**

- 1) That a marine licence under the Marine and Coastal Access Act 2009 and the Marine (Scotland) Act 2010 for the Seagreen Alpha Offshore Wind Farm is being considered alongside these Applications. It will be determined and a decision issued in due course.**
- 2) That a marine licence under the Marine and Coastal Access Act 2009 and the Marine (Scotland) Act 2010 for the Seagreen Bravo Offshore Wind Farm is being considered alongside these Applications. It will be determined and a decision issued in due course.**
- 3) That a marine licence under the Marine and Coastal Access Act 2009 and Marine (Scotland) Act 2010 for the STA and export cable to shore is being considered alongside these Applications. It will be determined and a decision issued in due course.**

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### Joao Queiros

Marine Scotland Licensing Operations Team,  
Marine Planning and Policy.  
07<sup>th</sup> October 2014

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 and Planning					X
Lord Advocate					X
Solicitor General					X

DG Enterprise, Environment and Innovation  
 Linda Rosborough - Marine Scotland  
 David Palmer - Marine Scotland  
 Jim McKie - Marine Scotland  
 Karen Major - 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  
 Bob McIntosh - Environment and Forestry  
 Sally Thomas - Environment and Forestry  
 Iain Malcolm - Freshwater Fisheries  
 Chris Wilcock - Ports and Harbours  
 Mike McElhinney- Ministerial Portfolios  
 Malcolm Fleming - Advisor  
 Communications - Greener  
 Communications - Constitution and Economy

## **ANNEX A – REGULATORY REQUIREMENTS: LEGISLATION AND POLICY**

### **APPLICATIONS FOR TWO CONSENTS UNDER SECTION 36 OF THE ELECTRICITY ACT 1989 FOR THE CONSTRUCTION AND OPERATION OF TWO OFFSHORE GENERATING STATIONS, THE SEAGREEN ALPHA AND SEAGREEN BRAVO OFFSHORE WIND FARMS, 27 AND 38 KILOMETRES EAST OF THE ANGUS COASTLINE RESPECTIVELY.**

#### **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 Scottish offshore region (12-200 nautical miles (“nm”) from the shore) with a generation capacity in excess of 50 MW requires consent under section 36 of the Electricity Act. Section 93 of the Energy Act 2004 extends the requirement for section 36 consent to the construction, extension or operation of a generating station situated in the Scottish offshore region. 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 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.
6. Under Schedule 8 to the Electricity Act and the Electricity (Applications for Consent) Regulations 1990 (as amended) (“the 1990 Regulations”), 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 Applications. Under Schedule 8 to the Electricity Act, the Scottish Ministers must serve notice of any Application for consent upon any relevant Planning Authority.
7. 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.
8. The location and extent of the Proposal to which the Applications relate (being wholly offshore) means that the Proposal is not within the area of any local Planning Authority. The Marine Scotland Licensing Operation Team

("MS-LOT"), on behalf of the Scottish Ministers, did however consult with the Planning Authorities most local to the Proposal. 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 Applications. If they had objected to the Applications, and even then if they did not withdraw their objections, the Scottish Ministers would not have been statutorily obliged to hold a public inquiry.

9. 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 these Applications. 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 Applications.
10. You can be satisfied that all the necessary tests set out within the Electricity Act when assessing the Applications and all procedural requirements have been complied with. The Applicants, at the time of submitting the Applications, were both licence holders authorised to generate electricity for the purpose of giving a supply to any premises in the area specified in Schedule 1 of the Licence, or enabling a supply to be so given during the period specified in paragraph 3 of the licence, subject to the terms and conditions specified therein. The Minister and his officials have, from the date of the Applications 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 Applicants.

The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2000 and The Marine Works (Environmental Impact Assessment) Regulations 2007

11. 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 Proposal as one requiring an Environmental Statement ("ES") in terms of the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2000 (as amended) ("the 2000 Regulations") and the Marine Works (Environmental Impact Assessment) Regulations 2007 (as amended) ("the 2007 Regulations").
12. The Proposal has been publicised, to include making the ES available to the public, in terms of the 2000 and 2007 Regulations. An ES has been produced and the applicable procedures regarding publicity and consultation all as laid down in those regulations have been followed.

13. In compliance with the 2000 and 2007 Regulations, consultation has taken place with the JNCC, SNH, the Scottish Environment Protection Agency (“SEPA”), the Planning Authorities most local to the Proposal, and such other persons likely to be concerned by the Proposal by reason of their specific environmental responsibilities on the terms of the ES and the SEIS in accordance with the regulatory requirements.
14. 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 5<sup>th</sup> December 2012. Under the 2007 Regulations Scottish Ministers must consult with “the consultation bodies”, as defined in regulation 2(1).
15. MS-LOT has also consulted a wide range of relevant organisations, including colleagues within the Scottish Government on the Applications, 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.
16. 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 and the Wild Birds Directive

17. Council Directive 92/43/EEC of 21<sup>st</sup> 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 2<sup>nd</sup> 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 Proposal is to be sited in the Scottish offshore region it is the 2007 Regulations which are, in the main, applicable in respect of these Applications for section 36 consent. The 1994 Regulations do, however, apply to those parts of the associated transmission infrastructure which lie inside the region within 12 nm from the shore.
18. 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 2007 Regulations this is provided by regulation 25, and 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.

19. Due to their proximity to the Proposal, the AA which has been undertaken has considered the combined effects of the other Forth and Tay offshore wind farms, (the Neart na Gaoithe Offshore Wind Limited (“NNGOWL”) and Inch Cape Offshore Limited (“ICOL”) applications). The applications for which were submitted to the Scottish Ministers in July 2012 and July 2013 respectively. Where appropriate (depending on the receptor) other offshore wind farm developments and licensable marine activities have also been considered in the AA. These include (but are not limited too) the recently consented Moray Firth offshore wind farms, Aberdeen Bay offshore wind farm and the Moray Firth port developments.
20. The JNCC, SNH, the ASFB, WDC and the RSPB Scotland, in particular, flagged up issues in relation to the Habitats Directive and the Wild Birds Directive, as the Proposal has the potential to have an impact on certain SPAs and Special Areas of Conservation (“SACs”). In the JNCC and SNH’s view, the Proposal is likely to have a significant effect on the qualifying interests of certain SPA and SAC sites; therefore an AA would be required.
21. In line with advice from the JNCC and SNH, 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 Proposal will not adversely affect site integrity of any of the identified European protected sites which were assessed as having connectivity with the Proposal. Conditions can also be imposed on any grant of consent ensuring that the sites are protected from damage. The JNCC and SNH were consulted on the AA, they agreed with all conclusions relating to marine mammal and freshwater fish SACs. The JNCC and SNH did not agree with all conclusions reached on the SPAs. As per the legislative requirements MS-LOT have had regard to the representations made by the JNCC and SNH, and in reaching conclusions consider that the best available evidence has been used. The AA (**ANNEX E – APPROPRIATE ASSESSMENT**) will be published and available on the Marine Scotland licensing page of the Scottish Government’s website.

#### Marine and Coastal Access Act 2009

22. Other than for certain specified matters, the Marine and Coastal Access Act 2009 (as amended) (“the 2009 Act”) executively devolved marine planning, marine licensing and nature conservation powers in the offshore marine region (12-200 nm) to the Scottish Ministers. The 2009 Act transferred certain functions in issuing consent under section 36 of the Electricity Act from the Secretary of State to the Marine Management Organisation (“MMO”). The MMO does not exercise such functions in Scottish waters or in the Scottish part of the renewable energy zone, as that is where the Scottish Ministers perform such functions.

23. Where applications for both a marine licence under the 2009 Act and consent under section 36 of the Electricity Act are made then, in those cases where the Scottish Ministers are the determining authority, they may issue a note to the applicant stating that both applications will be subject to the same administrative procedure. Where that is the case then that will ensure that the two related applications may be considered at the same time.
24. Although the Proposal is to be located in the offshore region it will also have an impact upon, although to a much lesser extent, the territorial sea in connection with the construction of the transmission infrastructure and cable to shore at Carnoustie.

#### Marine (Scotland) Act 2010

25. 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.
26. 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

27. Also of relevance to the Applications is that under Part 2 of the 2010 Act, the Scottish Ministers must, when exercising any function that affects the Scottish marine area under the Climate Change (Scotland) Act 2009 (as amended), act in the way best calculated to mitigate, and adapt to, climate change so far as is consistent with the purpose of the function concerned. Under the Climate Change (Scotland) Act 2009 annual targets have been agreed with relevant advisory bodies for the reduction in carbon emissions.
28. The Company, Seagreen Wind Energy Limited (“SWEL”) estimates that, once the Proposal is fully constructed and operational, there could be a saving of between 1.30 and 2.90 million tons of CO<sub>2</sub> per year, depending on whether gas or coal is displaced and assuming an existing mix based on conventional fuels. MS-LOT estimates that the Proposal could provide renewable electricity for approximately 670,000 homes. This is approximately 28% of all the homes in Scotland (2012 estimate of 2.39 million households by gro-scotland.gov.uk).
29. You can be satisfied that in assessing these Applications you have acted in accordance with your general duties.

## **MARINE AND TERRESTRIAL POLICY**

### **Marine Policy**

#### **The UK Marine Policy Statement 2011**

30. 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 the Scottish Ministers take authorisation decisions that affect, or might affect, the marine area they must do so in accordance with the Statement.
31. 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.
32. 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 MS-LOT as part of the assessment of the Applications.
33. Existing terrestrial planning regimes generally extend to mean low water spring tides (“MLWS”). The marine plan area boundaries extend up to the level of mean high water spring tides (“MHWS”). 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 Applications for the purpose of ensuring consistency in approach.
34. MS-LOT has had full regard to the Statement when assessing the Applications and therefore considers that the Proposal accords with the Statement.

#### **Draft National Marine Plan**

35. 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.

36. 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.
37. The Scottish Ministers require, should it be deemed appropriate and proportionate, that consideration is 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 Proposal.
38. Given the timing of the statutory consultation of the draft National Marine Plan, and the finalisation of the consideration of all material issues connected with this Proposal, 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

39. The Proposal, 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.
40. 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.

## Terrestrial Policy

41. MS-LOT has had regard to the terms of relevant terrestrial planning policy documents and Plans when assessing these Applications for the purpose of ensuring consistency in approach.

## Scottish Planning Policy

42. Scottish Planning Policy (“SPP”) 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 Proposal to contribute to national or local economic development should be a material consideration when considering an application.
43. You can be satisfied that these matters have been addressed in full both within the Applications, the ES, the SEIS and within the responses received to the consultations by the closest onshore Planning Authorities, SEPA, the JNCC, SNH and other relevant bodies.

## National Planning Framework 2

44. At the time the Applications were submitted to the Scottish Ministers, Scotland’s National Planning Framework 2 (“NPF2”) was of relevance. NPF2 sets out strategic development priorities to support the Scottish Government’s central purpose, namely sustainable economic growth. Relevant paragraphs to the Applications 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

45. 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.

46. The Main Issues Report was published for consultation in April 2013 and the Proposed NPF3 was laid in the Scottish Parliament on 14<sup>th</sup> January 2014. This was subject, by statute, to sixty (60) day Parliamentary consideration ending on 22<sup>nd</sup> March 2014. The Scottish Government published the finalised NPF3 on 23<sup>rd</sup> June 2014.
47. 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.
48. 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.
49. 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 from 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

50. Fife Council advised that due to the scale of the Proposal, 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

51. The TAYplan Strategic Development Plan (“TAYplan SDP”) sets out a spatial strategy which says where developments 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.
52. The Scottish Ministers consider that the TAYplan SDP is broadly supportive of the Proposal.

#### Adopted St. Andrews and East Fife Local Plan 2012

53. 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.
54. 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 Proposal.

#### Fife Council’s Supplementary Planning Guidance (“SPG”) on Wind Energy 2011

55. 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.
56. The Scottish Ministers consider that the Proposal has been assessed against these constraints and addressed in **ANNEX D(a) and ANNEX D(b) – DRAFT DECISION LETTER AND CONDITIONS.**

#### Angus Local Plan Review (Adopted 2009)

57. 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”) has advised that the Angus Local Plan Review is not a relevant consideration as the Proposal is outwith the area covered.

#### Summary

58. MS-LOT consider the policies as outlined above are broadly supportive of the Proposal.

## **MATERIAL CONSIDERATIONS**

59. MS-LOT has carefully considered the issues in connection with the Applications 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 Applications for consent under section 36 of the Electricity Act.
60. MS-LOT are content that the material considerations have been addressed in the Applications, the ES, the SEIS and within the responses received to the consultations by the closest onshore Planning Authorities, SEPA, the JNCC, SNH and other relevant bodies. The material considerations have been addressed in **ANNEX D(a) and D(b) – DRAFT DECISION LETTER AND CONDITIONS**.

## **PUBLIC LOCAL INQUIRY (“PLI”)**

61. In terms of paragraph 2(2) of Schedule 8 to the Electricity Act, if a 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.
62. Neither of the Planning Authorities consulted on the Applications, AC and Fife Council (“FC”), raised any objection to the Proposal.
63. 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 Proposal to which the Applications 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 Applications relates is within the area of the local planning authority.
64. 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 need 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 Proposal 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 Applications 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**

65. Before you can make a decision on these Applications 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 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 Applications for the two section 36 consents.

## **DECISION ON THE APPLICATIONS FOR SECTION 36 CONSENT**

66. If, having considered the Applications, 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(a) and D(b) – 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 Proposal having regard to the considerations in **ANNEX B**.

**Joao Queiros**

Marine Scotland Licensing Operations Team

Marine Planning and Policy

07<sup>th</sup> October 2014

## **ANNEX B – BACKGROUND INFORMATION AND SCOTTISH MINISTERS’ CONSIDERATIONS**

### **APPLICATIONS FOR TWO CONSENTS UNDER SECTION 36 OF THE ELECTRICITY ACT 1989 FOR THE CONSTRUCTION AND OPERATION OF TWO OFFSHORE GENERATING STATIONS, THE SEAGREEN ALPHA AND SEAGREEN BRAVO OFFSHORE WIND FARMS, 27 AND 38 KILOMETRES EAST OF THE ANGUS COASTLINE RESPECTIVELY.**

#### **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 Seagreen Wind Energy Limited (Company Number 06873902)(“the Company”) on behalf of Seagreen Alpha Wind Energy Limited (“SAWEL”)(Company Number 07185533) and having its registered office at 55 Vastern Road, Reading, Berkshire, RG1 8BU for the construction and operation of Seagreen Alpha Offshore Wind Farm off the Angus Coast;
- ii. A consent under section 36 of the Electricity Act by the Company on behalf of Seagreen Bravo Wind Energy Limited (Company Number 07185543)(“SBWEL”) and having its registered office at 55 Vastern Road, Reading, Berkshire, RG1 8BU for the construction and operation of Seagreen Bravo Offshore Wind Farm off the Angus Coast;
- iii. A marine licence to be considered under the Marine (Scotland) Act 2010 (“the 2010 Act”) and the Marine and Coastal Access Act 2009 (“the 2009 Act”) by the Company on behalf of SAWEL to deposit any substance or object and to construct, alter or improve any works in relation to the Seagreen Alpha Offshore Wind Farm;
- iv. A marine licence to be considered under the 2010 Act and the 2009 Act by the Company on behalf of SBWEL to deposit any substance or object and to construct, alter or improve any works in relation to the Seagreen Bravo Offshore Wind Farm; and
- v. A marine licence to be considered under the 2010 Act and the 2009 Act by the Company to deposit any substance or object and to construct, alter or improve any works in relation to the Seagreen Transmission Asset (“STA”) project within the Scottish marine area and the Scottish offshore region.

#### **THE APPLICATIONS**

I refer to the applications at i and ii above made by the Company, submitted on 15<sup>th</sup> October 2012, for two separate consents under section 36 of the Electricity Act for the construction and operation of the SAWEL and SBWEL developments (“the

Proposal”), in the Firth of Forth Zone (“FFZ”); (“the Applications”) (Figure 1, and also at **ANNEX G – DEVELOPMENT LOCATION**). The Application received consisted of application letter, Environmental Statement (“ES”), the Supplementary Environmental Information Statement (“SEIS”), the SEIS Erratum and supporting marine licence application forms.

The Applications submitted are to construct and operate two separate offshore wind generating stations, with a combined maximum generating capacity of up to 1050 megawatts (“MW”). Consent is sought for up to 75 wind turbine generators (“WTGs”) at each site giving a total of 150 WTGs across the Proposal. The Applications also cover infrastructure associated with the Proposal including, but not limited to, inter-array cabling to the connection point on the offshore sub-station platforms. The generating capacity of the individual WTGs installed has not been defined, and are dependent upon a number of factors, including the choice of wind turbine generator, the final foundation and substructure design and any mitigation measure to reduce the predicted impacts of the Proposal. The generating capacity of the individual WTGs will be finalised at a later stage post determination of these Applications. There are three main substructure and foundation options defined within the Design Envelope (also referred to as Design Envelope or Rochdale Envelope) for supporting the WTG structures. These are:

- a four leg steel jacket with driven piles;
- a four leg steel jacket with suction piles; or
- Gravity Base Structure (“GBS”).

At this time, the Company also applied for declarations under section 36A of the Electricity Act to extinguish public rights of navigation so far as they pass through those places within the Scottish marine area (essentially the territorial sea adjacent to Scotland) where structures (but not, for the avoidance of doubt, the areas of sea between those structures) forming part of the offshore wind farm and offshore transmission works are to be located. As the Proposal is located outwith the limits of the Scottish marine area, a declaration under section 36A of the Electricity Act cannot be issued. The Company has been informed of this as a matter of courtesy.

In tandem with the consultation on the Applications, MS-LOT has consulted on two marine licence applications (submitted 15<sup>th</sup> October 2012) for the Proposal: applications iii and iv.

In tandem with the consultation on the Applications and applications iii and iv, MS-LOT has consulted on a marine licence application (submitted 15<sup>th</sup> October 2012) for the STA and export cable to shore at Carnoustie (application v).

This recommendation is accompanied by two draft decision letters and conditions (ANNEX D(a) for the SAWEL development and ANNEX D(b) for the SBWEL development).

## **Project Description**

The Proposal, located as shown at **ANNEX G – DEVELOPMENT LOCATION**, shall have a permitted generating capacity not exceeding 1050 MW and shall comprise two wind-powered electricity generating stations in the Firth of Forth Zone, including:

1. not more than 150 three-bladed horizontal axis wind turbine generators each with:
  - a. a maximum blade tip height of 209.7 metres (measured from LAT);
  - b. a rotor diameter of between 122 and 167 metres;
  - c. a hub height of between 87.1 and 126.2 metres (measured from LAT);
  - d. a minimum blade tip clearance of between 29.8 and 42.7 metres (measured from LAT);
  - e. blade width of up to 5.4 metres; and
  - f. a minimum spacing of 1,000 metres;
2. all foundations, substructures, fixtures, fittings, fixings, and protections;
3. inter array cabling and cables up to and onto the offshore substation platforms; and
4. transition pieces including access ladders / fences and landing platforms,

all as specified in the Applications and by the conditions imposed by the Scottish Ministers. References to “the Proposal” in this consent shall be construed accordingly.

## **Location of Development**

The SAWEL and SBWEL sites are located approximately 27 km and 38 km offshore respectively from the nearest landfall on the Angus coastline. The total area within the SAWEL site boundary is 197 km<sup>2</sup>. The total area within the SBWEL site boundary is 194 km<sup>2</sup>. The ICOL site lies approximately 9 km west of the SAWEL site and 12 km west of the SBWEL site. The NNGOWL site lies approximately 27 km south west of SAWEL and 30 km south west of SBWEL. The location and boundary between the sites is shown in Figure 1, and also at **ANNEX G – DEVELOPMENT LOCATION**.

For reference, the ICOL site is located approximately 15 to 22 km (8 to 12 nm) east of the Angus coastline to the east of the Firth of Tay, with a development area of approximately 150 km<sup>2</sup>. NNGOWL is located approximately 15.5 km from Fife Ness and 16 km from the Isle of May, in the outer Firth of Forth, covering a total area of 105 km<sup>2</sup>.

The selected landfall for the export cable is at Carnoustie, a total distance of approximately 70 km from the indicative Offshore Substation Platform (“OSP”) location within the SAWEL site.

The identification of Zone 2 (in Round 3) for development of offshore wind energy was completed by The Crown Estate with assistance from their Marine Resource System (“MaRS”) and taking into consideration the outcomes of the Offshore Energy Strategic Environmental Assessment 1 (“OESEA 1”) and Energy Strategic Environmental Assessment 2 (“OESEA 2”). In 2009 The Crown Estate (“TCE”) awarded the Company exclusive development rights to the Round 3 Zone 2 (named the ‘Firth of Forth Zone’) and in January 2010 TCE awarded the Company a Zone Development Agreement (“ZDA”) with a target Zone generation capacity of circa 3.5 Gigawatts (“GW”).

The Company has adopted the Zone Appraisal and Planning (“ZAP”) approach and used it to provide a clear rationale for site boundaries. The initial site identification process comprised a detailed, desk based assessment of constraints to development. This focused on factors including:

- Grid connection;
- Navigation and shipping;
- Commercial fisheries;
- Aviation and military;
- Wind resource;
- Construction and ports;
- Bathymetry;
- Nationally designated landscape/seascape within 35 km;
- Internationally designated sites (Natura 2000) and proposed sites/extensions to sites;
- Ornithology, marine mammals and features of marine ecological interest; and
- Sensitive fish spawning areas considered for hearing specialists (herring, sprat) and sandeel.

Revised boundaries were established to provide a balance between the environmental constraints considered significant and the requirement to maintain design flexibility and economic viability. The initial Phase 1 boundary established at the bid stage was revised to exclude the Scalp Bank feature following the initial modelling of collision risk for birds. Subsequent to this, and based on a further review of consenting strategy options, the Company finalised the SAWEL and SBWEL site areas taken forward in the EIA and Consent Applications. Figure 1, and also at **ANNEX G – DEVELOPMENT LOCATION**. Phases 2 and 3 of the development have been scoped, however applications have not been made at this time.

### **Landscape and Visual Impacts**

Scottish Natural Heritage (“SNH”), the Scottish Ministers statutory advisors on visual impacts on designated landscape features, and the Joint Nature Conservation Committee (“JNCC”) were consulted and neither objected on landscape and visual grounds. SNH stated that, cumulatively, the proposed Forth and Tay wind farms (SAWEL, SBWEL, ICOL and NNGOWL) 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.

According to SNH, on the South Aberdeenshire / Angus Coast, the Proposal would have a small visual influence because it would be further from the coast, although where the Proposal lies at its closest point to the coast, between St Cyrus (32km) and Montrose (38km), it would be more visible. SNH advised that there would be significant effects on the settlements of Inverbervie and St Cyrus, Gourdon and Johnshaven, Monifieth, Lunan, Auchmithie, across most of Carnoustie and Arbroath and parts of Montrose, but these impacts would arise largely from the ICOL and the NNGOWL developments. Cumulative visual effects would be major on the South Aberdeenshire and Angus coast when ICOL is seen in combination with either the Proposal (to the north, around St Cyrus and within Montrose Bay) or NNGOWL (to the south from Arbroath to Carnoustie).

On the East Fife coast, NNGOWL and ICOL would have the greatest effects. The Proposal would be visible in good conditions but seen at considerable distance (>50 km) and behind ICOL in many views, further limiting the visual influence of the Proposal. When considering the possibility of cumulative effects on this stretch of coast, SNH considered that the Proposal would have minor effects on seascape character and on views in this area due to its distance (>50 km).

From the East Lothian coast, the Proposal would be unlikely to be visible from shore as it would lie over 60 km away (at its nearest point). SNH advised that, cumulatively, the Proposal when seen together with NNGOWL and ICOL would only be visible from the East Lothian coast to a very small degree.

SNH stated that, within Aberdeenshire, north of St Cyrus, the Proposal would be seen at distances greater than 40 km and would have relatively minor visual influence. It would be seen as a very distant linear feature on the horizon in clear conditions and would not dominate the coast.

Conditions requiring the submission of a Development Specification and Layout Plan (“DSLPL”), Design Statement (“DS”) and a Lighting and Marking Plan (“LMP”) have been included in the draft decision letter and consent attached at **ANNEX D(a) and D(b) – DRAFT DECISION LETTER AND CONDITIONS, Annex 2.**

Angus Council (“AC”) and Fife Council (“FC”) were also consulted on landscape and visual grounds. Both AC and FC 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 Proposal.

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. 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.

## **Marine Mammal Impacts**

The JNCC, SNH, Marine Scotland Science (“MSS”) and the 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, harbour porpoise, grey 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”). Impacts upon harbour porpoise are discussed below.

The JNCC and SNH advised that the reference populations for both grey and harbour seals should be the east coast management unit. The AA concluded that the Proposal in combination with ICOL and NNGOWL 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 seal population modelling which was carried out by the Company and ICOL. This modelling predicted some impacts to the population during construction but no long term effects. The JNCC, SNH, and WDC also advised that there may be a link between vessels with ducted propellers and fatal corkscrew injuries to harbour seals. The JNCC and SNH advised that this could be addressed through a Vessel Management Plan (“VMP”), the requirement for this is included in **ANNEX D(a) and ANNEX D(b) – 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 that of the SACs designated for marine mammals none would be adversely affected, subject to conditions being included in **ANNEX D(a) and D(b) – DRAFT DECISION LETTER AND CONDITIONS, Annex 2** Further details of the assessments are provided in **ANNEX E – APPROPRIATE ASSESSMENT**. The JNCC and SNH 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. The JNCC and SNH 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. The JNCC and SNH 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 the consent (see **ANNEX D(a) and D(b) – DRAFT DECISION LETTER AND CONDITIONS, Annex 2**) and WDC have welcomed the opportunity to be consulted on the MMMP.

### **Ornithological Impacts**

The potential impacts from the Proposal on bird species were considered in detail by the Company, MSS and statutory nature conservation advisors during the assessment of the Applications. RSPB Scotland, the JNCC and SNH expressed concerns about the potential impact of the Proposal in combination with the NNGOWL and ICOL developments on several bird species using the Firth of Forth. Advice from the JNCC and SNH on the 7<sup>th</sup> March 2014 was that they could not conclude with reasonable certainty that the Forth and Tay wind farms would not adversely affect 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 the JNCC, SNH 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. Kittiwakes were affected by displacement, barrier effects and collision.

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, the JNCC and SNH. Several methods were used by the JNCC, SNH and MSS to determine levels of acceptable change. The AA concluded that the proposed SAWEL, SBWEL, NNGOWL and ICOL 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.

The JNCC and SNH disagreed with some of the conclusions of the AA (**ANNEX E – APPROPRIATE ASSESSMENT**) and advised that it could not be concluded that the integrity of:

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

would not be adversely affected.

This is mainly to do with differences in assessment methods and the JNCC and SNH view that the closer effects are to the thresholds the greater the risk of adverse effects. Full details are provided in **ANNEX E – APPROPRIATE ASSESSMENT**.

The Company have committed to increasing the air gap measured from LAT by 4 metres in order to mitigate collision impacts. The effect of displacement from the Proposal is also less than that from NNGOWL and ICOL as the turbines are more widely spaced. These factors were taken into account when completing the AA.

The JNCC and SNH also highlighted that effects on species not covered under Habitat Regulations Appraisal (“HRA”) also require consideration (i.e. individuals breeding outwith 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 the JNCC and SNH 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.

The JNCC and SNH 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 Proposal 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 the JNCC and SNH that the Proposal 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, were required to carry out an AA. Having carried out the AA (considering all the advice received from the JNCC, SNH and MSS) it can be ascertained with sufficient confidence that the Proposal, 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 Proposal. The JNCC and SNH 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 largely due to differences in assessment methods and the JNCC and SNH advice that the closer effects are to the thresholds the greater risk of adverse effects. 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 issues relating to the qualifying interests of the protected sites and justification for decisions regarding site integrity is provided in **ANNEX E – APPROPRIATE ASSESSMENT**.

The JNCC, SNH and MSS recommended that certain conditions be included on any consent which would allow this Proposal to be implemented. These conditions have been included in the draft decision letters and consents attached at **ANNEX D(a) and D(b) – DRAFT DECISION LETTER AND CONDITIONS, Annex 2**.

A recent announcement by the Scottish Government (“SG”) has highlighted the Outer Firth of Forth and Tay Complex as a draft marine SPA as it meets the JNCC and SNH 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 Proposal. Under the Habitats regulations this must be carried out as soon as is reasonably practicable following designation.

### **Nature Conservation Marine Protected Area Assessment (“NC MPA”) Assessment**

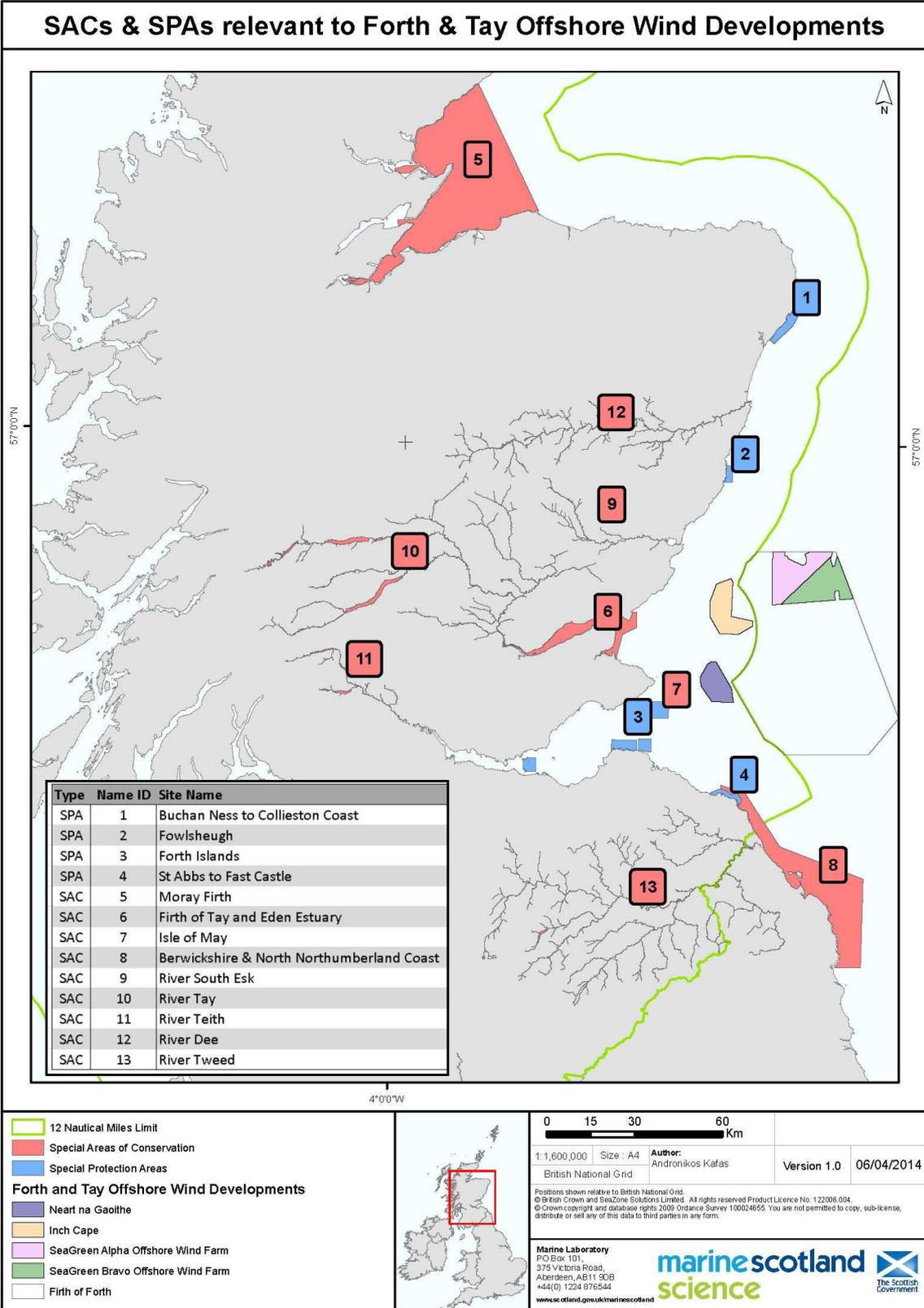
The JNCC advised that the Proposal was capable of affecting (other than insignificantly) the ocean quahog and the offshore subtidal sand and gravel qualifying features of the Firth of Forth Banks Complex NC MPA. Due to the areas of overlap being small and the mitigation proposed by the Company the JNCC concluded that there was no significant risk of the Proposal hindering the achievement of the conservation objectives of the NC MPA. Following this advice MS-LOT completed an assessment which also concluded that if conditions are complied with there is no significant risk of the Proposal hindering the achievement of the conservation objectives for the protected features of the Firth of Forth Banks Complex NC MPA. This assessment is attached at **ANNEX H – NC MPA ASSESSMENT**

### **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 Proposal in its current location, subject to the imposition of conditions (subject to the Minister’s approval). The Applications have been considered fully and carefully, as have the accompanying documents and all relevant responses from consultees. Third party representations received have also been considered.

MS-LOT is satisfied that whilst the Proposal 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 consents 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 Proposal will bring.



**Figure 1. Location of the SAWEL, SBWEL, NNGOWL and ICOL wind farm developments in the Firth of Forth area and the relevant SPAs and SACs.**

## **CONSULTATION EXERCISE**

### **Consultation on the Applications, Environmental Statement (“ES”) and Supplementary Environmental Information Statement (“SEIS”)**

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 Proposal to which these Applications 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 2000 Regulations”), there is a requirement to consult SNH, the Scottish Environment Protection Agency (“SEPA”) and any other person likely to be concerned by the Proposal by reason of their specific environmental responsibilities. As the JNCC are the statutory nature conservation body for the offshore area (outwith 12 nm) they have also been consulted. Similar consultation requirements are set down by the Marine Works (Environmental Impact Assessment) Regulations 2007 (“the 2007 Regulations”).

In complying with the 2000 Regulations and the 2007 Regulations, the Company identified the Proposal 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 Proposal.

MS-LOT consulted a wide range of relevant organisations, including colleagues within the SG, on the Applications and ES and, as a result of some of the issues raised (particularly the requirement for an HRA report), on the SEIS. In accordance with the statutory requirements, as part of the overall consultation, MS-LOT sought the advice of the JNCC, SNH, SEPA and the Planning Authorities most local to the Proposal.

Due to further work being required to inform impact assessments (including HRA), further information was requested from the Company. The SEIS was received by MS-LOT on 18<sup>th</sup> October 2013 and public notices placed in the local press and Edinburgh Gazette to notify any interested parties. MS-LOT also consulted on the SEIS with all the organisations invited to comment on the original Applications and ES. Both documents were made publically available.

Repsol, the company developing the Inch Cape Offshore Wind farm (“ICOL”), in the response to the SEIS consultation, identified a significant number of factual errors in the information presented in the SEIS in relation to the ICOL project. As a consequence, the Company produced an SEIS Erratum (“the Erratum”) which was treated as additional information under the 2008 Amendment to the 2000 Regulations. Therefore, a copy of the Erratum was sent (21<sup>st</sup> March 2014) to all consultees; the Company made the Erratum available in the same public places where the ES was made available for public consultation; and two public notices were published for two consecutive weeks (Edinburgh Gazette and Dundee Courier), as per MS-LOT instructions.

## Statutory Consultees

**Angus Council (“AC”)** did not object to the Proposal however they made a number of comments relating to landscape, seascape and visual impacts as well as impacts on cultural heritage arising from the Proposal.

With respect to landscape impacts, AC broadly agreed with the findings of the ES and concluded that the Proposal would not have any significant landscape effects on Angus, either on its own or cumulatively with ICOL and NNGOWL.

With respect to seascape AC considered that the Proposal would have an impact on Seascape Area (“SeA”)7 (Lang Craig to the Deil’s Heid) and SeA8 (Arbroath to Monifieth) and advised that the impacts upon seascape character had not been fully assessed within the ES. AC suggested that Marine Scotland require further assessment of impact on seascape character to take particular account of the Bell Rock and any lighting required for aviation/shipping safeguarding. AC commented that a key cumulative consideration is the relative height and design of the three different offshore wind farm developments in the Forth and Tay region. At the time of the response to these Applications details on the ICOL turbine heights were not available, AC advised that the cumulative impact including turbines closer to Angus and Bell Rock may not be acceptable.

With respect to visual impacts AC recognised that the assessment of the impacts of visual amenity was undertaken extensively within the ES. The ES stated that for both SAWEL and SBWEL visual impacts were not significant, apart from SAWEL from the Braehead to Lunan viewpoint where a conclusion of potentially significant was reached. However, AC highlighted that the usability of the visualisations is limited because of the absence of the Bell Rock lighthouse. The lighthouse is commonly visible in views and the turbines would appear taller than this structure. AC therefore concluded that the ES assessment understates magnitude of change. AC also raised concerns that night time visuals had not been provided and the impact of lighting had not been sufficiently assessed in the ES. In particular concerns are held about the impact on the night time sky and the night setting of the Bell Rock lighthouse. AC noted that a technical solution to the night lighting issue (e.g. infra-red aviation lights) could mitigate effects. In a meeting held in January 2011, between the Forth and Tay Offshore Wind Farm developers, SNH, TCE and Local Authorities, it was agreed that Seascape, Landscape and Visual Impact Assessment (“SLVIA”) for the Forth & Tay proposals should assess the impacts of wind farm lighting on night-time views, seas and skies, but that night-time visualisations would not be required.

AC highlighted that cumulatively significant visual impacts are most likely to occur in relation to wind turbine developments close to the coast. AC highlighted that the assessment of cumulative visual effects has typically been under assessed in the ES, due to the omission of phases 2 and 3 of the Seagreen development area. AC concluded that in terms of Angus area, although cumulative visual impacts would be significant, the current level of development proposed by the application at NNGOWL and the current Proposal would not be unacceptable.

With respect to the impact on cultural heritage AC considered that the Bell Rock lighthouse and Ladyloan Signal Tower; both Category A listed structures – are

primarily relevant to the assessment of the Proposal. They concluded that impacts would not be unacceptable.

AC commented that the intertidal works did not appear to raise any substantial technical or environmental matters, although further consideration would be given in the determination of the planning application. Angus Council would wish the SG to ensure that Barry Buddon is the most appropriate location for landfall having regard to all relevant environmental impacts, including impacts from the whole development which would include the subsequent onshore grid connection. AC also highlighted recreational access, and requested that measures be put in place to restrict the level of disruption to no more than what is absolutely necessary.

AC concluded that if their comments are taken in to account, concerns are not considered to be so direct or unacceptably adverse to cause them to object to the Proposal.

Conditions incorporating comments from AC are reflected in the draft decision letter and consent **at ANNEX D(a) and D(b) – DRAFT DECISION LETTER AND CONDITIONS, Annex 2.**

**The Fife Council (“FC”)** whilst supporting the general principle of the Proposal, and welcoming the inherent benefits it is likely to generate for Fife and Scotland, they noted some concerns on a number of areas in relation to the ES.

FC considered that the EIA documents contained adequate assessments regarding designed landscapes within the Local Authority boundary and noted that the 50 km distance from the shore minimised the Proposal’s visual impact.

FC notes that the ES does not mitigate for potential archaeological deposits to exist within the sea bed footprint of each turbine. As a result of this FC recommended that once the number of turbines for the Proposal was identified and their location confirmed, a detailed archaeological mitigation strategy should be provided for each specific turbine footprint as well as the footprint for the associated cable works.

FC noted that a number of concerns had been raised by the local fishing industry with regard to the Proposal and other proposed offshore wind farms developments in the area. FC requested that Marine Scotland give due consideration to the comments from the local fishing community. FC is aware that the Forth and Tay Offshore Wind Developers Group (“FTOWDG”) has recently set up a new consultation forum, the Commercial Fisheries Working Group (“CFWG”) and wishes to see this forum be continued for the operational life span of the Proposal.

Finally, FC requested that the outcomes of the Unexploded Ordnance (“UXO”) site specific risk assessment are forwarded to Fife Council for further comment.

Conditions incorporating comments from FC are reflected in the draft decision letter and consent **at ANNEX D(a) and D(b) – DRAFT DECISION LETTER AND CONDITIONS, Annex 2.**

**The Joint Nature Conservation Committee (“the JNCC”) and Scottish Natural Heritage (“SNH”)** provided preliminary advice on 28<sup>th</sup> March 2013 on key natural heritage interests and the impacts to consider in respect of the Proposal. This advice is superseded by comments received on the 7<sup>th</sup> March 2014 from the JNCC and SNH which addresses the cumulative impacts of the Proposal together with ICOL and NNGOWL. Further advice was also received as detailed below:

- 15<sup>th</sup> April 2014 - Advice on gannet population modelling and update to the threshold;
- 30<sup>th</sup> May 2014 - Advice on marine mammal and freshwater fish interests included in the draft appropriate assessment for NNGOWL (also relevant for the Applications);
- 6<sup>th</sup> June 2014 - Advice on ornithology interests included in the draft appropriate assessment for NNGOWL (also relevant for the Applications);
- 10<sup>th</sup> June 2014 - Advice on increased turbine spacing and displacement assessment for the Proposal;
- 17<sup>th</sup> June 2014 - Advice on increased turbine spacing and displacement assessment for ICOL;
- 2<sup>nd</sup> July 2014 - Collision risk modelling undertaken to include the commitment by the Company to increase the blade clearance by 4 m from LAT;
- 4<sup>th</sup> July 2014 - Advice on puffin displacement rates and assessment methods
- 11<sup>th</sup> July 2014 - Letter to Marine Scotland detailing appropriate post-consent monitoring (should the Minister grant consent); and
- 16<sup>th</sup> July 2014 - Updated advice on appropriate displacement rates for guillemot, razorbill and kittiwake.
- 16<sup>th</sup> September 2014 - Advice on the Firth of Forth Banks Complex MPA

On the 7<sup>th</sup> March 2014 the JNCC and SNH advised that the Proposal is likely to have a significant effect on the qualifying interests of a number of SACs and SPAs. The JNCC and SNH advised MS-LOT to carry out an AA in view of the conservation objectives for these sites. The JNCC and SNH undertook their own appraisal of the Proposal following a series of meetings with the Company, JNCC, SNH, MSS, ICOL and NNGOWL to resolve issues to support a more robust cumulative impact assessment and comparison between the development proposals. The approach which is known as the “common currency” ensures that assessments are completed using the most appropriate methods and parameters across the different developments.

The JNCC and SNH concluded that the EIA and HRA have shown that some SPA seabird species are the key natural heritage interest which will constrain the Proposal in combination with the NNGOWL and ICOL proposals. Impacts on birds including collision risk and displacement will occur over the operational lifespan of the wind farm. The JNCC and SNH 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, the JNCC and SNH 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 were used.

In their advice on 7<sup>th</sup> March 2014, the JNCC and SNH advised that the Proposal in combination with ICOL and NNGOWL:

- 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, the JNCC and SNH advised that neither collision nor displacement (as a consequence of the Proposal in combination with ICOL and NNGOWL 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<sup>th</sup> June 2014, the JNCC and SNH advised that due to the finalisation of the Centre for Ecology and Hydrography (“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 the JNCC and SNH in reaching their conclusions were not the most appropriate and in their view did not use the best available evidence.

Further comments were received from the JNCC and SNH on the 10<sup>th</sup> June, 4<sup>th</sup> July and 16<sup>th</sup> July 2014 advising that it would be appropriate to use reduced displacement rates in the assessment of displacement effects at the SAWEL, SBWEL and ICOL sites due to the lower density of WTGs at these sites.

The JNCC and SNH also highlighted that effects on species not covered under HRA require consideration (i.e. individuals breeding outwith SPAs and non-breeding individuals). For some species e.g. kittiwake a considerable number of smaller colonies exist outside of the SPA boundaries and additional potential mortality from the Forth and Tay wind farm developments could contribute a significant proportion of United Kingdom (“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, MSS is 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.

The JNCC and SNH 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 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 Proposal 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.

In order to mitigate potential impacts on birds the Company has committed to raising the minimum turbine height by 4 metres, which will mitigate collision effects, and increase turbine spacing to a minimum of 1000 m, which will mitigate displacement effects.

Following a meeting held on 7<sup>th</sup> July 2014 between Marine Scotland and SNH, SNH followed up with a letter of 11<sup>th</sup> July which stated they had the opportunity to review and discuss aspects of their advice where conclusions reached by the JNCC and SNH on SPAs are at variance from those reached by MSS. 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 these Applications and the other applications for wind farms in the Forth and Tay.

In the letter, SNH noted that there was agreement between their advisors 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 the JNCC, SNH and by MSS.

SNH stated that the level of precaution which is appropriate is not a matter that can be determined precisely, and that judgments 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 judgments 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. This was:

- 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(a) and D(b) – DRAFT DECISION LETTER AND CONDITIONS, Annex 2.**

With regard to marine mammals the JNCC and SNH 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 thus no adverse effect on site integrity of those SACs. The JNCC and SNH 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 Vessel Management Plan (“VMP”) is included in the consents at **ANNEX D(a) and D(b)– DRAFT DECISION LETTER AND CONDITIONS, Annex 2.** The VMP will consider measures to mitigate potential corkscrew injuries to seals, and the JNCC and SNH will be consulted on this plan.

Impacts on other cetacean species including harbour porpoise, minke whale and white beaked dolphin were also considered by the Company. The JNCC and SNH advised that the temporary disturbance / displacement caused by the proposed Forth and Tay wind farms has the potential to affect the animals’ energy budgets. 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. The JNCC and SNH 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. The JNCC and SNH advised that a EPS licence would be required due to the potential for disturbance to cetacean species. An EPS licence(s) will be applied for when the final wind farm layout, design and foundation options have been confirmed.

With regard to river SACs, the JNCC and SNH advise likely significant effect on River South Esk (designated for Atlantic salmon and fresh water pearl mussel (“FWPM”)), River Tay (designated for Atlantic salmon, lamprey species and otter) and River Teith (designated for Atlantic salmon and lamprey species). Impacts could arise from disturbance to the species from construction noise, or possible effects of electro-magnetic fields (“EMF”) arising from installed cables. Atlantic salmon are integral to the life cycle of FWPM, therefore any impacts to Atlantic salmon that prevent them from returning to their natural rivers may have a resulting effect on FWPM. The JNCC and SNH concluded that the proposed Forth and Tay wind farms would not adversely affect the integrity of these SACs as effects can be avoided through agreement on working practices and mitigation via conditions. Conditions which reflect this are included in the consents at **ANNEX D(a) and D(b) – DRAFT DECISION LETTER AND CONDITIONS, Annex 2.**

A key concern of the JNCC and SNH in respect of marine fish, relates to underwater noise impacts from pile-driving of the WTG foundations during construction on cod and herring. Noise impacts that interrupt or adversely affect spawning activity could be expected to result in an impact to the cohort for that year. Pile-driving activities in successive years may therefore result in a series of weakened cohorts within a population. Conditions to mitigate these impacts including the requirement for soft start piling, piling schedules and construction programmes are included in these consents at **ANNEX D(a) and D(b) – DRAFT DECISION LETTER AND CONDITIONS, Annex 2**. Post consent sandeel surveys were also recommended by the JNCC and SNH in order to better inform sandeel distribution with the Forth and Tay wind farm sites, again this requirement is included in the conditions at **ANNEX D(a) and D(b) – DRAFT DECISION LETTER AND CONDITIONS, Annex 2**.

In their interim advice on the Proposal the JNCC and SNH highlighted the inability to conclude assessment for sediment release arising from “worst case” scenarios utilising gravity bases as the Company was unable to confirm the upper limit of gravity bases to be used for turbine foundations. MS-LOT have advised the Company that if gravity bases are to be used this will require a further application and supporting EIA for the assessment of the dredging requirements, sediment release and disposal of dredgings.

The Priority Marine Feature (“PMF”) species *Artica islandica* (ocean quahog) has been recorded in limited numbers, and only as juveniles, by the Company within the Proposal site and along the export cable route. The JNCC and SNH advise that this species is sensitive to smothering, and therefore would welcome potential mitigation measures for this species. The Company has also recorded *Sabellaria spinulosa* within the site, but not in crust or reef form constituting Annex 1 habitat. The JNCC and SNH have welcomed the Company’s initial mitigation proposals in respect of potential rare or important habitats within the site namely the mitigation measures presented in paragraph 11.130 in Chapter 11 of the ES. The Proposal site partially overlaps with the Marine Protected Area (“MPA”) for the Firth of Forth Banks Complex. The JNCC and SNH welcome the Company’s proposals to mitigate impacts to benthic habitats, including MPA features as well as their continued engagement over the proposed management options for this MPA. Following designation of the MPA in July 2014, further advice was received from the JNCC regarding the potential impacts of the Proposal on the MPA on the 16<sup>th</sup> September 2014. The JNCC advised that the Proposal was capable of affecting (other than insignificantly) the ocean quahog and the offshore subtidal sand and gravel qualifying features of the MPA. Due to the areas of overlap being small and the mitigation proposed by the Company, the JNCC concluded that there was no significant risk of the Proposal hindering the achievement of the conservation objectives of the MPA. Following this advice MS-LOT completed an assessment which also concluded that if conditions are complied with there is no significant risk of the Proposal hindering the achievement of the conservation objectives for the protected features of the Firth of Forth Banks Complex NC MPA. The assessment is attached at **ANNEX H - NC MPA ASSESSMENT**.

With regard to visuals, the JNCC and SNH advised that the proposed Forth & Tay wind farms 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. The scale and extent of development, if consented, is unprecedented within Scotland (onshore or offshore) in recent times. The most significant effects will be from ICOL and NNGOWL and the Proposal, being furthest offshore, will contribute least to the cumulative effect.

The JNCC and SNH described the main cumulative impacts as follows:

In South Aberdeenshire / Angus, ICOL would form a visually prominent feature across the sea-horizon and cause a significant change to the open sea views experienced from the coastal settlements of Montrose, Arbroath and Carnoustie and as seen from the A92, the East Coast railway, NCN Route 1 and the Angus Coastal Path. ICOL would have major effects on coastal character including the highly scenic Montrose Bay and Lunan Bay and on the rugged and dramatic coast between Lang Craig and Deil's Heid north of Arbroath. In the north and south of this area, the Proposal and NNGOWL in combination with ICOL would result in significant cumulative effects on views and coastal character.

In East Fife, NNGOWL and ICOL would form visually prominent features across the sea-horizon and result in significant changes to open sea views affecting the experience of remoteness and the natural aspect of the Tentsmuir coast, the coast between St Andrews and Fife Ness and the Isle of May. Both wind farms are likely to affect the landscape setting of St Andrews and appreciation of its historic skyline. They will also significantly affect views from beaches, golf courses and from the Fife Coastal Path between Crail and Tentsmuir. NNGOWL, being closest to this stretch of coast, would have a particularly severe effect and would also be seen from the Inner Firth of Forth.

In East Lothian, NNGOWL would form a visually prominent feature across the sea horizon and intrude on the spectacular seascape panorama which includes the distinctive Bass Rock and North Berwick Law.

Additionally, these offshore wind farms - particularly NNGOWL and 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.

The JNCC and SNH highlighted that because final designs cannot be assessed at this stage, wind farm design (post-consent) will be important in mitigating landscape and visual impacts. As such, the JNCC and SNH recommend 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. 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. Conditions requiring the submission of a Development Specification and Layout Plan ("DSLPL"), Design Statement ("DS") and a Lighting and Marking Plan ("LMP") have been included in the draft decision letters and consents attached at **ANNEX D(a) and D(b) – DRAFT DECISION LETTER AND CONDITIONS, Annex 2.**

**The Scottish Environment Protection Agency ("SEPA")** a statutory consultee, raised no objection to the Proposal subject to the inclusion of a condition on any

consent that may be granted that states a Construction Environmental Plan (“CEMP”) is submitted to Marine Scotland for further written approval prior to the commencement of any (construction) works commencing. SEPA welcomed the general mitigation principles and pollution prevention measures set out in the ES.

Further to the condition that SEPA requested requiring the submission of a site specific CEMP prior to any works commencing a draft ‘Schedule of Mitigation’ should be produced as part of this process and should include a timetable of works that takes into account all environmental sensitivities associated with construction activities. This should cover all the mitigation measures identified to avoid or minimise environmental effects during the construction of the Proposal.

The Construction Environmental Management Document (“CEMD”) should form the basis of more detailed site specific CEMPs which along with detailed method statements may be required by condition or, in certain cases, through environmental regulation. This approach provides a useful link between the principles of development which need to be outlined at the early stages of the project and the method statements which are usually produced following award of contract (just before development commences).

SEPA advised that the detailed CEMD is submitted for approval to the determining authority at least two months prior to the proposed commencement (or relevant phase) of development to order to provide consultees with sufficient time to assess the information. This document should incorporate detailed pollution prevention and mitigation measures for all construction elements potentially capable of giving rise to pollution during all phases of construction, reinstatement after construction and final site decommissioning, as applicable. This document should also include any site specific CEMPs and Construction Method Statements provided by the contractor as required by the determining authority and statutory consultees. The CEMD and CEMP do not negate the need for various licences and consents if required. The requirements from the obtained licences and consents should be included within the final CEMPs.

SEPA’s requests will be captured under wider conditions for environmental management, monitoring and mitigation as reflected in the draft decision letters and consents attached at **ANNEX D(a) and D(b) – DRAFT DECISION LETTER AND CONDITIONS, Annex 2.**

SEPA welcomed the intention to carry out a risk assessment as stated in the ES in terms of mitigation of non-native or invasive species from construction vessels, which will lead to recommendation for management measures, and recommend several guidance notes.

SEPA advised that the landfall location is close to the Designated Bathing Water at Carnoustie large scale sediment disturbance can result in elevated faecal coliform concentrations which can potentially lead to bathing water failure. SEPA stated that ideally works should take place out with the bathing water season (1 June to 15 September). SEPA should be notified when the cable installation is scheduled to take place in Carnoustie Bay at the earliest opportunity.

## Non Statutory Consultees

**Aberdeen International Airport (“AIA”)** initially objected to these Applications on behalf of NATS Services Ltd (“NSL”) and of NATS En-Route PLC (“NERL”) operations. AIA examined the Proposal from an aerodrome safeguarding perspective and concluded that due to the operational impact on the primary radar used at AIA, the Proposal will have a detrimental effect on Air Traffic Control (“ATC”) at the airport, and the introduction of further turbines would create unacceptable clutter on the radar screens. Subsequent correspondence stated that NATS would progress discussions on safeguarding and mitigation. As NATS have removed their objection and mitigation also addresses the AIA objection, AIA have now also removed their objection.

**The Association of Salmon Fishery Boards (“ASFB”)** objected to the Proposal, until adequate monitoring and mitigation strategies have been put in place. The ASFB have concerns over the Proposal, particularly with regard to the uncertainty surrounding the potential negative effects on Atlantic salmon and sea trout and the integrity of a number of SACs for Atlantic salmon. The ASFB recognises that information gaps can only reasonably be filled by large scale strategic research and have requested the inclusion of a formal mitigation agreement on any consent.

The other concerns raised included the impacts from noise during construction, subsea noise during operation, electro-magnetic fields (“EMF”) from cabling and EMFs arising from operation of devices, disturbance or degradation of the benthic environment (including secondary effects on prey species) and aggregation effects of the turbines resulting in aggregations of predators.

ASFB were of the opinion that the lack of meaningful monitoring in the present Proposal was ‘extremely disappointing’ and ‘completely inadequate’. ASFB emphasise that any monitoring strategies must include pre-construction monitoring in order that baseline information on salmon and sea trout movement, abundance, swimming depth, feeding behaviour etc. can be collected. The Company replied in a letter dated 2<sup>nd</sup> September 2013, stating its commitment to the development of a monitoring plan if appropriate, and will do so in discussion with the regulators. The Company is aware of the current work being undertaken by MSS in relation to furthering the understanding of interactions between migratory fish and marine renewables developments at a national level (e.g. investigations of salmon and sea trout audiograms). The Company supports this approach and remains committed to engagement with MSS on the development of future studies, including potential monitoring effort, which will inform the development of the Construction and Environmental Management Plan (“CEMP”) post consent.

ASFB advised that the Rochdale Envelope approach taken made it extremely difficult for stakeholders to assess the potential environmental risk as there is little detailed information on: the likely size of the scheme; the type of devices to be deployed; and the degree of confidence attached to the assessment of impacts. In their response letter mentioned above, the Company noted that the Rochdale Envelope approach is intended to allow assessment of the worst case scenario, such that the consented project is within that envelope. The Company acknowledges that there is a consequent degree of uncertainty, and that this is related to the early stage

in the project at which the Applications, in accordance with the 2000 Regulations and the 2007 Regulations, must be prepared.

ASFB highlighted the risks associated with increased suspended sediment concentrations (“SSC”) and suggest that sensitive operations should be avoided during the annual smolt migration period. This would have the additional benefit of avoiding the migration period of returning early-running adult salmon which themselves have high economic and ecological value. Detail on the worst case levels of suspended sediment associated with the construction phase of the project is provided in Environmental Statement, Chapter 7: Physical Environment, and Chapter 8: Water and Sediment Quality. The increase in suspended sediments will be short term and will become indistinguishable from background levels over a short period of time (order of days). As discussed in ES Chapter 12, the effect of the potential worst case increases in SSCs is expected to result in a negligible, and therefore, not significant impact. The Company has also carried out a review of ten previous ESs for offshore wind farm developments in specific relation to the modelling of sediment plumes and sediment deposition issues. This review indicates that increases in suspended sediment concentration are in general predicted to be short term, localised and not significant. Further design work is required in order to refine the timing of construction operations in relation to sensitive receptors, and the Company will discuss such timing issues with the regulators.

ASFB advised that until the MSS research programme on the effect of EMF on salmonids is completed, they are unable to assess the relative magnitude of this impact, or relate any potential EMFs arising from the Proposal to those magnetic fields likely to initiate a behavioural response in salmonids. The ASFB stated that there is a need to assess the swimming depths of salmon and sea trout transiting the area of the wind farm in relation to the effects of EMFs from cabling. ASFB also noted the importance of considering the foraging behaviour of sea trout and that no information is presented as to the depths at which such fish forage. ASFB recommend that burial depth of cables should be based on research. However, in the absence of definitive evidence they consider that all cables should be buried to a minimum depth of 1.5 m. Where cable burial is not possible, ASFB recommend that cables are covered to an equivalent depth through cable protection. In view of the knowledge gaps, and based on a review of the current state of knowledge, the Company has taken a conservative approach in the assessment of the effect of EMFs on diadromous species, and concluded that there is potential for a minor impact to occur. As presented in the ES, EMF-related effects will be mitigated through cable burial and / or protection. The maximum depth to which cables can be buried will be determined following detailed geotechnical study undertaken by the Company.

ASFB advised that the predicted area which salmon would avoid is significant and had the potential to at least delay smolt migration. In their response ASFB highlighted that simultaneous challenges from noise, EMFs etc. during this transition will constitute a significant additional stressor. ASFB were of the belief that the zones of avoidance set out in the ES, do not appear to be related to the swimming speeds of fish (at different life stages), in order to assess the possibility of such fish swimming out of the zone of effect.

ASFB welcomed the fact that piling operations would be intermittent and that soft-start piling is proposed for the construction of the Proposal. However, the ASFB noted some concern regarding the lack of detail provided such as the proposed duration of any soft-start piling, and emphasised that such duration must be appropriate to the swimming speeds of the species in question and to allow that species time to move out of the zone of effect. ASFB concluded that should the Proposal be granted consent, an appropriate duration of soft start piling, related to the swimming speed of juvenile salmon and sea trout, should be a condition of any consent. However, ASFB stated that given the paucity of information on noise effects on salmon and sea trout, soft-start piling alone is not an appropriate mitigation. As a result of the sensitivity of early running returning spring salmon, and the uncertainty of effects on juvenile fish, ASFB requested that a condition of consent is that no impact piling occurs during the period from March to June (inclusive). As described in the ES Chapter 12, the soft-start procedure will be employed during pile driving activity and has been incorporated in the noise assessment. In their ES, the Company state that, given the distance from the Proposal to salmon rivers, fish would not be affected prior to river entry or immediately after leaving the rivers, both periods of the life cycle of salmon and sea trout when they are particularly sensitive. Consequently, behavioural effects associated with construction noise are anticipated to be limited to localised and very short term avoidance during migration and/or feeding.

The ASFB are concerned that the potential for the structures to act as fish aggregation devices (“FADs”) could potentially be negative in the case of wild salmonids and that such areas may represent new ‘pinch points’ for predation of migrating smolts and returning adults. They note that this possibility does not appear to be considered in the Applications. The Company responded to the ASFB on these points stating that results of monitoring undertaken in operational wind farms to date do not suggest that the introduction of hard substrate has resulted in significant changes in the fish assemblage of the area. This information was presented and discussed in the ES Chapter 12.

ASFB highlighted other potential mitigation measures (such as large or small bubble curtains or sound-absorbing sleeves) to mitigate and minimise noise produced during potential piling operations may be available, but that they are not aware of any attempts to quantify the effect of such mitigation measures. The Company noted that the ES assessment is made according to the parameters of the Rochdale Envelope and that significant impacts on salmonids are not expected to occur as a result of the construction phase of the project. Soft-start piling will be used and this is the standard industry mitigation measure for minimising the potential for marine organisms to be exposed to the highest noise levels associated with pile driving. Furthermore, the Company noted that construction noise levels may be reduced through further detailed design (e.g. hammer energy and turbine loadings etc.).

ASFB recognise the importance of offshore renewable energy, but consider that the ES failed to demonstrate that the Proposal will not adversely affect the integrity of the SAC rivers or indeed other salmon and sea trout fisheries. On this basis the ASFB felt that they have no alternative but to formally object to the Proposal until adequate monitoring and mitigation strategies are put in place.

The Company, in their response to comments from the ASFB, note that the ES assessment was undertaken using the precautionary principle and within the Rochdale Envelope parameters defined according to the Proposal using the best available information to inform the assessment. On this basis, no significant effects on salmon or sea trout have been identified. The Company stated their support for the current effort by MSS in relation to furthering the understanding of interactions between migratory fish and marine renewables developments at a national level (e.g. investigations of salmon and sea trout audiograms), and remains committed to engagement with MSS on the development of future studies, including potential monitoring effort.

The ASFB stated that there is a clear and urgent need to fund, plan and start strategic research on the movement, abundance, swimming depth, feeding behaviour etc. of salmon and sea trout. Such research would clearly feed into the potential mitigation measures that might be deemed appropriate, and the conditions under which such mitigation should be enacted. One aspect that the ASFB felt should be considered immediately was the installation of fish counters, particularly in SAC rivers. The ASFB believes that the installation of such counters, in close liaison with the District Salmon Fishery Boards in question and MSS, could potentially be considered as a condition of consent, where appropriate to local conditions, should such consent ultimately be granted. 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.

After reviewing the SEIS, the ASFB recognised the willingness of the developers to consider contributing to strategic monitoring and potentially building mitigation into the construction schedule. Despite this, the ASFB maintained their objection on their belief that there remains insufficient information to make an adequate assessment of the potential effect on salmonid populations. The ASFB emphasised the importance of the process adopted towards consent being flexible enough to take into account relevant information relating to migratory fish, as and when such information becomes available.

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

**Boarhills and Dunino Community Council (“BDCC”)** responded stating that they were “very much against” the Proposal and the proliferation of wind turbines, and they felt that local opinion was completely disregarded by the SG. They also raised concerns regarding landscape impacts arising from terrestrial wind farms which fall outwith Marine Scotland’s remit. BDCC questioned the efficiency of wind energy stating that they pose a great danger to sea life and birds. BDCC advocated the development of wave and tidal energy instead of wind farms.

**British Telecom (Radio Network Protection Team) (“BT”)** raised no objection to the Proposal. BT studied the Proposal with respect to Electromagnetic Compatibility

and related problems to BT point-to-point microwave radio links and concluded that the Proposal should not cause interference to BT's current and presently planned radio networks.

**Carnoustie Golf Links Management Committee ("CGLMC")** raised no objection to the offshore components of the Proposal, however they raised some concerns regarding the onshore aspect of the project, in particular, the cable landfall point and its potential impact on tourism. Their concerns are mainly related with the disruption and disturbance of the golf courses during and after construction. CGLMC also stressed the importance of The Open Championship for the local and Scottish economies. A condition capturing the timings of construction works reflecting CGLMC concerns will be included in the marine licence for the Company's Transmission Assets.

**The Chamber of Shipping ("CoS")** raised a number of concerns regarding the consultation process as well as the potential for cumulative impacts on navigation to arise should all of the Forth and Tay projects be built out in their entirety.

The CoS stated that they had not been approached by the Company to discuss areas of concern in the period between January 2011 and the receipt of the final Application documents (October 2012). In a meeting held between the Company, Anatec UK Ltd and the CoS on 1<sup>st</sup> July 2013, the level of engagement was discussed and it was agreed that meetings were to be arranged between the Company and the CoS at appropriate stages for future phases of the Seagreen Round 3 development.

The CoS raised concerns over the phased approach to development in the Firth of Forth Zone, highlighting the difficulties this presented for accurate navigational impact assessment. The CoS stated that they were disappointed that Phases 2 and 3 of the Seagreen Round 3 development had been scoped out of the cumulative impact assessment for the Proposal. These topics were discussed in the meeting mentioned above where the Company explained the approach undertaken and highlighted that future Phases of the Zone will be subject to a full round of consultations, workshop and Navigation Risk Assessments ("NRA").

The CoS raised concerns with some information presented by the Company and noted that Phase 3 of the Seagreen project appears to remove the potential for vessels to transit between ICOL and SAWEL, and would be likely to remove some rerouting options presented in the NRA. The CoS highlighted that the information provided by the Company could be made redundant by future development plans.

As a result of these concerns the CoS stated that they could not offer full support for the Proposal due to the lack of certainty regarding overall development with the Firth of Forth Zones. Until information illustrating an accurate holistic view of the region was provided, the CoS could not assess navigational impacts with absolute certainty. However, in subsequent discussions with MS-LOT, the CoS stated that, having reviewed the NRA and in light of discussions with the Company on 1<sup>st</sup> July 2013, they were content to accept the Proposal in isolation. Nevertheless, they reiterated their concern over the possibility for cumulative impacts from further developments within Phases 2 and 3 of the Seagreen Round 3 site, particularly as a result of the proximity of the ICOL and NNGOWL sites to the Firth of Forth zone. During

discussions with the Company the CoS requested that a navigable corridor is maintained between ICOL / NNGOWL and any developments in the Firth of Forth zone. This corridor should be proposed in line with MCA and NLB guidance and developers should discuss appropriate lighting and aids to navigation requirements with the NLB given the unique boundary outlines of the projects.

Furthermore, the CoS noted that operational safety zones are not accepted as standard practice by navigational stakeholders and that any application for operational safety zones should be supported by a full NRA justifying their need.

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(a) and D(b) – DRAFT DECISION LETTER AND CONDITIONS, Annex 2.**

The **Civil Aviation Authority (“CAA”)** did not object to the Proposal but stressed the need to inform the Defence Geographic Centre of the locations, heights and lighting status of the turbines and meteorological masts, the dates of construction and the maximum height of any construction equipment to be used prior to construction to allow the inclusion on aviation charts. A condition capturing this requirement is reflected in the draft decision letters and consents attached at **ANNEX D(a) and D(b) – DRAFT DECISION LETTER AND CONDITIONS, Annex 2.**

**Edinburgh Airport (“EA”)** raised no objection after the Applications had been assessed against Aerodrome Safeguarding criteria and confirmed that no safeguarding issues arose from that assessment.

**Firth of Forth U10m Fishing Association** was consulted but no response was received from the organisation on the Proposal. However, the Association was included in the Fishermen’s Mutual Association (Pittenweem) Ltd response in the list of organisations it represents (see below).

**Fishermen’s Mutual Association (Pittenweem) Ltd (“FMA”)** speaks for Fishermen’s Mutual Association (Pittenweem) Ltd, the Fife Fishermen’s Association, the Fife Fish Producer’s Organisation, the 10 Metre and under Association and the Fife Creel Association. Their response highlighted that its members were not against the construction of wind farms but felt that irrevocable action must be taken to protect their future and the future of the village fishing industry in Pittenweem and the wider Firth of Forth.

FMA stated in their response that it is incumbent upon the SG, and by implication Marine Scotland, to ensure that all efforts are made to mitigate the effects that any wind farm development may have on fisheries.

FMA highlighted that, despite the fact that renewable companies had made verbal commitments to the fishing industry, written assurance must be given to protect fishermen’s rights and livelihoods as it is not certain who will own the wind farms after they are commissioned. The FMA made several requests including, but not limited to, the following; a requirement that towed gear should not be excluded from the site of the Proposal except during construction; exclusion zones should be no more than 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 Forth and Tay Offshore Wind Developers Group - Commercial Fisheries Working Group ("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 Proposal. The FMA support the maintenance of the Fishery Liaison Officer ("FLO") and Fisheries Industry Representative ("FIR") system of consultations and reporting, and stated that a local FLO should be trained accordingly and deployed on ships working in the Forth.

Where appropriate conditions capturing these requirements are reflected in the draft decision letter and conditions attached at **ANNEX D(a) and D(b) – DRAFT DECISION LETTER AND CONDITIONS, Annex 2.**

**Forth Ports ("FP")** had no objections and stated that the Proposal did not directly affect their jurisdiction. However, FP noted that there was a possibility that the export cable to shore could come into their area of jurisdiction. Should this occur FP requested that they are engaged accordingly on the matter.

**Historic Scotland ("HS")** raised no objection to the Proposal noting there would be no significant adverse impacts on marine or terrestrial assets within Historic Scotland's statutory remit. HS was satisfied with the proposed mitigation strategy in relation to identified sites which have archaeological potential and for unexpected archaeological discoveries. HS requested a condition be included on any consent requiring information about archaeological sites discovered or recorded during the course of the survey work and development processes, be archived with the Royal Commission on the Ancient and Historical Monuments of Scotland or the adjacent Local Authority Archaeology Service. This is captured in the draft decision letter and consent attached at **ANNEX D(a) and D(b) – DRAFT DECISION LETTER AND CONDITIONS, Annex 2**

**The Joint Radio Company Limited ("JRC")** did not raise any objection and cleared the Proposal with respect to radio link infrastructure operated by Local Electricity Utility and Scotia Gas Networks. JRC highlighted that if any details of the wind farm change, particularly the disposition or scale of any turbine(s), it will be necessary to re-evaluate the Proposal.

**Marine Scotland Compliance - Aberdeen ("MSC Aberdeen")** consulted with a number of fishermen in the area. However, they received only one reply from the **Arbroath and Montrose Static Gear Association ("AMSGA")** who submitted a letter of objection to the Proposal.

The AMSGA stated that if the Proposal goes ahead there would likely be an adverse effect on marine life which would result in lasting damage to the environment along

the east coast of Scotland. AMSGA acknowledged that whilst there is no scientific evidence to suggest that the construction and operation of the Proposal will have an effect on lobster, crab and fish stock, they believe that it would be taking a chance with the local community's livelihood.

AMSGA stated that the loss of fishing grounds to both inshore and offshore fleets is significant and stressed that fishing areas throughout the North Sea are diminishing every year for several reasons such as closed areas, seasonal closures, real time closures, oil and gas installations, etc. The AMSGA raised concerns that noise and vibration will have a significant impact on the seabed through disturbance and destruction resulting in marine life being driven away. The AMSGA also felt that increased marine traffic during the construction and maintenance stages would considerably increase the potential for damage to, or loss of, fishing gear.

MS-LOT met with AMSGA on 26<sup>th</sup> June 2014, it was agreed that a condition will be put in place for the Company to fund a lobster restocking programme in the area. This will be agreed through the FTOWDG-CFWG and the Commercial Fisheries Mitigation Strategy ("CFMS"). Conditions relating to this are reflected in the draft decision letter and consent attached at **ANNEX D(a) and D(b) – DRAFT DECISION LETTER AND CONDITIONS, Annex 2.**

**Marine Scotland Science ("MSS")** did not object to the Proposal and provided advice on the physical environment, coastal processes, benthic ecology, diadromous fish, aquaculture, fish and shellfish ecology, commercial fisheries, marine mammals and ornithology.

#### Physical Environment

MSS commented that because of the Rochdale envelope approach which assessed different foundation types, including gravity base and steel jacket systems, much of the detail on the methodologies and the timing of the works had been omitted from the ES. MSS highlighted the importance in the Company understanding potential for weather restrictions on construction activities. MSS were of the opinion that the impacts from gravity bases had not been fully assessed. MS-LOT has informed the Company that if gravity bases are to be used these will require a further EIA to assess the dredging and disposal associated with this foundation type.

#### Coastal Processes

MSS advised that they had no major concerns or comments regarding the coastal processes sections of the ES. Issues surrounding wave diffraction and breaking were assessed effectively and used a strong evidence base consisting of a comprehensive review of EIAs for other offshore wind farms. This review included information on a variety of foundation designs, including gravity base structures that are generally considered as the 'worst case scenario' within the Rochdale envelope scheme. MSS also considered that the assessment on scour was appropriate.

### Benthic Ecology

MSS did not agree with the conclusion within the ES that the impacts on benthos from the cable installation would be low and advised that this impact is likely to be moderate. Again, concerns were raised over the use of gravity bases where the impact of seabed preparation was assessed within the ES as being low. MSS commented that this could cause permanent damage to the local ecology.

### Diadromous Fish

MSS advised that the main species which will potentially be present in the Proposal area are salmon, sea trout and eels. MSS were of the belief that the information within the ES adequately covers the details of the site preparation, construction work and operation which are relevant to diadromous fish. MSS agreed with the findings of the ES which correctly identified noise during construction and EMF during operation as potential impacts however, they noted that operational noise should also have been considered. MSS highlighted the potential for salmon smolts destined for sea feeding areas north of the British Isles, not just from nearby rivers, but also from rivers further south, including the Tweed to pass through the area; and returning adults, not just those destined for rivers further south, including those on the Scottish east coast, but also ones further north on this section of the Scottish coast, such as the River Dee.

MSS advised that given the substantial uncertainty associated with potential impacts on fish migration and consequences for individual rivers, and the possibility of widespread cumulative impacts, that MS-LOT may wish to consider with the Company whether arrangements can be put in place to monitor fish movement through the area and / or improved monitoring of the health of salmon populations to supplement and improve the current rod catch assessments. The evolution of the '*National Research and Monitoring Strategy for Diadromous Fish*' is currently ongoing with the aim of trying to address the many unknowns surrounding the life patterns of diadromous fish. A condition has been set at **ANNEX D(a) and D(b) – DRAFT DECISION LETTER AND CONDITIONS, Annex 2**, for the Company to commit to participation in the monitoring strategy at a local level.

### Aquaculture

MSS advised that there are no aquaculture sites within the boundaries of the Proposal area. The closest aquaculture site is located ~57 km south of the Proposal and is an active land based lobster hatchery operated by the Firth of Forth Lobster Hatchery.

### Fish and Shellfish Ecology

MSS recommended that caution should be taken when attributing significance of the benthic trawl catch data to species abundance, as the beam trawl will catch flat fish very well (as evidenced in the ES) however, demersal fish species and some commercially important shellfish like king scallops, will not be well represented due to the nets catchability for these species. MSS commented that in addition to soft start piling the developer could look at piling activity to be carried out in the southern

region of the site to try and minimise the noise propagation into the Buchan herring spawning area at peak spawning season. A condition has been set at **ANNEX D(a) and D(b) – DRAFT DECISION LETTER AND CONDITIONS, Annex 2**, for the Company to carry out pre-construction monitoring for herring which can help inform the Piling Strategy (“PS”).

MSS recommended that cables should be buried to a minimum of 1 m to mitigate against EMF impacts and recommended that discussions are sought from the fisheries working group as to the best type of cable protection for safety of fishing vessels. MSS advised that the Company has not considered impacts from displaced fishing effort and how this may impact the various fish species particularly in relation to the scallop fishery.

### Commercial Fisheries

MSS noted that, in general, the Company had provided a robust assessment of the key impacts. MSS commented that the scallop fishing activity in the SAWEL site is heavier than in the SBWEL site and they would consider scallop fishing to be of medium sensitivity and the impacts to be of medium magnitude from temporary loss or restriction of access to fishing grounds and displacement of fishing vessels, resulting in moderate adverse and significant impacts. MSS noted that it had been difficult for the Company to address cumulative impacts with any great certainty and advised that this should be looked at by the fisheries working group that has been set up. A condition has been set at **ANNEX D(a) and D(b) – DRAFT DECISION LETTER AND CONDITIONS, Annex 2**, for the Company to submit a Commercial Fisheries Mitigation Strategy (“CFMS”) and continue FTOWDG-CFWG.

### Ornithology and Marine Mammals

MSS provided advice on these aspects in January 2013, however, this advice is largely superseded by advice they provided to inform the AA. MSS have worked with the JNCC, SNH, the Company, ICOL and NNGOWL to allow a robust cumulative assessment for the Forth and Tay region for bottlenose dolphin, grey and harbour seals and several species of seabirds. Details are provided in the ornithology, marine mammal sections above and in **ANNEX E – APPROPRIATE ASSESSMENT**.

**The Maritime & Coastguard Agency (“MCA”)** raised no objection to the Proposal, subject to all MCA recommendations be taken into account and addressed as detailed within Marine Guidance Note 371 (“MGN371”) “Offshore Renewable Energy Installations (“OREIs”) - Guidance on UK Navigational Practice, Safety and Emergency Response Issues” and its annexes.

The MCA noted that hydrographic survey data, required to validate the NRA, had not been provided at the time of application. The Company subsequently provided the required data to the MCA which confirmed (email dated 13<sup>th</sup> August 2013) that the hydrographic survey data met the requirements outlined in Annex 2 of MGN371 (the site and associated cable routes) with the geophysical survey and operational reports detailing all the required information.

The MCA stated that the Proposal had the potential to impact on navigation through displacement of vessel traffic in the area and called for careful monitoring of the potential effects on vessel traffic. In particular, one area of significant concern remains the undeveloped sea space between the ICOL and SAWEL. The MCA requested that the Company review the deviations from routes assessed in the NRA taking account of both SAWEL and SBWEL.

The MCA stated that, if applied for, detailed justification would be required for a 50 m operational safety zone, with significant evidence from the construction phase in addition to the baseline NRA to support the case.

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, on 6<sup>th</sup> June 2013, informed the MCA that consideration will be given to water depths during this process to ensure that the final protection methods used do not reduce the water depth to such a level that would impact upon the safe navigation of vessels.

The creation of a full Emergency Response & Cooperation Plan (“ERCoP”) is required 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. Due to the design envelope approach taken by the Company in their Applications, the production of a final ERCoP at this stage is not possible. Further discussions have taken place between the Company, the MCA and MS-LOT where an agreement was reached to include a condition for the Company to prepare a final ERCoP to pre-construction and submit it to the MCA. This will allow the Applications to be determined but effectively holds the commencement of construction until the ERCoP is in place.

Conditions relating to the requests from the MCA are reflected in the draft decision letter and consent attached at **ANNEX D(a) and D(b) – DRAFT DECISION LETTER AND CONDITIONS, Annex 2.**

**National Air Traffic Services (“NATS”)** initially objected to the Proposal due to unacceptable impacts on Prestwick Centre Air Traffic Control, Prestwick Centre Military ATC and Aberdeen En-route ATC. These impacts on operation and confliction with NATS safeguarding criteria led to NATS objecting to the Proposal.

Further discussions between the Company and NATS resulted in an agreement of a contract whereby the objection from NATS and AIA could be removed subject to conditions being attached on any consent. These conditions are reflected in the draft decision letter and consent attached at **ANNEX D(a) and D(b) – DRAFT DECISION LETTER AND CONDITIONS, Annex 2.**

## **The Ministry of Defence (“MOD”)**

### MOD Barry Buddon Danger Area

The MOD did not object to the Proposal, however, they considered it necessary for the Company to revise the current cable route to minimise its occupation of the above Danger Area D604 (“Danger Area”). This will serve to separate, so far as possible, the cable route from the sea area into which military firing takes place.

The MOD also requested that the Company produces a management plan defining the protocols between the Company and Barry Buddon Range and training supervisors to ensure marine works are co-ordinated with firing activities and do not impact upon military training.

Further discussions between the Company and the MOD have taken place. The MOD provided an updated response on their safeguarding position in a letter dated 29<sup>th</sup> May 2014. This letter stated that the completed Proposal will not impede the use of the range. However, the MOD is concerned that the marine works associated with installing that part of the cable route passing through the Range Danger Area are likely to cause disruption to military training activities. It is recognised that an alternative cable route running parallel to the northern boundary of the Danger Area is constrained due to rocky outcrops. Having taken this into account, the MOD does not object to the proposed cable route that passes through Danger Area.

However, the Company will have to take into account the military firing activities conducted into the seaward area adjacent to the MOD property, and abide by the restrictions to access to the sea area defined in the current Barry Buddon Ranges Byelaws (Statutory Instruments 1973 No. 1428) that are applicable when the range is in use. To safeguard the sea area used for military firing practise and facilitate the Proposal, the MOD requests that any licence issued for the Proposal should include a condition obligating the Company to submit a management plan of the proposed marine works. This should set out a works programme taking account of the firing range and should include communication protocols between the applicant and Barry Buddon Range. In addition, a condition should be included obligating the operator to obtain prior approval from Barry Buddon Range prior to undertaking any works or deploying any vessels or equipment within Danger Area.

The information submitted by the Company identifies that the cables will (subject to sea floor conditions) be trenched into the sea floor to a depth 0.5-2 metres or will otherwise be covered with boulders or concrete mattresses where they cannot be buried. Taking into account the proposed route of the cable and installation methodology, there is a possibility that where the cables occupy the Danger Area they could be damaged by military firing. As such, the MOD advises the Company that to afford optimum protection to the section of the entrenched cables passing through Danger Area, it is recommended that the cables are enclosed with Structural Grade 40 concrete 200 mm thick.

The MOD stated they would accept no liability for any damage that may be caused to that part of the sub-sea cabling routed through the Danger Area which is incurred as a consequence of military firing activities.

Any access needed to the sub-sea cables installed through the Danger Area for inspection or repairs will need to be pre-arranged with Barry Buddon Range and be compliant with the requirements of Barry Buddon Ranges Byelaws (Statutory Instruments 1973 No. 1428).

It was strongly recommended that prior to commencing any intrusive works within or near to the Danger Area, the Company undertakes a survey to check for the possible presence of unexploded ordnance in the sea floor.

These conditions should serve to co-ordinate the movement of vessels (or other installations) engaged in cable installation works or other works associated with this Proposal and ensure that there is no conflict between the marine works and military firing activities that use the sea area contained in the Danger Area.

Conditions capturing these requirements are reflected in the draft decision letter and conditions attached at **ANNEX D(a) and D(b) – DRAFT DECISION LETTER AND CONDITIONS, Annex 2.**

#### RAF Leuchars, RRH Buchan and RRH Brizlee Wood.

The MOD initially objected to the Proposal as they considered the WTGs could cause unacceptable interference to the Air Traffic Control Radar (“ATC”) at RAF Leuchars. The WTGs in the Proposal could also cause unacceptable interference to the Air Defence (“AD”) Radar at RRH Buchan and RRH Brizlee Wood.

MOD stated that if the Company were to overcome these issues then all WTGs should be fitted with appropriate aviation lighting. The Company submitted site specific mitigation proposals to the MOD with a view to addressing the impacts of the Proposal on both ATC and AD Radar.

The technical radar mitigation proposal submitted by the Company for RAF Leuchars ATC radar was accepted by the MOD and they subsequently removed their objection subject to appropriate conditions being included on any consent, in a letter dated 12<sup>th</sup> June 2014.

The technical mitigation proposal in the form of a Mitigation Modelling Report submitted by the Company for RRH Buchan and RRH Brizlee Wood AD radar was accepted by the MOD and they subsequently removed their objection subject to appropriate conditions being included on any consent, in a letter dated 12<sup>th</sup> June 2014 for RRH Buchan and on the 7<sup>th</sup> July 2014 for RRH Brizlee Wood.

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

**Northern Lighthouse Board (“NLB”)** raised no objection to the Proposal. The NLB requested that they be consulted post-consent to ensure the Proposal, during construction, operation and decommissioning phases, will be suitably marked and lit and also that appropriate Notices to Mariners and Radio Navigation Warnings are issued to notify mariners of ongoing works in relation to the Proposal. The NLB also

recommended that publication of information in other appropriate bulletins, stating the nature and timescale of the works are provided to ensure adequate notification of the Proposal to mariners. The exact marking and lighting requirements for the operational phase of the Proposal could not be provided until the final WTG layout has been defined. Furthermore, the NLB stated that further mitigation for any corridor between SAWEL and SBWEL and a gap with the adjacent ICOL may be required and will require final agreement with both NLB and the MCA.

The Company, in a letter dated 6<sup>th</sup> June 2013, noted that further information about the final structure layout is not available at the current time, and the NRA has assessed the worst case using the parameters in the Rochdale Envelope to account for this. The NLB will be consulted on final layouts once these are available for the Proposal.

NLB highlighted that the marking and lighting of the Proposal may require to be altered or amended to reflect the development of the adjacent ICOL site in order to form a continuation of a suitable marking of the area occupied by turbines and sub-stations. NLB expects that the Company, or any subsequent owner of the consent(s) will co-operate fully in this matter.

The NLB noted a requirement that, once agreed, the final number, layout and positions of each turbine, along with any subsea infrastructure, is provided to the United Kingdom Hydrographic Office (“UKHO”) so that relevant nautical charts are correctly updated.

Furthermore, the NLB advised that they wish to be consulted regarding lighting and marking requirements for the decommissioning stage of the Proposal.

The NLB indicated that they were content for any consent to be issued provided they are consulted on the final layout and development plans. Any consent should certify that the Company / operator ensures appropriate marking and lighting is in situ during all phases of construction, operation and decommissioning as agreed with the NLB.

Conditions requiring the Company to submit final plans on layout (Development Specification and Layout Plan (“DSLPL”)), lighting (Lighting and Marking Plan (“LMP”)) and navigational safety (Navigational Safety Plan (“NSP”)) for approval are reflected in the draft decision letter and consent attached at **ANNEX D(a) and D(b) – DRAFT DECISION LETTER AND CONDITIONS, Annex 2.**

**Repsol Nuevas Energias (“Repsol”)**, the company developing the ICOL project did not object to the Proposal, however, made strong considerations regarding the SEIS. Repsol reviewed the SEIS and identified a significant number of factual errors in the information presented in relation to the ICOL project.

The errors referred by Repsol were regarding pile numbers, piling days, maximum excavated volumes per WTG, WTG operational times for ICOL and flight densities for some species of birds. Repsol stated that a large amount of data presented in the ICOL ES was modified in the Company’s assessment documents. Repsol confirmed this with the Company who presented as justification the attempt to present information on a comparable basis (referred to as a “common currency”). Repsol

stressed that these modifications reflected the opinion of the Company and not any common position across projects.

Repsol do not consider that any information presented in the Company's SEIS in relation to ICOL can be relied upon, in whole or in part.

Repsol stated that in multiple instances the ICOL survey and assessment methodologies were brought into question. Repsol considered this to be inappropriate on the basis that ICOL followed guidance and specific advice from relevant authorities both in terms of the assessments and the way results were reported.

MS-LOT advised and oversaw correspondence between ICOL and the Company regarding ICOL's response, which resulted in the Company producing an SEIS Erratum. As there are no specific provisions in legislation regarding this type of document, MS-LOT decided that the most appropriate way was to treat the document as additional information under the 2008 Amendment to the 2000 Regulations. Therefore, a copy of the Erratum was sent (21<sup>st</sup> March 2014) to all consultees; the Company made the Erratum available in the same public places where the ES was made available for public consultation; and two public notices were published for two consecutive weeks (Edinburgh Gazette and Dundee Courier), as per MS-LOT instructions. Even though a period for public representations was created as a result of these procedures, no representations from members of the public were received.

Repsol, in a letter sent to MS-LOT, welcomed the acknowledgement by the Company of some of the notable errors contained within their SEIS, however, highlighted that the Erratum does not address all the errors and introduces a new error regarding piling effects. MS-LOT, in an email dated 10<sup>th</sup> April 2014, assured Repsol that any considerations to the determination of the ICOL application will be based on the ES provided by ICOL and on the cumulative advice from the JNCC and SNH and not on data described in the addendum by the Company.

**Royal Society for the Protection of Birds Scotland ("RSPB Scotland")** objected to the Proposal given the conclusion within the ES of likely significant impacts on seabird populations. As an HRA had not been submitted by the Company at the time of the original Applications, RSPB Scotland stated that they would like to be consulted on this before reconsidering their position. RSPB Scotland did however note that the ES was of a very high standard.

Following the submission of the HRA, RSPB Scotland maintained their objection due to ongoing work surrounding a "common currency" approach and the results of the Marine Scotland commissioned CEH research on displacement effects and population modelling within the Forth and Tay region.

RSPB Scotland provided a further response on all of the proposed Forth and Tay offshore wind farm developments following the completion of the above mentioned research projects and also having considered the advice provided by the JNCC and SNH. RSPB Scotland maintained their objection on the Forth and Tay developments for the following reasons:

- There has been insufficient time between information becoming available and the consultation deadline to fully assess all environmental information. RSPB Scotland believes this may be contrary to the requirements of the 2000 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 Abbs to Fast Castle SPA;
- The environmental impacts, alone and in-combination, of the proposals would be likely to result in unacceptable harm to seabird species, most notably gannet, kittiwake and puffin. Furthermore, the national and regional population trends of some of these species are deteriorating, which exacerbates these concerns;
- The 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 the SPAs. This precaution has not been applied; and
- 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.

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 2000 Regulations or the 2007 Regulations. Under the Habitats Regulations *“a person applying for consent shall provide such information as the competent authority may reasonably 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 that the integrity of the SPAs of concern would not be adversely affected. 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 did state in their response that despite their objection it is evident that the predicted impacts of the SBWEL site are the lowest of all four offshore wind proposals. Whilst further clarification and analysis is required, it seems likely that the proposed SBWEL development, would lie within the environmental limits of this region and therefore it can be concluded that the integrity of the SPA’s would not be adversely affected from the proposed SBWEL development.

RSPB Scotland stated that should the Scottish Ministers be minded to consent some or all of the turbines currently applied for in the Forth and Tay region, 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 SPAs and their qualifying species. RSPB Scotland confirms that they would be happy to be involved as a stakeholder to assist in advising upon and steering research and monitoring programmes that are established under conditions of any consent.

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 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.

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 ongoing 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 Proposal is reflected in the draft decision letters and consents attached at **ANNEX D(a) and ANNEX D(b) - DRAFT DECISION LETTER AND CONDITIONS, Annex 2.**

**The Royal Yachting Association Scotland (“RYA Scotland”)** had no objection to the Proposal and commended the Company and their consultants for carrying out a thorough job with good communication with RYA Scotland.

The RYA Scotland noted that leaving a gap between SAWEL and SBWEL for use by commercial vessels could pose an increased risk to recreational craft passing through the sites. Referring to the alignment of turbines, the RYA Scotland noted that although an alignment paralleling the Automatic Identification System tracks would be welcome the preference is for devices to be in a regular array.

The RYA Scotland has some concerns about future phases of the overall Seagreen Round 3 development and recommended the tracks of recreational vessels passing through SAWEL and SBWEL be monitored and logged so that decisions about the subsequent phases could be based on good evidence.

The RYA Scotland noted that the wave buoys will need to be well marked and their positions promulgated which should be a matter for discussion when plans are further advanced.

Finally, the RYA Scotland noted that it can be difficult for a recreational sailor to know exactly how far off a feature they are (the focus is on ensuring a safe distance off) and it is important that penalties are not exacted for inadvertently straying into an exclusion zone during construction.

Although the RYA Scotland have not requested any project specific conditions, the draft decision letter and consent attached at **ANNEX D(a) and D(b) - DRAFT DECISION LETTER AND CONDITIONS, Annex 2** will include conditions that address RYA Scotland concerns.

**The Scallop Association (“SA”)** was consulted but no response was received from the organisation on the Proposal. However, the SA was included in the Scottish Fishermen’s Federation (“SFF”) response in the list of organisations it represents (see SFF below).

**The Scottish Fishermen’s Federation (“SFF”)** object to the Proposal 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 be included on any consent. SFF recognises the quality of the information provided by the “Applications”, and the fact that the developers team have been prepared to listen to stakeholder’s views and adjust their plans accordingly. To this regard, the SFF stated they were open to dialogue and co-operation with the Company towards ensuring co-existence in the marine environment of both fishing and renewables. The Company met with SFF on 27<sup>th</sup> June 2013 to discuss the issues presented on the SFF consultation response (4<sup>th</sup> December 2012), and following a letter from the Company to SFF dated 6<sup>th</sup> June 2013 with comments to the response.

The SFF agrees with the information in the ES stating that the scallop fleet will be the primary fleet affected, however, they note that attention should be paid to any other fleet operating in the area, such as the smaller class of nephrops trawlers or creel vessels.

The SFF stated that they would expect full engagement between the developers and industry in a manner such as that recommended by the Fishing Liaison Officer with Offshore Wind and Wave (“FLOWW”) liaison guidelines. As the Company pointed out to SFF in a letter dated 6<sup>th</sup> June 2013, the FTOWDG-CFWG has been established to aid in the engagement between the developers and industry.

The SFF would expect that all negative effects of the Proposal on the fishing industry will be the subject of mitigation measures which must be agreed before any consent is issued and this should be a core function of the working groups established in partnership with the other developers in the area. Possibilities for mitigation proposed by the SFF include aid for diversification, realistic employment and training opportunities and new fishing gear development.

The Company stated that discussion of potential and relevant mitigation measures will be ongoing through the FTOWDG-CFWG. As stated in Chapter 22 of the ES, Mitigation and Monitoring, paragraph 22.5, *"During the subsequent detailed design stage, some of the residual impacts will be reduced (i.e. there will be further*

*mitigation by design) and consequently the current mitigations, which are stated in this ES will change as the design evolves. The Company are committed to working with the relevant regulatory authorities, consultees and stakeholders to develop a suite of mitigation measures and hence application conditions which allow the Seagreen Project to be developed, installed, operated and decommissioned without resulting in significant environmental impacts."* The SFF were not content that their comments had been properly addressed and sought a more substantive response from the Company.

The SFF expects the Company to demonstrate to the fishing industry that they are operating to the best possible standards of certification for all aspects of their operations, for which the Company replied that this will be discussed as part of the FTOWDG-CFWG.

The SFF required the dissemination of construction plans to be at least through the working group members, but also correct usage of the Notice to Mariner system and eventually integration into the Kingfisher navigational system. The mitigation strategy should also be properly disseminated. The Company noted that said information discussed in the FTOWDG-CFWG will be distributed to the fishing industry by the fishing representatives sitting on the group. Notices to Mariners are currently used to distribute information and ensure updates are provided as soon as possible. The SFF is content with this as per letter on 8<sup>th</sup> August .

The SFF indicated that their biggest concern is that the development will lead to either restricted access or total exclusion from the site for fishermen. The SFF felt that it was not clear whether fishing will be possible within the Proposal site and highlighted that mitigation for this must be put in place. The Company responded to the SFF stating that there is no mechanism in place which prevents fishing from resuming within an operational wind farm site. There may be localised safety zones around infrastructure, however, it is assumed that fishing can resume within the operational site. Cables will be buried to a minimum depth of 0.5m and protected where burial is not possible. The Company acknowledged that some fishing methods, such as scallop dredging, may not be able to resume due to safety risks associated with the interaction between offshore wind farm cables and the dredging gear. The Company reiterated its commitment to work with the relevant stakeholders to develop a suite of mitigation measures. SFF was not satisfied with this response stating that it failed to recognise that scallop dredging may be the worst affected fishery in the area and may not be able to resume. The SFF would expect specific mitigation measures for any loss of access to the area, and suggests that the Company should consider financing scallop gear trials in order to help find gear that could be used within the development.

The SFF stated that construction of all phases of the Proposal, including transmission works must be discussed through the FTOWDG-CFWG in order to mitigate the effects on the fleet. For the transmission works, the SFF would insist on the minimum depth trench being to the oil industry standard, with a preference for rock dumping where that is not possible. The Company informed the SFF that a construction management plan will be discussed as part of the FTOWDG-CFWG. Cables will be buried to a minimum depth of 0.5 m and protected where burial is not possible. SFF stated that they were content with the approach to cable burial as per the letter dated 8<sup>th</sup> August 2013.

The SFF considers that displacement of fishing effort may become a problem and that this has been under-appreciated by both developers and government. Given the combined cumulative nature of the proposed offshore wind farms in the area the FTOWDG-CFWG should be used to address the issue. The Company intends to discuss this as part of the FTOWDG-CFWG.

The SFF highlighted the need to develop a system to ensure that vessels, particularly smaller less nomadic vessels, are in some way compensated for temporary closures to enable surveys and construction work. The Company informed the SFF that the assessment has identified a moderate impact on the loss or restricted access to crab and lobster fishing grounds during the installation of the export cable. It should be noted that during refinement of the Rochdale Envelope, some of the residual impacts will be reduced (i.e. there will be further mitigation by design) and consequently the current mitigations, which are stated in this ES could change as the design of the Proposal evolves. Historically, during the preliminary surveys for the Proposal, removal of static gear has been negotiated by the Company where necessary. The SFF are content with the approach outlined by the Company as per the letter dated 8<sup>th</sup> August 2013.

The SFF insisted on an agreement, preferably based on the previous work through the Oil and Gas UK, whereby fishers could be compensated for any damage or loss of earnings through construction debris. Upon completion of each phase of construction, the SFF would insist on the appropriate over trawl procedures being conducted to ensure the seabed is as close to its original condition as possible. The Company noted that under International Maritime Organisation (“IMO”) guidelines, contractors are required to remove any dropped objects and return the seabed to its previous condition. There will be post construction measures in place, including post installation surveys and corrective measures where target burial depth has not been achieved. The SFF are content with the approach outlined by the Company.

The SFF requested a full scientific baseline be undertaken by the Company recording the effects of the Proposal both on fish species and fishing vessels with earnings being continually monitored from the outset. The Company replied stating that the commercial fisheries and fish and shellfish technical reports (contained in the ES) record accurate baselines of fishing activities in the area at the time of writing. It is understood that fishing activities and stocks are subject to change and therefore the baseline identified in the technical reports may not be relevant during the construction and operation of the Proposal. Part of the FTOWDG-CFWG discussions will be to ensure the commercial fisheries baseline is kept up to date and accurate. Ongoing monitoring, discussed through the FTOWDG-CFWG, will ensure fish species are monitored. The SFF remained convinced that there is not enough attention being paid to the potential economic impact on fishermen and therefore monitoring of these economic impacts is essential.

The SFF stated that the cessation of the development should be the subject of an agreement on decommissioning before construction begins. The Company responded saying that decommissioning programmes will be discussed as part of the FTOWDG-CFWG however, the SFF reiterated their position.

The FTOWDG-CFWG has been set up and both the Company and the SFF have attended inaugural meetings. A condition for its continuation and one for the appointment of a Fisheries Liaison Officer (“FLO”), amongst other relevant conditions to reflect the SFF concerns, are reflected in the draft decision letter and consent attached at **ANNEX D(a) and D(b) - DRAFT DECISION LETTER AND CONDITIONS, Annex 2**. Since November 2012, there have been a number of meetings of the FTOWDG-CFWG which have provided an effective forum for discussion between the commercial fishing industry and the offshore wind industry in the Forth and Tay. On the 12 August 2014, the developers forwarded to the Scottish Ministers a Shared Position Statement to confirm the areas of agreement that have been achieved so far within the FTOWDG-CFWG. This Shared Position Statement seeks to provide the basis for moving the discussions forward and rightly states it is desirable that consistent approaches in relation to the interactions with commercial fishing activities are agreed through by FTOWDG-CFWG, and adopted by the Company as far as possible.

**Surfers Against Sewage (“SAS”)** did not object to the Proposal however some concerns were raised about the effects on wave resource.

SAS requested that restricted access to Carnoustie Bay is kept to an absolute minimum so as to have a minimal effect on the surfing community and advised that the Company should liaise with local surfing groups and arrange mitigation factors such as alternative access.

SAS requested modelling to quantify the likely effect on parameters such as wave height, direction and period at the shoreline, specifically at local surf breaks. SAS requested that the effects on the swell, and resulting waves, be considered at all of the surf spots identified in the SAS letter. SAS also expressed preference for an opportunity to review the modelling results and add constructive feedback if necessary.

After reading the SEIS, SAS maintained the same concerns about the potential impacts on the local wave resource and made the same requests regarding modelling and cumulative impacts. Furthermore, SAS pointed out the economic value of surfing to the UK (a contribution to economic activity of £1.8 billion per year spread between the regions and countries of the UK (£3,731,024 specifically to this region).

In response to the concerns raised by SAS, the Company in a letter dated 14<sup>th</sup> July 2013, provided justification for its ES findings including potential impacts of the Proposal on the surfing wave resource. The Company informed SAS that the assessment of landside impacts, such as beach access at Carnoustie bay, was specifically scoped out of the Offshore ES, as agreed with Marine Scotland. MS-LOT considers the response to SAS as satisfactory and does not consider that conditions requiring modelling of wave resource are justified. This position is based upon advice received by MSS - Oceanography Group where, amongst other things, they stated not to have major concerns or comments regarding the coastal processes sections of the ES.

**Transport Scotland (“TS”)**, through their Term Consultants JMP Consultants Limited, did not object to the Proposal and stated that the Proposal would not have any significant environmental impact on the trunk road network and its adjacent receptors, concluding that no further information was required.

**Whale and Dolphin Conservation (“WDC”)** objected to the Proposal due to outstanding concerns relating to the Proposal, as well as cumulatively with the other offshore wind farm developments, 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 Proposal was compatible with the requirements of the Habitats Directive.

WDC stated that although they understand the need for the Rochdale envelope approach, without understanding the detailed design of a number of aspects of the wind farm it is very difficult to comment in great detail. In particular, they stated that the lack of specific details of the construction techniques, vessels and methods that will be used during construction and decommissioning of the Proposal make substantive comment on suitable, effective mitigation measures very difficult.

WDC agreed with the findings of the ES that there is likely to be significant impacts to the local population of harbour seals and cumulative and in-combination impacts to harbour seals, grey seals and harbour porpoises. They did not, however, agree with the conclusions in the ES that there will be no significant impacts, individually and cumulatively, to bottlenose dolphins, minke whales and white-beaked dolphins. WDC also disagreed with the assessment that behavioural impacts are not significant for all marine mammal species considered (with the exception of harbour seals, which are considered significant). WDC raised specific concerns over harbour seals because of their declining populations and susceptibility to corkscrew injuries. WDC support the use of marine mammal observers but consider that this management measure is only a mitigation measure if an activity is halted when animals are observed. WDC recognise the commitment the Company makes to pre-construction, during and post construction monitoring. Should consent be given, WDC welcomes the opportunity to be involved in developing a suitable monitoring programme.

WDC also provided a response to the SEIS consultation. They maintained their objection unless effective mitigation methods are implemented during construction. They stated that there is still considerable scientific uncertainty surrounding the impacts of pile driving during construction on all species, in this region. As a result, their preference is that pile driving is not used at all during construction. The predicted increase in disturbance and displacement of bottlenose dolphins, grey and harbour seals, from the construction of the Proposal, and in-combination with other proposed developments, leads them to believe that it is not possible to rule out LSE in the HRA.

WDC understand from a meeting with the Company that project specific mitigation and monitoring plans will be developed prior to construction and will reflect current guidance at the time of construction. However, the lack of a MMMP and a detailed mitigation plan to reduce the impacts of pile driving, increased vessel movements,

corkscrew injuries and in combination / cumulative impacts on marine mammals in the area made it difficult to provide comments.

WDC proposed several conditions as detailed below should consent be granted:

- Alternative methods to pile driving should be investigated;
- If pile driving is used, a noise-reducing barrier (such as a bubble curtain) should be maintained around the source to mitigate the impacts of radiated noise levels. The barrier should remain in place until piling has been completed. The use of noise-reducing techniques is the best way to reduce construction impacts to marine mammals;
- Visual and acoustic monitoring should be ongoing throughout construction;
- Activities should be halted when marine mammals approach within a specified distance of operations (mitigation zone);
- Ground-truthing of modelled noise assessment data should be undertaken;
- The MMMP should be developed in consultation with scientists with expertise in the Natura species to ensure that monitoring of the bottlenose dolphin, and grey and harbour seal SAC populations contribute to existing monitoring studies, to understand how bottlenose dolphins and seals use the area and to assess any changes to site use and are appropriate to the level of works;
- The monitoring plan should include the recommendations from the Aberdeen University scientific study 'Population consequences of disturbance';
- The monitoring programme should be appropriate to all developments in the area (SAWEL, SBWEL, NNGOWL, ICOL, Firth of Forth, Aberdeen Bay and all developments in the Moray Firth), scientifically robust, and all the developers should work together to achieve this;
- The use of ducted propellers should not be allowed;
- If the use of ducted propellers is permitted during construction and / or operation, there should be regular monitoring of beaches for stranded animals to determine if any injuries to marine mammals, e.g. corkscrew injuries, are occurring; and
- Should any incident that results in mortality occur during construction, activities should be halted immediately until an investigation can be completed.

The Company have corresponded and met with WDC to discuss concerns further. The Company are involved in the trial of novel source mitigation measures, however, they are aware that the development of these technologies may not be completed before the construction period for the Proposal. The Company have also committed

to monitoring the ongoing research on corkscrew seal injuries with a view to refining assessments / monitoring programs when new data on the subject is published. The Company also highlighted the difficulties of stopping a piling operation once it had commenced if a marine mammal was observed in the area.

WDC further wrote to Marine Scotland, via Client Earth, on the 30<sup>th</sup> April 2014 to provide comments on advice provided to the Scottish Ministers by the JNCC and SNH. 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 Moray Offshore Renewables Limited (“MORL”) and Beatrice Offshore Wind farm Limited (“BOWL”) in the Moray Firth, will not adversely affect the site integrity of the Moray Firth SAC, subject to conditions. WDC believe that the JNCC and SNH 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 to the rapidly declining harbour seal population. The points raised in this letter by WDC are fully addressed in **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(a) and D(b) - DRAFT DECISION LETTER AND CONDITIONS, Annex 2**.

Other Responses - in relation to the Applications and Environmental Statement (“ES”).

#### Environmental Statement

The following organisations had **no comments** to make:

- **British Telecom (Radio Network Protection Team)**
- **Transport Scotland (Ports & Harbours)**

The **Arbroath Harbour, Boarhills & Dunino Community Council, BAA Ltd, Cameron Community Council, Carnbee & Arncroach Community Council, Carnoustie Community Council, Colinsburgh & Kilconquhar Community Council, Dundee Sub Aqua Club, East Fortune Airfield, Esk District Salmon Fishery Board, Firth of Forth U10m Fishing Association, Fife Fishermen's Association, Health & Safety Executive, Inshore Fishery Group, Joint Radio Company, Largo Area Community Council, Marine Safety Forum, Marine Scotland Compliance - Anstruther, Marine Scotland Compliance – Eyemouth, Monifieth Community Council, Montrose Port Authority, Repsol Nuevas Energias UK Limited, Scottish Canoe Association, Scottish Fisherman's Organisation, Scottish Surfing Federation, Scottish Wildlife Trust, Strathkinness Community Council, Tay District Salmon Fishery Board, The Crown Estate** were consulted but no responses were received.

## Supplementary Environmental Information Statement (“SEIS”)

The following organisations had **no comments** to make:

- **Civil Aviation Authority**
- **Edinburgh Airport**
- **Health & Safety Executive**
- **Maritime & Coastguard Agency**
- **National Air Traffic Services**
- **Northern Lighthouse Board**
- **Royal Yachting Association Scotland**
- **Scottish Fisherman’s Federation**
- **Scottish Environment Protection Agency**
- **The Crown Estate**
- **Transport Scotland (Ports & Harbours)**

**Arbroath Harbour, BT Network Radio Protection, Montrose Port Authority** were consulted and a “nil return” response was received from each.

The **Cameron Community Council, Carnbee & Arncroach Community Council, Carnoustie Community Council, Carnoustie Golf Links Management Committee, Colinsburgh & Kilconquhar Community Council, Dundee Sub Aqua Club, East Fortune Airfield, Esk District Salmon Fishery Board, Forth Ports, Inshore Fishery Group, Largo Area Community Council, Marine Safety Forum, Marine Scotland Compliance – Aberdeen, Marine Scotland Compliance - Anstruther, Marine Scotland Compliance - Eyemouth, Monifieth Community Council, Scottish Canoe Association, Scottish Fisherman's Organisation, Scottish Surfing Federation, Scottish Wildlife Trust, Strathkinness Community Council, Tay District Salmon Fishery Board**, were consulted but no responses were received.

### Public Representations

A total of three (3) valid public representations were received by Marine Scotland from members of the public during the course of the public consultation exercise. Of these, two (2) representations objected to the Proposal, and one (1) was in support.

Representations in support of the Proposal were of the belief that in conjunction with nuclear fusion, electricity generated from clean sources, such as wind power, may be able to address concerns such as increasing energy demands, increasing dependency on fossil fuels, effects of climate change due to burning of fossil fuels and exponential population growth. They also believe that quality of life should be considered and by siting turbines at sea a good distance from residential sites is seen as fair.

Representations objecting to the Proposal raised concerns regarding: the effects on the sea bird colonies on the Bass Rock and Fair Isle; threats to the natural environment of the Firth of Forth; impact on marine mammals; tourism; fishing industry; bats; and alternative technologies to wind power being available.

Effects on marine life (including seabirds and marine mammals)

The impacts on marine mammals, sea birds, benthic ecology and other marine life were raised in representations submitted by two members of the public. The Company, in its ES and SEIS, assessed the potential impact of the Proposal on fauna and MS-LOT consulted various nature conservation bodies including the JNCC, SNH, 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(a) and D(b) - 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 recognises 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 the JNCC, SNH and MSS) it can be ascertained with sufficient confidence that the Proposal, 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 Proposal. The JNCC and SNH are in agreement with the AA conclusions for the marine mammal and freshwater fish SACs and in some instances the SPAs. There is, however, disagreement on the conclusions concerning the impacts upon:

- 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 JNCC and SNH view that the closer the effects are to thresholds the greater the risk of adverse effects. MS-LOT considers 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**.

One representation stated that the noise and vibrations of the construction process will significantly disturb fish and sea mammals. Further modelling was commissioned by Marine Scotland and was undertaken by Prof Paul Thompson (University of Aberdeen and Marine Scotland Science Advisory Board). This work looked at the cumulative impacts of pile driving at the Forth and Tay wind farms together with the recently consented Moray Firth wind farms and concluded that there would be no long-term effects from underwater noise disturbance on the bottlenose dolphin population of the Moray Firth SAC.

Impacts on other cetacean species, including harbour porpoise, minke whale and white beaked dolphin, were also considered by the Company in their ES and SEIS. The JNCC

and SNH 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 EPS licence will be required prior to construction. A MMMP is required as part of the PEMP condition of this consent (see **ANNEX D(a) and D(b) - DRAFT DECISION LETTER AND CONDITIONS, Annex 2.**)

The AA concluded that the integrity of the SACs designated for marine mammals would not be adversely affected, subject to appropriate conditions being included on any consent. These conditions are detailed in **ANNEX D(a) and D(b) - DRAFT DECISION LETTER AND CONDITIONS, Annex 2.** Further details of the assessments are provided in **ANNEX E - APPROPRIATE ASSESSMENT.** The JNCC and SNH agreed with all the conclusions reached in the AA with respect to marine mammals. MSS have reviewed the ES, SEIS, the AA and the conditions and consider that the conditions attached to the consent will allow impacts on marine wildlife to be within acceptable limits. Conditions to mitigate and monitor the effects on marine wildlife are reflected in the draft decision letter and consent attached at **ANNEX D(a) and D(b) - DRAFT DECISION LETTER AND CONDITIONS, Annex 2.**

MS-LOT consider that they have sufficient information regarding the potential effects on marine life, 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.

#### *Impacts on the bat population*

One objection was raised in relation to bats through the public consultation process. The statutory nature conservation bodies, the JNCC and SNH, were consulted on the Applications and did not raise any concerns in relation to potential impacts on this species.

MS-LOT consider that they have sufficient information regarding the effects on the bat population, 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 upon the tourism industry*

Concerns have been raised by members of the public to the Applications regarding the Proposal's potential impact upon eco-tourism, as the dolphins and seals become more elusive.

In this respect, MS-LOT notes 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 that 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 that they have sufficient information regarding the eco-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 commercial fishing

The SFF and AMSGA had concerns over impacts on the fishing industry and this was also raised by one member of the public in their objection. The Company, in the ES, stated that impacts on both the squid and scallop fisheries are predicted due to the potential for increased steaming time to fishing grounds, displacement of fishing activity or navigational conflict with other vessels however these were not assessed by the Company as significant.

Within the export cable route corridor, during both the construction and operation phases, the ES predicts a significant impact on the crab and lobster fishery that uses static gear. The impact on the scallop, squid and nephrops fisheries that use mobile gear is assessed as not being significant. Until the appropriate post construction have been completed, the safety risks to fishing vessels arising from the installation of array cables or export cables sites are considered to be outside of acceptable limits.

The Proposal will act cumulatively with other wind farms to produce significant impacts on the scallop, squid, nephrops and the crab and lobster fisheries during operation. In line with the natural fish and shellfish resource assessment a significant impact on herring has been assessed at both project and cumulative levels during construction. Significant cumulative impacts have also been assessed with regard to safety, displacement and interference with fishing vessels.

The Company have engaged with the SFF and AMSGA, as well as with neighbouring offshore wind farm developers, to establish the FTOWDG-CFWG. The FTOWDG-CFWG has been established to facilitate ongoing dialogue throughout the pre-construction, construction and operational phases of the Proposal. 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 to assess impacts to fishing are reflected in the draft decision letter and consent attached at **ANNEX D(a) and D(b) - DRAFT DECISION LETTER AND CONDITIONS, Annex 2.**

Following discussions between MS-LOT and AMSGA, a condition for the Company to fund a lobster re-stocking programme in the area with details to be agreed through the FTOWDG-CFWG, is reflected in the draft decision letter and consent attached at **ANNEX D(a) and D(b) - DRAFT DECISION LETTER AND CONDITIONS, Annex 2.**

MS-LOT consider that they have sufficient information regarding the impacts on commercial fisheries, 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.

#### Alternative technologies to wind power are available

A member of the public expressed an opinion that there is no need for the Proposal as alternative technologies to wind power are available that are less harmful to the environment. They suggested that Scotland also produces enough electricity for our own needs.

The SG's commitment to increase the amount of electricity generated from renewable sources is a vital part of the response to climate change. The SG's Electricity Generation Policy Statement states we believe that Scotland has the capability and the opportunity to generate a level of electricity from renewables by 2020 that would be the equivalent of 100% of Scotland's gross annual electricity consumption. The target will require the market to deliver an estimated 14-16 GW of installed capacity. It does not mean or require an energy mix where Scotland will be 100% reliable on renewables generation by 2020; but it supports Scotland's desire to remain a net exporter of electricity. Due to the intermittent nature of much renewables generation, we will need a balanced energy mix to ensure security of supply.

The technology to be used in this Proposal is one of a number of commercial developments being proposed in the renewables mix to help achieve 2020 targets for renewable electricity generation.

MS-LOT consider that they have sufficient information regarding the alternative technologies to wind power, 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.

#### Summary

MS-LOT has fully and carefully considered these Applications 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 Applications. 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, considers that it has sufficient information to recommend to the Scottish Ministers that they are able to make an informed decision on these Applications 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 Electricity Act for the Scottish Ministers to cause one to be held. The decision to hold a PLI in this case is entirely at the discretion of the Scottish Ministers; such discretion must always be exercised in accordance with the general principles of public law.

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 Supplementary Environmental Information Statement Erratum;
4. the representations from the Company;
5. the representations from consultees;
6. the representations made from members of the public; and
7. the Appropriate Assessment.
8. the Nature Conservation Marine Protected Area 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 Proposal in combination with the other developments in the Forth and Tay 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 Proposal on its own, and in combination with the other NNGOWL and ICOL proposals (subject to conditions) predicted impacts on birds are within acceptable limits such that the integrity of sites designated as protected sites under the Habitats and Wild Birds Directives, and relevant domestic implementing regulations, are not adversely affected. 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 these Applications. 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 these Applications.

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 Proposal in order to determine the Applications.

### **Environmental Benefits and Carbon Payback**

The key environmental benefit of the Proposal is the generation of electricity from a renewable energy source that will reduce or avoid the use of fossil fuels in combustion power plants.

There are multiple benefits associated with the Proposal, including:

- the production of up to 1050 MW of clean energy - the equivalent to nearly one third of Scotland's existing renewable capacity;
- very low lifetime CO<sub>2</sub> emissions per unit of electricity generated;
- address climate change through a move to a low-carbon generation mix for a secure energy future;
- provide an indigenous source of clean energy;
- contribution to new energy infrastructure; and
- contribution to sustainable economic growth.

The Proposal provides the opportunity for a significant contribution to be made towards the ambitious Scottish, UK and European Union ("EU") renewable energy targets. The Proposal would deliver up to 1050 MW of low carbon and domestically sourced electricity for the UK and, unlike burning fossil fuels which releases polluting greenhouse gases into the atmosphere, the Proposal harnesses offshore wind

energy in a non-consumptive and non-polluting (i.e. produces no gases or other by-products) manner.

The proposed installed capacity of the Proposal will provide approximately 3.2 TWh electricity per annum, equivalent to the approximate annual needs of more than 670,000 homes, based on an average consumption of 4,700 kWh of electricity per annum. The Proposal may prevent CO<sub>2</sub> emissions ranging from 1,300,000 to 2,900,000 tonnes of CO<sub>2</sub> per year, depending on whether gas or coal is displaced and assuming an existing mix based on conventional fuels.

### **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 proposal can contribute to local or national economic development priorities as stated in SPP.

The Development will contribute significantly to the new energy infrastructure that needs to be developed to replace existing generating capacity that is reaching the end of its lifespan, to ensure security of supply and to assist in meeting targets for renewable energy generation capacity. The Firth of Forth Round 3 Zone has a target capacity of circa 3.5 GW, with the Development delivering the first 525 MW of this target. SAWEL and SBWEL will deliver 525 MW capacity each. The Zone target capacity would contribute significantly to the requirement for new plant and, given the significant closures in the middle of this decade, it is important that the Proposal progresses as scheduled to avoid risks to security of supply and to minimise reliance on foreign sources of energy.

The Proposal will contribute to the growth of the decarbonised energy sector in Scotland. As stated previously, the Government have set out clear policy drivers that seek to maximise future economic opportunities presented by offshore wind development. The Zone is Scotland's largest Round 3 project and is therefore integral to Governments strategy for sustainable economic growth.

The extent of the project expenditure is not yet known accurately, and hence this has been estimated based on published sources applicable to the offshore wind industry. The capital expenditure costs of developing and constructing an offshore wind farm are estimated to be around £3M per MW. SAWEL and SBWEL each have a maximum output of 525 MW, therefore the predicted expenditure is £1,575 M per project, corresponding to a total expenditure of £3,150 M for the Proposal. In reality should both SAWEL and SBWEL progress to construction, the expenditure on the Proposal will be less as there will be shared costs associated with the export cable and grid connection infrastructure. The Company states that it is not possible at this stage to accurately assess the level of expenditure and have consequently assumed

a 50% reduction in the total £3,150 M expenditure, to account for economies of scale between the two projects. If actual expenditure is higher than this, socio-economic impacts will be more beneficial than as assessed.

As individual projects, either of SAWEL and SBWEL have the potential to contribute GVA between a low case of £60 million and a high case of £241 million in Scotland. In both cases this would represent a beneficial impact on the Scottish economy. The CAPEX would be spent over the 4 year construction period and hence would be a short term impact. For both projects together, the Proposal would contribute between a low case of £80 million and a high case of £321 million GVA in Scotland.

The Company assume an operating expenditure of £75,000 per MW per annum within the assessment, with an anticipated project operational lifespan of 25 years. If the Proposal were to progress as a whole this would generate an annual GVA of between a low case of £17.4 million and a high case of £23.5 million in Scotland. There would be an additional GVA impact in the rest of Great Britain of between £0 (low case) and £5.9 million (high case). In the event that one of SAWEL or SBWEL proceeded individually and the other did not this would represent an annual GVA of between a low case of £8.7 million and a high case of £11.7 million in Scotland.

The number of employees required for the construction and operation and maintenance (“O&M”) phases cannot be accurately quantified at this stage of the development process. However, assuming both projects are developed concurrently, the Company estimate employment impacts of between 1728 jobs (low case) and 7196 jobs (high case) in Scotland during the construction phase. These figures include indirect and induced jobs. Equivalent figures are 1295 jobs to 5392 if either of the projects go ahead separately. The Company also estimate an additional 0 jobs (low case) to 4293 jobs (high case) in the rest of Great Britain if the full proposal goes ahead.

Industry reports (Oxford Economics, 2010) estimate a likely scenario of 0.19 direct O&M jobs created per MW for offshore wind in the UK. This translates to approximately 100 O&M jobs for each of SAWEL and SBWEL projects.

The above estimates are based on two scenarios for development of the supply chain in Scotland and Great Britain from a report by IPA and Scottish Renewables (2010):

- High Case (Scenario A within the industry report) - 10.6 GW of available offshore wind sites in Scotland will be developed. This exploits all the opportunities has to offer including a turbine manufacturer setting up a base in Scotland, development of skills and port infrastructure. A significant supply chain market is developed.
- Low Case (Scenario C within the industry report) - offshore wind sites are brought online at a similar rate to scenario A but the supply chain and wider industrial base does not develop. The majority of goods and services are imported.

Whilst it is not possible to be definitive at this stage, the Proposal has the potential to encourage the establishment of manufacturing or pre-assembly facilities, as well as research and support facilities, by wind turbine generator manufacturers and installers in Scotland and the wider Forth and Tay region. In addition, port, transport and other support facilities will be required during the construction period. Beneficial impacts are expected to continue during the operation period, with support and port facilities required by operators for maintenance and related activities.

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 Scottish Ministers recognise this High Case may include overly optimistic economic impacts for Scotland as the assumed total 10.6 GW of electricity may not be fully achieved in the timescales stated. The development of a supply chain in Scotland, and hence retention rates of activity, is likely to be linked to the total power generation achieved.

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.

**Joao Queiros**

Marine Scotland Licensing Operations Team

Marine Planning and Policy

07<sup>th</sup> October 2014

## **ANNEX C – ADVICE TO MINISTERS AND RECOMMENDATION**

### **APPLICATIONS FOR TWO CONSENTS UNDER SECTION 36 OF THE ELECTRICITY ACT 1989 FOR THE CONSTRUCTION AND OPERATION OF TWO OFFSHORE GENERATING STATIONS, THE SEAGREEN ALPHA AND SEAGREEN BRAVO OFFSHORE WIND FARMS, 27 AND 38 KILOMETRES EAST OF THE ANGUS COASTLINE RESPECTIVELY.**

#### **ADVICE TO THE SCOTTISH MINISTERS IN RELATION TO 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 the various parties have made without an inquiry.

Having regard to the considerations set out in **ANNEX B - BACKGROUND INFORMATION AND SCOTTISH MINISTERS CONSIDERATIONS**, Marine Scotland Licensing Operation 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 Scottish Ministers have sufficient evidence provided by the Company concerning the Proposal, including the ES, the SEIS, the SEIS Erratum, representations from the Company, as well as representations from consultees and from members of the public, together with an AA.

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

1. they possess sufficient information upon the Proposal in order to determine the Application; for consent under section 36 of the Electricity Act 1989 (“the Electricity Act”) (“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 recommends that you determine that it is not appropriate to cause a PLI to be held.**

**ADVICE TO THE SCOTTISH MINISTERS 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 up 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 Proposal 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 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 Companies to give effect to all the mitigation through the attachment of conditions to these consents.

For the reasons set out in **ANNEX A - REGULATORY REQUIREMENTS: LEGISLATION AND POLICY, ANNEX B - BACKGROUND INFORMATION AND SCOTTISH MINISTERS CONSIDERATIONS, and ANNEX E - APPROPRIATE ASSESSMENT**, the Scottish Ministers may be satisfied to the appropriate test that the Proposal, alone, and in combination with ICOL and NNGOWL developments, will not adversely affect site integrity of any European site assessed to have connectivity with the Proposal.

Taking into account the socio-economic benefits and the benefits of renewable energy generation, it is MS-LOT's 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 Proposal in its location.

The considerations mentioned in this paragraph are:

1. The benefits that the Proposal 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 Proposal has had regard to the potential interference of recognised sea lanes essential to international and national navigation. None of the stakeholders responsible for navigational issues objected to the Application and were content that the Proposal 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 to the Electricity Act.

The Company also applied for declarations under section 36A of the Electricity Act to extinguish public rights of navigation so far as they pass through those places within the Scottish marine area (essentially the territorial sea adjacent to Scotland) where structures (but not, for the avoidance of doubt, the areas of sea between those structures) forming part of the offshore wind farm and offshore transmission works are to be located. As the Proposal is to be sited outwith 'relevant waters', i.e. not within the Scottish Territorial Sea, a declaration under section 36A of the Electricity Act cannot be issued. The Company has been informed of this as a matter of courtesy. You can be satisfied that you have discharged your responsibilities in terms of rights of navigation. Such applications may only be made for renewable generating stations to be situated in the territorial sea.

Applications (Application iii and iv) for Marine Licences made under the Marine and Coastal Access Act 2009 for the SBWEL and SAWEL respectively have been considered alongside this Application. They will be determined and a decision issued in due course.

Application v for a marine licence under the Marine and Coastal Access Act 2009 and Marine (Scotland) Act 2010 for the Seagreen Transmission Asset and export cable to shore at Carnoustie, has been considered alongside the Application. It will be determined and a decision issued in due course.

Before any construction work may commence, a licence allowing the disturbance of European Protected Species (cetaceans) will be required to be authorised by the Scottish Ministers under the Offshore Marine Conservation (Natural Habitats, &c.) Regulations 2007. This will be applied for by the Companies separately once the final layout of the wind farms and specifications of the wind turbine generators have been agreed.

## **RECOMMENDATION**

MS-LOT recommends that you determine to **grant consent under section 36 of the Electricity Act for the Seagreen Alpha and Seagreen Bravo Offshore Wind Farm Generating stations subject to the imposition of conditions.** The draft decision letter with conditions is enclosed at **Annex D(a) - DRAFT DECISION LETTER AND CONDITIONS: SEAGREEN ALPHA** and **D(b) - DRAFT DECISION LETTER AND CONDITIONS: SEAGREEN BRAVO.**

**Joao Queiros**

Marine Scotland Licensing Operations Team,  
Marine Planning and Policy.

07<sup>th</sup> October 2014

## ANNEX D(a) – DRAFT DECISION LETTER AND CONDITIONS

**APPLICATIONS FOR TWO CONSENTS UNDER SECTION 36 OF THE ELECTRICITY ACT 1989 FOR THE CONSTRUCTION AND OPERATION OF TWO OFFSHORE GENERATING STATIONS, THE SEAGREEN ALPHA AND SEAGREEN BRAVO OFFSHORE WIND FARMS, 27 AND 38 KILOMETRES EAST OF THE ANGUS COASTLINE RESPECTIVELY.**

**marinescotland**

T: +44 (0)1224 295579 F: +44 (0)1224 295524  
E: MS.MarineLicensing@Scotland.gsi.gov.uk



Mr Mike Scott  
General Manager  
Seagreen Wind Energy Limited  
55 Vastern Road,  
Reading, Berkshire,  
RG1 8BU



XX October 2014

Dear Mr Scott,

**CONSENT GRANTED BY THE SCOTTISH MINISTERS UNDER SECTION 36 OF THE ELECTRICITY ACT 1989 TO CONSTRUCT AND OPERATE THE SEAGREEN ALPHA OFFSHORE WIND FARM ELECTRICITY GENERATING STATION, 27 KILOMETRES EAST OF THE ANGUS COASTLINE.**

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:

- i. A consent under section 36 of the Electricity Act 1989 (as amended) (“the Electricity Act”) by Seagreen Wind Energy Limited (Company Number 06873902)(“SWEL”) on behalf of Seagreen Alpha Wind Energy Limited (Company Number 07185533) (“SAWEL”) (“the Company”) and having its registered office at 55 Vastern Road, Reading, Berkshire, RG1 8BU for the construction and operation of Seagreen Alpha Offshore Wind Farm off the Angus Coast;
- ii. A consent under section 36 of the Electricity Act by SWEL on behalf of Seagreen Bravo Wind Energy Limited (Company Number 07185543)(“SBWEL”) and having its registered office at 55 Vastern Road,

Reading, Berkshire, RG1 8BU for the construction and operation of Seagreen Bravo Offshore Wind Farm off the Angus Coast;

- iii. A marine licence to be considered under the Marine (Scotland) Act 2010 (“the 2010 Act”) and the Marine and Coastal Access Act 2009 (as amended) (“the 2009 Act”) by SWEL on behalf of SAWEL to deposit any substance or object and to construct, alter or improve any works in relation to the Seagreen Alpha Offshore Wind Farm;
- iv. A marine licence to be considered under the 2010 Act and the 2009 Act by SWEL on behalf of SBWEL to deposit any substance or object and to construct, alter or improve any works in relation to the Seagreen Bravo Offshore Wind Farm;
- v. A marine licence to be considered under the 2010 Act and the 2009 Act by SWEL to deposit any substance or object and to construct, alter or improve any works in relation to the Seagreen Transmission Asset (“STA”) project within the Scottish marine area and Scottish offshore region.

## **THE APPLICATION**

I refer to the applications at i, iii and v above made by SWEL, submitted on 15<sup>th</sup> October 2012, for consent under section 36 of the Electricity Act for the construction and operation of the Seagreen Alpha Offshore Wind Farm in the Firth of Forth Zone (“FFZ”); with a maximum generating capacity of 525 megawatts (“MW”) (“the Application”).

In this letter, ‘the Development’ means the proposed Seagreen Alpha Offshore Wind Farm electricity generating station as described in **Annex 1** (Figure 1) of this letter.

In this letter, ‘the Proposal’ means the proposed Seagreen Phase 1 development, consisting of both wind farms, Alpha and Bravo (applications i to v above), for a maximum generating capacity of up to 1050 MW.

## **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 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**

Any proposal to construct, extend or operate a generating station situated in the Scottish offshore region (12-200 nautical miles (“nm”) from the shore) with a generation capacity in excess of 50 megawatts requires consent under section 36 of the Electricity Act. Section 93 of the Energy Act 2004 extends the requirement for section 36 consent to the construction, extension or operation of a generating station situated in the Scottish offshore region (12 -200 nm). 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 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.

The Company applied for two declarations under section 36A of the Electricity Act to extinguish public rights of navigation so far as they pass through those places within the Scottish marine area (essentially the territorial sea adjacent to Scotland) where structures (but not, for the avoidance of doubt the areas of sea between those structures) forming part of the offshore wind farm and offshore transmission works are to be located. As the Proposal is located outwith the limits of the Scottish marine area, a declaration under section 36A of the Electricity Act cannot be issued. The Company has been informed of this as a matter of courtesy.

Under Schedule 8 to the Electricity Act and the Electricity (Applications for Consent) Regulations 1990 (as amended) (“the 1990 Regulations”), 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 Applications. Under Schedule 8 to the Electricity Act, the Scottish Ministers must serve notice of any Applications 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 Marine Scotland Licensing Operation 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.

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 Applications.

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 and all procedural requirements have been complied with. The Company, at the time of submitting the Application, were a licence holder authorised to generate electricity for the purpose of giving a supply to any premises in the area specified in Schedule 1 of the Licence, or enabling a supply to be so given during the period specified in paragraph 3 of the licence, subject to the terms and conditions specified therein. 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 and the Marine and Coastal Access Act 2009**

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.

As this application lies outwith the Scottish Territorial Sea, i.e. beyond the 12 nm limit, it falls to the 2009 Act to regulate marine environmental issues in this area. Other than for certain specified matters, the 2009 Act executively devolved marine

planning, marine licensing and nature conservation powers in the Scottish offshore region to the Scottish Ministers.

The 2009 Act transferred certain functions in issuing consents under section 36 of the Electricity Act from the Secretary of State to the Marine Management Organisation (“MMO”). The MMO does not exercise such functions in Scottish waters or in the Scottish part of the renewable energy zone, as that is where the Scottish Ministers perform such functions.

Where applications for both a marine licence under the 2009 Act and consent under section 36 of the Electricity Act are made then, in those cases where they are the determining authority, the Scottish Ministers may issue a note to the applicant stating that both applications will be subject to the same administrative procedure. Where that is the case then that will ensure that the two related applications may be considered at the same time.

The Scottish Ministers are satisfied that in assessing the Application they have acted in accordance with their general duties.

#### **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 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) and The Marine Works (Environmental Impact Assessment) Regulations 2007 (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”) and The Marine Works (Environmental Impact Assessment) Regulations 2007 (as amended) (“the 2007 Regulations”).

The proposal for the Development has been publicised, to include making the ES available to the public, in terms of the 2000 and 2007 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 Electricity (Applications for Consent) Regulations 1990 (“the 1990 Regulations”), the 2000 Regulations and the 2007 Regulations (as amended) have been followed.

The Scottish Ministers have, in compliance with the 2000 and 2007 Regulations consulted with the Joint Nature Conservation Committee (“JNCC”), Scottish Natural Heritage (“SNH”), 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 5<sup>th</sup> December 2012. Under the 2007 Regulations Scottish Ministers have consulted with “the consultation bodies”, as defined in regulation 2(1).

The Scottish Ministers have also consulted a wide range of relevant organisations, including colleagues within the Scottish Government (“SG”) 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 Development and it applies to birds, their eggs, nests and habitats. Under Article 2, Member States are obliged to “take the requisite measures to maintain the population of the species referred to in Article 1 at a level which corresponds in particular to ecological, scientific and cultural requirements, while taking account of economic and recreational requirements, or to adapt the population of these species to that level”. Article 3 further provides that “[i]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 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”) and the Offshore Marine Conservation (Natural Habitats, & c.) Regulations 2007 (“the 2007 Regulations”). As the Development is to be sited in the Scottish offshore region, it is the 2007 Regulations which are, in the main, applicable in respect of this application for section 36 consent. The 1994 Regulations do, however, apply to those parts of the associated transmission infrastructure which lie inside the Scottish Territorial Sea (i.e. within 12 nm from the shore).

The 1994 and the 2007 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. The nature of the decision may be taken for present purposes from the provision in regulation 25(4) & (5) of the 2007 Regulations:

- “(4) In the light of the conclusions of the assessment, and subject to regulation 26, the competent authority may agree to the plan or project only if it has ascertained that it will not adversely affect the integrity of the European offshore marine site or European site (as the case may be).
- (5) In considering whether a plan or project will adversely affect the integrity of a site, the competent authority must have regard to the manner in which it is proposed to be carried out and to any conditions or restrictions subject to which the competent authority proposes that the consent, permission or other authorisation should be given.”

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.

The JNCC and SNH 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 has considered the combined effects of the Proposal with other Forth and Tay Offshore wind farms, (the Neart na Gaoithe Offshore Wind Limited ("NNGOWL") and Inch Cape Offshore Limited ("ICOL") applications). This is because the NNGOWL and ICOL, the Applications for which were submitted to the Scottish Ministers in July 2012 and July 2013 respectively, are proposed to be sited close to the Development. The AA which has been undertaken concludes that the proposed Development, and the SBWEL, ICOL and NNGOWL 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.

The JNCC and SNH 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, however, disagreement on the conclusions concerning the impacts upon:

- 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 JNCC and SNH view that the closer the levels of effect are to the thresholds the greater the risk of adverse effects. The Scottish Ministers 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 the AA.

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. 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 site integrity will not be adversely affected and that "no reasonable scientific doubt remains as to the absence of such effects". The Scottish Ministers also consider that the best available evidence has been used in reaching conclusions. 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, 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.

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 ("MLWS"). The marine plan area boundaries extend up to the level of Mean High Water Spring tides ("MHWS"). 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.

#### **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 MLWS. The marine plan area boundaries extend up to the level of MHWS. 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<sup>th</sup> Oct 2012)), the Scottish Ministers have had regard to the following documents:

### Scottish Planning Policy

Scottish Planning Policy ("SPP") 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 Proposal 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, the JNCC, SNH and other relevant bodies.

### National Planning Framework 2

At the time of the Application to the Scottish Ministers Scotland's National Planning Framework 2 ("NPF2") was of relevance. 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 14<sup>th</sup> January 2014. This was subject, by statute, to sixty (60) day Parliamentary consideration ending on 22<sup>nd</sup> March 2014. The Scottish Government published the finalised NPF3 on 23<sup>rd</sup> 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 Government's 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 from 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 Proposal, 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 developments 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 Proposal

#### 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 Proposal has been assessed against these constraints and addressed in **Annex 2**.

### 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") has advised that the Angus Local Plan Review is not a relevant consideration as the Development is outwith the area covered.

### Summary

The Scottish Ministers consider the policies as outlined above are broadly supportive of the Development.

## **CONSULTATION**

In accordance with the statutory requirements of the 1990 Regulations, the 2000 Regulations and the 2007 Regulations, notices of the Application had to be placed in the local and national press and the Edinburgh Gazette to notify any interested parties. 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 Angus Council, as the onshore Planning Authority where the STA export cable comes ashore at Carnoustie, as well as to Fife Council. Notifications were also sent to the JNCC, SNH and SEPA.

The formal consultation process that was undertaken by the Scottish Ministers consulted on the whole Seagreen project (“the Proposal” - which consists of applications i to v and the ES). This was conducted between October 2012 and February 2013.

Due to further work being required to inform impact assessments (including HRA), further information was requested from the Company. The SEIS was received by MS-LOT on 18<sup>th</sup> October 2013 and public notices placed in the local press and Edinburgh Gazette to notify any interested parties. MS-LOT also consulted on the SEIS with all the organisations invited to comment on the original application and ES. The public consultation was conducted between October 2013 and December 2013.

Following comments received by Repsol, the company developing the Inch Cape Offshore Wind farm (“ICOL”), an SEIS Erratum (“the Erratum”) was produced, which was treated as additional information under the 2008 Amendment to the Electricity Works EIA Regulations. Therefore, a copy of the Erratum was sent to all consultees, the Erratum was made available to the members of the public in the same public places as the ES; and two public notices were placed for two consecutive weeks in the local press and Edinburgh Gazette to notify any interested parties. This took place in March 2014.

## **Representations and Objections**

A total of three (3) valid public representations were received by Marine Scotland from members of the public during the course of the public consultation exercise. Of these, two (2) representations objected to the Development, and one (1) was in support.

Representations in support of the Development were of the belief that in conjunction with nuclear fusion, electricity generated from clean sources, such as wind power, may be able to address concerns such as increasing energy demands, increasing dependency on fossil fuels, effects of climate change due to burning of fossil fuels and exponential population growth. They also believe that quality of life should be considered and by siting turbines at sea a good distance from residential sites is seen as fair.

Representations objecting to the Development raised concerns regarding: the effects on the sea bird colonies on the Bass Rock and Fair Isle; threats to the natural environment of the Firth of Forth; impact on marine mammals; tourism; fishing industry; bats; and alternative technologies to wind power being available.

During the consultation, objections were also received from the Aberdeen International Airport (“AIA”), Arbroath and Montrose Static Gear Association (“AMSGA”), the Association of Salmon Fishery Boards (“ASFB”), the Ministry of Defence (“MOD”), National Air Traffic Services (“NATS”), the Royal Society for the Protection of Birds Scotland (“RSPB Scotland”), Scottish Fishermen’s Federation (“SFF”) and the Whale and Dolphin Conservation (“WDC”).

Following further discussions between the Company and the MOD, NATS and AIA, these consultees removed their objections subject to conditions being applied to any consent. Further discussion between the Company and the AMSGA also led to the removal of their objection subject to conditions being applied to any consent.

Objections from members of the public, the ASFB, SFF, RSPB Scotland, and WDC are being maintained.

The Scottish Ministers 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 are content that the material considerations have been addressed in the Application and within the responses received to the consultations by the closest onshore Planning Authorities, SEPA, the JNCC, SNH, and other relevant bodies.

The Scottish Ministers consider that no further information is required before the Application may be determined.

### **Public Local Inquiry**

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 and the Proposal as outlined above, raising a number of issues. In summary, and in no particular order, the objections were related to the following issues:

- Effects on marine life (including seabirds and marine mammals);
- Impacts on the bat population;
- Impact upon the tourism industry;
- Impact on commercial fishing;
- Impact on migratory fish; and
- Alternative technologies to wind power.

*Effects on marine life (including seabirds and marine mammals)*

The impacts on marine mammals, sea birds, benthic ecology and other marine life, were raised by two members of the public. The Company, in its ES and SEIS, assessed the potential impact of the Proposal on fauna and, through the consultation process, the Scottish Ministers consulted nature conservation bodies including the JNCC, SNH and other stakeholders as the RSPB Scotland, WDC and Marine Scotland Science (“MSS”) on these documents.

The RSPB Scotland and WDC have maintained their objection. Neither the JNCC nor SNH provided a position statement, however, they have provided conditions (included in **Annex 2**) of this consent to ensure that impacts on wildlife are acceptable. 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, such that the integrity of the sites which are protected sites under the Habitats and Wild Birds Directives, and relevant domestic implementing legislation, will not be adversely affected.

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). 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 the JNCC, SNH and MSS) it can be ascertained with confidence that the Development, subject to appropriate conditions being included within the consent (**Annex 2**), will not adversely affect site integrity of any of the identified SPAs and SACs assessed to have connectivity with the Development. The JNCC and SNH are in agreement with the AA conclusions for the marine mammal and freshwater fish SACs, and in some instances the SPAs. There is, however, disagreement on the conclusions concerning the impacts upon:

- 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 JNCC and SNH view that the closer the effects are to thresholds the greater the risk of adverse effects. The Scottish Ministers 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 the AA.

One representation stated that the noise and vibrations of the construction process will significantly disturb fish and sea mammals. Further modelling was commissioned by Marine Scotland and was undertaken by Prof Paul Thompson (University of Aberdeen and Marine Scotland Science Advisory Board). This work looked at the cumulative impacts of pile driving at the Forth and Tay wind farms together with the recently consented Moray Firth wind farms and concluded that there would be no long-term effects from underwater noise disturbance on the bottlenose dolphin population of the Moray Firth SAC.

Impacts on other cetacean species, including harbour porpoise, minke whale and white beaked dolphin, were also considered by the Company in their ES and SEIS. The JNCC and SNH 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 (**Annex 2**).

The AA concluded that the site integrity of any of the SACs designated for marine mammals would not be adversely affected, subject to appropriate conditions being included on any consent. These conditions are detailed in **Annex 2**. Further details of the assessments are provided in the AA. The JNCC and SNH agreed with all the conclusions reached in the AA with respect to marine mammals. MSS have reviewed the ES, the SEIS, the AA and the conditions and consider that the conditions attached to the consent will allow impacts on marine wildlife to be within acceptable limits, such that the integrity of the designated SACs would not be adversely affected. Conditions to mitigate and monitor the effects on marine wildlife are reflected in **Annex 2**.

The JNCC and SNH 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”). The JNCC and SNH will be consulted on the Vessel Management Plan (“VMP”) which is a condition of this consent, as will such other advisors 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.

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 Scottish Ministers, therefore, consider that they have sufficient information regarding the effects on marine life, 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.

#### *Impacts on the bat population*

One (1) objection was raised in relation to bats through the public consultation process. The statutory nature conservation bodies the JNCC and SNH were consulted on the Application and did not raise any concerns in relation to potential impacts on this species.

The Scottish Ministers, therefore, consider that they have sufficient information regarding the effects on the bat population, 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 upon the tourism industry*

Concerns have been raised by respondents to the Application regarding the Development’s potential impact upon eco-tourism, as the dolphins and seals become more elusive.

In this respect, MS-LOT notes 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, therefore, consider that they have sufficient information regarding the eco-tourism industry, 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 and AMGA had concerns over impacts on the fishing industry and this was also raised by one (1) member of the public in their objection. The Company in the ES stated that impacts on both the squid and scallop fisheries are predicated due to potential increased steaming time to fishing grounds, displacement of fishing activity or navigational conflict with other vessels but these are not assessed as significant. Within the export cable route corridor, during both the construction and operation phases, a significant impact is predicted on the crab and lobster fishery that uses static gear. The impact on the scallop, squid and nephrops fisheries that use mobile gear is assessed as not significant. Until the appropriate post construction has been completed, the safety risks to fishing vessels arising from the installation of array cables or export cables sites are considered to be outside of acceptable limits.

SWEL will act cumulatively with other wind farms to produce significant impacts on the scallop, squid, nephrops and the crab and lobster fisheries during operation. In line with the natural fish and shellfish resource assessment a significant impact on herring has been assessed at both project and cumulative levels during construction. Significant cumulative impacts have also been assessed with regards to safety, displacement and interference with fishing vessels.

The Company have engaged with the SFF and AMGA and in conjunction with neighbouring wind farm developers, have formed the Forth and Tay Offshore Wind Developers Group (“FTOWDG”) and the Commercial Fisheries Working group (“CFWG”). The FTOWDG-CFWG has been established to facilitate on-going dialogue throughout the pre-construction, construction and operational phases of the Proposal. 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 to assess impacts to fishing are reflected within 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.

Since November 2012, there have been a number of meetings of the FTOWDG-CFWG which have provided an effective forum for discussion between the commercial fishing industry and the offshore wind industry in the Forth and Tay. On the 12 August 2014, the developers forwarded to the Scottish Ministers a Shared Position Statement to confirm the areas of agreement that have been achieved so far within the FTOWDG-CFWG. This Shared Position Statement seeks to provide

the basis for moving the discussions forward and rightly states it is desirable that consistent approaches in relation to the interactions with commercial fishing activities are agreed through by FTOWDG-CFWG, and adopted by the Company as far as possible.

The matters raised in the Shared Position Statement are addressed in the consent conditions, Annex 2 or in the appropriate marine licence.

The Scottish Ministers, therefore, consider that they have sufficient information regarding the impacts on commercial fisheries, 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 migratory fish

Objections relating to potential effects on Atlantic salmon and sea trout were received through the public consultation exercise from ASFB. These are in addition to the objections that are being maintained from the SFF on the Application consultation.

The uncertainty around the assessments of these species has been recognised by the Company in their Application. The ASFB also recognise these uncertainties and believe that they can only be overcome through strategic research. A National Research and Monitoring Strategy for Diadromous Fish (“the Strategy”) has been developed by Marine Scotland Science to address monitoring requirements for Atlantic salmon and sea trout at a national level. The Company has engaged with MSS, the ASFB, SFF and MS-LOT to address this issue. A condition requiring the Company to engage at a local level (the Forth and Tay) in the Strategy is contained within this consent (**Annex 2**).

The Scottish Ministers, therefore, consider that sufficient steps, including the development of national strategic monitoring, have been 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.

#### Alternative technologies to wind power are available

A member of the public expressed an opinion that there is no need for the Proposal as alternative technologies to wind power are available that are less harmful to the environment. They suggested that Scotland also produces enough electricity for our own needs.

The Scottish Government’s commitment to increase the amount of electricity generated from renewable sources is a vital part of the response to climate change. The Scottish Government’s Electricity Generation Policy Statement states we believe that Scotland has the capability and the opportunity to generate a level of electricity from renewables by 2020 that would be the equivalent of 100% of Scotland’s gross annual electricity consumption. The target will require the market to deliver an estimated 14-16 GW of installed capacity. It does not mean or require an energy mix

where Scotland will be 100% reliable on renewables generation by 2020; but it supports Scotland's desire to remain a net exporter of electricity. Due to the intermittent nature of much renewables generation, we will need a balanced energy mix to ensure security of supply.

The technology to be used in this Proposal is one of a number of commercial developments being proposed in the renewables mix to help achieve 2020 targets for renewable electricity generation.

The Scottish Ministers considers that they have sufficient information regarding the alternative technologies to wind power, 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.

The Scottish Ministers, therefore, considers 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. The Scottish Ministers, therefore, considers that 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.

### 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, the SEIS Erratum, the AA and in the consultation responses received from the closest onshore Planning Authorities, SEPA, the JNCC, SNH and other relevant bodies, together with all other objections and representations. The Scottish Ministers do not consider that a public local inquiry 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 2007 Regulations and the applicable procedures regarding publicity and consultation laid down in the 2000 and 2007 Regulations have been followed.

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

The Company, at the time of submitting the Application, was a licence holder authorised to generate electricity for the purpose of giving a supply to any premises in the area specified in Schedule 1 of the Licence, or enabling a supply to be so given during the period specified in paragraph 3 of the licence, subject to the terms and conditions specified therein. 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 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 and regulation 22 of the 2007 Regulations, taken into account all of the environmental information and are satisfied the Company has complied with their obligations under regulation 4(1) of the 2000 Regulations and regulation 12 of the 2007 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 regard to the Development, the JNCC and SNH advised that the Development or the Proposal 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.

Having carried out the AA (considering all the advice received from the JNCC, SNH and MSS) it can be ascertained with confidence that the Proposal, 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 JNCC and SNH are in agreement with the conclusions for the marine mammal and freshwater fish SACs and in some instances the SPAs. There is, however, disagreement on the conclusions concerning the impacts upon:

- 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 JNCC and SNH view that the closer the levels of effect are to the thresholds the greater the risk of adverse effects. 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 the AA.

The JNCC, SNH and MSS recommended that certain conditions be included on any consent which would allow this Development to be implemented. These conditions have been included within this consent (**Annex 2**).

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 JNCC and SNH 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 Proposal. Under the Habitats regulations this must be carried out as soon as is reasonably practicable following designation.

### **THE SCOTTISH MINISTERS’ CONSIDERATION OF THE POSSIBLE EFFECTS ON A NATURE CONSERVATION MARINE PROTECTED AREA**

When considering an application for section 36 consent under the Electricity Act, which might affect a Nature Conservation Marine Protected Area (“NC MPA”), the competent authority (under section 126 of the Marine and Coastal Access Act 2009) is required to consider whether the activity is capable of affecting (other than insignificantly) a protected feature in a NC MPA or any ecological or geomorphological process on which the conservation of any protected feature in a NC MPA is dependant. If the competent authority believe that there is or may be a significant risk of an activity hindering the achievement of the conservation objectives then they must notify the conservation bodies (SNH for MPAs within 12 nm or the JNCC for MPAs outwith 12 nm) of that fact. The JNCC have provided advice in terms of section 127 of the 2009 Act that as there are areas of overlap between the Proposal and the NC MPA the Proposal is capable of affecting (other than insignificantly) the ocean quahog and offshore subtidal sand and gravel protected features of the MPA. The JNCC advised that there was no significant risk of the Proposal hindering the achievement of the conservation objectives for the protected features of the Firth of Forth Banks Complex NC MPA if mitigation proposed by the Company is implemented. Having carried out the MPA assessment (considering all the advice received from the JNCC) it can be ascertained with confidence that there is no significant risk of the Proposal, subject to appropriate conditions being included within the consent, hindering the achievement of the conservation objectives of the Firth of Forth Banks Complex NC MPA.

### **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 statutory regulations have been complied with, and that the Development will not adversely affect site integrity of any European protected site.

#### **Impacts on fish and shellfish**

The consultation responses from the ASFB and SFF confirmed objections to the Development and the Proposal from each. The key concerns raised were regarding the uncertainty over the potential impacts on migratory fish. The key issues included

the potential impacts associated with subsea noise during construction and operation, electromagnetic fields (“EMF”), degradation of the benthic environment, impact on prey species, unknown aggregation effects at the turbines, loss of fishing grounds. The ASFB and SFF requested monitoring and mitigation measures to be put in place. 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.

The JNCC and SNH identified SACs where the Development or the Proposal 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 affecting site integrity. Such conditions have been included by the Scottish Ministers within this consent (**Annex 2**).

A key concern of the JNCC and SNH in respect of marine fish, relates to underwater noise impacts from pile-driving of the Wind Turbine Generator (“WTG”) foundations during construction on cod and herring. Noise impacts that interrupt or adversely affect spawning activity could be expected to result in an impact to the cohort for that year. Pile-driving activities in successive years may, therefore, result in a series of weakened cohorts within a population. Conditions to mitigate these impacts including the requirement for soft start piling, piling schedules and construction programmes are included in this consent (**Annex 2**). Post consent sandeel surveys were also recommended by the JNCC and SNH in order to better inform sandeel distribution with the Forth and Tay wind farm sites, again this requirement is included in the conditions.

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 that would require consent to be withheld.

#### Impacts on birds

The JNCC, SNH and the RSPB Scotland expressed concerns about the potential impact of the Proposal in combination with NNGOWL and ICOL developments on several bird species using the Firth of Forth. Advice from the JNCC and SNH on 7<sup>th</sup> March 2014 was that they could not conclude with reasonable certainty that the Forth and Tay wind farms would not adversely affect the site integrity of Forth Islands or Fowlsheugh SPAs. RSPB Scotland object to the Forth and Tay wind farms, in their view, due to the unacceptable harm to seabird species. The species highlighted by the JNCC, SNH 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 affected by displacement, barrier effects and collision.

These species along with guillemot, razorbill, herring gull, lesser black-backed gull, fulmar, common and Arctic tern were considered in the AA. The AA requires to assess the implications of the Development (in combination with the SBWEL, NNGOWL and ICOL developments, and including mitigation measures) for each site in view of the site's conservation objectives. The JNCC and SNH 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 outwith the SPA, but it can also address indirect impacts, such as the degradation or loss of supporting habitats which are outwith 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 SBWEL, NNGOWL 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, the JNCC and SNH. Several methods were used by the JNCC, SNH and MSS to determine levels of acceptable change. The AA concluded that the proposed Development, SBWEL and NNGOWL 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.

The JNCC and SNH disagreed with some of the conclusions of the AA and advised that it could not be concluded that the site integrity of:

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

would not be adversely affected.

The reasons for the differences in the conclusions made by the AA and the JNCC and SNH were mainly due to the different methods used to estimate thresholds and the JNCC and SNH 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 that site integrity is not adversely affected 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.

The JNCC and SNH also highlighted that effects on species not covered under HRA also require consideration (i.e. individuals breeding outwith 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 the JNCC and SNH as being of greatest concern.

Following a meeting held on 7<sup>th</sup> July 2014 between Marine Scotland and SNH, SNH followed up with a letter of 11<sup>th</sup> July which stated that they had the opportunity to review and discuss aspects of their advice where conclusions reached by JNCC & SNH 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 regard 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 advisors 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 seabirds. SNH also noted that there were precautionary elements in the approaches taken and the models recommended by the JNCC and SNH and by MSS.

SNH stated that the level of precaution which is appropriate is not a matter which can be determined precisely, and that judgments 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, judgments 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.

### 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.

The JNCC and SNH 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, site integrity of all these SACs would not be adversely affected. The JNCC and SNH 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 JNCC and SNH 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. The JNCC and SNH 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 on-going 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.

The JNCC and SNH 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 SMRU. The JNCC and SNH 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.

An EPS licence will be required by the Company prior to construction and a MMMP is required as part of the PEMP condition 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 Development's impact on marine mammals which would require consent to be withheld.

#### Impacts on benthic ecology and habitat interests

The Design Envelope applied for includes the option for gravity bases to be used in the construction of the Development. In their interim advice on the Proposal the JNCC and SNH highlighted the inability to conclude assessment for sediment release arising from "worst case" scenarios utilising gravity bases as the Company was unable to confirm the upper limit of gravity bases to be used for turbine foundations. The Scottish Ministers have informed the Company that if gravity bases are to be used as part of the Development this will not be permitted until a further application and supporting EIA for the assessment of the dredging requirements, sediment release and disposal of dredgings has been provided to the Scottish Ministers for their consideration.

The Priority Marine Feature ("PMF") species *Artica islandica* (ocean quahog) has been recorded in limited numbers, and only as juveniles, by the Company within the Proposal site and along the export cable route. The JNCC and SNH advise that this species is sensitive to smothering, and therefore would welcome potential mitigation measures. These mitigation measures have been included in this consent (**Annex 2**). The Company has also recorded *Sabellaria spinulosa* within the site, but not in crust or reef form constituting Annex 1 habitat. The JNCC and SNH have welcomed the Company's initial mitigation proposals in respect of potential rare or important habitats within the site namely the mitigation measures presented in paragraph 11.130 in Chapter 11 of the ES. The Proposal site partially overlaps with the MPA for the Firth of Forth Banks Complex. The JNCC and SNH welcome the Company's proposals to mitigate impacts to benthic habitats, including MPA features as well as their continued engagement over the proposed management options for this MPA. An assessment completed on the potential impacts of the Proposal on the protected features of the MPA concluded that there is no significant risk of the Proposal, subject to appropriate conditions being included within the consent, hindering the achievement of the conservation objectives of the Firth of Forth Banks Complex NC MPA.

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 the JNCC nor SNH 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 of 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.

#### *Impacts on commercial fishing activity*

Regarding commercial fishing activity in the Forth and Tay zone, the SFF, AMSGA and FMA raised concerns regarding the impact on fishing grounds, damage and loss of gear. SFF and AMSGA also consider displacement of fishing to be an issue. SFF agrees with the information in the ES stating that the scallop fleet will be the primary fleet affected.

The Scottish Ministers are aware that there will be temporary displacement within the Development area during construction. MSS advised that in general the Company has provided a robust assessment of the key impacts. MSS commented that the scallop fishing activity in SAWEL is heavier than in SBWEL and they would consider scallop fishing to be of medium sensitivity and the impacts to be of medium magnitude from temporary loss or restriction of access to fishing grounds and displacement of fishing vessels, resulting in moderate adverse and significant impacts. MSS noted that it has been difficult for the developer to address cumulative impacts with any great certainty and advised that this should be looked at by the fisheries working group that has been set up. SFF also requests that the Company continues its membership in the fisheries working group and appoint an Fisheries Liaison Officer (“FLO”).

As suggested by MSS and the SFF, the 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 AMSGA, FMA and SFF. The participation in and the continuation of this group, the development of a Commercial Fisheries Mitigation Strategy (“CFMS”) along with the appointment of a FLO are reflected in conditions of this consent (**Annex 2**). Conditions in this consent requiring over trawl surveys and the CFMS, will potentially mitigate the impacts of the Development on commercial fisheries.

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 that would require consent to be withheld.

#### Impacts on shipping and navigational safety

The Chamber of shipping ("CoS") were concerned over the potential cumulative impacts on navigation resulting from the construction of all the Forth and Tay proposals with the increase in vessel traffic risking shipping routes. The CoS consider that mitigation measures should be applied to ensure a safely navigable corridor is maintained between the Proposal and the Firth of Forth Round 3 projects.

The Northern Lighthouse Board ("NLB") was unable to specify final marking and lighting requirements owing to a lack of clarity in the Application with regard to the final layout of WTGs. Lighting and marking requirements will be given by the NLB during the finalisation of the Development Specification and Layout Plan ("DSLPL") once submitted by the Company. Submission of a DSLPL as well as a Lighting and Marking Plan ("LMP") are conditions of this consent (**Annex 2**).

The Marine and Coastguard Agency ("MCA") raised no objection to the Development but noted that the Proposal had the potential to impact on navigation through displacement of vessel traffic in the area and called for careful monitoring of the potential effects on vessel traffic. The MCA required a full Emergency Response & Cooperation Plan ("ERCoP") properly documented in order to satisfy the requirements of MCA Marine Guidance Note 371. A condition capturing this requirement is reflected in this consent (**Annex 2**).

Royal Yachting Association Scotland ("RYA Scotland") had no objection to the Development but showed some concerns regarding having a gap between SAWEL and SBWEL and how it could pose an increased risk to recreational craft. A condition requiring a comprehensive Navigational Safety Plan ("NSP") has been included within 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 Development's impact on shipping and navigational safety that would require consent to be withheld.

#### Impacts on aviation

NATS objected to the Development due to potential impacts on the Perwinnes Primary Radar and associated air traffic management operations. Following discussions between the Company and NATS, an agreement has been entered into between the two parties for the design and implementation of an identified and defined mitigation solution in relation to the Development and the Proposal. Consequently, NATS have withdrawn their objection. A condition capturing the requirement for the Company to produce and implement a mitigation solution is reflected in this consent (**Annex 2**).

The MOD initially objected to the Development citing concerns with the Air Traffic Control (“ATC”) radar at Leuchars, the Air Defence Radar at Remote Radar Head (“RRH”) Buchan and the Air Defence Radar at RRH Brizlee Wood. The MOD raised concerns, but no objection, with regard to the export cable route and its passage through the Barry Buddon Danger Area D604 (“Danger Area”). Following discussions with the MOD, and further consideration of the mitigation proposals submitted by the Company, the MOD have withdrawn their objection subject to conditions being attached to any consent (**Annex 2**).

The Civil Aviation Authority (“CAA”) did not object to the Development but stressed the need to inform the Defence Geographic Centre of the locations, heights and lighting status of the turbines and meteorological masts, the dates of construction and the maximum height of any construction equipment to be used prior to construction to allow the inclusion on aviation charts. A condition capturing this requirement is reflected in 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 Development’s impact on aviation that would require consent to be withheld.

#### *Impacts on recreation and tourism*

Some concerns have been raised through the consultation regarding the Development’s potential impact upon tourism, particularly relating to disruption and disturbance to the golf courses during and after construction, by Carnoustie Golf Links Management Committee (“CGLMC”). The same consultee stressed the importance of the Open Championship to the local and Scottish economies. Although these concerns are largely related to the terrestrial planning application, MS-LOT is considering the inclusion of a condition in the marine licence, which has jurisdiction up to the level of MHWS, preventing works relating to the cable landfall ancillary infrastructure from taking place at the same time as important golf tournaments. Angus Council will be consulted and will liaise with the Company.

Surfers Against Sewage (“SAS”) requested that the time for access restricted to Carnoustie bay are kept to an absolute minimum so as to have a minimal effect on the surfing community and advised that the Company should liaise with local surfing groups and arrange mitigation factors such as alternative access. The Company informed SAS that the assessment of landside impacts, such as beach access at Carnoustie bay, was specifically scoped out of the Offshore ES, as agreed with Marine Scotland. Nevertheless, as per the Company’s onshore application “The majority of the beach (Carnoustie) will be unaffected, with access maintained where it is safe to do so, and it is likely that visitors will not be deterred from visiting the coastline. No other beaches in the area will be affected by the scheme.”

MS-LOT did not receive any response from Scottish Canoe Association and RYA Scotland did not object to the Development.

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 recreation and tourism that would require consent to be withheld.

### Visual impacts of the Development

SNH, the Scottish Ministers statutory advisors on visual impacts on designated landscape features, and the JNCC were consulted and neither objected on landscape and visual grounds.

SNH stated that, cumulatively, the proposed Forth and Tay wind farms (SAWEL, SBWEL, ICOL and NNGOWL) 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.

According to SNH, on the South Aberdeenshire/Angus Coast, the Proposal would have a small visual influence because it would be further from the coast. Cumulative visual effects would be major on the South Aberdeenshire and Angus coast when ICOL is seen in combination with either the Proposal (to the north, around St Cyrus and within Montrose Bay) or NNGOWL (to the south from Arbroath to Carnoustie).

On the East Fife coast, NNGOWL and ICOL would have the greatest effects on the East Fife coast. The Proposal would be visible in good conditions but seen at considerable distance (>50 km) and behind ICOL in many views, further limiting the visual influence of the Proposal. When considering the possibility of cumulative effects on this stretch of coast, SNH considered that the Proposal would have minor effects on seascape character and on views in this area due to its distance (>50 km).

From the East Lothian coast, the Proposal would be unlikely to be visible from shore as it would lie over 60 km away (at its nearest point). SNH advised that, cumulatively the Proposal when seen together with NNGOWL and ICOL would only be visible from the East Lothian coast to a very small degree.

SNH stated that, within Aberdeenshire, north of St Cyrus, the Proposal would be seen at distances greater than 40 km and would have relatively minor visual influence. It would be seen as a very distant linear feature on the horizon in clear conditions and would not dominate the coast.

Angus Council and Fife Council were also consulted on landscape and visual grounds. Both Angus Council and Fife Council raised concerns regarding visuals, however, their concerns were not sufficient to cause them to object to the Proposal.

No consultees, Statutory or otherwise, have objected to the Development on landscape and visual impacts. This was primarily due to the distance the Development is from the shore (over 12 nm).

Conditions requiring the submission of a DSLP, Design Statement ("DS") and a LMP have been included in this decision letter and consent. Furthermore, 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. As part of this consent a condition has been placed on the Company to provide final visualisations to the SNH, the local authorities and all consultees with an interest in visual amenity (**Annex 2**).

The Scottish Ministers recognise that the Development, ICOL and NNGOWL will be a prominent new features on the seascape from the Angus coastline.

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. 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 impacts that would require consent to be withheld.

#### *Failure to meet the requirements of the Aarhus Convention*

Concerns were raised that in August 2013, the United Nations Economic Commission for 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. 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.

#### *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 of the energy of the fuel going into a conventional thermal power station is transformed into useful electricity - a lot of it ends up as ash or air pollution harmful to health, as well as carbon dioxide. Also, unlike conventional electricity generating stations the fuel for a wind farm does not need to be mined, refined or shipped and transported from other 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 that 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 Zone 2, of Round 3 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 525 MW Development has the potential to annually generate renewable electricity equivalent to the demand from approximately 335,000 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 that would require consent to be withheld.

### 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 2009 The Crown Estate (“TCE”) awarded the Company exclusive developments rights to the Round 3 Zone 2 (named the ‘Firth of Forth Zone’) and in January 2010 TCE awarded Seagreen a Zone Development Agreement (“ZDA”) with a target Zone generation capacity of circa 3.5 GW.

The suitability of the site was further affirmed in May 2010 with the Scottish Government’s publication of the 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.

The Company has adopted the Zone Appraisal and Planning (“ZAP”) approach and used it to provide a clear rationale for site boundaries. The initial site identification process comprised a detailed, desk based assessment of constraints to development. This focused on factors including:

- Grid connection;
- Navigation and shipping;
- Commercial fisheries;
- Aviation and military;
- Wind resource;
- Construction and ports;
- Bathymetry;
- Nationally designated landscape / seascape within 35 kilometres;
- Internationally designated sites (Natura 2000) and proposed sites/ extensions to sites;
- Ornithology, marine mammals and features of marine ecological interest; and
- Sensitive fish spawning areas considered for hearing specialists (herring, sprat) and sandeel.

Revised boundaries were established to provide a balance between the environmental constraints considered significant and the requirement to maintain design flexibility and economic viability. The initial Phase 1 boundary established at the bid stage was revised to exclude the Scalp Bank feature following the initial modelling of collision risk for birds. Subsequent to this, and based on a further review of consenting strategy options, the Company finalised the SAWEL and SBWEL site areas taken forward in the EIA and consent applications. Phases 2 and 3 of the

development have been scoped, however, applications have not been made at this time.

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.

### Cumulative impacts of the Development

The close proximity of the Development (as part of the Proposal) to the proposed adjacent ICOL and NNGOWL wind farms 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, the JNCC, SNH, 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 Company commitment to increasing the air gap measured from LAT by 4 metres in order to mitigate collision impacts. The effect of displacement from the Proposal is also less than that from NNGOWL and ICOL as the turbines are more widely spaced. These factors were taken into account when completing the AA. 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 has been established in order to discuss and address any issues. A condition to ensure the Company continues its membership of the CFWG and its commitment to any mitigation strategy forms part of this consent (**Annex 2**).

Concerns were also raised on the cumulative impacts on navigation by the CoS. A condition ensuring that consultation with the CoS regarding the DSLP is undertaken prior to commencement of the Development, 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 area that would require consent to be withheld.

### 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 proposal can contribute to local or national economic development priorities as stated in SPP.

The Development will contribute significantly to the new energy infrastructure that needs to be developed to replace existing generating capacity that is reaching the end of its lifespan, to ensure security of supply and to assist in meeting targets for renewable energy generation capacity. The Firth of Forth Round 3 Zone has a target capacity of circa 3.5 GW, with the Development delivering the first 525 MW of this target. SAWEL and SBWEL will deliver 525 MW capacity each. The Zone target capacity would contribute significantly to the requirement for new plant and, given the significant closures in the middle of this decade, it is important that the Proposal progresses as scheduled to avoid risks to security of supply and to minimise reliance on foreign sources of energy.

The Development will contribute to the growth of the decarbonised energy sector in Scotland. As stated previously, the Government have set out clear policy drivers that seek to maximise future economic opportunities presented by offshore wind development. The Zone is Scotland's largest Round 3 project and is therefore integral to Governments strategy for sustainable economic growth.

The extent of the project expenditure is not yet known accurately, and hence this has been estimated based on published sources applicable to the offshore wind industry. The capital expenditure costs of developing and constructing an offshore wind farm are estimated to be around £3 million per MW. SAWEL and SBWEL each have a maximum output of 525 MW, therefore the predicted expenditure is £1,575 million per project, corresponding to a total expenditure of £3,150 million for the Proposal. In reality should both SAWEL and SBWEL progress to construction, the expenditure on the Proposal will be less as there will be shared costs associated with the export cable and grid connection infrastructure. The Company states that it is not possible at this stage to accurately assess the level of expenditure and have consequently assumed a 50% reduction in the total £3,150 million expenditure, to account for economies of scale between the two projects. If actual expenditure is higher than this, socio-economic impacts will be more beneficial than as assessed.

As individual projects, either of SAWEL and SBWEL have the potential to contribute GVA between a low case of £60 million and a high case of £241 million in Scotland. In both cases this would represent a beneficial impact on the Scottish economy. The CAPEX would be spent over the 4 year construction period and hence would be a short term impact. For both projects together, the Proposal would contribute between a low case of £80 million and a high case of £321 million GVA in Scotland.

The Company assume an operating expenditure of £75,000 per MW per annum within the assessment, with an anticipated project operational lifespan of 25 years. If the Proposal were to progress as a whole this would generate an annual GVA of between a low case of £17.4 million and a high case of £23.5 million in Scotland. There would be an additional GVA impact in the rest of Great Britain of between £0

(low case) and £5.9 million (high case). In the event that one of SAWEL or SBWEL proceeded individually and the other did not this would represent an annual GVA of between a low case of £8.7 million and a high case of £11.7 million in Scotland.

The number of employees required for the construction and operation and maintenance (“O&M”) phases cannot be accurately quantified at this stage of the development process. However, assuming both projects are developed concurrently, the Company estimate employments impacts of between 1728 jobs (low case) and 7196 jobs (high case) in Scotland during the construction phase. This is significantly higher than any other wind farms estimated in Scotland. These figures include indirect and induced jobs. Equivalent figures are 1295 jobs to 5392 if either of the projects go ahead separately. The Company also estimate an additional 0 jobs (low case) to 4293 jobs (high case) in the rest of Great Britain if the full proposal goes ahead.

Industry reports (Oxford Economics, 2010) estimate a likely scenario of 0.19 direct O&M jobs created per MW for offshore wind in the UK. This translates to approximately 100 O&M jobs for each of SAWEL and SBWEL projects, and approximately 200 O&M jobs for the combined Proposal.

The supporting Application for this Development contains the justification for the use of the figures below;

“The above estimates are based on 2 scenarios for development of the supply chain in Scotland and Great Britain from a report by IPA and Scottish Renewables (2010):

- High Case (Scenario A within the industry report) – 10.6 GW of available offshore wind sites in Scotland will be developed. This exploits all the opportunities has to offer including a turbine manufacturer setting up a base in Scotland, development of skills and port infrastructure. A significant supply chain market is developed
- Low Case (Scenario C within the industry report) – Offshore wind sites are brought online at a similar rate to scenario A but the supply chain and wider industrial base does not develop. The majority of goods and services are imported.

Whilst it is not possible to be definitive at this stage, the Proposal has the potential to encourage the establishment of manufacturing or pre-assembly facilities, as well as research and support facilities, by wind turbine generator manufacturers and installers in Scotland and the wider Forth and Tay region. In addition, port, transport and other support facilities will be required during the construction period. Beneficial impacts are expected to continue during the operation period, with support and port facilities required by operators for maintenance and related activities.

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 Scottish Ministers recognise this High Case may include overly optimistic economic impacts for Scotland as the assumed total 10.6 GW of electricity may not be fully achieved in the timescales stated. The development of a supply chain in Scotland, and hence retention rates of activity, is likely to be linked to the total power generation achieved.

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.

### **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 Application 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 and regulation 22 of the 2007 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 three (3) 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 SBWEL, ICOL, NNGOWL and all other relevant developments, 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 **525 MW** (as described in **Annex 1**).

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

The Company applied for two declarations under section 36A of the Electricity Act to extinguish public rights of navigation so far as they pass through those places within the Scottish marine area (essentially the territorial sea adjacent to Scotland) where structures (but not, for the avoidance of doubt the areas of sea between those structures) forming part of the offshore wind farm and offshore transmission works are to be located. As the Proposal is located outwith the limits of the Scottish marine area, a declaration under section 36A of the Electricity Act cannot be issued. The Company has been informed of this as a matter of courtesy.

In accordance with the 2000 Regulations and the 2007 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. The Company must provide copies of the public notices to the Scottish Ministers.

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 as set out in the Application and as described in **Annex 1**.

Copies of this letter and the consent have been sent to Angus Council and Fife 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 the judicial review process can be found at Chapter 58 of the Court of Session rules on the website of the Scottish Courts –

<http://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 C MCKIE**

Leader, Marine Scotland Licensing Operations Team

A member of the staff of the Scottish Ministers

XX DATE

## **Annex 1**

### **DESCRIPTION OF THE DEVELOPMENT**

The Development, located as shown on Figure 1 below, shall have a permitted generating capacity not exceeding 525 MW and shall comprise a wind-powered electricity generating station in the FFZ, including:

1. not more than 75 three-bladed horizontal axis wind turbine generators each with:
  - a) a maximum blade tip height of 209.7 metres (measured from LAT);
  - b) a rotor diameter of between 122 and 167 metres;
  - c) a hub height of between 87.1 and 126.2 metres (measured from LAT);
  - d) a minimum blade tip clearance of between 29.8 and 42.7 metres (measured from LAT);
  - e) blade width of up to 5.4 metres; and
  - f) a minimum spacing of 1,000 metres;
2. all foundations, substructures, fixtures, fittings, fixings, and protections;
3. inter array cabling and cables up to and onto the offshore substation platforms; and
4. transition pieces including access ladders / fences and landing platforms,

and, except to the extent modified by the foregoing, all as specified in the Application and by the conditions imposed by the Scottish Ministers. References to “the Development” in this consent shall be construed accordingly.

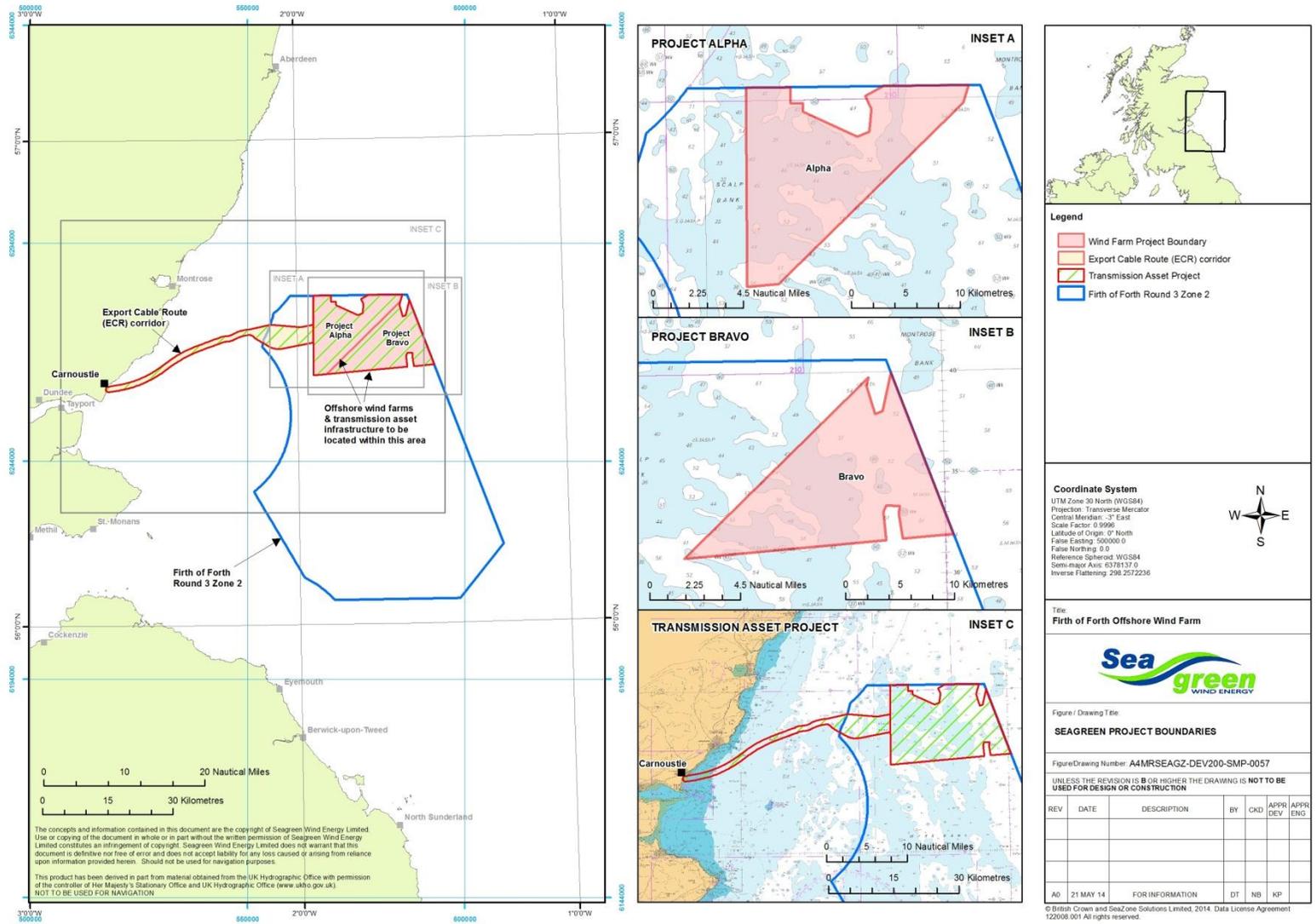


Figure 1: Development Location – see KEY

## 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 Authority, the JNCC and SNH 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, the JNCC and SNH 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 the 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 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 and associated ancillary equipment is 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 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 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 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 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 Application and must include details of how the construction related mitigation steps proposed in the ES and in the SEIS 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. In 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 the JNCC, SNH 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 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 ("DSLPL"), 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, the JNCC, SNH, SFF, 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 DSLPL (as updated and amended from time to time by the Company). Any updates or amendments made to the DSLPL by the Company must be submitted, in writing, by the Company to the Scottish Ministers for their written approval.

The DSLPL 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 WGS84 format;
- c. A table or diagram of each WTG dimensions including - height to blade tip (measured above Lowest Astronomical Tide ("LAT")) to the highest point, height to hub (measured above LAT to the centreline of the generator shaft), rotor diameter and maximum rotation speed;

- d. The generating capacity of each WTG used on the Site (Annex 1, Inset A of Figure 1) 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 as 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 the JNCC, SNH 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. The Development must, at all times, be constructed in accordance with the approved DS (as updated and amended from time to time by the Company).

**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 the JNCC, SNH, 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 the Decommissioning Programme provided for 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 overarching 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, the JNCC, SNH, 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 the JNCC, SNH, 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 27) 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 the JNCC, SNH, 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 to the Scottish Ministers, as soon as practicable, prior to any such change being implemented in the construction or operation of the Development.

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

**Reason: To mitigate 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 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 prior to approval of the NSP. 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 the JNCC, SNH, MCA, SFF and any such other advisors or organisations as may be required at the discretion of the Scottish Ministers. The CaP must be in accordance with the 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 protection measures;
- e. Methodologies for surveys (e.g. over trawl) of the inter array cables through the operational life of the wind farm where mechanical protection of cables laid on the sea bed is deployed; and
- f. Methodologies for inter array cable inspection with measures to address and report to the Scottish Ministers any exposure of inter array cables.

**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 only, to the Planning Authorities, the JNCC, SNH 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.

The ATC Scheme is a scheme designed to mitigate the impact of the Development upon the operation of the Primary Surveillance Radar at RAF Leuchars (“the Radar”) and the air traffic control operations of the MOD which is reliant upon the Radar. The ATC Scheme shall set out the appropriate measures to be implemented to mitigate the impact of the Development on

the Radar and shall be in place for the operational life of the Development provided the Radar remains in operation.

No turbines shall become operational unless and until all those measures required by the approved ATC Scheme to be implemented prior to the operation of the turbines have been implemented and the Scottish Ministers have confirmed this in writing. The Development shall thereafter be operated fully in accordance with 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 ensure that no part of any turbine shall be erected above sea level within radar line of sight of the air defence radar at Remote Radar Head (RRH) Buchan unless and until an Air Defence Radar Mitigation Scheme (“the ADRM scheme”) has been submitted to and approved in writing by the Scottish Ministers in consultation with the MOD.

For the purposes of this condition, the ADRM Scheme means a detailed scheme to mitigate the adverse impacts of the Development on the air defence radar at RRH Buchan and the air surveillance and control operations of the MOD. The scheme will set out the appropriate measures to be implemented to that end.

No turbines shall become operational until:

- a. the mitigation measures which the approved ADRM Scheme requires to be implemented prior to the operation of the turbines have been implemented; and
- b. any performance criteria specified in the approved ADRM Scheme and which the approved ADRM Scheme requires to have been satisfied prior to the operation of the turbines have been satisfied.

The Company shall thereafter comply with all other obligations contained within the approved ADRM Scheme for the duration of the operation of the Development.

**Reason: To mitigate the adverse impact of the Development on air defence radar at Remote Radar Head (RRH) Buchan.**

22. The Company must ensure that no part of any turbine shall be erected above sea level within radar line of sight of the air defence radar at Remote Radar Head (“RRH”) Brizlee Wood unless and until an Air Defence Radar Mitigation Scheme (“the ADRM scheme”) has been submitted to and approved in writing by the Scottish Ministers in consultation with the MOD.

For the purposes of this condition, the ADRM Scheme means a detailed scheme to mitigate the adverse impacts of the Development on the air defence radar at RRH Brizlee Wood and the air surveillance and control

operations of the MOD. The scheme will set out the appropriate measures to be implemented to that end.

No turbines shall become operational until:

- a. the mitigation measures which the approved ADRM Scheme requires to be implemented prior to the operation of the turbines have been implemented; and
- b. any performance criteria specified in the approved ADRM Scheme and which the approved ADRM Scheme requires to have been satisfied prior to the operation of the turbines have been satisfied.

The Company shall thereafter comply with all other obligations contained within the approved ADRM Scheme for the duration of the operation of the Development.

**Reason: To mitigate the adverse impact of the development on air defence radar at Remote Radar Head (RRH) Brizlee Wood.**

23. The Company must ensure that no turbine shall be erected until a Primary Radar Mitigation Scheme (“PRMS”) agreed with the Operator has been submitted to and approved in writing by the Scottish Ministers in order to mitigate the impact of the Development on the Primary Radar Installation at Perwinnes and associated air traffic management operations.

No blades shall be fitted to any turbine unless and until the approved Primary Radar Mitigation Scheme has been implemented and the development shall thereafter be operated fully in accordance with such approved Scheme.

**Reason: To mitigate the adverse impact of the development on air traffic operations.**

24. The Company must, prior to the Commencement of the Development, and following confirmation of the approved DSLP by the Scottish Ministers (refer to condition 12), provide the positions and maximum heights of the WTGs and construction equipment over 150 m (measured above LAT) and any Offshore Sub-Station Platforms 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 co-ordinates accurate to three decimal places of minutes of arc for each WTG position and maximum heights of the WTGs to the UKHO for aviation and nautical charting purposes.

**Reason: For aviation and navigational safety.**

25. The Company must, at least 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 be constructed and operated in accordance with the approved TTP (as updated and amended from time to time, following written approval from the Scottish Ministers).

**Reason: To maintain the free flow and safety of the Trunk Road network.**

26. 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 the JNCC, SNH, 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 so as to ensure that the data which is collected allows useful and valid comparisons between different phases of the Development. Monitoring may also serve the purpose of verifying key predictions in the Application. In the event that further potential adverse environmental effects are identified, for which no predictions were made in the Application, the Scottish Ministers may require the Company to undertake additional monitoring.

The 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 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 Marine Mammal Monitoring Programme (“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 Forth and Tay Regional Advisory Group (“FTRAG”) referred to in condition 27 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 the 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.**

27. 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 28), 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.**

28. 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.*

29. 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 the JNCC and SNH, 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 version of all plans and programmes required under this consent;
  - b. Provide 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. Monitor compliance with the CMS, the EMP, the PEMP, the PS (if required), the CaP and the VMP;
  - d. Provide 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.*

30. 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.*

31. 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 regions.
- 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 CFMS must, in particular, include mitigation measures for lobster stock enhancement if the Scottish Ministers are satisfied that such mitigation measures are reasonably necessary. The Company must implement all mitigation measures committed to be carried out by the Company within the 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.**

32. Prior to the Commencement of the Development, a Fisheries Liaison Officer (“FLO”), approved in writing 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.**

33. 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.**

### **Annex 3**

#### **DEFINITIONS AND GLOSSARY OF TERMS**

In this decision letter and in Annex 1 and 2:

“the Application” includes the Application letter and Environmental Statement submitted to the Scottish Ministers by Seagreen Wind Energy Limited, on behalf of Seagreen Alpha Wind Energy Limited and Seagreen Bravo Wind Energy Limited, on 15<sup>th</sup> October 2012; the Supplementary Environmental information Statement submitted to the Scottish Ministers by Seagreen Wind Energy Limited on the 18<sup>th</sup> October 2013; and the SEIS Erratum submitted to the Scottish Ministers by Seagreen Wind Energy Limited on the 11<sup>th</sup> March 2014.

“AA” means Appropriate Assessment.

“CAPEX” means Capital Expenditure.

“Commencement of the Development” means the date on which Construction begins on the site of the Development in accordance with this consent.

“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.

“Construction” means as defined at section 64(1) of the Electricity Act 1989, read with section 104 of the Energy Act 2004.

“Danger Area” means the seaward extent of MOD Danger Area D604 into which military firing practise at Barry Buddon Range is conducted.

“Decommissioning Programme” means the programme for decommissioning the relevant object, to be submitted by the Company to the Secretary of State under section 105(2) of the Energy Act 2004 (as amended).

“Design Envelope”, also referred to as Rochdale Envelope, is an approach to consenting and environmental impact, named after a UK planning law case, which allows a project description to be broadly defined, within a number of agreed parameters, for the purposes of a consent application.

“ECoW” means Ecological Clerk of Works.

“EIA” means Environmental Impact Assessment.

“EMF” means Electromagnetic Fields.

“EPS” means European Protected Species.

“ERCoP” means Emergency Response & Cooperation Plan.

“ES” means the Environmental Statement submitted to the Scottish Ministers by the Seagreen Wind Energy Limited on 15<sup>th</sup> October 2012 as part of the Application as defined above.

“EU” means European Union.

“FFZ” means Firth of Forth Zone.

“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 a Fisheries Liaison Officer.

“GIS” means Geographic Information System.

“GVA” means Gross Value Added and represents a measure of the contribution to the economy of each individual producer, industry or sector in the United Kingdom.

“GW” means gigawatt.

“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.

“LAT” means Lowest Astronomical Tide.

“LSE” means Likely Significant Effect.

“MGN371” means Marine Guidance Note 371 and refers to 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.

“MHWS” means Mean High Water Springs.

“MLWS” means Mean Low Water Springs.

“MPA” means Marine Protected Area.

“MW” means megawatt.

“nm” means nautical miles.

“NSBMF” means National Strategic Bird Monitoring Framework.

“O&M” means operation and maintenance.

"Operator" means NERL (En Route) plc, incorporated under the Companies Act (4129273) whose registered office is 4000 Parkway, Whiteley, Fareham, Hants PO15 7FL or such other organisation licensed from time to time under sections 5 and 6 of the Transport Act 2000 to provide air traffic services to the relevant managed area (within the meaning of section 40 of that Act).

“ the Planning Authorities” means Angus Council and Fife Council.

“PMF” means Priority Marine Feature.

“SAC” means Special Area of Conservation.

“Scottish marine area” has the meaning given in section 1 of the Marine (Scotland) Act 2010.

“Scottish offshore region” has the meaning given in section 322 of the Marine and Coastal Access Act 2009 (as amended).

“SEA” means Strategic Environmental Assessment.

“SEIS” means Supplementary Environmental information Statement” and refers to the covering letter and report, submitted to the Scottish Ministers by Seagreen Wind Energy Limited on the 18<sup>th</sup> October 2013.

“Soft start piling” means the gradual increase of piling power, incrementally over a set time period, until full operational power is achieved.

“SPA” means Special Protection Area.

“SPP” means Scottish Planning Policy.

“SSMEG” means Scottish Strategic 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.

“STA” means Seagreen Transmission Asset.

“the Company” means Seagreen Alpha Wind Energy Limited, 55 Vastern Road, Reading, Berkshire, RG1 8BU. Company Number: 07185533.

“the Development” means the Seagreen Alpha Wind Farm in the Firth of Forth Zone.

“the Erratum” means the SEIS Erratum submitted to the Scottish Ministers by Seagreen Wind Energy Limited on the 11th March 2014 as a result of comments received by Repsol, the company developing the Inch Cape Offshore Wind farm.

“the Proposal” means the proposed Seagreen Phase 1 Project, consisting of all two wind farms: Seagreen Alpha Offshore Wind Farm and Seagreen Bravo Offshore Wind Farm.

“the Radar” means the Primary Surveillance Radar at RAF Leuchars.

“the Site” means the area shaded in red in Annex 1, Inset A of Figure 1.

“the Zone” means Firth of Forth Round 3 Zone 2 leasing agreements in the UK Renewable Energy Zone.

“UK” means United Kingdom.

“WGS84” means the World Geodetic System 1984.

“WTG” means wind turbine generator.

“ZAP” means Zone Appraisal and Planning.

“ZDA” means Zone Development Agreement.

### Organisations

“AIA” means Aberdeen International Airport.

“AC” means Angus Council.

“AMSGA” means Arbroath and Montrose Static Gear Association.

“ASFB” means The Association of Salmon Fishery Boards.

“CAA” means The Civil Aviation Authority.

“CFWG” means Commercial Fisheries Working Group a Working group part of FTOWDG.

“CGLMC” means Carnoustie Golf Links Management Committee.

“CoS” means The Chamber of Shipping.

“FC” means Fife Council.

“FMA” means the Fishermen’s Mutual Association (Pittenweem) Ltd

“FTOWDG” means The Forth and Tay Offshore Wind Developers Group A group formed, and set up, to develop the Commercial Fisheries Mitigation Strategy, and as forum to facilitate on-going dialogue with the commercial fishing industry.

“FTRAG” means Forth and Tay Regional Advisory Group.

“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.

“MMO” means Marine Management Organisation.

“MOD” means Ministry of Defence.

“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.

“NNGOWL” means Neart na Gaoithe Offshore Wind Limited.

“Repsol” means Repsol Nuevas Energias UK Limited.

“RSPB Scotland” means The Royal Society for the Protection of Birds Scotland.

“RYA Scotland” means Royal Yachting Association Scotland.

“SAS” means Surfers Against Sewage.

“SAWEL” means Seagreen Alpha Wind Energy Limited.

“SBWEL” means Seagreen Bravo Wind Energy Limited.

“SEPA” means The Scottish Environment Protection Agency.

“SFF” means The Scottish Fisherman’s Federation.

“SG” means The Scottish Government.

“SMRU” means Sea Mammal Research Unit.

“SNH” means Scottish Natural Heritage.

“SWEL” means Seagreen Wind Energy Limited.

“TCE” means The Crown Estate.

“UKHO” means United Kingdom Hydrographic Office.

“UNECE” means United Nations Economic Commission for Europe.

“WDC” means Whale and Dolphin Conservation.

#### Plans, Programmes and Statements

“ADRM scheme” means Air Defence Radar Mitigation Scheme.

“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 Ministry of Defence. The scheme will set out the appropriate measures to be implemented to that end.

“CaP” means Cable Plan.

“CFMS” means Commercial Fisheries Mitigation Strategy - the final document produced from consultation between Seagreen Wind Energy Limited and the Forth & Tay Offshore Wind Developers Group - Commercial Fisheries Working Group (“FTOWDG-CFWG”).

“CMS” means Construction Method Statement.

“CoP” means Construction Programme.

“DS” means Design Statement.

“DSLIP” 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 Seagreen Alpha 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.

“NREAP” means UK Government's National Renewable Energy Action Plan.

“NSP” means Navigational Safety Plan.

“OMP” means Operation and Maintenance Programme.

“PEMP” means Project Environmental Monitoring Programme.

"Primary Radar Mitigation Scheme" or "Scheme" means a detailed scheme agreed with the Operator which sets out the measures to be taken to mitigate at all times the impact of the development on the PERWINNES primary radar and air traffic management operations of the Operator.

“PRMS” means Primary Radar Mitigation Scheme.

“PS” means Piling Strategy.

“RRH” means Remote Radar Head and it may refer to Air Defence Radar at RRH Buchan or to the Air Defence Radar at RRH Brizlee Wood.

“the Strategy” means “National Research and Monitoring Strategy for Diadromous Fish” and refers to a strategy that will be formulated from the Marine Scotland Science 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.

“TTP” means Traffic and Transportation Plan.

“VMP” means Vessel Management Plan.

## Legislation

“Wild Birds Directive” means Council Directive 79/409/EEC of 2<sup>nd</sup> 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 30<sup>th</sup> November 2009.

“the Electricity Act” means the Electricity Act 1989 (as amended).

“Habitats Directive” means Council Directive 92/43/EEC of 21<sup>st</sup> 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 1990 Regulations” means the Electricity (Applications for Consent) Regulations 1990 (as amended).

“the 1994 Regulations” means the Conservation (Natural Habitats, & c.) Regulations 1994 (as amended).

“the 1999 Order” means The Scotland Act 1998 (Transfer of Functions to the Scottish Ministers etc.) Order 1999.

“the 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).

“the 2010 Act” means Marine (Scotland) Act 2010.

“SPG” means the Fife Council’s Supplementary Planning Guidance (SPG) on Wind Energy 2011 which supplements the local plan policies.

“the Statement” means The UK Marine Policy Statement 2011.

“TAYplan SDP” means the TAYplan Strategic Development Plan.

## ANNEX D(b) – DRAFT DECISION LETTER AND CONDITIONS

**APPLICATIONS FOR TWO CONSENTS UNDER SECTION 36 OF THE ELECTRICITY ACT 1989 FOR THE CONSTRUCTION AND OPERATION OF TWO OFFSHORE GENERATING STATIONS, THE SEAGREEN ALPHA AND SEAGREEN BRAVO OFFSHORE WIND FARMS, 27 AND 38 KILOMETRES EAST OF THE ANGUS COASTLINE RESPECTIVELY.**

**marinescotland**

T: +44 (0)1224 295579 F: +44 (0)1224 295524  
E: MS.MarineLicensing@Scotland.gsi.gov.uk



Mr Mike Scott  
General Manager  
Seagreen Wind Energy Limited  
55 Vastern Road,  
Reading, Berkshire,  
RG1 8BU



XX October 2014

Dear Mr Scott,

**CONSENT GRANTED BY THE SCOTTISH MINISTERS UNDER SECTION 36 OF THE ELECTRICITY ACT 1989 TO CONSTRUCT AND OPERATE THE SEAGREEN BRAVO OFFSHORE WIND FARM ELECTRICITY GENERATING STATION, 38 KILOMETRES EAST OF THE ANGUS COASTLINE.**

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:

- i. A consent under section 36 of the Electricity Act 1989 (as amended) (“the Electricity Act”) by Seagreen Wind Energy Limited (Company Number 06873902)(“SWEL”) on behalf of Seagreen Alpha Wind Energy Limited (Company Number 07185533) (“SAWEL”) and having its registered office at 55 Vastern Road, Reading, Berkshire, RG1 8BU for the construction and operation of Seagreen Alpha Offshore Wind Farm off the Angus Coast;
- ii. A consent under section 36 of the Electricity Act by SWEL on behalf of Seagreen Bravo Wind Energy Limited (Company Number 07185543)(“SBWEL”)(“the Company”) and having its registered office at 55 Vastern Road, Reading, Berkshire, RG1 8BU for the construction and operation of Seagreen Bravo Offshore Wind Farm off the Angus Coast;

- iii. A marine licence to be considered under the Marine (Scotland) Act 2010 (“the 2010 Act”) and the Marine and Coastal Access Act 2009 (as amended) (“the 2009 Act”) by SWEL on behalf of SAWEL to deposit any substance or object and to construct, alter or improve any works in relation to the Seagreen Alpha Offshore Wind Farm;
- iv. A marine licence to be considered under the 2010 Act and the 2009 Act by SWEL on behalf of SBWEL to deposit any substance or object and to construct, alter or improve any works in relation to the Seagreen Bravo Offshore Wind Farm;
- v. A marine licence to be considered under the 2010 Act and the 2009 Act by SWEL to deposit any substance or object and to construct, alter or improve any works in relation to the Seagreen Transmission Asset (“STA”) project within the Scottish marine area and Scottish offshore region.

## **THE APPLICATION**

I refer to the applications at ii, iv, v above made by SWEL, submitted on 15<sup>th</sup> October 2012, for consent under section 36 of the Electricity Act for the construction and operation of the Seagreen Bravo Offshore Wind Farm in the Firth of Forth Zone (“FFZ”); with a maximum generating capacity of 525 megawatts (“MW”) (“the Application”).

In this letter, ‘the Development’ means the proposed Seagreen Bravo Offshore Wind Farm electricity generating station as described in **Annex 1** (Figure 1) of this letter.

In this letter, ‘the Proposal’ means the proposed Seagreen Phase 1 development, consisting of both wind farms, Alpha and Bravo (applications i to v above), for a maximum generating capacity of up to 1050 MW.

## **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 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**

Any proposal to construct, extend or operate a generating station situated in the Scottish offshore region (12-200 nautical miles (“nm”) from the shore) with a generation capacity in excess of 50 megawatts requires consent under section 36 of the Electricity Act. Section 93 of the Energy Act 2004 extends the requirement for section 36 consent to the construction, extension or operation of a generating station situated in the Scottish offshore region (12 -200 nm). 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 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.

The Company applied for two declarations under section 36A of the Electricity Act to extinguish public rights of navigation so far as they pass through those places within the Scottish marine area (essentially the territorial sea adjacent to Scotland) where structures (but not, for the avoidance of doubt the areas of sea between those structures) forming part of the offshore wind farm and offshore transmission works are to be located. As the Proposal is located outwith the limits of the Scottish marine area, a declaration under section 36A of the Electricity Act cannot be issued. The Company has been informed of this as a matter of courtesy.

Under Schedule 8 to the Electricity Act and the Electricity (Applications for Consent) Regulations 1990 (as amended) (“the 1990 Regulations”), 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 Applications. Under Schedule 8 to the Electricity Act, the Scottish Ministers must serve notice of any Applications 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 Marine Scotland Licensing Operation 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.

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 Applications.

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 and all procedural requirements have been complied with. The Company, at the time of submitting the Application, were a licence holder authorised to generate electricity for the purpose of giving a supply to any premises in the area specified in Schedule 1 of the Licence, or enabling a supply to be so given during the period specified in paragraph 3 of the licence, subject to the terms and conditions specified therein. 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 and the Marine and Coastal Access Act 2009**

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.

As this application lies outwith the Scottish Territorial Sea, i.e. beyond the 12 nm limit, it falls to the 2009 Act to regulate marine environmental issues in this area. Other than for certain specified matters, the 2009 Act executively devolved marine

planning, marine licensing and nature conservation powers in the Scottish offshore region to the Scottish Ministers.

The 2009 Act transferred certain functions in issuing consents under section 36 of the Electricity Act from the Secretary of State to the Marine Management Organisation (“MMO”). The MMO does not exercise such functions in Scottish waters or in the Scottish part of the renewable energy zone, as that is where the Scottish Ministers perform such functions.

Where applications for both a marine licence under the 2009 Act and consent under section 36 of the Electricity Act are made then, in those cases where they are the determining authority, the Scottish Ministers may issue a note to the applicant stating that both applications will be subject to the same administrative procedure. Where that is the case then that will ensure that the two related applications may be considered at the same time.

The Scottish Ministers are satisfied that in assessing the Application they have acted in accordance with their general duties.

#### **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 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) and The Marine Works (Environmental Impact Assessment) Regulations 2007 (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”) and The Marine Works (Environmental Impact Assessment) Regulations 2007 (as amended) (“the 2007 Regulations”).

The proposal for the Development has been publicised, to include making the ES available to the public, in terms of the 2000 and 2007 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 Electricity (Applications for Consent) Regulations 1990 (“the 1990 Regulations”), the 2000 Regulations and the 2007 Regulations (as amended) have been followed.

The Scottish Ministers have, in compliance with the 2000 and 2007 Regulations consulted with the Joint Nature Conservation Committee (“JNCC”), Scottish Natural Heritage (“SNH”), 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 5<sup>th</sup> December 2012. Under the 2007 Regulations Scottish Ministers have consulted with “the consultation bodies”, as defined in regulation 2(1).

The Scottish Ministers have also consulted a wide range of relevant organisations, including colleagues within the Scottish Government (“SG”) 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 Development and it applies to birds, their eggs, nests and habitats. Under Article 2, Member States are obliged to “take the requisite measures to maintain the population of the species referred to in Article 1 at a level which corresponds in particular to ecological, scientific and cultural requirements, while taking account of economic and recreational requirements, or to adapt the population of these species to that level”. Article 3 further provides that “[i]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 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”) and the Offshore Marine Conservation (Natural Habitats, & c.) Regulations 2007 (“the 2007 Regulations”). As the Development is to be sited in the Scottish offshore region, it is the 2007 Regulations which are, in the main, applicable in respect of this application for section 36 consent. The 1994 Regulations do, however, apply to those parts of the associated transmission infrastructure which lie inside the Scottish Territorial Sea (i.e. within 12 nm from the shore).

The 1994 and the 2007 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. The nature of the decision may be taken for present purposes from the provision in regulation 25(4) & (5) of the 2007 Regulations:

- “(4) In the light of the conclusions of the assessment, and subject to regulation 26, the competent authority may agree to the plan or project only if it has ascertained that it will not adversely affect the integrity of the European offshore marine site or European site (as the case may be).
- (5) In considering whether a plan or project will adversely affect the integrity of a site, the competent authority must have regard to the manner in which it is proposed to be carried out and to any conditions or restrictions subject to which the competent authority proposes that the consent, permission or other authorisation should be given.”

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.

The JNCC and SNH 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 has considered the combined effects of the Proposal with other Forth and Tay Offshore wind farms, (the Neart na Gaoithe Offshore Wind Limited ("NNGOWL") and Inch Cape Offshore Limited ("ICOL") applications). This is because the NNGOWL and ICOL, the Applications for which were submitted to the Scottish Ministers in July 2012 and July 2013 respectively, are proposed to be sited close to the Development. The AA which has been undertaken concludes that the proposed Development, and the SAWEL, ICOL and NNGOWL 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.

The JNCC and SNH 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, however, disagreement on the conclusions concerning the impacts upon:

- 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 JNCC and SNH view that the closer the levels of effect are to the thresholds the greater the risk of adverse effects. The Scottish Ministers 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 the AA.

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. 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 site integrity will not be adversely affected and that "no reasonable scientific doubt remains as to the absence of such effects". The Scottish Ministers also consider that the best available evidence has been used in reaching conclusions. 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, 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.

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 ("MLWS"). The marine plan area boundaries extend up to the level of Mean High Water Spring tides ("MHWS"). 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.

#### **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 MLWS. The marine plan area boundaries extend up to the level of MHWS. 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<sup>th</sup> Oct 2012)), the Scottish Ministers have had regard to the following documents:

### Scottish Planning Policy

Scottish Planning Policy ("SPP") 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 Proposal 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, the JNCC, SNH and other relevant bodies.

### National Planning Framework 2

At the time of the Application to the Scottish Ministers Scotland's National Planning Framework 2 ("NPF2") was of relevance. 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 14<sup>th</sup> January 2014. This was subject, by statute, to sixty (60) day Parliamentary consideration ending on 22<sup>nd</sup> March 2014. The Scottish Government published the finalised NPF3 on 23<sup>rd</sup> 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 Government's 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 from 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 Proposal, 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 developments 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 Proposal

#### 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 Proposal has been assessed against these constraints and addressed in **Annex 2**.

### 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") has advised that the Angus Local Plan Review is not a relevant consideration as the Development is outwith the area covered.

### Summary

The Scottish Ministers consider the policies as outlined above are broadly supportive of the Development.

## **CONSULTATION**

In accordance with the statutory requirements of the 1990 Regulations, the 2000 Regulations and the 2007 Regulations, notices of the Application had to be placed in the local and national press and the Edinburgh Gazette to notify any interested parties. 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 Angus Council, as the onshore Planning Authority where the STA export cable comes ashore at Carnoustie, as well as to Fife Council. Notifications were also sent to the JNCC, SNH and SEPA.

The formal consultation process that was undertaken by the Scottish Ministers consulted on the whole Seagreen project (“the Proposal” - which consists of applications i to v and the ES). This was conducted between October 2012 and February 2013.

Due to further work being required to inform impact assessments (including HRA), further information was requested from the Company. The SEIS was received by MS-LOT on 18<sup>th</sup> October 2013 and public notices placed in the local press and Edinburgh Gazette to notify any interested parties. MS-LOT also consulted on the SEIS with all the organisations invited to comment on the original application and ES. The public consultation was conducted between October 2013 and December 2013.

Following comments received by Repsol, the company developing the Inch Cape Offshore Wind farm (“ICOL”), an SEIS Erratum (“the Erratum”) was produced, which was treated as additional information under the 2008 Amendment to the Electricity Works EIA Regulations. Therefore, a copy of the Erratum was sent to all consultees, the Erratum was made available to the members of the public in the same public places as the ES; and two public notices were placed for two consecutive weeks in the local press and Edinburgh Gazette to notify any interested parties. This took place in March 2014.

## **Representations and Objections**

A total of three (3) valid public representations were received by Marine Scotland from members of the public during the course of the public consultation exercise. Of these, two (2) representations objected to the Development, and one (1) was in support.

Representations in support of the Development were of the belief that in conjunction with nuclear fusion, electricity generated from clean sources, such as wind power, may be able to address concerns such as increasing energy demands, increasing dependency on fossil fuels, effects of climate change due to burning of fossil fuels and exponential population growth. They also believe that quality of life should be considered and by siting turbines at sea a good distance from residential sites is seen as fair.

Representations objecting to the Development raised concerns regarding: the effects on the sea bird colonies on the Bass Rock and Fair Isle; threats to the natural environment of the Firth of Forth; impact on marine mammals; tourism; fishing industry; bats; and alternative technologies to wind power being available.

During the consultation, objections were also received from the Aberdeen International Airport (“AIA”), Arbroath and Montrose Static Gear Association (“AMSGA”), the Association of Salmon Fishery Boards (“ASFB”), the Ministry of Defence (“MOD”), National Air Traffic Services (“NATS”), the Royal Society for the Protection of Birds Scotland (“RSPB Scotland”), Scottish Fishermen’s Federation (“SFF”) and the Whale and Dolphin Conservation (“WDC”).

Following further discussions between the Company and the MOD, NATS and AIA, these consultees removed their objections subject to conditions being applied to any consent. Further discussion between the Company and the AMSGA also led to the removal of their objection subject to conditions being applied to any consent.

Objections from members of the public, the ASFB, SFF, RSPB Scotland, and WDC are being maintained.

The Scottish Ministers 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 are content that the material considerations have been addressed in the Application and within the responses received to the consultations by the closest onshore Planning Authorities, SEPA, the JNCC, SNH, and other relevant bodies

The Scottish Ministers consider that no further information is required before the Application may be determined.

### **Public Local Inquiry**

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 and the Proposal as outlined above, raising a number of issues. In summary, and in no particular order, the objections were related to the following issues:

- Effects on marine life (including seabirds and marine mammals);
- Impacts on the bat population;
- Impact upon the tourism industry;
- Impact on commercial fishing;
- Impact on migratory fish; and
- Alternative technologies to wind power.

*Effects on marine life (including seabirds and marine mammals)*

The impacts on marine mammals, sea birds, benthic ecology and other marine life, were raised by two members of the public. The Company, in its ES and SEIS, assessed the potential impact of the Proposal on fauna and, through the consultation process, the Scottish Ministers consulted nature conservation bodies including the JNCC, SNH and other stakeholders as the RSPB Scotland, WDC and Marine Scotland Science (“MSS”) on these documents.

The RSPB Scotland and WDC have maintained their objection. Neither the JNCC nor SNH provided a position statement, however, they have provided conditions (included in **Annex 2**) of this consent to ensure that impacts on wildlife are acceptable. 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, such that the integrity of the sites which are protected sites under the Habitats and Wild Birds Directives, and relevant domestic implementing legislation, will not be adversely affected.

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). 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 the JNCC, SNH and MSS) it can be ascertained with confidence that the Development, subject to appropriate conditions being included within the consent (**Annex 2**), will not adversely affect site integrity of any of the identified SPAs and SACs assessed to have connectivity with the Development. The JNCC and SNH are in agreement with the AA conclusions for the marine mammal and freshwater fish SACs and in some instances the SPAs. There is, however, disagreement on the conclusions concerning the impacts upon:

- 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 JNCC and SNH view that the closer the effects are to thresholds the greater the risk of adverse effects. The Scottish Ministers 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 the AA.

One representation stated that the noise and vibrations of the construction process will significantly disturb fish and sea mammals. Further modelling was commissioned by Marine Scotland and was undertaken by Prof Paul Thompson (University of Aberdeen and Marine Scotland Science Advisory Board). This work looked at the cumulative impacts of pile driving at the Forth and Tay wind farms together with the recently consented Moray Firth wind farms and concluded that there would be no long-term effects from underwater noise disturbance on the bottlenose dolphin population of the Moray Firth SAC.

Impacts on other cetacean species, including harbour porpoise, minke whale and white beaked dolphin, were also considered by the Company in their ES and SEIS. The JNCC and SNH 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 (**Annex 2**).

The AA concluded that the site integrity of any of the SACs designated for marine mammals would not be adversely affected, subject to appropriate conditions being included on any consent. These conditions are detailed in **Annex 2**. Further details of the assessments are provided in the AA. The JNCC and SNH agreed with all the conclusions reached in the AA with respect to marine mammals. MSS have reviewed the ES, the SEIS, the AA and the conditions and consider that the conditions attached to the consent will allow impacts on marine wildlife to be within acceptable limits, such that the integrity of the designated SACs would not be adversely affected. Conditions to mitigate and monitor the effects on marine wildlife are reflected in **Annex 2**.

The JNCC and SNH 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”). The JNCC and SNH will be consulted on the Vessel Management Plan (“VMP”) which is a condition of this consent, as will such other advisors 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.

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 Scottish Ministers, therefore, consider that they have sufficient information regarding the effects on marine life, 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.

#### *Impacts on the bat population*

One (1) objection was raised in relation to bats through the public consultation process. The statutory nature conservation bodies the JNCC and SNH were consulted on the Application and did not raise any concerns in relation to potential impacts on this species.

The Scottish Ministers, therefore, consider that they have sufficient information regarding the effects on the bat population, 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 upon the tourism industry*

Concerns have been raised by respondents to the Application regarding the Development’s potential impact upon eco-tourism, as the dolphins and seals become more elusive.

In this respect, MS-LOT notes 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, therefore, consider that they have sufficient information regarding the eco-tourism industry, 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 and AMSGA had concerns over impacts on the fishing industry and this was also raised by one (1) member of the public in their objection. The Company in the ES stated that impacts on both the squid and scallop fisheries are predicated due to potential increased steaming time to fishing grounds, displacement of fishing activity or navigational conflict with other vessels but these are not assessed as significant. Within the export cable route corridor, during both the construction and operation phases, a significant impact is predicted on the crab and lobster fishery that uses static gear. The impact on the scallop, squid and nephrops fisheries that use mobile gear is assessed as not significant. Until the appropriate post construction has been completed, the safety risks to fishing vessels arising from the installation of array cables or export cables sites are considered to be outside of acceptable limits.

SWEL will act cumulatively with other wind farms to produce significant impacts on the scallop, squid, nephrops and the crab and lobster fisheries during operation. In line with the natural fish and shellfish resource assessment a significant impact on herring has been assessed at both project and cumulative levels during construction. Significant cumulative impacts have also been assessed with regards to safety, displacement and interference with fishing vessels.

The Company have engaged with the SFF and AMSGA and in conjunction with neighbouring wind farm developers, have formed the Forth and Tay Offshore Wind Developers Group (“FTOWDG”) and the Commercial Fisheries Working group (“CFWG”). The FTOWDG-CFWG has been established to facilitate on-going dialogue throughout the pre-construction, construction and operational phases of the Proposal. 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 to assess impacts to fishing are reflected within 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.

Since November 2012, there have been a number of meetings of the FTOWDG-CFWG which have provided an effective forum for discussion between the commercial fishing industry and the offshore wind industry in the Forth and Tay. On the 12 August 2014, the developers forwarded to the Scottish Ministers a Shared Position Statement to confirm the areas of agreement that have been achieved so far within the FTOWDG-CFWG. This Shared Position Statement seeks to provide

the basis for moving the discussions forward and rightly states it is desirable that consistent approaches in relation to the interactions with commercial fishing activities are agreed through by FTOWDG-CFWG, and adopted by the Company as far as possible.

The matters raised in the Shared Position Statement are addressed in the consent conditions, Annex 2 or in the appropriate marine licence.

The Scottish Ministers, therefore, consider that they have sufficient information regarding the impacts on commercial fisheries, 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 migratory fish*

Objections relating to potential effects on Atlantic salmon and sea trout were received through the public consultation exercise from ASFB. These are in addition to the objections that are being maintained from the SFF on the Application consultation.

The uncertainty around the assessments of these species has been recognised by the Company in their Application. The ASFB also recognise these uncertainties and believe that they can only be overcome through strategic research. A National Research and Monitoring Strategy for Diadromous Fish (“the Strategy”) has been developed by Marine Scotland Science to address monitoring requirements for Atlantic salmon and sea trout at a national level. The Company has engaged with MSS, the ASFB, SFF and MS-LOT to address this issue. A condition requiring the Company to engage at a local level (the Forth and Tay) in the Strategy is contained within this consent (**Annex 2**).

The Scottish Ministers, therefore, consider that sufficient steps, including the development of national strategic monitoring, have been 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.

#### *Alternative technologies to wind power are available*

A member of the public expressed an opinion that there is no need for the Proposal as alternative technologies to wind power are available that are less harmful to the environment. They suggested that Scotland also produces enough electricity for our own needs.

The Scottish Government’s commitment to increase the amount of electricity generated from renewable sources is a vital part of the response to climate change. The Scottish Government’s Electricity Generation Policy Statement states we believe that Scotland has the capability and the opportunity to generate a level of electricity from renewables by 2020 that would be the equivalent of 100% of Scotland’s gross annual electricity consumption. The target will require the market to deliver an estimated 14-16 GW of installed capacity. It does not mean or require an energy mix

where Scotland will be 100% reliable on renewables generation by 2020; but it supports Scotland's desire to remain a net exporter of electricity. Due to the intermittent nature of much renewables generation, we will need a balanced energy mix to ensure security of supply.

The technology to be used in this Proposal is one of a number of commercial developments being proposed in the renewables mix to help achieve 2020 targets for renewable electricity generation.

The Scottish Ministers considers that they have sufficient information regarding the alternative technologies to wind power, 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.

The Scottish Ministers, therefore, considers 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. The Scottish Ministers, therefore, considers that 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.

### 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, the SEIS Erratum, the AA and in the consultation responses received from the closest onshore Planning Authorities, SEPA, the JNCC, SNH and other relevant bodies, together with all other objections and representations. The Scottish Ministers do not consider that a public local inquiry 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 2007 Regulations and the applicable procedures regarding publicity and consultation laid down in the 2000 and 2007 Regulations have been followed.

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

The Company, at the time of submitting the Application, was a licence holder authorised to generate electricity for the purpose of giving a supply to any premises in the area specified in Schedule 1 of the Licence, or enabling a supply to be so given during the period specified in paragraph 3 of the licence, subject to the terms and conditions specified therein. 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 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 and regulation 22 of the 2007 Regulations, taken into account all of the environmental information and are satisfied the Company has complied with their obligations under regulation 4(1) of the 2000 Regulations and regulation 12 of the 2007 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 regard to the Development, the JNCC and SNH advised that the Development or the Proposal 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.

Having carried out the AA (considering all the advice received from the JNCC, SNH and MSS) it can be ascertained with confidence that the Proposal, 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 JNCC and SNH are in agreement with the conclusions for the marine mammal and freshwater fish SACs and in some instances the SPAs. There is, however, disagreement on the conclusions concerning the impacts upon:

- 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 JNCC and SNH view that the closer the levels of effect are to the thresholds the greater the risk of adverse effects. 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 the AA.

The JNCC, SNH and MSS recommended that certain conditions be included on any consent which would allow this Development to be implemented. These conditions have been included within this consent (**Annex 2**).

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 JNCC and SNH 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 Proposal. Under the Habitats regulations this must be carried out as soon as is reasonably practicable following designation.

### **THE SCOTTISH MINISTERS’ CONSIDERATION OF THE POSSIBLE EFFECTS ON A NATURE CONSERVATION MARINE PROTECTED AREA**

When considering an application for section 36 consent under the Electricity Act, which might affect a Nature Conservation Marine Protected Area (“NC MPA”), the competent authority (under section 126 of the Marine and Coastal Access Act 2009) is required to consider whether the activity is capable of affecting (other than insignificantly) a protected feature in a NC MPA or any ecological or geomorphological process on which the conservation of any protected feature in a NC MPA is dependant. If the competent authority believe that there is or may be a significant risk of an activity hindering the achievement of the conservation objectives then they must notify the conservation bodies (SNH for MPAs within 12 nm or the JNCC for MPAs outwith 12 nm) of that fact. The JNCC have provided advice in terms of section 127 of the 2009 Act that as there are areas of overlap between the Proposal and the NC MPA the Proposal is capable of affecting (other than insignificantly) the ocean quahog and offshore subtidal sand and gravel protected features of the MPA. The JNCC advised that there was no significant risk of the Proposal hindering the achievement of the conservation objectives for the protected features of the Firth of Forth Banks Complex NC MPA if mitigation proposed by the Company is implemented. Having carried out the MPA assessment (considering all the advice received from the JNCC) it can be ascertained with confidence that there is no significant risk of the Proposal, subject to appropriate conditions being included within the consent, hindering the achievement of the conservation objectives of the Firth of Forth Banks Complex NC MPA.

### **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 statutory regulations have been complied with, and that the Development will not adversely affect site integrity of any European protected site.

#### **Impacts on fish and shellfish**

The consultation responses from the ASFB and SFF confirmed objections to the Development and the Proposal from each. The key concerns raised were regarding the uncertainty over the potential impacts on migratory fish. The key issues included the potential impacts associated with subsea noise during construction and operation, electromagnetic fields (“EMF”), degradation of the benthic environment,

impact on prey species, unknown aggregation effects at the turbines, loss of fishing grounds. The ASFB and SFF requested monitoring and mitigation measures to be put in place. 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.

The JNCC and SNH identified SACs where the Development or the Proposal 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 affecting site integrity. Such conditions have been included by the Scottish Ministers within this consent (**Annex 2**).

A key concern of the JNCC and SNH in respect of marine fish, relates to underwater noise impacts from pile-driving of the Wind Turbine Generator (“WTG”) foundations during construction on cod and herring. Noise impacts that interrupt or adversely affect spawning activity could be expected to result in an impact to the cohort for that year. Pile-driving activities in successive years may, therefore, result in a series of weakened cohorts within a population. Conditions to mitigate these impacts including the requirement for soft start piling, piling schedules and construction programmes are included in this consent (**Annex 2**). Post consent sandeel surveys were also recommended by the JNCC and SNH in order to better inform sandeel distribution with the Forth and Tay wind farm sites, again this requirement is included in the conditions.

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 that would require consent to be withheld.

### Impacts on birds

The JNCC, SNH and the RSPB Scotland expressed concerns about the potential impact of the Proposal in combination with NNGOWL and ICOL developments on several bird species using the Firth of Forth. Advice from the JNCC and SNH on 7<sup>th</sup> March 2014 was that they could not conclude with reasonable certainty that the Forth and Tay wind farms would not adversely affect the site integrity of Forth Islands or Fowlsheugh SPAs. RSPB Scotland object to the Forth and Tay wind farms, in their view, due to the unacceptable harm to seabird species. The species highlighted by the JNCC, SNH 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 affected by displacement, barrier effects and collision.

These species along with guillemot, razorbill, herring gull, lesser black-backed gull, fulmar, common and Arctic tern were considered in the AA. The AA requires to

assess the implications of the Development (in combination with the SAWEL, NNGOWL and ICOL developments, and including mitigation measures) for each site in view of the site's conservation objectives. The JNCC and SNH 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 outwith the SPA, but it can also address indirect impacts, such as the degradation or loss of supporting habitats which are outwith 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, NNGOWL 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, the JNCC and SNH. Several methods were used by the JNCC, SNH and MSS to determine levels of acceptable change. The AA concluded that the proposed Development, SAWEL and NNGOWL 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.

The JNCC and SNH disagreed with some of the conclusions of the AA and advised that it could not be concluded that the site integrity of:

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

would not be adversely affected.

The reasons for the differences in the conclusions made by the AA and the JNCC and SNH were mainly due to the different methods used to estimate thresholds and the JNCC and SNH 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 that site integrity is not adversely affected 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.

The JNCC and SNH also highlighted that effects on species not covered under HRA also require consideration (i.e. individuals breeding outwith 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 the JNCC and SNH as being of greatest concern.

Following a meeting held on 7<sup>th</sup> July 2014 between Marine Scotland and SNH, SNH followed up with a letter of 11<sup>th</sup> July which stated that they had the opportunity to review and discuss aspects of their advice where conclusions reached by JNCC & SNH 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 regard 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 advisors 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 seabirds. SNH also noted that there were precautionary elements in the approaches taken and the models recommended by the JNCC and SNH and by MSS.

SNH stated that the level of precaution which is appropriate is not a matter which can be determined precisely, and that judgments 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, judgments 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.

### 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.

The JNCC and SNH 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, site integrity of all these SACs would not be adversely affected. The JNCC and SNH 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 JNCC and SNH 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. The JNCC and SNH 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 on-going 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.

The JNCC and SNH 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 SMRU. The JNCC and SNH 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.

An EPS licence will be required by the Company prior to construction and a MMMP is required as part of the PEMP condition 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 Development's impact on marine mammals which would require consent to be withheld.

#### Impacts on benthic ecology and habitat interests

The Design Envelope applied for includes the option for gravity bases to be used in the construction of the Development. In their interim advice on the Proposal the JNCC and SNH highlighted the inability to conclude assessment for sediment release arising from "worst case" scenarios utilising gravity bases as the Company was unable to confirm the upper limit of gravity bases to be used for turbine foundations. The Scottish Ministers have informed the Company that if gravity bases are to be used as part of the Development this will not be permitted until a further application and supporting EIA for the assessment of the dredging requirements, sediment release and disposal of dredgings has been provided to the Scottish Ministers for their consideration.

The Priority Marine Feature ("PMF") species *Artica islandica* (ocean quahog) has been recorded in limited numbers, and only as juveniles, by the Company within the Proposal site and along the export cable route. The JNCC and SNH advise that this species is sensitive to smothering, and therefore would welcome potential mitigation measures. These mitigation measures have been included in this consent (**Annex 2**). The Company has also recorded *Sabellaria spinulosa* within the site, but not in crust or reef form constituting Annex 1 habitat. The JNCC and SNH have welcomed the Company's initial mitigation proposals in respect of potential rare or important habitats within the site namely the mitigation measures presented in paragraph 11.130 in Chapter 11 of the ES. The Proposal site partially overlaps with the MPA for the Firth of Forth Banks Complex. The JNCC and SNH welcome the Company's proposals to mitigate impacts to benthic habitats, including MPA features as well as their continued engagement over the proposed management options for this MPA. An assessment completed on the potential impacts of the Proposal on the protected features of the MPA concluded that there is no significant risk of the Proposal, subject to appropriate conditions being included within the consent, hindering the achievement of the conservation objectives of the Firth of Forth Banks Complex NC MPA.

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 the JNCC nor SNH 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 of 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.

#### Impacts on commercial fishing activity

Regarding commercial fishing activity in the Forth and Tay zone, the SFF, AMSGA and FMA raised concerns regarding the impact on fishing grounds, damage and loss of gear. SFF and AMSGA also consider displacement of fishing to be an issue. SFF agrees with the information in the ES stating that the scallop fleet will be the primary fleet affected.

The Scottish Ministers are aware that there will be temporary displacement within the Development area during construction. MSS advised that in general the Company has provided a robust assessment of the key impacts. MSS commented that the scallop fishing activity in SAWEL is heavier than in SBWEL and they would consider scallop fishing to be of medium sensitivity and the impacts to be of medium magnitude from temporary loss or restriction of access to fishing grounds and displacement of fishing vessels, resulting in moderate adverse and significant impacts. MSS noted that it has been difficult for the developer to address cumulative impacts with any great certainty and advised that this should be looked at by the fisheries working group that has been set up. SFF also requests that the Company continues its membership in the fisheries working group and appoint an Fisheries Liaison Officer ("FLO").

As suggested by MSS and the SFF, the 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 AMSGA, FMA and SFF. The participation in and the continuation of this group, the development of a Commercial Fisheries Mitigation Strategy ("CFMS") along with the appointment of a FLO are reflected in conditions of this consent (**Annex 2**). Conditions in this consent requiring over trawl surveys and the CFMS, will potentially mitigate the impacts of the Development on commercial fisheries.

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 that would require consent to be withheld.

#### Impacts on shipping and navigational safety

The Chamber of shipping ("CoS") were concerned over the potential cumulative impacts on navigation resulting from the construction of all the Forth and Tay proposals with the increase in vessel traffic risking shipping routes. The CoS consider that mitigation measures should be applied to ensure a safely navigable corridor is maintained between the Proposal and the Firth of Forth Round 3 projects.

The Northern Lighthouse Board ("NLB") was unable to specify final marking and lighting requirements owing to a lack of clarity in the Application with regard to the final layout of WTGs. Lighting and marking requirements will be given by the NLB during the finalisation of the Development Specification and Layout Plan ("DSLPL") once submitted by the Company. Submission of a DSLPL as well as a Lighting and Marking Plan ("LMP") are conditions of this consent (**Annex 2**).

The Marine and Coastguard Agency ("MCA") raised no objection to the Development but noted that the Proposal had the potential to impact on navigation through displacement of vessel traffic in the area and called for careful monitoring of the potential effects on vessel traffic. The MCA required a full Emergency Response & Cooperation Plan ("ERCoP") properly documented in order to satisfy the requirements of MCA Marine Guidance Note 371. A condition capturing this requirement is reflected in this consent (**Annex 2**).

Royal Yachting Association Scotland ("RYA Scotland") had no objection to the Development but showed some concerns regarding having a gap between SAWEL and SBWEL and how it could pose an increased risk to recreational craft. A condition requiring a comprehensive Navigational Safety Plan ("NSP") has been included within 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 Development's impact on shipping and navigational safety that would require consent to be withheld.

#### Impacts on aviation

NATS objected to the Development due to potential impacts on the Perwinnes Primary Radar and associated air traffic management operations. Following discussions between the Company and NATS, an agreement has been entered into between the two parties for the design and implementation of an identified and defined mitigation solution in relation to the Development and the Proposal. Consequently, NATS have withdrawn their objection. A condition capturing the requirement for the Company to produce and implement a mitigation solution is reflected in this consent (**Annex 2**).

The MOD initially objected to the Development citing concerns with the Air Traffic Control (“ATC”) radar at Leuchars, the Air Defence Radar at Remote Radar Head (“RRH”) Buchan and the Air Defence Radar at RRH Brizlee Wood. The MOD raised concerns, but no objection, with regard to the export cable route and its passage through the Barry Buddon Danger Area D604 (“Danger Area”). Following discussions with the MOD, and further consideration of the mitigation proposals submitted by the Company, the MOD have withdrawn their objection subject to conditions being attached to any consent (**Annex 2**).

The Civil Aviation Authority (“CAA”) did not object to the Development but stressed the need to inform the Defence Geographic Centre of the locations, heights and lighting status of the turbines and meteorological masts, the dates of construction and the maximum height of any construction equipment to be used prior to construction to allow the inclusion on aviation charts. A condition capturing this requirement is reflected in 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 Development’s impact on aviation that would require consent to be withheld.

#### *Impacts on recreation and tourism*

Some concerns have been raised through the consultation regarding the Development’s potential impact upon tourism, particularly relating to disruption and disturbance to the golf courses during and after construction, by Carnoustie Golf Links Management Committee (“CGLMC”). The same consultee stressed the importance of the Open Championship to the local and Scottish economies. Although these concerns are largely related to the terrestrial planning application, MS-LOT is considering the inclusion of a condition in the marine licence, which has jurisdiction up to the level of MHWS, preventing works relating to the cable landfall ancillary infrastructure from taking place at the same time as important golf tournaments. Angus Council will be consulted and will liaise with the Company.

Surfers Against Sewage (“SAS”) requested that the time for access restricted to Carnoustie bay are kept to an absolute minimum so as to have a minimal effect on the surfing community and advised that the Company should liaise with local surfing groups and arrange mitigation factors such as alternative access. The Company informed SAS that the assessment of landside impacts, such as beach access at Carnoustie bay, was specifically scoped out of the Offshore ES, as agreed with Marine Scotland. Nevertheless, as per the Company’s onshore application “The majority of the beach (Carnoustie) will be unaffected, with access maintained where it is safe to do so, and it is likely that visitors will not be deterred from visiting the coastline. No other beaches in the area will be affected by the scheme.”

MS-LOT did not receive any response from Scottish Canoe Association and RYA Scotland did not object to the Development.

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 recreation and tourism that would require consent to be withheld.

### Visual impacts of the Development

SNH, the Scottish Ministers statutory advisors on visual impacts on designated landscape features, and the JNCC were consulted and neither objected on landscape and visual grounds.

SNH stated that, cumulatively, the proposed Forth and Tay wind farms (SAWEL, SBWEL, ICOL and NNGOWL) 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.

According to SNH, on the South Aberdeenshire/Angus Coast, the Proposal would have a small visual influence because it would be further from the coast. Cumulative visual effects would be major on the South Aberdeenshire and Angus coast when ICOL is seen in combination with either the Proposal (to the north, around St Cyrus and within Montrose Bay) or NNGOWL (to the south from Arbroath to Carnoustie).

On the East Fife coast, NNGOWL and ICOL would have the greatest effects on the East Fife coast. The Proposal would be visible in good conditions but seen at considerable distance (>50 km) and behind ICOL in many views, further limiting the visual influence of the Proposal. When considering the possibility of cumulative effects on this stretch of coast, SNH considered that the Proposal would have minor effects on seascape character and on views in this area due to its distance (>50 km).

From the East Lothian coast, the Proposal would be unlikely to be visible from shore as it would lie over 60 km away (at its nearest point). SNH advised that, cumulatively the Proposal when seen together with NNGOWL and ICOL would only be visible from the East Lothian coast to a very small degree.

SNH stated that, within Aberdeenshire, north of St Cyrus, the Proposal would be seen at distances greater than 40 km and would have relatively minor visual influence. It would be seen as a very distant linear feature on the horizon in clear conditions and would not dominate the coast.

Angus Council and Fife Council were also consulted on landscape and visual grounds. Both Angus Council and Fife Council raised concerns regarding visuals, however, their concerns were not sufficient to cause them to object to the Proposal.

No consultees, Statutory or otherwise, have objected to the Development on landscape and visual impacts. This was primarily due to the distance the Development is from the shore (over 12 nm).

Conditions requiring the submission of a DSLP, Design Statement ("DS") and a LMP have been included in this decision letter and consent. Furthermore, 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. As part of this consent a condition has been placed on the Company to provide final visualisations to the SNH, the local authorities and all consultees with an interest in visual amenity (**Annex 2**).

The Scottish Ministers recognise that the Development, ICOL and NNGOWL will be a prominent new features on the seascape from the Angus coastline.

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. 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 impacts that would require consent to be withheld.

#### *Failure to meet the requirements of the Aarhus Convention*

Concerns were raised that in August 2013, the United Nations Economic Commission for 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. 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.

#### *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 of the energy of the fuel going into a conventional thermal power station is transformed into useful electricity - a lot of it ends up as ash or air pollution harmful to health, as well as carbon dioxide. Also, unlike conventional electricity generating stations the fuel for a wind farm does not need to be mined, refined or shipped and transported from other 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 that 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 Zone 2, of Round 3 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 525 MW Development has the potential to annually generate renewable electricity equivalent to the demand from approximately 335,000 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 that would require consent to be withheld.

### 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 2009 The Crown Estate (“TCE”) awarded the Company exclusive developments rights to the Round 3 Zone 2 (named the ‘Firth of Forth Zone’) and in January 2010 TCE awarded Seagreen a Zone Development Agreement (“ZDA”) with a target Zone generation capacity of circa 3.5 GW.

The suitability of the site was further affirmed in May 2010 with the Scottish Government’s publication of the 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.

The Company has adopted the Zone Appraisal and Planning (“ZAP”) approach and used it to provide a clear rationale for site boundaries. The initial site identification process comprised a detailed, desk based assessment of constraints to development. This focused on factors including:

- Grid connection;
- Navigation and shipping;
- Commercial fisheries;
- Aviation and military;
- Wind resource;
- Construction and ports;
- Bathymetry;
- Nationally designated landscape / seascape within 35 kilometres;
- Internationally designated sites (Natura 2000) and proposed sites/ extensions to sites;
- Ornithology, marine mammals and features of marine ecological interest; and
- Sensitive fish spawning areas considered for hearing specialists (herring, sprat) and sandeel.

Revised boundaries were established to provide a balance between the environmental constraints considered significant and the requirement to maintain design flexibility and economic viability. The initial Phase 1 boundary established at the bid stage was revised to exclude the Scalp Bank feature following the initial modelling of collision risk for birds. Subsequent to this, and based on a further review of consenting strategy options, the Company finalised the SAWEL and SBWEL site areas taken forward in the EIA and consent applications. Phases 2 and 3 of the

development have been scoped, however, applications have not been made at this time.

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.

### Cumulative impacts of the Development

The close proximity of the Development (as part of the Proposal) to the proposed adjacent ICOL and NNGOWL wind farms 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, the JNCC, SNH, 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 Company commitment to increasing the air gap measured from LAT by 4 metres in order to mitigate collision impacts. The effect of displacement from the Proposal is also less than that from NNGOWL and ICOL as the turbines are more widely spaced. These factors were taken into account when completing the AA. 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 has been established in order to discuss and address any issues. A condition to ensure the Company continues its membership of the CFWG and its commitment to any mitigation strategy forms part of this consent (**Annex 2**).

Concerns were also raised on the cumulative impacts on navigation by the CoS. A condition ensuring that consultation with the CoS regarding the DSLP is undertaken prior to commencement of the Development, 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 area that would require consent to be withheld.

### 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 proposal can contribute to local or national economic development priorities as stated in SPP.

The Development will contribute significantly to the new energy infrastructure that needs to be developed to replace existing generating capacity that is reaching the end of its lifespan, to ensure security of supply and to assist in meeting targets for renewable energy generation capacity. The Firth of Forth Round 3 Zone has a target capacity of circa 3.5 GW, with the Development delivering the first 525 MW of this target. SAWEL and SBWEL will deliver 525 MW capacity each. The Zone target capacity would contribute significantly to the requirement for new plant and, given the significant closures in the middle of this decade, it is important that the Proposal progresses as scheduled to avoid risks to security of supply and to minimise reliance on foreign sources of energy.

The Development will contribute to the growth of the decarbonised energy sector in Scotland. As stated previously, the Government have set out clear policy drivers that seek to maximise future economic opportunities presented by offshore wind development. The Zone is Scotland's largest Round 3 project and is therefore integral to Governments strategy for sustainable economic growth.

The extent of the project expenditure is not yet known accurately, and hence this has been estimated based on published sources applicable to the offshore wind industry. The capital expenditure costs of developing and constructing an offshore wind farm are estimated to be around £3 million per MW. SAWEL and SBWEL each have a maximum output of 525 MW, therefore the predicted expenditure is £1,575 million per project, corresponding to a total expenditure of £3,150 million for the Proposal. In reality should both SAWEL and SBWEL progress to construction, the expenditure on the Proposal will be less as there will be shared costs associated with the export cable and grid connection infrastructure. The Company states that it is not possible at this stage to accurately assess the level of expenditure and have consequently assumed a 50% reduction in the total £3,150 million expenditure, to account for economies of scale between the two projects. If actual expenditure is higher than this, socio-economic impacts will be more beneficial than as assessed.

As individual projects, either of SAWEL and SBWEL have the potential to contribute GVA between a low case of £60 million and a high case of £241 million in Scotland. In both cases this would represent a beneficial impact on the Scottish economy. The CAPEX would be spent over the 4 year construction period and hence would be a short term impact. For both projects together, the Proposal would contribute between a low case of £80 million and a high case of £321 million GVA in Scotland.

The Company assume an operating expenditure of £75,000 per MW per annum within the assessment, with an anticipated project operational lifespan of 25 years. If the Proposal were to progress as a whole this would generate an annual GVA of between a low case of £17.4 million and a high case of £23.5 million in Scotland. There would be an additional GVA impact in the rest of Great Britain of between £0

(low case) and £5.9 million (high case). In the event that one of SAWEL or SBWEL proceeded individually and the other did not this would represent an annual GVA of between a low case of £8.7 million and a high case of £11.7 million in Scotland.

The number of employees required for the construction and operation and maintenance (“O&M”) phases cannot be accurately quantified at this stage of the development process. However, assuming both projects are developed concurrently, the Company estimate employments impacts of between 1728 jobs (low case) and 7196 jobs (high case) in Scotland during the construction phase. This is significantly higher than any other wind farms estimated in Scotland. These figures include indirect and induced jobs. Equivalent figures are 1295 jobs to 5392 if either of the projects go ahead separately. The Company also estimate an additional 0 jobs (low case) to 4293 jobs (high case) in the rest of Great Britain if the full proposal goes ahead.

Industry reports (Oxford Economics, 2010) estimate a likely scenario of 0.19 direct O&M jobs created per MW for offshore wind in the UK. This translates to approximately 100 O&M jobs for each of SAWEL and SBWEL projects, and approximately 200 O&M jobs for the combined Proposal.

The supporting Application for this Development contains the justification for the use of the figures below;

“The above estimates are based on 2 scenarios for development of the supply chain in Scotland and Great Britain from a report by IPA and Scottish Renewables (2010):

- High Case (Scenario A within the industry report) – 10.6 GW of available offshore wind sites in Scotland will be developed. This exploits all the opportunities has to offer including a turbine manufacturer setting up a base in Scotland, development of skills and port infrastructure. A significant supply chain market is developed.
- Low Case (Scenario C within the industry report) – Offshore wind sites are brought online at a similar rate to scenario A but the supply chain and wider industrial base does not develop. The majority of goods and services are imported.

Whilst it is not possible to be definitive at this stage, the Proposal has the potential to encourage the establishment of manufacturing or pre-assembly facilities, as well as research and support facilities, by wind turbine generator manufacturers and installers in Scotland and the wider Forth and Tay region. In addition, port, transport and other support facilities will be required during the construction period. Beneficial impacts are expected to continue during the operation period, with support and port facilities required by operators for maintenance and related activities.

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 Scottish Ministers recognise this High Case may include overly optimistic economic impacts for Scotland as the assumed total 10.6 GW of electricity may not be fully achieved in the timescales stated. The development of a supply chain in Scotland, and hence retention rates of activity, is likely to be linked to the total power generation achieved.

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.

## **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 Application 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 and regulation 22 of the 2007 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 three (3) 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 SAWEL, ICOL, NNGOWL and all other relevant developments, 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 **525 MW** (as described in **Annex 1**).

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

The Company applied for two declarations under section 36A of the Electricity Act to extinguish public rights of navigation so far as they pass through those places within the Scottish marine area (essentially the territorial sea adjacent to Scotland) where structures (but not, for the avoidance of doubt the areas of sea between those structures) forming part of the offshore wind farm and offshore transmission works are to be located. As the Proposal is located outwith the limits of the Scottish marine area, a declaration under section 36A of the Electricity Act cannot be issued. The Company has been informed of this as a matter of courtesy.

In accordance with the 2000 Regulations and the 2007 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. The Company must provide copies of the public notices to the Scottish Ministers.

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 as set out in the Application and as described in **Annex 1**.

Copies of this letter and the consent have been sent to Angus Council and Fife 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 the judicial review process can be found at Chapter 58 of the Court of Session rules on the website of the Scottish Courts –

<http://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 C MCKIE**

Leader, Marine Scotland Licensing Operations Team

A member of the staff of the Scottish Ministers

XX DATE

## **Annex 1**

### **DESCRIPTION OF THE DEVELOPMENT**

The Development, located as shown on Figure 1 below, shall have a permitted generating capacity not exceeding 525 MW and shall comprise a wind-powered electricity generating station in the FFZ, including:

1. not more than 75 three-bladed horizontal axis wind turbine generators each with:
  - a) a maximum blade tip height of 209.7 metres (measured from LAT);
  - b) a rotor diameter of between 122 and 167 metres;
  - c) a hub height of between 87.1 and 126.2 metres (measured from LAT);
  - d) a minimum blade tip clearance of between 29.8 and 42.7 metres (measured from LAT);
  - e) blade width of up to 5.4 metres; and
  - f) a minimum spacing of 1,000 metres;
2. all foundations, substructures, fixtures, fittings, fixings, and protections;
3. inter array cabling and cables up to and onto the offshore substation platforms; and
4. transition pieces including access ladders / fences and landing platforms,

and, except to the extent modified by the foregoing, all as specified in the Application and by the conditions imposed by the Scottish Ministers. References to “the Development” in this consent shall be construed accordingly.

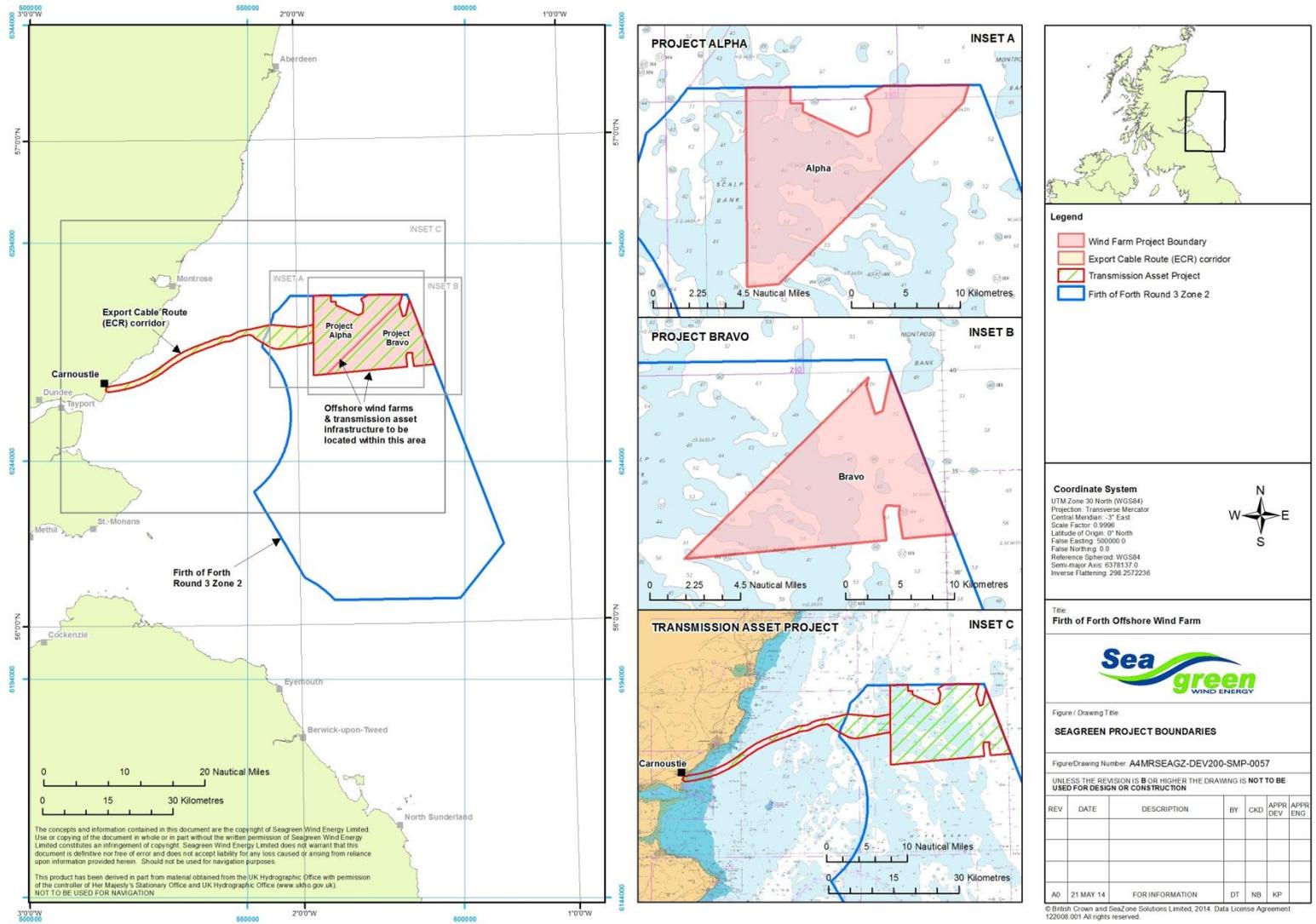


Figure 1: Development Location – see KEY

## 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 Authority, the JNCC and SNH 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, the JNCC and SNH 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 the 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 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 and associated ancillary equipment is 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 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 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 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 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 Application and must include details of how the construction related mitigation steps proposed in the ES and in the SEIS 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. In 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 the JNCC, SNH 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 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 ("DSLPL"), 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, the JNCC, SNH, SFF, 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 DSLPL (as updated and amended from time to time by the Company). Any updates or amendments made to the DSLPL by the Company must be submitted, in writing, by the Company to the Scottish Ministers for their written approval.

The DSLPL 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 WGS84 format;
- c. A table or diagram of each WTG dimensions including - height to blade tip (measured above Lowest Astronomical Tide ("LAT")) to the highest point, height to hub (measured above LAT to the centreline of the generator shaft), rotor diameter and maximum rotation speed;

- d. The generating capacity of each WTG used on the Site (Annex 1, Inset B of Figure 1) 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 as 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 the JNCC, SNH 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. The Development must, at all times, be constructed in accordance with the approved DS (as updated and amended from time to time by the Company).

**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 the JNCC, SNH, 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 the Decommissioning Programme provided for 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 overarching 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, the JNCC, SNH, 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 the JNCC, SNH, 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 27) 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 the JNCC, SNH, 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 to the Scottish Ministers, as soon as practicable, prior to any such change being implemented in the construction or operation of the Development.

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

**Reason: To mitigate 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 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 prior to approval of the NSP. 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 the JNCC, SNH, MCA, SFF and any such other advisors or organisations as may be required at the discretion of the Scottish Ministers. The CaP must be in accordance with the 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 protection measures;
- e. Methodologies for surveys (e.g. over trawl) of the inter array cables through the operational life of the wind farm where mechanical protection of cables laid on the sea bed is deployed; and
- f. Methodologies for inter array cable inspection with measures to address and report to the Scottish Ministers any exposure of inter array cables.

**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 only, to the Planning Authorities, the JNCC, SNH 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.

The ATC Scheme is a scheme designed to mitigate the impact of the Development upon the operation of the Primary Surveillance Radar at RAF Leuchars (“the Radar”) and the air traffic control operations of the MOD which is reliant upon the Radar. The ATC Scheme shall set out the appropriate measures to be implemented to mitigate the impact of the Development on

the Radar and shall be in place for the operational life of the Development provided the Radar remains in operation.

No turbines shall become operational unless and until all those measures required by the approved ATC Scheme to be implemented prior to the operation of the turbines have been implemented and the Scottish Ministers have confirmed this in writing. The Development shall thereafter be operated fully in accordance with 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 ensure that no part of any turbine shall be erected above sea level within radar line of sight of the air defence radar at Remote Radar Head (RRH) Buchan unless and until an Air Defence Radar Mitigation Scheme (“the ADRM scheme”) has been submitted to and approved in writing by the Scottish Ministers in consultation with the MOD.

For the purposes of this condition, the ADRM Scheme means a detailed scheme to mitigate the adverse impacts of the Development on the air defence radar at RRH Buchan and the air surveillance and control operations of the MOD. The scheme will set out the appropriate measures to be implemented to that end.

No turbines shall become operational until:

- a. the mitigation measures which the approved ADRM Scheme requires to be implemented prior to the operation of the turbines have been implemented; and
- b. any performance criteria specified in the approved ADRM Scheme and which the approved ADRM Scheme requires to have been satisfied prior to the operation of the turbines have been satisfied.

The Company shall thereafter comply with all other obligations contained within the approved ADRM Scheme for the duration of the operation of the Development.

**Reason: To mitigate the adverse impact of the Development on air defence radar at Remote Radar Head (RRH) Buchan.**

22. The Company must ensure that no part of any turbine shall be erected above sea level within radar line of sight of the air defence radar at Remote Radar Head (“RRH”) Brizlee Wood unless and until an Air Defence Radar Mitigation Scheme (“the ADRM scheme”) has been submitted to and approved in writing by the Scottish Ministers in consultation with the MOD.

For the purposes of this condition, the ADRM Scheme means a detailed scheme to mitigate the adverse impacts of the Development on the air defence radar at RRH Brizlee Wood and the air surveillance and control

operations of the MOD. The scheme will set out the appropriate measures to be implemented to that end.

No turbines shall become operational until:

- a. the mitigation measures which the approved ADRM Scheme requires to be implemented prior to the operation of the turbines have been implemented; and
- b. any performance criteria specified in the approved ADRM Scheme and which the approved ADRM Scheme requires to have been satisfied prior to the operation of the turbines have been satisfied.

The Company shall thereafter comply with all other obligations contained within the approved ADRM Scheme for the duration of the operation of the Development.

**Reason: To mitigate the adverse impact of the development on air defence radar at Remote Radar Head (RRH) Brizlee Wood.**

23. The Company must ensure that no turbine shall be erected until a Primary Radar Mitigation Scheme (“PRMS”) agreed with the Operator has been submitted to and approved in writing by the Scottish Ministers in order to mitigate the impact of the Development on the Primary Radar Installation at Perwinnes and associated air traffic management operations.

No blades shall be fitted to any turbine unless and until the approved Primary Radar Mitigation Scheme has been implemented and the development shall thereafter be operated fully in accordance with such approved Scheme.

**Reason: To mitigate the adverse impact of the development on air traffic operations.**

24. The Company must, prior to the Commencement of the Development, and following confirmation of the approved DSLP by the Scottish Ministers (refer to condition 12), provide the positions and maximum heights of the WTGs and construction equipment over 150 m (measured above LAT) and any Offshore Sub-Station Platforms 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 co-ordinates accurate to three decimal places of minutes of arc for each WTG position and maximum heights of the WTGs to the UKHO for aviation and nautical charting purposes.

**Reason: For aviation and navigational safety.**

25. The Company must, at least 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 be constructed and operated in accordance with the approved TTP (as updated and amended from time to time, following written approval from the Scottish Ministers).

**Reason: To maintain the free flow and safety of the Trunk Road network.**

- 26.** 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 the JNCC, SNH, 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 so as to ensure that the data which is collected allows useful and valid comparisons between different phases of the Development. Monitoring may also serve the purpose of verifying key predictions in the Application. In the event that further potential adverse environmental effects are identified, for which no predictions were made in the Application, the Scottish Ministers may require the Company to undertake additional monitoring.

The 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 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 Marine Mammal Monitoring Programme (“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 Forth and Tay Regional Advisory Group (“FTRAG”) referred to in condition 27 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 the 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.**

27. 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 28), 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.**

28. 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.*

29. 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 the JNCC and SNH, 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 version of all plans and programmes required under this consent;
  - b. Provide 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. Monitor compliance with the CMS, the EMP, the PEMP, the PS (if required), the CaP and the VMP;
  - d. Provide 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.*

30. 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*

31. 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 regions.

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 CFMS must, in particular, include mitigation measures for lobster stock enhancement if the Scottish Ministers are satisfied that such mitigation measures are reasonably necessary. The Company must implement all mitigation measures committed to be carried out by the Company within the 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.**

32. Prior to the Commencement of the Development, a Fisheries Liaison Officer (“FLO”), approved in writing 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.**

33. 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.**

## **Annex 3**

### **DEFINITIONS AND GLOSSARY OF TERMS**

In this decision letter and in Annex 1 and 2:

“the Application” includes the Application letter and Environmental Statement submitted to the Scottish Ministers by Seagreen Wind Energy Limited, on behalf of Seagreen Alpha Wind Energy Limited and Seagreen Bravo Wind Energy Limited, on 15<sup>th</sup> October 2012; the Supplementary Environmental information Statement submitted to the Scottish Ministers by Seagreen Wind Energy Limited on the 18<sup>th</sup> October 2013; and the SEIS Erratum submitted to the Scottish Ministers by Seagreen Wind Energy Limited on the 11<sup>th</sup> March 2014.

“AA” means Appropriate Assessment.

“CAPEX” means Capital Expenditure.

“Commencement of the Development” means the date on which Construction begins on the site of the Development in accordance with this consent.

“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.

“Construction” means as defined at section 64(1) of the Electricity Act 1989, read with section 104 of the Energy Act 2004.

“Danger Area” means the seaward extent of MOD Danger Area D604 into which military firing practise at Barry Buddon Range is conducted.

“Decommissioning Programme” means the programme for decommissioning the relevant object, to be submitted by the Company to the Secretary of State under section 105(2) of the Energy Act 2004 (as amended).

“Design Envelope”, also referred to as Rochdale Envelope, is an approach to consenting and environmental impact, named after a UK planning law case, which allows a project description to be broadly defined, within a number of agreed parameters, for the purposes of a consent application.

“ECoW” means Ecological Clerk of Works.

“EIA” means Environmental Impact Assessment.

“EMF” means Electromagnetic Fields.

“EPS” means European Protected Species.

“ERCoP” means Emergency Response & Cooperation Plan.

“ES” means the Environmental Statement submitted to the Scottish Ministers by the Seagreen Wind Energy Limited on 15<sup>th</sup> October 2012 as part of the Application as defined above.

“EU” means European Union.

“FFZ” means Firth of Forth Zone.

“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 a Fisheries Liaison Officer.

“GIS” means Geographic Information System.

“GVA” means Gross Value Added and represents a measure of the contribution to the economy of each individual producer, industry or sector in the United Kingdom.

“GW” means gigawatt.

“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.

“LAT” means Lowest Astronomical Tide.

“LSE” means Likely Significant Effect.

“MGN371” means Marine Guidance Note 371 and refers to 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.

“MHWS” means Mean High Water Springs.

“MLWS” means Mean Low Water Springs.

“MPA” means Marine Protected Area.

“MW” means megawatt.

“nm” means nautical miles.

“NSBMF” means National Strategic Bird Monitoring Framework.

“O&M” means operation and maintenance.

"Operator" means NERL (En Route) plc, incorporated under the Companies Act (4129273) whose registered office is 4000 Parkway, Whiteley, Fareham, Hants PO15 7FL or such other organisation licensed from time to time under sections 5 and 6 of the Transport Act 2000 to provide air traffic services to the relevant managed area (within the meaning of section 40 of that Act).

“ the Planning Authorities” means Angus Council and Fife Council.

“PMF” means Priority Marine Feature.

“SAC” means Special Area of Conservation.

“Scottish marine area” has the meaning given in section 1 of the Marine (Scotland) Act 2010.

“Scottish offshore region” has the meaning given in section 322 of the Marine and Coastal Access Act 2009 (as amended).

“SEA” means Strategic Environmental Assessment.

“SEIS” means Supplementary Environmental information Statement” and refers to the covering letter and report, submitted to the Scottish Ministers by Seagreen Wind Energy Limited on the 18<sup>th</sup> October 2013.

“Soft start piling” means the gradual increase of piling power, incrementally over a set time period, until full operational power is achieved.

“SPA” means Special Protection Area.

“SPP” means Scottish Planning Policy.

“SSMEG” means Scottish Strategic 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.

“STA” means Seagreen Transmission Asset.

“the Company” means Seagreen Alpha Wind Energy Limited, 55 Vastern Road, Reading, Berkshire, RG1 8BU. Company Number: 07185533.

“the Development” means the Seagreen Alpha Wind Farm in the Firth of Forth Zone.

“the Erratum” means the SEIS Erratum submitted to the Scottish Ministers by Seagreen Wind Energy Limited on the 11th March 2014 as a result of comments received by Repsol, the company developing the Inch Cape Offshore Wind farm.

“the Proposal” means the proposed Seagreen Phase 1 Project, consisting of all two wind farms: Seagreen Alpha Offshore Wind Farm and Seagreen Bravo Offshore Wind Farm.

“the Radar” means the Primary Surveillance Radar at RAF Leuchars.

“the Site” means the area shaded in red in Annex 1, Inset A of Figure 1.

“the Zone” means Firth of Forth Round 3 Zone 2 leasing agreements in the UK Renewable Energy Zone.

“UK” means United Kingdom.

“WGS84” means the World Geodetic System 1984.

“WTG” means wind turbine generator.

“ZAP” means Zone Appraisal and Planning.

“ZDA” means Zone Development Agreement.

### Organisations

“AIA” means Aberdeen International Airport.

“AC” means Angus Council.

“AMSGA” means Arbroath and Montrose Static Gear Association.

“ASFB” means The Association of Salmon Fishery Boards.

“CAA” means The Civil Aviation Authority.

“CFWG” means Commercial Fisheries Working Group a Working group part of FTOWDG.

“CGLMC” means Carnoustie Golf Links Management Committee.

“CoS” means The Chamber of Shipping.

“FC” means Fife Council.

“FMA” means the Fishermen’s Mutual Association (Pittenweem) Ltd

“FTOWDG” means The Forth and Tay Offshore Wind Developers Group A group formed, and set up, to develop the Commercial Fisheries Mitigation Strategy, and as forum to facilitate on-going dialogue with the commercial fishing industry.

“FTRAG” means Forth and Tay Regional Advisory Group.

“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.

“MMO” means Marine Management Organisation.

“MOD” means Ministry of Defence.

“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.

“NNGOWL” means Neart na Gaoithe Offshore Wind Limited.

“Repsol” means Repsol Nuevas Energias UK Limited.

“RSPB Scotland” means The Royal Society for the Protection of Birds Scotland.

“RYA Scotland” means Royal Yachting Association Scotland.

“SAS” means Surfers Against Sewage.

“SAWEL” means Seagreen Alpha Wind Energy Limited.

“SBWEL” means Seagreen Bravo Wind Energy Limited.

“SEPA” means The Scottish Environment Protection Agency.

“SFF” means The Scottish Fisherman’s Federation.

“SG” means The Scottish Government.

“SMRU” means Sea Mammal Research Unit.

“SNH” means Scottish Natural Heritage.

“SWEL” means Seagreen Wind Energy Limited.

“TCE” means The Crown Estate.

“UKHO” means United Kingdom Hydrographic Office.

“UNECE” means United Nations Economic Commission for Europe.

“WDC” means Whale and Dolphin Conservation.

#### Plans, Programmes and Statements

“ADRM scheme” means Air Defence Radar Mitigation Scheme

“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 Ministry of Defence. The scheme will set out the appropriate measures to be implemented to that end.

“CaP” means Cable Plan.

“CFMS” means Commercial Fisheries Mitigation Strategy - the final document produced from consultation between Seagreen Wind Energy Limited and the Forth & Tay Offshore Wind Developers Group - Commercial Fisheries Working Group (“FTOWDG-CFWG”).

“CMS” means Construction Method Statement.

“CoP” means Construction Programme.

“DS” means Design Statement.

“DSLIP” 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 Seagreen Alpha 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.

“NREAP” means UK Government's National Renewable Energy Action Plan.

“NSP” means Navigational Safety Plan.

“OMP” means Operation and Maintenance Programme.

“PEMP” means Project Environmental Monitoring Programme.

"Primary Radar Mitigation Scheme" or "Scheme" means a detailed scheme agreed with the Operator which sets out the measures to be taken to mitigate at all times the impact of the development on the PERWINNES primary radar and air traffic management operations of the Operator.

“PRMS” means Primary Radar Mitigation Scheme.

“PS” means Piling Strategy.

“RRH” means Remote Radar Head and it may refer to Air Defence Radar at RRH Buchan or to the Air Defence Radar at RRH Brizlee Wood.

“the Strategy” means “National Research and Monitoring Strategy for Diadromous Fish” and refers to a strategy that will be formulated from the Marine Scotland Science 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.

“TTP” means Traffic and Transportation Plan

“VMP” means Vessel Management Plan.

## Legislation

“Wild Birds Directive” means Council Directive 79/409/EEC of 2<sup>nd</sup> 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 30<sup>th</sup> November 2009.

“the Electricity Act” means the Electricity Act 1989 (as amended).

“Habitats Directive” means Council Directive 92/43/EEC of 21<sup>st</sup> 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 1990 Regulations” means the Electricity (Applications for Consent) Regulations 1990 (as amended).

“the 1994 Regulations” means the Conservation (Natural Habitats, & c.) Regulations 1994 (as amended).

“the 1999 Order” means The Scotland Act 1998 (Transfer of Functions to the Scottish Ministers etc.) Order 1999.

“the 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).

“the 2010 Act” means Marine (Scotland) Act 2010.

“SPG” means the Fife Council’s Supplementary Planning Guidance (SPG) on Wind Energy 2011 which supplements the local plan policies.

“the Statement” means The UK Marine Policy Statement 2011.

“TAYplan SDP” means the TAYplan Strategic Development Plan.

## **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.**

**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 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*<sup>1</sup> 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 the Joint Nature Conservation Committee ("JNCC") and Scottish Natural Heritage ("SNH") 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 been done as the general public have already had the opportunity to respond to the applications through the Environmental Impact Assessment ("EIA") process where

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<sup>1</sup> ECJ Case no - C-127/02 - judgment issued on 07.09.2004.

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 26<sup>th</sup> March 2014) concerning the regional assessment completed by the Statutory Nature Conservation Bodies (“the SNCBs” – the JNCC and SNH), 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 30<sup>th</sup> 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.

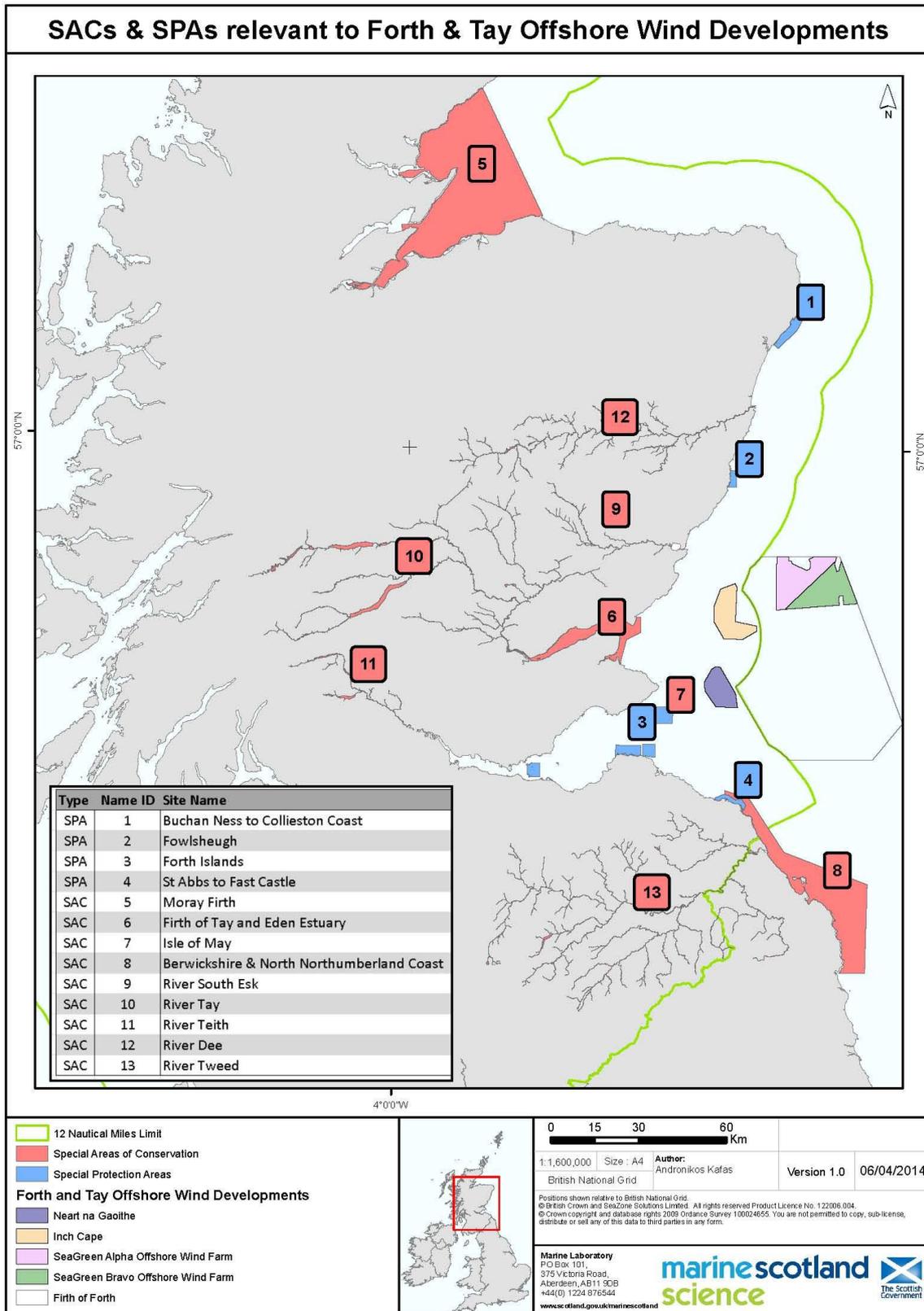


Figure 1: locations of the Forth and Tay Developments along with the European protected sites which are considered in this assessment

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:**

<b>1. Buchan Ness to Collieston Coast SPA</b> <a href="http://gateway.snh.gov.uk/sitelink/siteinfo.jsp?pa_code=8473">http://gateway.snh.gov.uk/sitelink/siteinfo.jsp?pa_code=8473</a>
<b>2. Fowlsheugh SPA</b> <a href="http://gateway.snh.gov.uk/sitelink/siteinfo.jsp?pa_code=8505">http://gateway.snh.gov.uk/sitelink/siteinfo.jsp?pa_code=8505</a>
<b>3. Forth Islands SPA</b> <a href="http://gateway.snh.gov.uk/sitelink/siteinfo.jsp?pa_code=8500">http://gateway.snh.gov.uk/sitelink/siteinfo.jsp?pa_code=8500</a>
<b>4. St Abb’s Head to Fast Castle SPA</b> <a href="http://gateway.snh.gov.uk/sitelink/siteinfo.jsp?pa_code=8579">http://gateway.snh.gov.uk/sitelink/siteinfo.jsp?pa_code=8579</a>
<b>5. Moray Firth SAC</b> <a href="http://gateway.snh.gov.uk/sitelink/siteinfo.jsp?pa_code=8327">http://gateway.snh.gov.uk/sitelink/siteinfo.jsp?pa_code=8327</a>
<b>6. Firth of Tay and Eden Estuary SAC</b> <a href="http://gateway.snh.gov.uk/sitelink/siteinfo.jsp?pa_code=8257">http://gateway.snh.gov.uk/sitelink/siteinfo.jsp?pa_code=8257</a>
<b>7. Isle of May SAC</b> <a href="http://gateway.snh.gov.uk/sitelink/siteinfo.jsp?pa_code=8278">http://gateway.snh.gov.uk/sitelink/siteinfo.jsp?pa_code=8278</a>
<b>8. Berwickshire &amp; North Northumberland Coast SAC</b> <a href="http://gateway.snh.gov.uk/sitelink/siteinfo.jsp?pa_code=8207">http://gateway.snh.gov.uk/sitelink/siteinfo.jsp?pa_code=8207</a>
<b>9. River South Esk SAC</b> <a href="http://gateway.snh.gov.uk/sitelink/siteinfo.jsp?pa_code=8364">http://gateway.snh.gov.uk/sitelink/siteinfo.jsp?pa_code=8364</a>
<b>10. River Tay SAC</b> <a href="http://gateway.snh.gov.uk/sitelink/siteinfo.jsp?pa_code=8366">http://gateway.snh.gov.uk/sitelink/siteinfo.jsp?pa_code=8366</a>
<b>11. River Teith SAC</b> <a href="http://gateway.snh.gov.uk/sitelink/siteinfo.jsp?pa_code=8368">http://gateway.snh.gov.uk/sitelink/siteinfo.jsp?pa_code=8368</a>
<b>12. River Dee SAC</b> <a href="http://gateway.snh.gov.uk/sitelink/siteinfo.jsp?pa_code=8357">http://gateway.snh.gov.uk/sitelink/siteinfo.jsp?pa_code=8357</a>
<b>13. River Tweed SAC</b> <a href="http://gateway.snh.gov.uk/sitelink/siteinfo.jsp?pa_code=8369">http://gateway.snh.gov.uk/sitelink/siteinfo.jsp?pa_code=8369</a>

**1b. Qualifying interests of each Natura site:**

<p><b>1. Buchan Ness to Collieston Coast SPA</b></p> <ul style="list-style-type: none"> <li>▪ Fulmar (breeding)</li> <li>▪ Guillemot (breeding)</li> <li>▪ Herring gull (breeding)</li> <li>▪ Kittiwake (breeding)</li> <li>▪ Shag (breeding)</li> <li>▪ Seabird assemblage (breeding)</li> </ul>	<p><b>2. Fowlsheugh SPA</b></p> <ul style="list-style-type: none"> <li>▪ Fulmar (breeding)</li> <li>▪ Guillemot (breeding)</li> <li>▪ Herring gull (breeding)</li> <li>▪ Kittiwake (breeding)</li> <li>▪ Razorbill (breeding)</li> <li>▪ Seabird assemblage (breeding)</li> </ul>
<p><b>3. Forth Islands SPA</b></p> <ul style="list-style-type: none"> <li>▪ Arctic tern (breeding)</li> <li>▪ Common tern (breeding)</li> <li>▪ Cormorant (breeding)</li> <li>▪ Fulmar (breeding)</li> <li>▪ Gannet (breeding)</li> <li>▪ Guillemot (breeding)</li> <li>▪ Herring gull (breeding)</li> <li>▪ Kittiwake (breeding)</li> <li>▪ Lesser black-backed gull (breeding)</li> <li>▪ Puffin (breeding)</li> <li>▪ Razorbill (breeding)</li> <li>▪ Roseate tern (breeding)</li> <li>▪ Sandwich tern (breeding)</li> <li>▪ Shag (breeding)</li> <li>▪ Seabird assemblage (breeding)</li> </ul>	<p><b>4. St Abb's Head to Fast Castle SPA</b></p> <ul style="list-style-type: none"> <li>▪ Guillemot (breeding)</li> <li>▪ Herring gull (breeding)</li> <li>▪ Kittiwake (breeding)</li> <li>▪ Razorbill (breeding)</li> <li>▪ Shag (breeding)</li> <li>▪ Seabird assemblage (breeding)</li> </ul>
<p><b>5. Moray Firth SAC</b></p> <ul style="list-style-type: none"> <li>▪ Bottlenose dolphin</li> <li>▪ Subtidal sandbanks</li> </ul>	<p><b>6. Firth of Tay and Eden Estuary SAC</b></p> <ul style="list-style-type: none"> <li>▪ Common (harbour) seal</li> <li>▪ Estuaries</li> <li>▪ Intertidal mudflats and sandflats</li> <li>▪ Subtidal sandbanks</li> </ul>
<p><b>7. Isle of May SAC</b></p> <ul style="list-style-type: none"> <li>▪ Grey seal</li> <li>▪ Reefs</li> </ul>	<p><b>8. Berwickshire &amp; North Northumberland Coast SAC</b></p> <ul style="list-style-type: none"> <li>▪ Grey seal</li> <li>▪ Intertidal mudflats and sandflats</li> <li>▪ Reefs</li> <li>▪ Sea caves</li> <li>▪ Shallow inlets and bays</li> </ul>
<p><b>9. River South Esk SAC</b></p> <ul style="list-style-type: none"> <li>▪ Atlantic salmon</li> <li>▪ Freshwater pearl mussel</li> </ul>	<p><b>10. River Tay SAC</b></p> <ul style="list-style-type: none"> <li>▪ Atlantic salmon</li> <li>▪ Sea lamprey</li> <li>▪ Brook Lamprey</li> <li>▪ River Lamprey</li> </ul>

	<ul style="list-style-type: none"> <li>▪ Otter</li> <li>▪ Clear-water lakes or lochs with aquatic vegetation and poor to moderate nutrient levels</li> </ul>
<b>11. River Teith SAC</b> <ul style="list-style-type: none"> <li>▪ Atlantic salmon</li> <li>▪ Sea lamprey</li> <li>▪ Brook Lamprey</li> <li>▪ River Lamprey</li> </ul>	<b>12. River Dee SAC</b> <ul style="list-style-type: none"> <li>▪ Atlantic salmon</li> <li>▪ Freshwater pearl mussel</li> <li>▪ Otter</li> </ul>
<b>13. River Tweed SAC</b> <ul style="list-style-type: none"> <li>▪ Atlantic salmon</li> <li>▪ Sea lamprey</li> <li>▪ Brook Lamprey</li> <li>▪ River Lamprey</li> <li>▪ Otter</li> <li>▪ Rivers with floating vegetation often dominated by water-crowfoot</li> </ul>	

### 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 7<sup>th</sup> 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 7<sup>th</sup> March 2014. This advice addresses the cumulative impacts of the Forth and Tay Developments. It is the key response to refer to as it supersedes the earlier SNCB advice on individual applications. Further advice was received on the 15<sup>th</sup> April 2014, 30<sup>th</sup> May 2014, 6<sup>th</sup>, 10<sup>th</sup> and 17<sup>th</sup> June 2014 and the 2<sup>nd</sup>, 4<sup>th</sup>, 11<sup>th</sup> and 16<sup>th</sup> July 2014.

The earlier advice from the SNCBs in relation to NNGOWL alone (28<sup>th</sup> 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 28<sup>th</sup> 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 10<sup>th</sup> of April 2014 the company confirmed that the maximum number of turbines would be 75. The original footprint of the development was 105km<sup>2</sup>, however with the reduction in turbine numbers this was also reduced to

82.7km<sup>2</sup>.

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<sup>2</sup>. 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 1050 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<sup>2</sup> and 194 km<sup>2</sup> 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 7<sup>th</sup> March 2014.

**SPAs**

During the consultation phase of the section 36 and marine licence application process, the SNCBs advised on 7<sup>th</sup> 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 7<sup>th</sup> 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 7<sup>th</sup> 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 LAT of 4 m. The SNCBs provided updated advice on

- 15<sup>th</sup> April 2014 updating previous advice on the gannet threshold.
- 6<sup>th</sup> 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.
- 10<sup>th</sup> June 2014 regarding the most appropriate displacement rates for kittiwake at the SAWEL and SBWEL sites.
- 2<sup>nd</sup> 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.
- 4<sup>th</sup> July 2014 regarding the most appropriate displacement rates for puffin at the SAWEL, SBWEL and ICOL sites for use in the common currency.
- 11<sup>th</sup> July 2014 letter advising that the closer effects are to thresholds the greater the risks of adverse effects and providing detail on appropriate monitoring.
- 16<sup>th</sup> 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 10<sup>th</sup> 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 4<sup>th</sup> & 16<sup>th</sup> 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 model)	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%
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 6<sup>th</sup> 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 7<sup>th</sup> 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 25<sup>th</sup> and 28<sup>th</sup> 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 7<sup>th</sup> 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 6<sup>th</sup> 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 2<sup>nd</sup> 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 7<sup>th</sup> 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 6<sup>th</sup> 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 6<sup>th</sup> 2014 and this Appropriate Assessment are based on the final version of the CEH displacement report.

SNCB advice on June 10<sup>th</sup> 2014 and the 4<sup>th</sup> and 16<sup>th</sup> 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 12<sup>th</sup> 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 (km <sup>2</sup> )	No. WTG	MSS Advice	SNCB Advice	MSS Advice	SNCB Advice	Auk, gannet and large gull	Kittiwake
<b>NNGOWL</b>	83	75	60	60	40	40	60	40
<b>SAWEL</b>	197	75	40	40	26	30	60	30
<b>SBWEL</b>	194	75	40	40	26	30	60	30
<b>ICOL</b>	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*
<b>KITTIWAKE</b>					
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%
<b>GUILLEMOT</b>					
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%
<b>RAZORBILL</b>					
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

Additional presentation of the predicted effects is provided in Appendix 7.

### 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 6<sup>th</sup> 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 2<sup>nd</sup> July including the 4m increase in turbine clearance above LAT committed to by SAWEL and SBWEL. The SNCB advice of 6<sup>th</sup> June and 2<sup>nd</sup> 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.

Additional presentation of the predicted effects is provided in Appendix 7.

#### **Kittiwake - Buchan Ness to Collieston Coast, Forth Islands, Fowlsheugh, St Abb's Head to Fast Castle SPAs**

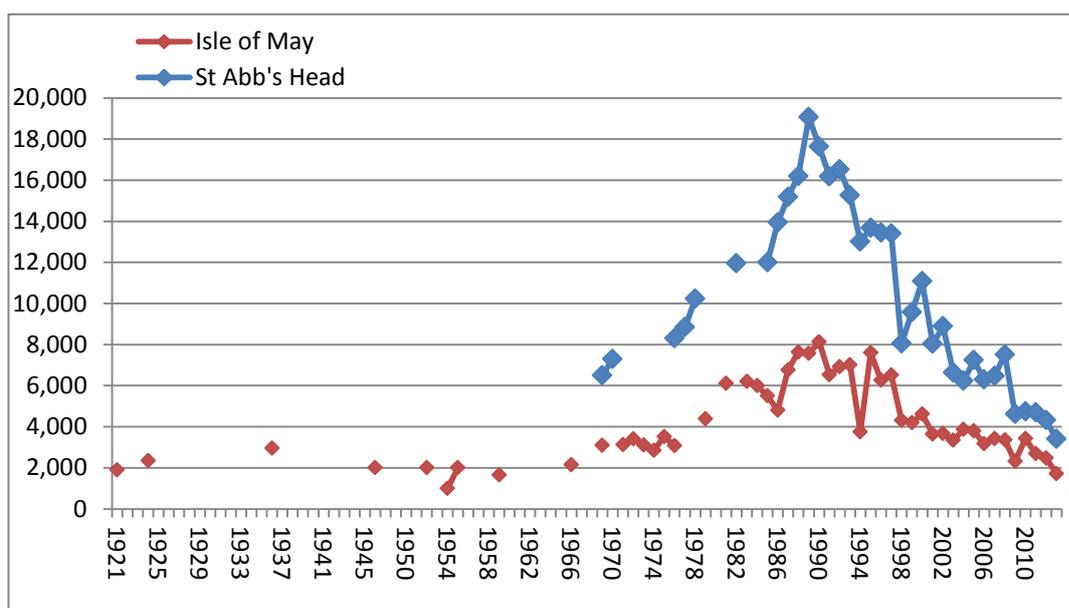
In their advice dated 7<sup>th</sup> March 2014 the SNCBs provided information on the population trends for kittiwake:

- 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 20<sup>th</sup> century and early 21<sup>st</sup> 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
<b>Buchan Ness</b>	<b>Displacement (Ad. Survival)</b>					
	Adjusted model FLAT	0.00	0.00	0.00	0.00	0.00
	<b>Collision</b>					
	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
	<b>TOTAL</b>					
Option 3 95%	<b>-0.07</b>	<b>-0.02</b>	<b>-0.03</b>	<b>-0.02</b>	<b>0.00</b>	
Option 3 98%	<b>-0.03</b>	<b>-0.01</b>	<b>-0.01</b>	<b>-0.01</b>	<b>0.00</b>	
<b>Fowlsheugh</b>	<b>Displacement (Ad. Survival)</b>					
	Adjusted model Flat	-0.35	-0.39	-0.18	0.00	0.00
	<b>Collision</b>					
	Option 3 95%	-0.78	-0.28	-0.29	-0.23	-0.01
	<b>Option 3 98%</b>	-0.31	-0.11	-0.12	-0.09	0.00
	<b>TOTAL</b>					
Option 3 95%	<b>-1.14</b>	<b>-0.67</b>	<b>-0.47</b>	<b>-0.23</b>	<b>-0.01</b>	
Option 3 98%	<b>-0.66</b>	<b>-0.50</b>	<b>-0.30</b>	<b>-0.09</b>	<b>0.00</b>	
<b>Forth Islands</b>	<b>Displacement (Ad. Survival)</b>					
	Adjusted model GPS	-1.42	-0.26	-0.20	-0.47	-0.88
	<b>Collision</b>					
	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
	<b>TOTAL</b>					
Option 3 95%	<b>-1.78</b>	<b>-0.31</b>	<b>-0.26</b>	<b>-0.62</b>	<b>-0.99</b>	
Option 3 98%	<b>-1.56</b>	<b>-0.28</b>	<b>-0.22</b>	<b>-0.53</b>	<b>-0.92</b>	
<b>St Abbs</b>	<b>Displacement (Ad. Survival)</b>					
	Adjusted model Flat	-0.18	0.00	-0.05	0.00	-0.05
	<b>Collisions</b>					
	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
	<b>TOTAL</b>					
Option 3 95%	<b>-0.48</b>	<b>-0.07</b>	<b>-0.12</b>	<b>-0.10</b>	<b>-0.10</b>	
Option 3 98%	<b>-0.30</b>	<b>-0.03</b>	<b>-0.08</b>	<b>-0.04</b>	<b>-0.07</b>	

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.**

### **Gannet – Forth Islands SPA**

In their advice dated 7<sup>th</sup> 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	<b>Displacement</b>					
	GPS Model	-0.04%	-0.02%	-0.01%	-0.01%	-0.01%
	<b>Collision</b>					
	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%
	<b>TOTAL</b>					
	Option 3 95%	<b>-1.05%</b>	<b>-0.32%</b>	<b>-0.20%</b>	<b>-0.33%</b>	<b>-0.21%</b>
Option 3 98%	<b>-0.44%</b>	<b>-0.14%</b>	<b>-0.08%</b>	<b>-0.14%</b>	<b>-0.09%</b>	

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 15<sup>th</sup> 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 7<sup>th</sup> 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)	<b>-3.32%</b>
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 affects 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 10<sup>th</sup> 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 23<sup>rd</sup> 2014). At a meeting between the SNCBs and MS-LOT on 27<sup>th</sup> 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.*

<b>Forth Islands</b>	<b>Total</b>	<b>SAWEL</b>	<b>SBWEL</b>	<b>ICOL</b>	<b>NNGOWL</b>
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 4<sup>th</sup> 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 4<sup>th</sup> 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 7<sup>th</sup> 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 7<sup>th</sup> 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 7<sup>th</sup> 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 7<sup>th</sup> 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.**

The Marine Scotland Science Advisory Board ("SAB") has reviewed the ABC method, and considered concerns raised by the RSPB concerning the method. The SAB has advised that the methods used and the scientific evidence applied in assessing the potential effects of the proposed Forth and Tay wind farms were judged to have been undertaken using an objective and impartial application of available science, and the science used in the assessment was the best available at the time. The SAB also judged that MSS consulted with the relevant experts on the development of the methods employed, and the evaluation was conducted in an open and transparent way. 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*. *Ringling 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).

#### The scope of in combination effects

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 to 186 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 240,000m<sup>3</sup> - 250,000m<sup>3</sup>. 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 – 25,000m<sup>3</sup> 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 2,000,000m<sup>3</sup>. 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.

### Details of assessment

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).

### SNCB and MSS advice on assessment

#### *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).

### Conclusion

**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., Mandelberg, L., Janik, V.M., Quick, N.J., Islas-Villanueva, V., Robinson, K.P., Costa, M., Einfeld, 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, including range of genetic types, 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, sufficiently deep burial or directional drilling will remove 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 residual effects after mitigation 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 considers on the basis of information currently to hand 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 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.**

<i>Condition:</i>	<i>Reason:</i>
<p>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 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 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.</p> <p>The CoP must set out:</p> <ul style="list-style-type: none"><li>a. The proposed date for Commencement of Development;</li><li>b. The proposed timings for mobilisation of plant and delivery of materials, including details of onshore lay-down areas;</li><li>c. The proposed timings and sequencing of construction work for all elements of the Development infrastructure;</li><li>d. Contingency planning for poor weather or other unforeseen delays; and</li><li>e. The scheduled date for Final Commissioning of the Development.</li></ul>	<p>To confirm the timing and programming of construction.</p>
<p>2). 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 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 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</p>	<p>To ensure the appropriate construction management of the Development, taking into account mitigation measures to protect Natura interests</p>

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 CaP and the Lighting and Marking Plan (“LMP”).

3). In 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 the JNCC, SNH, 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 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 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 the JNCC, SNH, SEPA, RSPB Scotland,

To mitigate the underwater noise impacts arising from piling activity

To mitigate the impacts on the Natura interests during construction and operation.

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 of Annex D(a) and D(b)).

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;
- 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, the JNCC, SNH, 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 the JNCC, SNH, 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 the JNCC, SNH, 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 unnecessary 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.

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

To mitigate disturbance or impact to marine mammals and birds

the LMP.

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 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 the JNCC, SNH, 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;

To safeguard Natura interests during operation of the offshore generating station.

To ensure Natura issues are considered for the location and construction of the inter array cables.

- d. 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;
- e. 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
- f. 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 the JNCC, SNH, 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:

- 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;

To ensure that appropriate and effective monitoring of the impacts of the Development is undertaken

- 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 limited to:
  - I. the avoidance behaviour of breeding seabirds around turbines;
  - II. flight height distributions of seabirds at wind farm sites;
  - III. displacement of kittiwake, puffin and other auks from wind farm sites; and
  - IV. 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

To ensure effective environmental monitoring and mitigation is

<p>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.</p>	<p>undertaken at a regional scale</p>
<p>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.</p>	<p>To ensure effective environmental monitoring and mitigation is undertaken at a national scale</p>
<p>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 the JNCC and SNH, 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</p>	<p>To ensure that appropriate and effective monitoring of the impacts of the Development is undertaken</p>
<p>The responsibilities of the ECoW must include, but not be limited to:</p> <ul style="list-style-type: none"> <li>a. Quality assurance of final draft versions of all plans and programmes required under this consent;</li> <li>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;</li> <li>c. Monitoring compliance with the CMS, the EMP, the PEMP, the PS (if required), the CaP and the VMP;</li> <li>d. Providing reports on point c) above to the Scottish Ministers at timescales to be determined by the Scottish Ministers; and</li> <li>e. Inducting site personnel on site / works environmental policy and procedures.</li> </ul>	
<p>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 Forth and Tay). The extent and nature of the Company’s participation is to be agreed by the Scottish Ministers in consultation with the FTRAG.</p>	<p>To ensure effective monitoring of the effects on migratory fish at a local level (Forth and Tay)</p>
<p>13).*The Company must, prior to the submission of the Design Statement (“DS”) to the Scottish Ministers, submit an</p>	<p>To ensure there is no adverse effect on the integrity of the Forth Islands SPA in relation to kittiwakes.</p>

optimal design of the Development, in writing, to the Scottish Ministers for their written approval. Such approval may only be granted following consultation with the JNCC and SNH, 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*

<b>Name of assessor:</b>	Finlay Bennet
<b>Date:</b>	16/07/2014
<b>Name of approver:</b>	Gayle Holland
<b>Date:</b>	07/10/2014

## **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 26<sup>th</sup> 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 1<sup>st</sup> 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;
- 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 through 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 1<sup>st</sup> 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 30<sup>th</sup> April 2014 raising concerns over the advice provided by the SNCBs on 7<sup>th</sup> 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 3<sup>rd</sup> July 2014) and MSS (advice note of 4<sup>th</sup> 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 7<sup>th</sup> 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 al* (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)
<i>Virtually certain</i>	99-100% probability
<i>Extremely likely</i>	95-100% probability
<i>Very likely</i>	90-100% probability
<i>Likely</i>	66-100% probability
<i>About as likely as not</i>	33-66% probability
<i>Unlikely</i>	0-33% probability
<i>Very unlikely</i>	0-10% probability
<i>Extremely unlikely</i>	0-5% probability
<i>Exceptionally unlikely</i>	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 scalar 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	%	%	%	%	%
<b>Mean Seasonal Max</b>		2938		3419		4034		3152	<b>13543</b>	100564	-2.9	-3.4	-4.0	-3.1	-13.5
Proportion displaced	<b>0.6</b>	1763	<b>0.4</b>	1367.6	<b>0.4</b>	1614	<b>0.5</b>	1576	<b>6320</b>		-1.8	-1.4	-1.6	-1.6	-6.3
Prop SPA	<b>0.998</b>	1759	<b>0.976</b>	1334.8	<b>0.976</b>	1575	<b>0.984</b>	1551	<b>6220</b>		-1.7	-1.3	-1.6	-1.5	-6.2
Prop non-breeding and/or immature	<b>0.35</b>	1144	<b>0.35</b>	867.61	<b>0.35</b>	1024	<b>0.35</b>	1008	<b>4043</b>		-1.1	-0.9	-1.0	-1.0	-4.0
Prop Die	<b>0.5</b>	572	<b>0.5</b>	433.8	<b>0.5</b>	512	<b>0.5</b>	504	2021		-0.6	-0.4	-0.5	-0.5	-2.0
Prop fail to breed successfully	<b>1</b>	1144	<b>1</b>	867.61	<b>1</b>	1024	<b>1</b>	1008	4043		-1.1	-0.9	-1.0	-1.0	-4.0
<b>Productivity 1 Indiv = 1 Pair</b>	<b>1</b>	1144	<b>1</b>	867.61	<b>1</b>	1024	<b>1</b>	1008	<b>4043</b>		-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
<b>CRM Band Option</b>	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.
<b>CRM Avoidance Rate</b>	98%	98% (& 95%)	98% (& 95%)	- Collection of flight height data using e.g. laser rangefinders, tags
<b>CEH puffin displacement model used in assessment</b>	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
<b>In combination effects</b>	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.
<b>Threshold setting method</b>	ruABC, PBR, proxy species	ABC & ruABC	ABC & ruABC	
<b>Accounting for predicted productivity effects being higher/ lower than those modelled by CEH</b>	Not accounted for	Interpolated	Interpolated	- Further exploration and assessment of methods for setting thresholds
<b>Threshold Use</b>	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	
<b>Threshold (adult survival)</b>				
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	- Monitoring wind farm effects on key species - Monitoring interactions (including displacement, collision, barrier effects) between key species and wind farms

## 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
<b>Kittiwake Forth Islands SPA</b>	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.
<b>Kittiwake Fowlsheugh SPA</b>	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.
<b>Gannet Forth Islands SPA</b>	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
<b>Razorbill Forth Islands SPA</b>	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
<b>Puffin Forth Islands SPA</b>	Adverse impact on site integrity	No adverse impact on site integrity	No adverse impact on site integrity	SNCB advise use of CEH displacement model which 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.

## Appendix 7 – Additional Presentation of Predicted effects on SPA Populations

**Table A: Estimated magnitude of displacement and collision effects attributed to individual SPAs and species, most recent SPA population estimates, and counterfactuals of forecast populations after 25 years assuming the estimated effects.**

Species & SPA	SPA Population (Individuals)	Estimated baseline annual adult mortality (%)	Baseline annual adult mortality (individuals) in the absence of proposed wind farms	Threshold for additional collision and displacement effect (annual reduction in adult survival)	Estimated additional collision and displacement effects during the breeding season on annual adult survival rate (%)	Number of additional adults dying annually during breeding season assuming estimated magnitude of effect (based latest SPA population estimate)	COUNTERFACTUALS:		
							Counterfactual of end population assuming estimated wind farm effects (%)	Opposite of end population counterfactual (%)-RSPB favoured metric	Counterfactual of change in population size assuming estimated wind farm effects (%)
<b>KITTIWAKE</b>									
Forth Islands	7552	12.0%	906	-2.4%	-1.8%	135	76%	24%	126%
St Abbs	12635		1516	-2.0%	-0.5%	60	94%	6%	108%
Fowlsheugh*	18674		2241	-1.3%	-1.1%	212	81%	19%	106%
Buchan Ness	25084		3010	-2.4%	-0.1%	17	99%	1%	119%
<b>GUILLEMOT</b>									
Forth Islands	29169	9.0%	2625	-0.9%	-0.1%	15	99%	1%	95%
St Abbs	58617		5276	-1.3%	0.0%	0	100%	0%	100%
Fowlsheugh	60193		5417	-1.1%	0.0%	0	100%	0%	100%
Buchan Ness	25857		2327	-0.5%	0.0%	0	100%	0%	100%
<b>RAZORBILL</b>									
Forth Islands	4950	9.5%	470	-0.9%	-0.9%	45	88%	12%	74%
St Abbs	4588		436	-1.7%	0.0%	0	100%	0%	100%
Fowlsheugh	7048		670	-1.2%	0.0%	0	100%	0%	100%
<b>GANNET</b>									
Forth Islands*	110964	8.1%	8988	-1.2%	-1.1%	1169	79%	21%	49%
<b>PUFFIN</b>									
Forth Islands**	62231	12.4%	7717	-2.0%	-2.0%	1251	75%	25%	67%

### Notes on Table A

- Estimated effects combine collision and displacement effects
- Effects have been apportioned to relevant SPA and non-SPA populations, and different age classes, with effects on adults at individual SPAs presented.
- Counterfactual values should not be viewed without appropriate context.
- The counterfactual of end populations is advocated by the RSPB but it is the opposite of this counterfactual that they appear to present (e.g. 25% rather than 75%).
- The counterfactual of change in population size is also provided.
- As with all counterfactuals this has to be very carefully interpreted and must not be taken out of context. The context being the population trends: whether decreasing or increasing numbers of birds.
- In the final column values >100 indicate the % of the baseline population decline from the starting population assuming the estimated wind farm effects (e.g. kittiwake at Fowlsheugh). Values <100 indicate the % of the baseline population increase from the starting population assuming the estimated wind farm effects (e.g. puffin and gannet at Forth Islands).
- \* for both kittiwake at Fowlsheugh and gannet at Forth Islands the dominant estimated effect is from collision with turbines. For both species, the number of collisions have been estimated in a highly precautionary manner due to the use of a low avoidance rate of 95% with the extended version of the band model.
- \*\* For puffin at Forth Islands the dominant effect is via displacement effects and the magnitude of these effects have been estimated using a number of very precautionary assumptions.

- For razorbill, estimated displacement effects ignore the mitigation resulting from reductions in turbine number and large inter-turbine distances at 3 of the four proposed wind farms.
- Counterfactuals of end population are the end population with the wind farm/ end population without wind farm

**Table B: Summary of estimated additional adult mortality effects at individual SPAs during the breeding season from collision and displacement attributed to individual wind farm projects:**

Species	SPA	Alpha	Bravo	Inchcape	NnG	Cumulative	Threshold	SPA Population
Gannet	Forth Islands	355	218	363	233	1169	1300	110964
Kittiwake	Buchan Ness	5	8	4	0	17	602	25084
	Forth Islands	24	20	47	75	135	174	7552
	Fowlsheugh	126	87	42	0	212	317	18674
	St Abbs	9	15	13	13	60	265	12635
Puffin	Forth Islands	268	317	312	354	1251	N/A	62231
Razorbill	Forth Islands	2	4	4	5	41	45	4950

**Notes on Table B**

- Estimated effects are based on individual wind farms in isolation or all wind farms in combination.
- Due to interactions between wind farm projects, the estimated cumulative displacement effects are not the sum of the individuals effects. Therefore for species and SPAs where displacement effects have been estimated using the CEH model, the cumulative columns differs from the sum of the effects from individual wind farm.

## **ANNEX F – PUBLIC REPRESENTATIONS**

### **APPLICATIONS FOR TWO CONSENTS UNDER SECTION 36 OF THE ELECTRICITY ACT 1989 FOR THE CONSTRUCTION AND OPERATION OF TWO OFFSHORE GENERATING STATIONS, THE SEAGREEN ALPHA AND SEAGREEN BRAVO OFFSHORE WIND FARMS, 27 AND 38 KILOMETRES EAST OF THE ANGUS COASTLINE RESPECTIVELY.**

#### **SUMMARY**

A total of three (3) valid public representations were received by Marine Scotland during the course of the public consultation exercise. Of these, two (2) representations objected to the Proposal, and one (1) was in support. All public representations (3) were received from members of the public.

#### **Representations Supporting**

Representations in support of the Proposal were of the belief that in conjunction with nuclear fusion, electricity generated from clean sources, such as wind power, may be able to address concerns such as increasing energy demands, increasing dependency on fossil fuels, effects of climate change due to burning of fossil fuels and exponential population growth. They also believe that quality of life should be considered and by siting turbines at sea a good distance from residential sites is seen as fair.

#### **Representations Objecting**

Representations objecting to the Proposal raised concerns regarding: the effects on the sea bird colonies on the Bass Rock and Fair Isle; threats to the natural environment of the Firth of Forth; impact on marine mammals; tourism; fishing industry; bats; and alternative technologies to wind power being available.

## **ANNEX G – DEVELOPMENT LOCATION**

**APPLICATIONS FOR TWO CONSENTS UNDER SECTION 36 OF THE ELECTRICITY ACT 1989 FOR THE CONSTRUCTION AND OPERATION OF TWO OFFSHORE GENERATING STATIONS, THE SEAGREEN ALPHA AND SEAGREEN BRAVO OFFSHORE WIND FARMS, 27 AND 38 KILOMETRES EAST OF THE ANGUS COASTLINE RESPECTIVELY.**

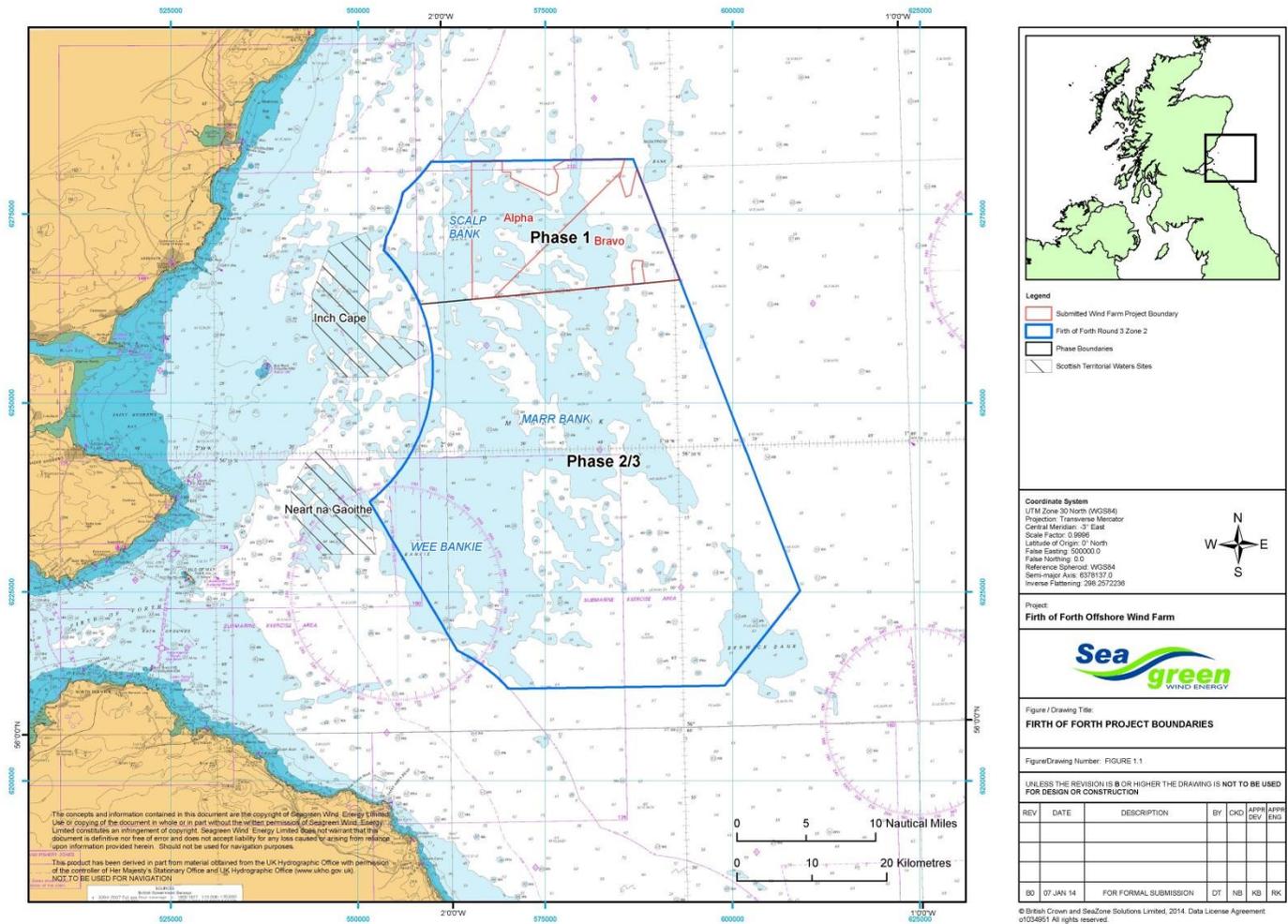
See figures overleaf:

Figure 1 Seagreen Alpha and Seagreen Bravo Offshore Wind Farm Locations, showing the proposed Export Cable Route to shore at Carnoustie.

Figure 2 Seagreen Alpha and Bravo Offshore Wind Farm Locations, showing Phase 2 and 3 search area and other regional Offshore Wind Farms.



Figure 2: Seagreen Alpha and Bravo Offshore Wind Farm Locations, showing Phase 2 and 3 search area and other regional Offshore Wind Farms.



## ANNEX H – NATURE CONSERVATION MARINE PROTECTED AREA ASSESSMENT

APPLICATIONS FOR TWO CONSENTS UNDER SECTION 36 OF THE ELECTRICITY ACT 1989 FOR THE CONSTRUCTION AND OPERATION OF TWO OFFSHORE GENERATING STATIONS, THE SEAGREEN ALPHA AND SEAGREEN BRAVO OFFSHORE WIND FARMS, 27 AND 38 KILOMETRES EAST OF THE ANGUS COASTLINE RESPECTIVELY.

### MARINE SCOTLAND'S CONSIDERATION OF A PROPOSAL AFFECTING A NATURE CONSERVATION MARINE PROTECTED AREA ("NC MPA") FEATURE

#### **NC MPA Conclusion**

Marine Scotland Licensing Operations Team ("MS-LOT") on behalf of the Scottish Ministers conclude that there is no significant risk of the proposed Seagreen Alpha and Seagreen Bravo Offshore Wind Farms hindering the achievement of the conservation objectives for the protected features of the Firth of Forth Banks Complex NC MPA if conditions detailed in section 8 of this assessment are complied with.

#### **1. Introduction**

Under section 126 of the Marine and Coastal Access Act 2009 ("the 2009 Act") MS-LOT (as the public authority) is required to consider whether a licensable activity is capable of affecting (other than insignificantly) a protected feature in a NC MPA or any ecological or geomorphological process on which the conservation of any protected feature in a NC MPA is dependant. MS-LOT must not grant authorisation of the activity unless the person applying for the authorisation satisfies MS-LOT that there is no significant risk of the activity hindering the achievement of the conservation objectives for the NC MPA. If MS-LOT believe that there is or may be a significant risk of the Proposal hindering the achievement of the conservation objectives then they must notify the conservation bodies (Scottish Natural Heritage ("SNH") for MPAs within 12 nautical miles ("nm") or the Joint Nature Conservation Committee ("JNCC") for MPAs outwith 12 nm) of that fact. The JNCC have provided advice in terms of section 127 of the 2009 Act. If the person seeking the authorisation is not able to satisfy MS-LOT that there is no significant risk of the licensable activity hindering the achievement of the conservation objectives then a licence will only be granted if:

- I. MS-LOT is satisfied that there is no other means of proceeding with the licensable activity which would create a substantially lower risk of hindering the achievement of those objectives (to include proceeding in another manner or at another location);
- II. MS-LOT is satisfied that the benefit to the public of proceeding with the licensable activity clearly outweighs the risk of damage to the environment that will be created by proceeding with it; and
- III. MS-LOT is satisfied that the person seeking the authorisation will undertake, or make arrangements for the undertaking of, measures of equivalent environmental benefit to the damage which the activity will or is likely to have in or on the MPA concerned.

## 2. MPA Details

### Firth of Forth Banks Complex

[http://gateway.snh.gov.uk/sitelink/siteinfo.jsp?pa\\_code=10447](http://gateway.snh.gov.uk/sitelink/siteinfo.jsp?pa_code=10447)

- Quaternary of Scotland – moraines
- Shelf banks and mounds
- Offshore subtidal sands and gravels
- Ocean quahog aggregations

Condition - uncertain

## 3. Conservation Objectives

For the Firth of Forth Banks Complex MPA the current conservation objective is to **conserve** the protected features within the MPA. The uncertainty over the feature condition is a consequence of there being insufficient evidence available to confirm that the features are in good condition. The [Designation Order](#) of the NC MPA states the conservation objectives for the protected features, but in summary they are as follows:

‘Favourable condition’, with respect to ocean quahog aggregations, means that the quality and quantity of its habitat and the composition of its population are such that they ensure that the population is maintained in numbers which enable it to thrive.

‘Favourable condition’, with respect to offshore subtidal sands and gravels, means that:

- (a) Its extent is stable or increasing; and
- (b) Its structures and functions, its quality, and the composition of its characteristic biological communities are such as to ensure that it is in a condition which is healthy and not deteriorating.

‘Favourable condition’, with respect to shelf banks and mounds, means that:

- (a) The extent, distribution and structure of the feature is maintained;
- (b) The function of the feature is maintained so as to ensure it continues to support its characteristic biological communities and their use of the site for, but not restricted to, feeding, courtship, spawning, or use as nursery grounds; and
- (c) The processes supporting the feature are maintained.

‘Favourable condition’, with respect to the Moraines geomorphological feature, means that:

- (a) Its extent, component elements and integrity are maintained;
- (b) Its structure and functioning are unimpaired; and
- (c) Its surface remains sufficiently unobscured.

#### 4. Details of the Proposed Operation (location, timing, methods)

The Applications submitted by Seagreen Wind Energy Limited (“SWEL”) are to construct and operate two separate offshore wind generating stations (Seagreen Alpha Offshore Wind Farm (“SAWEL”) and Seagreen Bravo Offshore Wind Farm (“SBWEL”)), with a combined maximum generating capacity of up to 1050 megawatts (“MW”). Consent is sought for up to 75 wind turbine generators (“WTGs”) at each site giving a total of 150 WTGs across the wind farms. The Applications also cover associated infrastructure including, but not limited to, inter-array cabling to the connection point on the offshore sub-station platforms. The generating capacity of the individual WTGs installed has not been defined, and are dependent upon a number of factors, including the choice of wind turbine generator, the final foundation and substructure design and any mitigation measure to reduce the predicted impacts of the wind farms. The generating capacity of the individual WTGs will be finalised at a later stage post determination of these Applications. There are three main substructure and foundation options defined within the Design Envelope (also referred to as Rochdale Envelope) for supporting the WTG structures. These are:

- a four leg steel jacket with driven piles;
- a four leg steel jacket with suction piles; or
- Gravity Base Structure (“GBS”).

#### **Project Description**

The wind farms, located as shown at **Figure 1** (please see below), shall have a permitted generating capacity not exceeding 1050 MW and shall comprise two wind-powered electricity generating stations in the Firth of Forth Zone, including:

1. not more than 150 three-bladed horizontal axis wind turbine generators each with:
  - a. a maximum blade tip height of 209.7 metres (measured above Lowest Astronomical Tide (“LAT”))
  - b. a rotor diameter of between 122 and 167 metres;
  - c. a hub height of between 87.1 and 126.2 metres (measured from LAT);
  - d. a minimum blade tip clearance of between 29.8 and 42.7 metres (measured from LAT);
  - e. blade width of up to 5.4 metres; and
  - f. a minimum spacing of 1,000 metres;
2. all foundations, substructures, fixtures, fittings, fixings, and protections;
3. inter array cabling and cables up to and onto the offshore substation platforms; and
4. transition pieces including access ladders / fences and landing platforms,

all as specified in the Applications and by the conditions imposed by the Scottish Ministers.

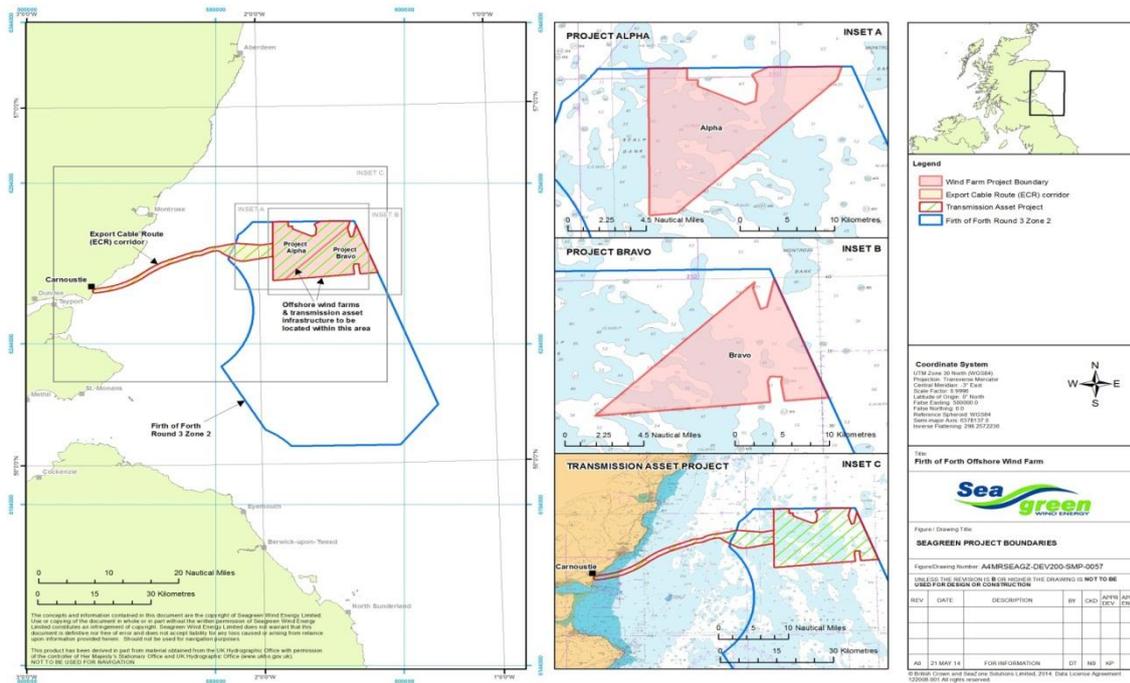
The construction programme is expected to cover a period of approximately 4 years. No date is yet available for commencement of construction, but it is likely to commence in 2017. A full project description can be found in [chapter 5 of the Seagreen Environmental Statement \(“ES”\)](#).

### Location of Development

The SAWEL and SBWEL sites are located approximately 27 km and 38 km offshore respectively from the nearest landfall on the Angus coastline. The total area within the SAWEL site boundary is 197 km<sup>2</sup>. The total area within the SBWEL site boundary is 194 km<sup>2</sup>.

The selected landfall for the export cable is at Carnoustie, a total distance of approximately 70 km from the indicative Offshore Substation Platform (“OSP”) location within the SAWEL site.

**Figure 1 – Development Location:** Seagreen Alpha and Seagreen Bravo Offshore Wind Farm Locations, showing the proposed Export Cable Route to shore at Carnoustie.



## 5. Details of Consultation

MS-LOT received advice from the JNCC and SNH on the Forth and Tay wind farm applications (SAWEL, SBWEL, Naert na Gaoithe Offshore Windfarm Limited (“NNGOWL”) and Inch Cape Offshore Limited (“ICOL”)) on 7<sup>th</sup> March 2014. The JNCC and SNH advised that the SAWEL and SBWEL developments partially overlap with the proposed Firth of Forth Banks Complex NC MPA (the MPA had not been designated when that advice was received). Following designation of the NC MPA in July 2014 MS-LOT requested further advice on the potential impacts of the SAWEL and SBWEL developments on the Firth of Forth Banks Complex NC MPA. MS-LOT received this advice from JNCC on 16<sup>th</sup> September 2014.

Marine Scotland Science reviewed the advice provided by JNCC and were content with the advice.

## 6. SCREENING – is the proposal capable of affecting (other than insignificantly) the protected features of the MPA

In their response dated 16<sup>th</sup> September 2014, the JNCC advised that the proposed SAWEL and SBWEL sites, together with the cable routes, lie mostly outside the boundary of the Firth of Forth Banks Complex NC MPA. However, there are areas of overlap: for SAWEL this amounts to 83.28 km<sup>2</sup> (equivalent to 3.91% of the NC MPA area); for SBWEL it amounts to 40.29 km<sup>2</sup> (1.89% of the NC MPA area); and for the cable route 29.23 km<sup>2</sup> (1.37% of the NC MPA area). In total, the combined overlap amounts to 7.17% of the NC MPA. However, JNCC stated that the footprints of any environmental impacts are much smaller than the overall project footprint with the NC MPA (see below) as these impacts are localised within the site.

Based on consideration of the information presented in the ES and Marine Scotland’s [Features Activities Sensitivities Tool \(“FeAST”\)](#), the JNCC concluded that activities associated with the SAWEL and SBWEL developments will result in pressures to which offshore subtidal sands and gravels and ocean quahog aggregations are known to be sensitive. The shelf bank and mound large-scale features and the Moraines key geomorphological feature are considered unlikely to be adversely affected by the proposed operation due to the very small scale of the impact footprints in relation to these large scale features. As such, the JNCC concluded that the proposal is capable of affecting, other than insignificantly, the ocean quahog aggregations and offshore subtidal sand and gravel protected features of the Firth of Forth Banks Complex NC MPA.

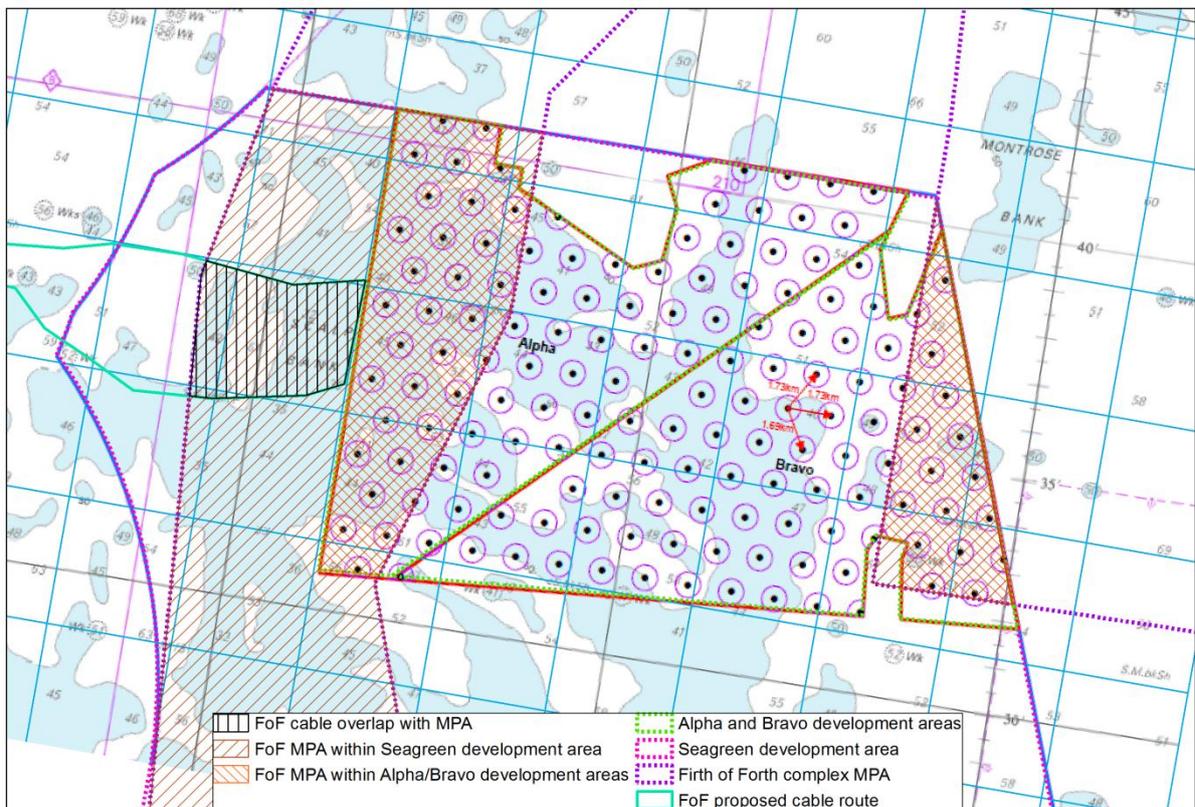
Therefore, MS-LOT are required to complete an assessment to determine whether there is a significant risk of the SAWEL and SBWEL developments hindering the achievement of the conservation objectives of the Firth of Forth Banks Complex MPA with respect to subtidal sands and gravels and ocean quahog (see section 7 below).

## 7. MAIN ASSESSMENT - Is there a significant risk of hindering the achievement of the conservation objectives?

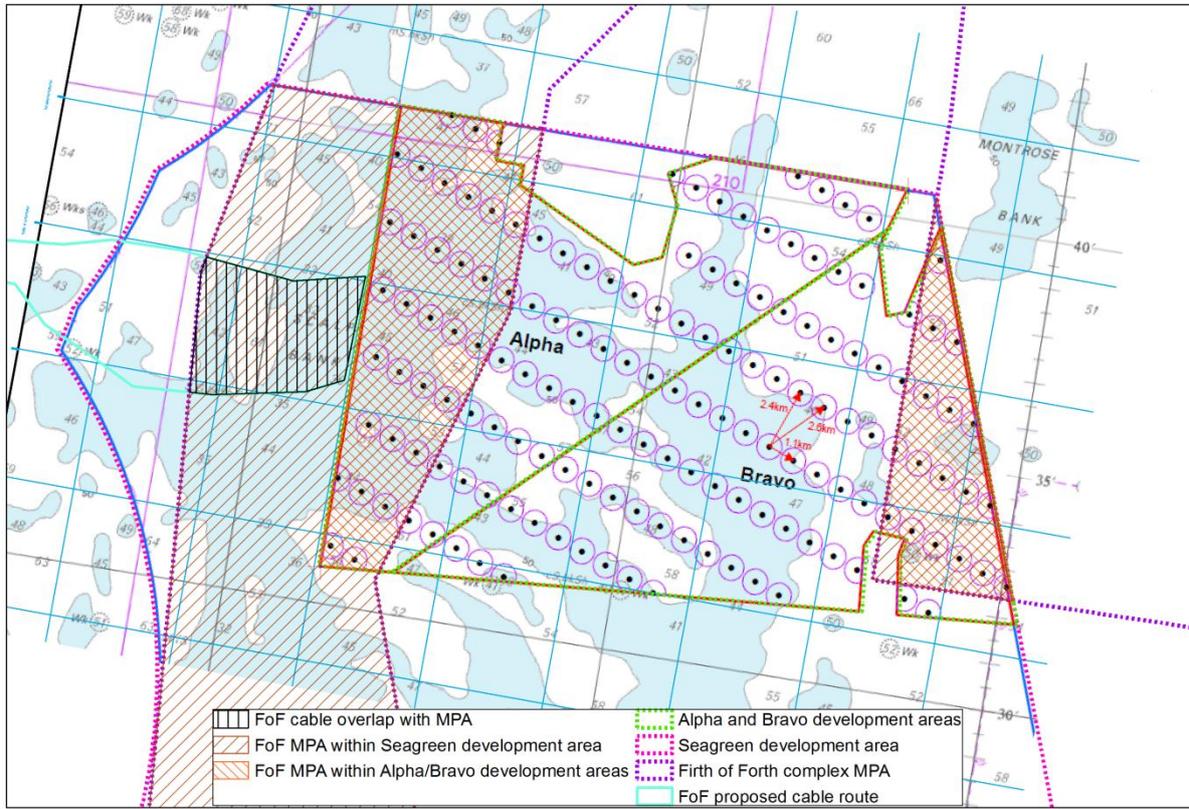
Figure 2 below shows the areas of overlap of the SAWEL and SBWEL developments with the NC MPA and possible turbine layouts.

**Figure 2 – Turbine layouts**

a) Potential WTG location on 'grid' layout.



b) Potential WTG location 'in line' layout.



For their environmental assessment, Seagreen have considered two different gravity bases as a worst case scenario when considering impacts to the seabed. The jack-up footprint for turbine installation, the material dumping area and the area affected by trench cable installation have also been included in the impact assessment. Seagreen have considered *physical disturbance*, *habitat loss* and *increase in suspended sediment* as the main potential impacts affecting benthic areas during the *construction* and the *operation* phases.

The JNCC have advised that the extent of these impacts within the NC MPA is estimated at 4.58 km<sup>2</sup> from *physical disturbance* and 1.03 km<sup>2</sup> from *habitat loss*. According to the information in *Chapter 5 (Project Description Table 5.6 and Table 5.13)*, the *Appendix E4-Annex A, Table 1* and *Chapter 7* of the ES, the JNCC understand that the benthic impacts of displacing 3,457,647 m<sup>3</sup> of sediment are included in the *physical disturbance* and *habitat loss* estimations.

With the “grid” layout (Figure 2a above), 30 WTGs in the SAWEL site and 15 WTGs in the SBWEL site are within the MPA; with the “in line” layout (Figure 1a above), 29 WTGs in the SAWEL site and 14 WTGs in the SBWEL site are within the MPA. As there was minimal difference between the “grid” and “in line” layouts in the potential impact on the MPA features, the JNCC undertook the assessment on the worst case, i.e., the “grid” layout.

With regards to the cable route, Seagreen estimate 15 metres width of physical

disturbance during the installation along the route and 7 metres width of habitat lost from material dumping (cable protection), which is estimated to be required along 10% of the cable route. The NC MPA overlaps 27.73% of the export cable route, resulting in approximately 0.1 km<sup>2</sup> of habitat loss within the NC MPA boundaries.

Table 1 below details the assessment completed by the JNCC, and Table 2 provides a summary.

**Table 1.** Details of assessment completed by JNCC for SAWEL, SBWEL and the export cable route.

PROJECT ALPHA (in grid)					
	Infrastructure affecting seabed	Area / volume	Section in MPA (worst case)	Area / Volume	
<b>Construction</b>					
Physical disturbance	72m baseplate (up to 8 WTG)	1,931 m <sup>2</sup>	x 8	14,448	
	30 Tubular Jacket and suction piles (+ 3 Met mast)	1,773 m <sup>2</sup>	x 33	58,505	
	OSP (2x1400 m <sup>2</sup> + 2,474 m <sup>2</sup> )	5,274 m <sup>2</sup>	x1	5,274	
	Jack-up vessel (by WGT: 121.5 x 6)*	729 m <sup>2</sup>	x 30	21,870	
	Jack-up vessel (by OSP: 121.5 x 8)*	972 m <sup>2</sup>	x 3	2,916	
	Array cable installation (355km x 10m wide)	3,500,000 m <sup>2</sup>	42.06%	1,472,100	
					<b>1,575,113 m<sup>2</sup></b>
Loss of habitat	72m baseplate (up to 8 WTG)	10,923 m <sup>2</sup>	x 8	87,384	
	Tubular Jacket and suction piles (including Met mast)	7,467 m <sup>2</sup>	x 30	224,010	
	OSP	18,265 m <sup>2</sup>	x1	18,265	
	Rock placement (10% worst case) x 7m wide (7m x 35,500m)	248,500 m <sup>2</sup>	42.06%	104,519	
					<b>434,178 m<sup>2</sup></b>
Sediment suspension increase	Up to 8 GBS 72 m and up to 67 GBS 52m diameter	642,200 m <sup>3</sup>	42.06%	270,109 m <sup>3</sup>	
	GBS up to 3 OSP	53,500 m <sup>3</sup>	x1	53,500 m <sup>3</sup>	
	Array cable (total 355km 3m wide)	2,236,500 m <sup>3</sup>	42.06%	940,671 m <sup>3</sup>	
					<b>1,264,280 m<sup>3</sup></b>
<b>Operation</b>					
Physical disturbance	Jack-up vessel (121.5 m <sup>2</sup> )	Unknown			
Habitat loss	Scour hole from 75WTG + 3 Met mast conical GBS	353,178 m <sup>2</sup>	42.06%	148,547	
	Scour hole from OSP rectangular GBS	2,886 m <sup>2</sup>	x1	2,886	
Suspended sediments	Scour hole from 75WTG + 3 Met mast conical GBS	340,296 m <sup>3</sup>	42.06%	143,128	
	Scour hole from OSP rectangular GBS	5,226 m <sup>3</sup>	x1	5,226	
					<b>148,354 m<sup>3</sup></b>

\*Footprint from 6 legs and number of deployments from installation (6 for each WGT and 8 for each OSP). Information from the Technical Appendix G4  
55.91% section of project Alpha affected by the MPA

PROJECT BRAVO

	Infrastructure affecting seabed	Area / volume	Section in MPA (worst case)	Area / Volume	
<b>Construction</b>					
Physical disturbance	72m baseplate (up to 8 WTG)	1,931 m <sup>2</sup>	x 8	14,448	
	Tubular Jacket and suction piles (+3 Met mast)	1,773 m <sup>2</sup>	x18	31,914	
	2 x OSP (2,100 m <sup>2</sup> + 1,400 m <sup>2</sup> )	3,500 m <sup>2</sup>	x1	3,500	
	Jack-up vessel (by WGT: 121.5 x 6)*	729 m <sup>2</sup>	x15	10,935	
	Jack-up vessel (by OSP: 121.5 x 8)*	972 m <sup>2</sup>	x 8	7,776	
	Array cable installation (355km x 10m wide)	3,500,000 m <sup>2</sup>	20.79%	727,650	
					<b>802,523 m<sup>2</sup></b>
Loss of habitat	72m baseplate (up to 8 WTG)	10,923 m <sup>2</sup>	x 8	87,384	
	Tubular Jacket and suction piles (including Met mast)	7,467 m <sup>2</sup>	x15	112,005	
	2 x OSP (13,009 m <sup>2</sup> + 5,555 m <sup>2</sup> )	18,564 m <sup>2</sup>	x1	18,564	
	Rock placement (10% worst case) x 7m wide (7m x 35,500m)	248,500 m <sup>2</sup>	20.79%	51,663	
					<b>269,616 m<sup>2</sup></b>
Sediment suspension increase	Up to 8 GBS 72 m and up to 67 GBS 52m diameter	642,200 m <sup>3</sup>	20.79%	133,513 (using formula-128,440)	
	GBS up to 2 OSP	45,000 m <sup>3</sup>	x1	45,000	
	Array cable (total 355km 3m wide)	2,236,500 m <sup>3</sup>	20.79%	464,968	
					<b>643,481 m<sup>3</sup></b>
<b>Operation</b>					
Physical disturbance	Jack-up vessel (121.5 m <sup>2</sup> )	Unknown			
Habitat loss	Scour hole from 75WTG + 3 Met mast conical GBS	353,178 m <sup>2</sup>	20.79%	73,425	
	Scour hole from OSP rectangular GBS	1,036 m <sup>2</sup>	x1	1,036	
					<b>74,461 m<sup>2</sup></b>
Suspended sediments	Scour hole from 75WTG + 3 Met mast conical GBS	340,296 m <sup>3</sup>	20.79%	70,747	
	Scour hole from OSP rectangular GBS	8,064 m <sup>3</sup>	x1	8,064	
					<b>78,811 m<sup>3</sup></b>

\*Footprint from 6 legs and number of deployments from installation (6 for each WGT and 8 for each OSP). Information from the Technical Appendix G4  
20.79% proportion of the Project Bravo affected by the NC MPA

**EXPORT CABLE (ECR)**

	Infrastructure affecting seabed	Area / volume	Section in MPA (worst case)	Area / Volume	
<b>Construction</b>					
Physical disturbance	Total six cables (530,000 m x 15m wide)	7,950,000 m <sup>2</sup>	27.73%	2,204,535	
					2,204,535 m <sup>2</sup>
Loss of habitat	Rock dumping (10% of total long 53,000m x 7m wide)	371,000 m <sup>2</sup>	27.73%	102,878	
					102,878 m <sup>2</sup>
Sediment suspension increase	3 m wide cable trench total long	4,770,000 m <sup>2</sup>	27.73%	1,322,721	
					1,322,721 m <sup>3</sup>

27.73% is the proportion of the export cable route within the MPA boundary.

**Table 2.** Summary table of NC MPA and Project Alpha and Bravo overlapping and benthic impacts estimation (NB. These are maximum figures, associated with the worst case scenario)

	Structure	Area km <sup>2</sup>	Area within MPA km <sup>2</sup>	% of MPA	Total % of MPA	
Overall footprint	Alpha	197.33	83.28	3.91	7.17%	
	Bravo	193.78	40.29	1.89		
	Cable	105.39	29.23	1.37		
<b>Total impacts estimation (project Alpha, Bravo and ECR)</b>						
Impact	Construction m <sup>2</sup>	Sum m <sup>2</sup>	Operation m <sup>2</sup>	Sum m <sup>2</sup>	Total area m <sup>2</sup>	% MPA (total MPA area 2,131.48 km <sup>2</sup> )
Physical disturbance	A: 1,575,113 B: 802,523 C: 2,204,535	4,582,171	-	-	4,582,171 (4.58 km <sup>2</sup> )	0.21%
Loss of habitat	A: 434,178 B: 269,616 C: 102,878	806,672	A: 151,433 B: 74,461	225,894	1,032,566 (1.03 km <sup>2</sup> )	0.05%
Impact	Construction m <sup>3</sup>	Sum m <sup>3</sup>	Operation m <sup>3</sup>	Sum m <sup>3</sup>	Total volume (m <sup>3</sup> )	
Sediment suspension increase	A: 1,264,280 B: 643,481 C: 1,322,721	3,230,482	A: 148,354 B: 78,811	227,165	3,457,647	N/A

A: Project Alpha; B: Project Bravo; C: Cable corridor

Seagreen provided survey information regarding the project area, which included grab samples, video and trawl samples. Following the worst case scenario approach and making the assumption that all the habitat within the NC MPA boundaries would be suitable for ocean quahog, the JNCC advised that the maximum habitat loss for this species would be 0.05%, which the JNCC do not consider likely to hinder the achievement of the conservation objective for this species.

The JNCC advised that the impacts on the ocean quahog aggregations and offshore subtidal sands and gravels protected features of the NC MPA, are not considered to be significant in accordance with the requirements of the 2009 Act.

The JNCC assessment is based on the following and is contingent on further engagement with Marine Scotland and Seagreen as highlighted below in order to

ensure the conservation objectives of this site are achieved:

- the small percentage area of Firth of Forth Banks Complex NC MPA that is directly impacted by the project. It is estimated that 0.21% of the NC MPA benthic area will receive *physical disturbance* and there will be habitat loss amounting to 0.05% of the NC MPA area during construction and operational phases.
- noting that impacts (habitat loss and smothering etc.) will occur from the placement of infrastructure within the NC MPA but acknowledging that Seagreen have suggested proposals to mitigate such impacts. These include site specific surveys to inform final turbine and export cable locations (*Mitigation* pg 11.41 and 11-42 of the ES), minimising the introduction of new materials (e.g. rock dumping, mattresses etc). into the area that alters seabed habitat type (*Mitigation* pg 11-47 of the ES) and the micro-siting of infrastructure, where possible, in relation to sensitive benthic habitats (*Mitigation* pg 11-45 of the ES).

The JNCC welcome these initial proposals to mitigate such impacts and are keen to continue close liaison with Marine Scotland and Seagreen over these mitigation proposals as they develop and Seagreen further refine their Rochdale envelope for this proposal to order to ensure the conservation objectives of the site are achieved.

Although the assessment completed by the JNCC considers the worst case of gravity bases it should be noted that in a letter dated 12<sup>th</sup> June 2013 Marine Scotland informed Seagreen that if gravity bases are to be used this will be subject to a further marine licence application and supporting Environmental Impact Assessment in order to consider the required dredging and disposal of sediment. This approach has been welcomed by the JNCC and will allow further consideration of the impacts on the NC MPA if this option is to be progressed. MS-LOT consider that if foundations are piled then impacts on the qualifying features of the NC MPA will be considerably less than those assessed by the JNCC.

**Having considered the advice provided by the JNCC, MS-LOT consider that there is no significant risk of the SAWEL and SBWEL developments hindering the achievement of the conservation objectives of the Firth of Forth Banks Complex MPA if the conditions in section 8 are complied with.**

## 8. Conditions

**The following conditions will be included in any section 36 granted (and if appropriate the marine licence for the transmission works). The conditions serve to address many potential environmental impacts but will also allow the consideration and implementation of effective mitigation on the qualifying features of the Firth of Forth Banks Complex MPA.**

- 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 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 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 Application and must include details of how the construction related mitigation steps proposed in the ES and in the SEIS 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.**

- The Company must, no later than 6 months prior to the Commencement of the Development, submit a Development Specification and Layout Plan (“DSLPL”), 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, the JNCC, SNH, SFF, 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 DSLPL (as updated and amended from time to time by the Company). Any updates or amendments made to the DSLPL 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 WGS84 format;
- c. A table or diagram of each WTG dimensions including - height to blade tip (measured above Lowest Astronomical Tide ("LAT")) to the highest point, height to hub (measured above LAT to the centreline of the generator shaft), rotor diameter and maximum rotation speed;
- d. The generating capacity of each WTG used on the Site (Annex 1, Inset A of Figure 1 in Annex D(a) and , Inset B of Figure 1 in Annex D(b) respectively) and a confirmed generating capacity for the Site overall;
- e. The finishes for each WTG (see condition 19 on WTG lighting and marking in Annex D(a) and D(b)); and
- f. The length and proposed arrangements on the seabed of all inter-array cables.

**Reason:** *To confirm the final Development specification and layout.*

- 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 the JNCC, SNH, 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 the Decommissioning Programme provided for by condition 3 of Annex D(a) and D(b)).

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 overarching 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 in Annex D(a) and D(b));
- 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, the JNCC, SNH, 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 the JNCC, SNH, 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 27 of Annex D(a) and D(b)) 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.*

- 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 the JNCC, SNH, MCA, SFF and any such other advisors or organisations as may be required at the discretion of the Scottish Ministers. The CaP must be in accordance with the

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 protection measures;
- e. Methodologies for surveys (e.g. over trawl) of the inter array cables through the operational life of the wind farm where mechanical protection of cables laid on the sea bed is deployed; and
- f. Methodologies for inter array cable inspection with measures to address and report to the Scottish Ministers any exposure of inter array cables.

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

- 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 the JNCC, SNH, 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 so as to ensure that the data which is collected allows useful and valid comparisons between different phases of the Development. Monitoring may also serve the purpose of verifying key predictions in the Application. In the event that further potential adverse environmental effects are identified, for which no predictions were made in the Application, the Scottish Ministers may require the Company to undertake

additional monitoring.

The 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 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 Marine Mammal Monitoring Programme (“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 Forth and Tay Regional Advisory Group (“FTRAG”) referred to in condition 27 of Annex D(a) and D(b). 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 the 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.*

- 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 the JNCC and SNH, 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 version of all plans and programmes required under this consent;
- b. Provide 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. Monitor compliance with the CMS, the EMP, the PEMP, the PS (if required), the CaP and the VMP;
- d. Provide 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.*

## 9. Conclusion

MS-LOT conclude that there is no significant risk of the proposed Seagreen Alpha and Seagreen Bravo Offshore Wind Farms hindering the achievement of the conservation objectives for the protected features of the Firth of Forth Banks Complex NC MPA if the conditions set out in section 8 are complied with.

<b>Name of Assessor</b>	Joao Queiros
<b>Date</b>	29 <sup>th</sup> September 2014
<b>Name of Approver</b>	Gayle Holland
<b>Date</b>	3 <sup>rd</sup> October 2014