

From: [REDACTED]@bondoffshorehelicopters.com]

Sent: 04 July 2012 09:13

To: MS Marine Licensing

Subject: RE: 003/OW/BOWL - 8: Beatrice Offshore Windfarm Consultation End 3 July 2012

Follow Up Flag: Follow up

Flag Status: Purple

Gayle,

We have no comments, having been involved in the consultation phase. Thank you.

Regards

[REDACTED]

Capt. [REDACTED]
Flight Safety Manager
Bond Offshore Helicopters

Kirkhill House,
Dyce Avenue,
Aberdeen Business Park,
Dyce,
Aberdeen,
AB21 OLO
Tel. [REDACTED]
e-mail: [REDACTED]@bondoffshorehelicopters.com

From: Gayle.Holland@scotland.gsi.gov.uk [mailto:Gayle.Holland@scotland.gsi.gov.uk] **On Behalf Of** MS.

MarineLicensing@scotland.gsi.gov.uk

Sent: 03 July 2012 14:00

To: [REDACTED]

Subject: 003/OW/BOWL - 8: Beatrice Offshore Windfarm Consultation End 3 July 2012

Dear [REDACTED]

ELECTRICITY ACT 1989

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

The Electricity (Applications for Consent) Regulations 1990

MARINE (SCOTLAND) ACT 2010

MARINE AND COASTAL ACCESS ACT 2009

The Marine Works (Environmental Impact Assessment) Regulations 2007 (as amended)
APPLICATION FOR CONSENT UNDER SECTION 36 and 36A OF THE
ELECTRICITY ACT 1989 AND MARINE LICENCES UNDER PART 4,
SECTION 20 OF THE MARINE (SCOTLAND) ACT 2010 AND UNDER PART
4, SECTIONS 65 AND 66 OF THE MARINE AND COASTAL ACCESS ACT
2009 TO CONSTRUCT AND OPERATE AN OFFSHORE WINDFARM,
OUTER MORAY FIRTH.

The closing date for comments on the application for the Beatrice Offshore Wind Farm was the 8th June 2012. Despite reminders having been sent Marine Scotland has not received any response from you and therefore understands that you have no comments to make. I would like to make you aware that the consultation period has now ended.

Kind Regards
Gayle Holland

Gayle Holland

Marine Renewables Licensing Advisor

Marine Scotland – Marine Planning & Policy Division

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

Tel: + 44 (0) 1224 295600

S/B + 44 (0) 1224 876544

Fax: + 44 (0) 1224 295524

Email: gayle.holland@scotland.gsi.gov.uk

ms.marinelicensing@scotland.gsi.gov.uk

Web: <http://www.scotland.gov.uk/marinescotland>

<http://www.scotland.gov.uk/topics/marine/licensing/marine>

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From: [REDACTED]@bt.com
Sent: 01 May 2012 11:34
To: MS Marine Licensing
Subject: Beatrice Offshore Windfarm

Follow Up Flag: Follow up
Flag Status: Purple
Your Ref 003/OW/BOWL-8

Dear Sir/Madam

Thank you for your letter dated 25/04/2012.

We have studied this wind farm proposal with respect to EMC and related problems to BT point-to-point microwave radio links.

The conclusion is that, the Wind turbine Project indicated should not cause interference to BT's current and presently planned radio networks.

[REDACTED]
BT Operate
Radio Frequency Allocation & Network Protection
pp 4AA CTE, Newcastle Central Tel Exch (TEL-NE), Carliol Square, Newcastle upon Tyne. NE1 1BB. [REDACTED] Fax: 0191 261 6458 e-mail: [REDACTED]@bt.com

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This email has been received from an external party and

From: Barclay MJ (Michael)
Sent: 06 June 2012 09:32
To: Holland G (Gayle)
Subject: 003/OW/BOWL - 8: Application Consultation
Gayle

Re: the above

Nil return from Buckie Fishery Office.

If you require any more information do not hesitate to contact me.

Regards

Michael Barclay
Marine Scotland - Compliance

Scottish Government, Fishery Office, Suites 3-5, Douglas Centre, March Road, Buckie, AB56 4BT

Tel: +44 (0) 300 244 9262

Fax: +44 (0) 300 244 9265

e: Michael.Barclay@scotland.gsi.gov.uk

w: <http://www.scotland.gov.uk/marinescotland>

From: [REDACTED]@thecrownestate.co.uk]

Sent: 14 June 2012 14:29

To: MS Marine Licensing

Subject: RE: 003/OW/BOWL - 8: Application Consultation: One Week After Reminder: 14 June 2012

Follow Up Flag: Follow up

Flag Status: Purple

Hi Gayle,

Thank you for consulting us on this application. We don't have any comments to make.

Regards,

From: Gayle.Holland@scotland.gsi.gov.uk [mailto:Gayle.Holland@scotland.gsi.gov.uk] **On Behalf Of** MS.

MarineLicensing@scotland.gsi.gov.uk

Sent: Thursday, June 14, 2012 1:52 PM

To: [REDACTED]

Subject: 003/OW/BOWL - 8: Application Consultation: One Week After Reminder: 14 June 2012

Dear [REDACTED]

ELECTRICITY ACT 1989

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

The Electricity (Applications for Consent) Regulations 1990

MARINE (SCOTLAND) ACT 2010

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The deadline for providing comments on the Beatrice Offshore Wind Farm detailed above was 8th June 2012. As the deadline has now passed please contact me immediately to arrange an extension to the consultation period if you wish to provide comments. If you have no comments to make please submit a "nil return" response.

You should already have received a copy of the Environmental Statement.

Yours sincerely,

Gayle Holland

Gayle Holland

Marine Renewables Licensing Advisor

Marine Scotland – Marine Planning & Policy Division

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

Tel: + 44 (0) 1224 295600

S/B + 44 (0) 1224 876544

Fax: + 44 (0) 1224 295524

Email: gayle.holland@scotland.gsi.gov.uk

ms.marinelicensing@scotland.gsi.gov.uk

Web: <http://www.scotland.gov.uk/marinescotland>

<http://www.scotland.gov.uk/topics/marine/licensing/marine>

From: Holland G (Gayle) **On Behalf Of** MS Marine Licensing

Sent: 01 June 2012 11:41

To: [REDACTED]@thecrownestate.co.uk

Subject: 003/OW/BOWL - 8: Application Consultation: One Week Before Reminder: 1 June 2012

Dear [REDACTED]

ELECTRICITY ACT 1989

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

The Electricity (Applications for Consent) Regulations 1990

MARINE (SCOTLAND) ACT 2010

MARINE AND COASTAL ACCESS ACT 2009

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Please find attached the consultation letter for the above application. I would be grateful for any comments you have by **8th June 2012**. If you are unable to meet this deadline, please contact us to arrange an extension to the consultation period. If you have no comments to make please submit a “nil return” response.

You should already have received a copy Environmental Statement.

Many thanks,

Gayle

<<A2951646.pdf>>

Gayle Holland

Marine Renewables Licensing Advisor

Marine Scotland – Marine Planning & Policy Division

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

Tel: + 44 (0) 1224 295683

S/B + 44 (0) 1224 876544

Fax: + 44 (0) 1224 295524

Email: gayle.holland@scotland.gsi.gov.uk

ms.marinelicensing@scotland.gsi.gov.uk

Web: <http://www.scotland.gov.uk/marinescotland>

<http://www.scotland.gov.uk/topics/marine/licensing/marine>

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Tha am post-d seo (agus faidhle neo ceanglan còmhla ris) dhan neach neo luchd-ainmichte a-mhàin. Chan eil e ceadachta a chleachdadh ann an dòigh sam bith, a' toirt a-steach còraichean, foillseachadh neo sgaoileadh, gun chead. Ma 's e is gun d'fhuair sibh seo le gun fhiosd', bu choir cur às dhan phost-d agus lethbhreac sam bith air an t-siostam agaibh, leig fios chun neach a sgaoil am post-d gun dàil.

Dh'fhaodadh gum bi teachdaireachd sam bith bho Riaghaltas na h-Alba air a chlàradh neo air a sgrùdadh airson dearbhadh gu bheil an siostam ag obair gu h-èifeachdach neo airson adhbhar laghail eile. Dh'fhaodadh nach eil beachdan anns a' phost-d seo co-ionann ri beachdan Riaghaltas na h-Alba.

From: [REDACTED]@hse.gsi.gov.uk on behalf of Landuseplanning.Scotland@hse.gsi.gov.uk
Sent: 14 June 2012 17:18
To: MS Marine Licensing
Subject: RE: 003/OW/BOWL - 8: Application Consultation: One Week After Reminder: 14 June 2012

Follow Up Flag: Follow up

Flag Status: Purple

Hi Gayle,

apologies for the delay in responding.

HSE has no comments to make on this Environmental Statement consultation.

Thanks,

From: Gayle.Holland@scotland.gsi.gov.uk [mailto:Gayle.Holland@scotland.gsi.gov.uk] **On Behalf Of** MS.MarineLicensing@scotland.gsi.gov.uk
Sent: 14 June 2012 13:55
To: Landuseplanning Scotland
Subject: 003/OW/BOWL - 8: Application Consultation: One Week After Reminder: 14 June 2012

Dear Sir/Madam

ELECTRICITY ACT 1989

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

The Electricity (Applications for Consent) Regulations 1990

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The deadline for providing comments on the Beatrice Offshore Wind Farm detailed above was 8th June 2012. As the deadline has now passed please contact me immediately to arrange an extension to the consultation period if you wish to provide comments. If you have no comments to make please submit a "nil return" response.

You should already have received a copy of the Environmental Statement.

Yours sincerely,

Gayle Holland

Gayle Holland

Marine Renewables Licensing Advisor

Marine Scotland – Marine Planning & Policy Division

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

Tel: + 44 (0) 1224 295600

S/B + 44 (0) 1224 876544

Fax: + 44 (0) 1224 295524

Email: gayle.holland@scotland.gsi.gov.uk

ms.marinelicensing@scotland.gsi.gov.uk

Web: <http://www.scotland.gov.uk/marinescotland>

<http://www.scotland.gov.uk/topics/marine/licensing/marine>

From: Holland G (Gayle) **On Behalf Of** MS Marine Licensing

Sent: 01 June 2012 11:45

To: 'landuseplanning.scotland@hse.gsi.gov.uk'

Subject: 003/OW/BOWL - 8: Application Consultation: One Week Before Reminder: 1 June 2012

Dear Sir/Madam

ELECTRICITY ACT 1989

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

The Electricity (Applications for Consent) Regulations 1990

MARINE (SCOTLAND) ACT 2010

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CONSTRUCT AND OPERATE AN OFFSHORE WINDFARM, OUTER MORAY FIRTH.

Please find attached the consultation letter for the above application. I would be grateful for any comments you have by **8th June 2012**. If you are unable to meet this deadline, please contact us to arrange an extension to the consultation period. If you have no comments to make please submit a “nil return” response.

You should already have received a copy Environmental Statement.

Many thanks,
Gayle

<<A2951124.pdf>>

Gayle Holland

Marine Renewables Licensing Advisor

Marine Scotland – Marine Planning & Policy Division

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

Tel: + 44 (0) 1224 295683

S/B + 44 (0) 1224 876544

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Email: gayle.holland@scotland.gsi.gov.uk

ms.marinelicensing@scotland.gsi.gov.uk

Web: <http://www.scotland.gov.uk/marinescotland>

<http://www.scotland.gov.uk/topics/marine/licensing/marine>

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From: [REDACTED]@jrc.co.uk]
Sent: 27 April 2012 14:59
To: MS Marine Licensing
Subject: Beatrice Offshore Windfarm -- Total 277 turbines

Follow Up Flag: Follow up
Flag Status: Purple

----- Original Message -----

Subject: Beatrice Offshore Windfarm -- Total 277 turbines
Date: Fri, 27 Apr 2012 14:33:44 +0100
From: Windfarms Team <windfarms@jrc.co.uk>
Organisation: Joint Radio Company Ltd
To: [REDACTED]@sserenewables.com
CC: [REDACTED]@scottish-southern.co.uk, [REDACTED]@sgn.co.uk>

Dear Sir/Madam,

Site Name:Beatrice Offshore Windfarm

Boundary Point 1 at NGR:344167 919953
Boundary Point 2 at NGR:350235 938168
Boundary Point 3 at NGR:340509 923672
Boundary Point 4 at NGR:355913 934910

Hub Height:120m Rotor Radius:78m

(defaults used if not specified on application)

Cleared with respect to radio link infrastructure operated by:-

Scottish Hydro (Scottish & Southern Energy) and Scotia Gas Networks

JRC analyses proposals for wind farms on behalf of the UK Fuel & Power Industry together with the Water Industry in north-west England.This is

to assess their potential to interfere with radio systems operated by utility companies in support of their regulatory operational requirements.

In the case of this proposed wind energy development, JRC does not foresee any potential problems based on known interference scenarios and the data you have provided. However, 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.

In making this judgement, JRC has used its best endeavours with the available data, although we recognise that there may be effects which are as yet unknown or inadequately predicted. JRC cannot therefore be held liable if subsequently problems arise that we have not predicted.

It should be noted that this clearance pertains only to the date of its issue. As the use of the spectrum is dynamic, the use of the band is changing on an ongoing basis and consequently, you are advised to seek re-coordination prior to submitting a planning application, as this will negate the possibility of an objection being raised at that time as a consequence of any links assigned between your enquiry and the finalisation of your project.

JRC offers a range of radio planning and analysis services. If you require any assistance, please contact us by phone or email.

Regards

[REDACTED]

Wind Farm Team

The Joint Radio Company Limited
Dean Bradley House,
52 Horseferry Road,
LONDON SW1P 2AF
United Kingdom

[REDACTED]

[REDACTED]@jrc.co.uk>

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From: [REDACTED]@mega.gov.uk
Sent: 17 May 2012 15:44
To: MS Marine Licensing
Cc: [REDACTED]
Subject: Application For Consent Beatrice Offshore Wind Farm

Gayle

MCA have now reviewed the Shipping and Navigation Safety aspects of the Environmental Statement provided by Beatrice Offshore Windfarm (BOWL) it has been reviewed primarily paying particular attention to the Navigation Risk Assessment contained at Annex 18.

It is noted that an MGN 371 checklist has been included by the developer which provides confirmation from BOWL on their considered compliance with the requirements laid out in MGN 371.

Prior to construction being consented the following will need to be addressed:

The NRA addresses the requirements associated with traffic and navigation safety, unfortunately a significant data set is missing, under Annex 2, Section 6 iii Hydrography, which requires that an IHO Order 1 standard multibeam bathymetry survey is undertaken and a full digital data set submitted with the NRA. The survey is evidenced within the main document identifying the tracks of the survey vessels, but as yet the data has not been included so the full NRA review cannot be completed until this has been submitted.

Section 17.2.5 still uses out of date references to ETVs and misquotes the provision and intended use of the CAST services, furthermore no reference is made in this section to the numerous potential commercial emergency towing options that may be available from the Oil & Gas Industry that serves the North Sea. The developer needs to address within this section how it will respond to an emergency situation with a drifting/disabled vessel within its development area.

Detailed Emergency Response plans will need to be presented and endorsed prior to any construction being consented.

Other than the omissions identified the NRA provides a detailed review of the navigation risk, once identified concerns have been addressed, the MCA will be able to consider consent conditions for the various elements of application for the construction phase.

Regards

[REDACTED]

[REDACTED]
Offshore Renewables Advisor
Navigation Safety Branch
Bay 2/04 Spring Place
105 Commercial Road
Southampton
SO15 1EG
[REDACTED]

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From: [REDACTED]@morayfirth-partnership.org]

Sent: 14 June 2012 16:45

To: MS Marine Licensing

Subject: RE: 003/OW/BOWL - 8: Application Consultation: One Week Before Reminder: 1 June 2012

Follow Up Flag: Follow up

Flag Status: Purple

Dear Gayle

Ref: 003/OW/BOWL - 8: Application Consultation

Thank you for this extended opportunity to respond to the above consultation. The Moray Firth Partnership did receive the Environmental Statement and circulated details of the consultation to a wide range of stakeholders and members, so that they could respond directly.

Concerns informally notified to us covered a range of topics, including :-

- the various sections on potential effects on wildlife (particularly cetaceans, seals and seabirds)
- visual impacts (day and night) (Section 19) ,and
- tourism impacts (Section 20).

The Moray Firth Partnership is a voluntary organisation, with a broad membership-base covering many sectors as well as individuals, therefore we are not in a position to submit a response that could collectively reflect the views of our members. We are satisfied that any concerns notified to our by our members have been adequately reflected in the responses from these or other organisations, and therefore do not propose to submit a detailed, individual response on this occasion.

Yours sincerely

[REDACTED]

[REDACTED]

Manager
Moray Firth Partnership
Great Glen House
Leachkin Road
INVERNESS IV3 8NW

[REDACTED]

Website www.morayfirth-partnership.org
Company(Limited by Guarantee) No. 196042
Registered Charity No. SC028964

From: Gayle.Holland@scotland.gsi.gov.uk [mailto:Gayle.Holland@scotland.gsi.gov.uk] **On Behalf Of** MS.MarineLicensing@scotland.gsi.gov.uk
Sent: 01 June 2012 11:51
To: info@morayfirth-partnership.org
Subject: FW: 003/OW/BOWL - 8: Application Consultation: One Week Before Reminder: 1 June 2012

Dear [REDACTED]

ELECTRICITY ACT 1989
The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2000
The Electricity (Applications for Consent) Regulations 1990
MARINE (SCOTLAND) ACT 2010

MARINE AND COASTAL ACCESS ACT 2009

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Please find attached the consultation letter for the above application. I would be grateful for any comments you have by **8th June 2012**. If you are unable to meet this deadline, please contact us to arrange an extension to the consultation period. If you have no comments to make please submit a “nil return” response.

You should already have received a copy Environmental Statement.

Many thanks,
Gayle

<<A2951371.pdf>>

Gayle Holland

Marine Renewables Licensing Advisor
Marine Scotland – Marine Planning & Policy Division
Scottish Government | Marine Laboratory, PO Box 101 | 375 Victoria Road | Aberdeen AB11 9DB
Tel: + 44 (0) 1224 295683
S/B + 44 (0) 1224 876544
Fax: + 44 (0) 1224 295524

Email: gayle.holland@scotland.gsi.gov.uk

ms.marinelicensing@scotland.gsi.gov.uk

Web: <http://www.scotland.gov.uk/marinescotland>

<http://www.scotland.gov.uk/topics/marine/licensing/marine>

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Tha am post-d seo (agus faidhle neo ceanglan còmhla ris) dhan neach neo luchd-ainmichte a-mhàin. Chan eil e ceadaichte a chleachdadh ann an dòigh sam bith, a' toirt a-steach còraichean, foillseachadh neo sgaoileadh, gun chead. Ma 's e is gun d'fhuair sibh seo le gun fhiosd', bu choir cur às dhan phost-d agus lethbhreac sam bith air an t-siostam agaibh, leig fios chun neach a sgaoil am post-d gun dàil.

Dh'fhaodadh gum bi teachdaireachd sam bith bho Riaghaltas na h-Alba air a chlàradh neo air a sgrùdadh airson dearbhadh gu bheil an siostam ag obair gu h-èifeachdach neo airson adhbhar laghail eile. Dh'fhaodadh nach eil beachdan anns a' phost-d seo co-ionann ri beachdan Riaghaltas na h-Alba.

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Tha am post-dealain seo agus fiosrachadh sam bith na chois dìomhair agus airson an neach no buidheann ainmichte a-mhàin. Mas e gun d' fhuair sibh am post-dealain seo le mearachd, cuiribh fios dhan manaidsear-siostaim no neach-sgrìobhaidh.

Thoiribh an aire airson adhbharan gnothaich, `s dòcha gun tèid sùil a chumail air puist-dealain a' tighinn a-steach agus a' dol a-mach bho SNH


DIRECTOR OF MARINE OPERATIONS

Your Ref: 003/OW/BOWL - 8
Our Ref: AJ/OPS/CPA/O6_01_120

Ms Gayle Holland
Marine Scotland – Licensing Operations Team
Marine Laboratory
PO Box 101
375 Victoria Road
Aberdeen
AB11 9DB

15 May 2012

Dear Ms Holland,

CONSENT UNDER SECTION 36 and 36A of the ELECTRICITY ACT 1989 AND MARINE LICENCES UNDER PART 4, SECTION 20 of the MARINE (SCOTLAND) ACT 2010 and UNDER PART 4, SECTIONS 65 and 66 of the MARINE AND COASTAL ACCESS ACT 2009 TO CONSTRUCT AND OPERATE AN OFFSHORE WINDFARM, OUTER MORAY FIRTH

Thank you for your correspondence dated 25 April 2012 regarding the application by **Beatrice Offshore Windfarm Limited** to install and operate wind turbines, offshore sub-stations and the associated electrical interconnecting and export cables at their wind farm site in the outer Moray Firth.

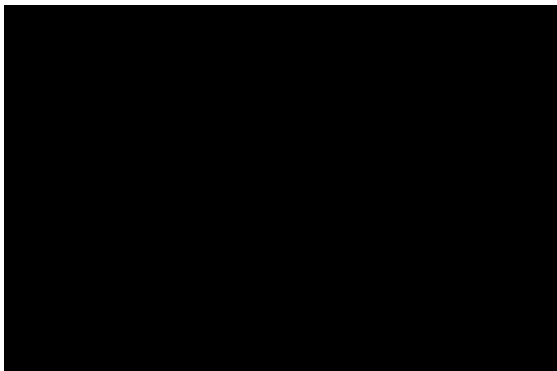
With regard to the consultation and the scope of the assessment, we would only comment on any part relating to Shipping and Navigational Safety contained within the supporting documentation. We are content with the contents of the Navigation Risk Assessment, and have no objections in principle to the development.

We would advise that we are unable to specify final marking and lighting requirements owing to the lack of clarity in the licence application with regard to the number and layout of turbines, the number and location of offshore sub-stations and meteorological masts, and cumulative impacts with regard to the Moray Offshore Wind Farm.

We would anticipate that the granting of any of the above consents would be conditional, in that final approval, including marking and lighting requirements, would only be given once a final 'Construction Statement' detailing the site components and layout has been submitted by the developer.

The licence should be suitably worded to ensure any failure to provide or exhibit markings as required by NLB would be a breach of licence conditions.

Please advise if we can be of any further assistance, or you require clarification of any of the above.



From: [REDACTED]
Sent: 07 June 2012 12:31
To: MS Marine Licensing
Subject: RE: 003/OW/BOWL - 8: Application Consultation: One Week Before Reminder: 1 June 2012

Follow Up Flag: Follow up
Flag Status: Purple

Attachments: A2951501.pdf
Gayle, Thanks for sight of this application. I have no comments to make on it from a ports policy perspective.

[REDACTED]
Ports and Harbours Branch
Area 2G North
Victoria Quay
Edinburgh
EH6 6QQ
[REDACTED]
[REDACTED]@transportscotland.gsi.gov.uk

From: Holland G (Gayle) On Behalf Of MS Marine Licensing
Sent: 01 June 2012 12:26
To: Ferguson V (Val)
Subject: 003/OW/BOWL - 8: Application Consultation: One Week Before Reminder: 1 June 2012

Dear [REDACTED]

ELECTRICITY ACT 1989
The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2000
The Electricity (Applications for Consent) Regulations 1990
MARINE (SCOTLAND) ACT 2010
MARINE AND COASTAL ACCESS ACT 2009
The Marine Works (Environmental Impact Assessment) Regulations 2007 (as amended)
APPLICATION FOR CONSENT UNDER SECTION 36 and 36A OF THE ELECTRICITY ACT 1989 AND MARINE LICENCES UNDER PART 4, SECTION 20 OF THE MARINE (SCOTLAND) ACT 2010 AND UNDER PART 4, SECTIONS 65 AND 66 OF THE MARINE AND COASTAL ACCESS ACT 2009 TO CONSTRUCT AND OPERATE AN OFFSHORE WINDFARM, OUTER MORAY FIRTH.
Please find attached the consultation letter for the above application. I would be grateful for any comments you have by 8th June 2012. If you are unable to meet this deadline, please contact us to arrange an extension to the consultation period. If you have no comments to make please submit a "nil return" response.
You should already have received a copy Environmental Statement.
Many thanks,
Gayle

Gayle Holland
Marine Renewables Licensing Advisor
Marine Scotland – Marine Planning & Policy Division
Scottish Government | Marine Laboratory, PO Box 101 | 375 Victoria Road | Aberdeen AB11 9DB
Tel: + 44 (0) 1224 295683
S/B + 44 (0) 1224 876544
Fax: + 44 (0) 1224 295524
Email: gayle.holland@scotland.gsi.gov.uk
ms.marinelicensing@scotland.gsi.gov.uk
Web: <http://www.scotland.gov.uk/marinescotland>
<http://www.scotland.gov.uk/topics/marine/licensing/marine>

From: [REDACTED]@classmail.co.uk]

Sent: 17 June 2012 16:23

To: MS Marine Licensing

Subject: Re: 003/OW/BOWL - 8: Application Consultation: One Week After Reminder: 14 June 2012

Follow Up Flag: Follow up

Flag Status: Purple

Nil return

From: MS.MarineLicensing@scotland.gsi.gov.uk

Sent: Thursday, June 14, 2012 2:09 PM

To: [REDACTED]@classmail.co.uk

Subject: 003/OW/BOWL - 8: Application Consultation: One Week After Reminder: 14 June 2012

Dear [REDACTED]

ELECTRICITY ACT 1989

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

The Electricity (Applications for Consent) Regulations 1990

MARINE (SCOTLAND) ACT 2010

MARINE AND COASTAL ACCESS ACT 2009

The Marine Works (Environmental Impact Assessment) Regulations 2007 (as amended)

APPLICATION FOR CONSENT UNDER SECTION 36 and 36A OF THE ELECTRICITY ACT 1989 AND MARINE LICENCES UNDER PART 4, SECTION 20 OF THE MARINE (SCOTLAND) ACT 2010 AND UNDER PART 4, SECTIONS 65 AND 66 OF THE MARINE AND COASTAL ACCESS ACT 2009 TO CONSTRUCT AND OPERATE AN OFFSHORE WINDFARM, OUTER MORAY FIRTH.

The deadline for providing comments on the Beatrice Offshore Wind Farm detailed above was 8th June 2012. As the deadline has now passed please contact me immediately to arrange an extension to the consultation period if you wish to provide comments. If you have no comments to make please submit a "nil return" response.

You should already have received a copy of the Environmental Statement.

Yours sincerely,

Gayle Holland

Gayle Holland

Marine Renewables Licensing Advisor

Marine Scotland – Marine Planning & Policy Division

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

Tel: + 44 (0) 1224 295600

S/B + 44 (0) 1224 876544

Fax: + 44 (0) 1224 295524

Email: gayle.holland@scotland.gsi.gov.uk

ms.marinelicensing@scotland.gsi.gov.uk

Web: <http://www.scotland.gov.uk/marinescotland>

<http://www.scotland.gov.uk/topics/marine/licensing/marine>

From: Holland G (Gayle) **On Behalf Of** MS Marine Licensing

Sent: 01 June 2012 12:08

To: [REDACTED]

Subject: 003/OW/BOWL - 8: Application Consultation: One Week Before Reminder: 1 June 2012

Dear [REDACTED]

ELECTRICITY ACT 1989

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

The Electricity (Applications for Consent) Regulations 1990

MARINE (SCOTLAND) ACT 2010

MARINE AND COASTAL ACCESS ACT 2009

The Marine Works (Environmental Impact Assessment) Regulations 2007 (as amended)

APPLICATION FOR CONSENT UNDER SECTION 36 and 36A OF THE ELECTRICITY ACT 1989 AND MARINE LICENCES UNDER PART 4, SECTION 20 OF THE MARINE (SCOTLAND) ACT 2010 AND UNDER PART 4, SECTIONS 65 AND 66 OF THE MARINE AND COASTAL ACCESS ACT 2009 TO CONSTRUCT AND OPERATE AN OFFSHORE WINDFARM, OUTER MORAY FIRTH.

Please find attached the consultation letter for the above application. I would be grateful for any

comments you have by **8th June 2012**. If you are unable to meet this deadline, please contact us to arrange an extension to the consultation period. If you have no comments to make please submit a “nil return” response.

You should already have received a copy Environmental Statement.

Many thanks,
Gayle

<<A2951569.pdf>>

Gayle Holland

Marine Renewables Licensing Advisor

Marine Scotland – Marine Planning & Policy Division

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

Tel: + 44 (0) 1224 295683

S/B + 44 (0) 1224 876544

Fax: + 44 (0) 1224 295524

Email: gayle.holland@scotland.gsi.gov.uk

ms.marinelicensing@scotland.gsi.gov.uk

Web: <http://www.scotland.gov.uk/marinescotland>

<http://www.scotland.gov.uk/topics/marine/licensing/marine>

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Tha am post-d seo (agus faidhle neo ceanglan còmhla ris) dhan neach neo luchd-ainmichte a-mhàin. Chan eil e ceadachd a chleachdadh ann an dòigh sam bith, a’ toirt a-steach còraichean, foillseachadh

neo sgaoileadh, gun chead. Ma 's e is gun d'fhuair sibh seo le gun fhiosd', bu choir cur às dhan phost-d agus lethbhreac sam bith air an t-siostam agaibh, leig fios chun neach a sgaoil am post-d gun dàil.

Dh'fhaodadh gum bi teachdaireachd sam bith bho Riaghaltas na h-Alba air a chlàradh neo air a sgrùdadh airson dearbhadh gu bheil an siostam ag obair gu h-èifeachdach neo airson adhbhar laghail eile. Dh'fhaodadh nach eil beachdan anns a' phost-d seo co-ionann ri beachdan Riaghaltas na h-Alba.

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Our Ref: MM/f/L12-070

Your Ref:

6th June 2012

Scottish Fishermen's Federation

24 Rubislaw Terrace
Aberdeen AB10 1XE
Scotland UK

T: +44 (0) 1224 646944

F: +44 (0) 1224 647058

E: sff@sff.co.uk

www.sff.co.uk

Att: Gayle Holland
Marine Renewables Licensing Advisor
Marine Scotland – Marine Planning & Policy Division
Scottish Government – Marine Laboratory
PO Box 101
375 Victoria Road
Aberdeen
AB11 9DB

email: ms.marinelicensing@scotland.gsi.gov.uk

Dear Sirs,

Consultation on the application by Beatrice Offshore Wind Limited (BOWL) for various consents and licences to develop a wind farm in the Moray Firth.

With reference to the above application, the Scottish Fishermen's Federation (SFF), on behalf of its membership, clearly comprehends the importance of engagement in the consultation process surrounding offshore renewables developments, and the SFF are pleased to have this opportunity to comment on this particular application. However, before commenting on the substance of the application, we do feel compelled to make reference to the sheer volume of information that comprises the Environmental Statement, most of which is of no great relevance to most stakeholders. The initial reaction to this massive document was therefore something akin to intimidation, but nonetheless due consideration must be given to it.

From a fishing industry perspective, the regular proclamation, throughout the document, that the effects of this development on fishing will be minor/negligible/within acceptable limits, may make sense at the national scale to those who define the Environmental Assessment, but coming down to the level of the individual fishing businesses who currently, and undoubtedly would wish to continue to, operate in the proposed development area, these will be felt as major impacts on their activity. This is true for all possible impacts, including safety, steaming, displacement, loss of grounds and so on.

The SFF nevertheless realises that there is a political and societal imperative pushing offshore renewables development, and have therefore come to what we would hope is recognised by all concerned as an intelligent conclusion that while our prime duty is protecting and preserving our fishermen's livelihoods, reality dictates that going forward it is our secondary duty to offer leadership in finding practical mechanisms to achieve reasonable co-existence with the offshore renewables industry .

Members:

Anglo Scottish Fishermen's Association
Clyde Fishermen's Association
Fishsalesmen's Association (Scotland) Ltd

Mallaig & North-West Fishermen's Association
Orkney Fisheries Association
Scallop Association

Scottish Pelagic Fishermen's Association Ltd
Scottish Whitefish Producers' Association Ltd
Shetland Fishermen's Association

VAT Reg. No: 605 096 748

Therefore in our comments here on the application we would hope to convey our wish that we will not oppose this development if, and only if, it realistically attempts to ameliorate its negative impact on our industry. In this respect, we recognise this application is part of a process and the SFF retains its' ongoing right to reflect on its' position should agreement on the amelioration process prove to be unpalatable to the fishing industry.

The word mitigation appears very often throughout the document, but there is not attempt to clearly define what this might mean. The time has surely come where the developers have to seriously address this and come to some form of agreement with the fishing industry.

The fishing industry feels that there needs to be cognisance of the ongoing effects, from the commencement of construction, in a couple of year's time, to the decommissioning phase in approximately 30 years time. This development and its cable connections will be located in important fishing grounds, with a complex mixed fishery vital to the local industry, and is going to primarily affect scallop dredging, but also interfere to various degrees with the seine net haddock fishery, the squid fishery, the nephrops fishery and to some extent herring spawning grounds.

For the fishing industry it will be vital, post Rochdale envelope, to have clarity on many issues including space between the towers, other infrastructure, inter array cabling and the grid connection cable, etc,etc. The design and installation of all these components will need to be amenable to the best possible case for continuation of fishing, and a proper definition of the decommissioning proposals are needed.

There are many individual problems which will arise for each and every aspect of this development, and the SFF welcomes the applicant's willingness to develop an engagement strategy, including crucially, establishing a Fisheries Working Group which we envisage as an essential framework for meaningful dialogue. The fishing industry would hope that this group would therefore address the many issues we have highlighted to the developer, and produce a mutually acceptable, concrete plan for mitigation of the developments effects on our industry.

Without this plan, the fishing industry will be abandoned in the rush to offshore renewable power production, which is why we highlighted earlier, the SFF reserves our right to raise objections later if there is a failure to agree a satisfactory mitigation plan which serves to avoid unlimited damage to our industry.

Amongst the measures that need to be addressed we would highlight the following;

Construction of all phases, including onshore transmissions cable should be timed to create least impact on the fishing industry.

As the Environmental Statement attempts to provide a baseline for the fishery ecology, it would seem positively beneficial to all concerned to invest in some continual monitoring of any effects the development may have on fish species and their environment.

Regarding towers, it is to be hoped that by the time of construction, technology will allow for the least number of turbines to be installed, therefore allowing for the most possible space between them. This should include consultation on the layout of the towers to minimise the impact on fishing.

Inter-array cabling, should, with industry consultation, be designed in consultation and accordance with current well-honed industry standards, to cause as little barrier as possible to working within the development.

Our aspiration and indeed expectation is that all cables would be buried. Therefore we would seek that all cabling and trenching work must be checked for safety as quickly as possible, both in terms of the backfilling and any anchor mounds caused.

There has been much speculation on the possibility of Electro-magnetic impacts arising from the cabling, and the developer should be aware of these concerns and seek to alleviate them.

Developers should also take cognisance of concerns that the development might impact on the efficacy of fishing vessels' radar, and seek to allay these fears.

All construction sites need to be verified as safe for fishing, as soon as possible after completion.

As in the Oil & Gas sector, a system of agreeing responsibility for any debris or damage caused by such, should be in place from the outset of development.

Developers and the fishing industry also need to work together in accordance with agreed industry standards and the Best Practice Guidelines, as developed and endorsed by the over-arching strategic forum, Fishing Liaison with Offshore Wind & Wet (FLOWW) hosted by the Crown Estate, with membership from fishing, renewables and relevant government departments, to provide some reasonable employment opportunities to mitigate any displacement effects.

In respect of the eventual decommissioning, the SFF has an expectation, which we would like to put firmly on the record, that all redundant infrastructure should be removed in a timeous and safe manner, thereby ensuring the sea-bed is returned to pre-installation status.

The SFF would highlight that whereas this is a stand alone application, we are acutely aware that a plethora of similar development applications will surely follow and therefore the cumulative impacts and "crowding out" effects of all these developments will need to be considered as a strategic whole, as these displacement issues become increasingly evident to the fishing industry.

The SFF is happy to make themselves available at any time for further consultation, and we trust that Marine Scotland understands our position, meanwhile we look forward to further positive engagement with the developer, in the open spirit that has existed thus far,

Yours faithfully



**Chief Executive
Scottish Fishermen's Federation**



MINISTRY OF DEFENCE

COMMERCIAL IN CONFIDENCE

Defence Infrastructure Organisation

Assistant Safeguarding Officer
Safeguarding - Wind Energy
Defence Infrastructure Organisation
Kingston Road
Sutton Coldfield
West Midlands
B75 7RL

Telephone: 0121 311 3656
Facsimile: 0121 311 2218
E-mail: [redacted]@mod.uk

Mrs G Holland
Scottish Government
Marine Laboratory
PO BOX 101,
375 Victoria Road
Aberdeen
AB11 9DB

Your Reference: 0003/BOWL/0W-3

Our Reference: DIO/SUT/43/10/1/6939

19/6/12

Dear Mrs Holland

DIO Reference Number: 6939

Site Name: Beatrice Offshore Windfarm

Thank you for consulting the Ministry of Defence (MOD) about the above planning application dated 22/4/12.

I am writing to inform you that the MOD objects to the proposal. Our assessment has been carried out on the basis that there will be 184 turbines, 163 metres in height from ground level to blade tip and located at the 98 boundary grid references below as stated in the Section 36 Electricity Act application:

Turbine	100km Square letter	Easting	Northing
1	ND	44219	19951
2	ND	44041	20191
3	ND	44040	20193
4	ND	43987	20264
5	ND	43542	20866
6	ND	43541	20867
7	ND	42803	21863
8	ND	42852	22217
9	ND	42682	22436
10	ND	42430	22562
11	ND	42106	22499
12	ND	40606	23615
13	ND	41096	24443
14	ND	41326	25210
15	ND	42225	27121
16	ND	43067	28641
17	ND	43872	30155
18	ND	45072	31712
19	ND	46178	33513
20	ND	46425	35663
21	ND	47806	36844
22	ND	48507	37394

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23	ND	49311	37877
24	ND	50333	38124
25	ND	51043	37942
26	ND	52659	37068
27	ND	54141	36328
28	ND	54238	36279
29	ND	54381	36208
30	ND	55892	34951
31	ND	55893	34950
32	ND	56010	34853
33	ND	56011	34853
34	ND	55979	34772
35	ND	55830	34414
36	ND	55677	34058
37	ND	55516	33705
38	ND	55349	33355
39	ND	55257	33168
40	ND	55155	32964
41	ND	54976	32619
42	ND	54971	32278
43	ND	54601	31940
44	ND	54404	31606
45	ND	54202	31276
46	ND	53994	30948
47	ND	53780	30635
48	ND	53561	30305
49	ND	53336	29989
50	ND	53106	29677
51	ND	52870	29369
52	ND	52629	29066
53	ND	52503	28913
54	ND	52382	28766
55	ND	52131	28471
56	ND	51874	28180
57	ND	51747	28090
58	ND	51747	28030
59	ND	51505	27727
60	ND	51259	27428
61	ND	51008	27133
62	ND	50751	26842
63	ND	50534	26605
64	ND	50741	26537
65	ND	50205	26255
66	ND	49933	25979
67	ND	49656	25707
68	ND	49375	25439
69	ND	49090	24920
70	ND	48799	24920
71	ND	48505	24668
72	ND	48206	24421
73	ND	48002	24258
74	ND	47991	24243
75	ND	47755	23936

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76	ND	47513	23632
77	ND	47445	23524
78	ND	47428	23524
79	ND	47408	23497
80	ND	47390	23468
81	ND	47164	23153
82	ND	46933	22842
83	ND	46697	22534
84	ND	46455	22230
85	ND	46208	21931
86	ND	45957	21637
87	ND	45699	21347
88	ND	45437	21061
89	ND	45170	20779
90	ND	44898	20504
91	ND	44647	20256
92	ND	44647	20256
93	ND	44622	20231
94	ND	44341	19965
95	ND	42279	19909
96	ND	42279	19909
97	ND	44265	19896
98	ND	44220	19951

Air Traffic Control (ATC) Radar

The turbines will be 56.6KM -74.3 km from, in line of sight to, and will cause unacceptable interference to the ATC radar at RAF Lossiemouth.

Wind turbines have been shown to have detrimental effects on the performance of MOD ATC and Range Control radars. These effects include the desensitisation of radar in the vicinity of the turbines, and the creation of "false" aircraft returns which air traffic controllers must treat as real. The desensitisation of radar could result in aircraft not being detected by the radar and therefore not presented to air traffic controllers. Controllers use the radar to separate and sequence both military and civilian aircraft, and in busy uncontrolled airspace radar is the only sure way to do this safely. Maintaining situational awareness of all aircraft movements within the airspace is crucial to achieving a safe and efficient air traffic service, and the integrity of radar data is central to this process. The creation of "false" aircraft displayed on the radar leads to increased workload for both controllers and aircrews, and may have a significant operational impact. Furthermore, real aircraft returns can be obscured by the turbine's radar returns, making the tracking of conflicting unknown aircraft (the controllers' own traffic) much more difficult.

If the developer is able to overcome the issues stated above, the MOD will request that all perimeter turbines be fitted with 2000cd candela omni-directional red lighting or infrared lighting with an optimised flash pattern of 60 flashes per minute of 200ms to 500ms duration at the highest practicable point.


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MOD Safeguarding wishes to be consulted and notified about the progress of planning applications and submissions relating to this proposal to verify that it will not adversely affect defence interests.

I hope this adequately explains our position on the matter. Further information about the effects of wind turbines on MOD interests can be obtained from the following website:

MOD: <http://www.mod.uk/DefenceInternet/MicroSite/DIO/WhatWeDo/Operations/ModSafeguarding.htm>

Yours sincerely


Assistant Safeguarding Officer – Wind Energy
Defence Infrastructure Organisation

SAFEGUARDING SOLUTIONS TO DEFENCE NEEDS

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Association of Salmon Fishery Boards

Response to the marine licence application for the Beatrice Offshore Wind Farm project June 2012

Introduction

The Association of Salmon Fishery Boards is the representative body for Scotland's 41 District Salmon Fishery Boards (DSFBs) including the River Tweed Commission (RTC), which have a statutory responsibility to protect and improve salmon and sea trout fisheries. The Association and Boards work to create the environment in which sustainable fisheries for salmon and sea trout can be enjoyed. Conservation of fish stocks, and the habitats on which they depend, is essential and many DSFB's operate riparian habitat enhancement schemes and have voluntarily adopted 'catch and release' practices, which in some cases are made mandatory by the introduction of Salmon Conservation Regulations. ASFB creates policies that seek where possible to protect wider biodiversity and our environment as well as enhancing the economic benefits for our rural economy that result from angling. An analysis completed in 2004 demonstrated that freshwater angling in Scotland results in the Scottish economy producing over £100 million worth of annual output, which supports around 2,800 jobs and generates nearly £50million in wages and self-employment into Scottish households, most of which are in rural areas.

We have significant concerns relating to the proposed development, particularly with regard to the uncertainty surrounding the potential negative effects on Atlantic salmon and sea trout and the integrity of a number of Special Areas of Conservation for Atlantic salmon.

Overarching Comments

1. Designated Species

As highlighted in the Environmental Statement a number of rivers in the area are designated as Special Areas of Conservation (SAC), part of the Natura 2000 network – a series of internationally important wildlife sites throughout the European Union. The conservation objectives for these sites are set out below¹.

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:

- *Population of the species, including range of genetic types for salmon, as a viable component of the site*
- *Distribution of the species within site*
- *Distribution and extent of habitats supporting the species*
- *Structure, function and supporting processes of habitats supporting the species*
- *No significant disturbance of the species*
- *Distribution and viability of freshwater pearl mussel host species*
- *Structure, function and supporting processes of habitats*

The Habitats Directive (article 6) requires that *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.*

It also states: *In the light of the conclusions of the [appropriate] 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*

¹ <http://gateway.snh.gov.uk/sitelink/index.jsp>

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.

If this is not the case and there are no alternative solutions, the proposal can only be allowed to proceed if there are imperative reasons of overriding public interest.

The conservation status of the Atlantic salmon qualifying interest for the various SACs (First Assessment Cycle) are set out in Table 1 below. In addition, a number of these SACs are also designated for FW pearl mussel.

SAC	Qualifying Interest	Conservation Status
River Borgie	Atlantic salmon	unfavourable recovering
River Naver	Atlantic salmon	unfavourable recovering
River Thurso	Atlantic salmon	unfavourable recovering
Berriedale & Langwell Waters	Atlantic salmon	unfavourable recovering
River Oykel	Atlantic salmon	unfavourable recovering
River Moriston	Atlantic salmon	unfavourable recovering
River Spey	Atlantic salmon	unfavourable recovering
River Dee	Atlantic salmon	favourable maintained

Table 1: Conservation status of SACs for Atlantic salmon in the area of the development.

In all cases, with the exception of the Berriedale and Langwell Waters SAC, the Salmon rod catch trends in these SACs as analysed by Marine Scotland Science, show that the spring stock component is in decline. The second assessment cycle is nearing completion, and the results of this assessment must be taken into account in the licensing decision. We believe that the assessment is likely to show that the early running spring component of many of these Atlantic salmon populations continues to deteriorate.

In addition, District Salmon Fishery Boards have a statutory obligation to protect sea trout. The marine phases of both Atlantic salmon and sea trout have also been included on the draft list of Priority Marine Features drawn together by SNH - the habitats and species of *greatest conservation importance* in inshore waters.

2. Climate Change Mitigation and Adaptation

As for many other species, climate change has been identified as a threat to Atlantic salmon. The species' developmental rate is directly related to water temperature, and increasing temperature in freshwater may result in smolts developing more rapidly and entering the ocean at a suboptimal time in relation to their planktonic food sources.

In addition, as air temperatures warm, much of the snow that feeds the river systems is expected to melt earlier. This will lead to a reduction in the flow of many rivers in the spring and summer, which will increase water temperatures further and may reduce the overall optimal habitat available to the Atlantic salmon. It is also clear that survival of salmon and sea trout during their marine migration phase has fallen over the last 40 years. Some of this reduced survival can be explained by changes in sea surface temperature and subsequent contraction of feeding grounds.

The first priority in mitigating these effects is to control atmospheric concentrations of greenhouse gases and we note that the Scottish Government has committed to meeting a stated target of 50% of Scotland's electricity demand from renewable sources by 2020. However, with further climate change inevitable in the short to medium term, attention is now focusing on the development of accommodation and adaptation strategies, through which adverse effects on species or ecosystems can be minimized. Some of the key needs with respect to developing adaptation strategies for rivers and their biodiversity were summarised by Ormerod (2009 – *Aquatic Conserv: Mar. Freshw. Ecosyst.* 19: 609–613). We would highlight the following key point in particular: *to minimize the adverse effects on river biodiversity of actions taken to mitigate climate change.*

3. Potential Negative Effects of Offshore Renewable Devices

Offshore renewable developments have the potential to directly and indirectly impact anadromous fish such as Atlantic salmon and sea trout. We would therefore expect developers to assess the potential impacts of deployed devices on such fish during the deployment, operation and decommissioning phases. Such potential impacts have been highlighted by Marine Scotland Science and could include:

- Avoidance (including exclusion from particular rivers and subsequent impacts on local populations);
- Disorientation effects that could potentially affect behaviour, susceptibility to predation or by-catch; and
- Impaired ability to locate normal feeding grounds or river of origin; and delayed migration

ASFB therefore recommend to our members that careful consideration should be given to the following activities:

i. Subsea noise during construction

A recent review commissioned by SNH² states that 'Marine renewable energy devices that require pile driving during construction appear to be the most relevant to consider, in addition to the time scale over which pile driving is carried out, for the species under investigation'.

ii. Subsea noise during operation

iii. Electromagnetic fields (EMFs) arising from cabling

The SNH-commissioned review (cited above) has shown that EMFs from subsea cables have the potential to interact with European eels and possibly salmonids if their migration or movement routes take them over the cables, particularly in shallow waters (<20m). Marine Scotland Science are currently undertaking a research programme which aims to investigate electro-magnetic force impacts on salmonids. We would hope to have some results from this work later in 2012. It is vital that all cables are appropriately shielded to ensure that EMF effects are below any threshold of effect for salmonids.

iv. EMFs arising from operation of devices

It is important to ensure that such effects are quantified and assessed in the Environmental Statement.

v. Disturbance or degradation of the benthic environment (including secondary effects on prey species)

It is important to ensure that such effects are quantified and assessed in the Environmental Statement.

vi. Aggregation effects

Whilst the aggregation of prey items around physical structures might be seen as a positive effect, possible negative effects might include the associated aggregation of predators.

4. General Comments on the Application

Guidance issued by Marine Scotland Science relating to information requirements on diadromous fish of freshwater fisheries interest states that an Environmental Statement should provide information on the use of the development area by such fish and that if such information was lacking then a suitable monitoring strategy should be devised. Indeed, Marine Scotland Science regard the monitoring undertaken at existing offshore developments such as Robin Rigg as being inadequate. No monitoring strategy is set out in the application and indeed, the ES states, '*In the absence of detailed information on the migratory routes of salmon and sea trout it is assumed that they transit the Wind Farm as part of their normal migration. In addition, they are assumed to transit the site as part of their foraging activity (particularly sea trout)*'. We therefore believe that the lack of meaningful monitoring in the present proposal is extremely disappointing and completely inadequate. We note that Section 11.6 states that BOWL will work with key stakeholders and Marine Scotland to identify any future

² Literature review on the potential effects of electromagnetic fields and subsea noise from marine renewable energy developments on Atlantic salmon, sea trout and European eel. Available at: <http://www.asfb.org.uk/wp-content/uploads/2011/06/SNH-EMF-Report1.pdf>

monitoring programmes considered necessary. We welcome this undertaking, but we would 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.

We also note that it is very difficult to assess risk to migratory salmonids 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.

Specific comments

Our specific comments relate to the potential effects highlighted in Section 3 above.

11.4.1 Construction/Decommissioning

We note that the comments attributed to Marine Scotland in Annex 5A, state that '*a monitoring strategy was required if impacts are uncertain*'. It is clear, throughout the ES, that potential impacts on migratory fish carry a great deal of uncertainty and there for we are surprised and disappointed not to see a clear monitoring strategy laid out in the accompanying documentation.

11.4.1.1. Increased Suspended Sediment Concentrations and Sediment Re-deposition

This section appears to be based on a single study by Bertwell (1999) which only assesses the effects of sediment on fish in freshwater. We are unclear of the relevance of this study to the effect of sediments in the marine environment.

11.4.1.2. Noise

Paragraph 70 makes reference to soft piling, in order to trigger avoidance reactions in mobile species in the immediate vicinity of piling locations (where the noise levels are likely to be above the tolerance limit of sound and potentially damaging). The underwater noise modelling technical report (Annex 7A) assumes a swim speed of 1.5m/sec. However, no information is provided on the duration of such soft piling, nor has such duration been 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. Given that swim speeds for juvenile fish are lower than those of adult fish, the conclusion in paragraph 71 (that juveniles are assessed using the same criteria as adults with regard to hearing) may be incorrect with regard to avoidance responses of different life stages of fish. Indeed, this assertion is based on assumptions from studies on sea bream, damselfishes and labyrinth fish and not on salmonid fish. Given the paucity of information on noise effects, we do not believe that soft piling alone is an appropriate mitigation. The ES sets out a number of options for turbine design (including gravity bases) of which the worst case scenario for noise is impact piling of pin piles. We believe that, given the sensitivity of early running returning spring salmon, and the uncertainty of effects on juvenile fish, that it is appropriate, should consent be granted for the development, that a condition of consent is that no impact piling occurs during the period from March to June (inclusive). Such a condition is consistent with the precautionary principle and would still allow other forms of construction to continue during this period.

Figure 11.3 demonstrates an expected strong avoidance reaction only in close proximity to the foundations. However, at the lower threshold level of 75 dB_{ht} (representing significant avoidance) the area which salmon would avoid (Figure 11.5) is much greater. Whilst Annex 7A states that the this effect is probably transient and limited by habituation, 85% of fish were found to react to this level of noise, and we believe it is possible that noise at this threshold level has the potential to at least delay smolt migration over a significant proportion of the NW Moray Firth. Such a delay could, for example, make smolts more susceptible to predation. It must also be noted that salmonid smolts are physiologically stressed in adapting to the environmental challenge of movement between freshwater and seawater. Simultaneous challenge from noise, EMFs etc. during this transition will constitute a significant additional stressor. Stress leads to increased plasma levels of the stress hormone cortisol. Corticosteroids cause a range of secondary effects, including hydromineral imbalance and changes in

intermediary metabolism (Wendelaar Bonga, 1997)³. In addition, tertiary responses extend to a reduction in the immune response and reduced capacity to tolerate subsequent or additional stressors (Wendelaar Bonga, 1997).

Paragraph 78: Given the acknowledged lack of information as to the migratory routes of Atlantic salmon and the marine habitat of sea trout, we are unclear as to the relevance of the location of SAC rivers with regard to providing an indication of the ecological significance of the predicted effect. During pre-application discussions with the developers we have continually stressed the need for information on migratory routes and habitat usage for migratory salmonids. In the absence of such data (and the ES simply assumes that they are present – paragraph 80), ASFB and DSFBs, in assessing the risks of the development to migratory fish, have no alternative but to assume that the entire run of each river will use the area under development. We note that the comments attributed to Marine Scotland in Annex 5A, state that *'it needs to be categorically established which species are present on the site, and where, before the application is considered for consent'*.

We agree with the statement in Annex A (10.17) when considering relatively low levels of noise: *The significance of the effect requires an understanding of its consequences. For instance, avoidance may be significant if it impedes the migration of a species. However, in other cases the movement of species from one area to another may be of no consequence.* The ES assumes that the displacement and the adoption of avoidance behaviour by individual or aggregations of salmon and sea trout from their original locations as a result of underwater noise has no implications in respect of fitness or survival. We do not believe that this assertion can be substantiated (Please see out comments above relating to stress and increased risks of predation).

11.8.5.2 Cumulative impacts of construction noise

Paragraph 182 makes clear that there is potential for a negative moderate cumulative effect on the SAC populations of Atlantic salmon. Annex 7A, models a number of scenerios whereby differing numbers of different diameter piles driven simultaneously across the BOWL and MORL developments are assessed. However, no information is provided as to the likelihood of these scenarios should these developments be consented. The last page of Annex 7A, states that, "The area of sea affected by noise from simultaneous piling generally is not much greater than if the piling was undertaken at separate times. Indeed, the total area is often less due to the overlap of the insonified areas". However, this is not the case for Atlantic salmon and indeed the area of sea potentially affected by simultaneous piling at the lower threshold level of 75 dB_{ht} (representing significant avoidance) is significantly greater. Whilst we understand that the availability of vessels to undertake this piling work is limited, we would expect to see a clear indication of the number of piling sites likely to be developed at one time, in order that the possible effects on migratory fish can be assessed. We therefore restate that there should be no impact piling, either in the BOWL or the MORL development during the period from March to June (inclusive). It may also be appropriate to ensure, as a condition of consent, that there is a limit on the number of piling sites that can be used simultaneously during construction.

11.4.2 Operation

11.4.2.1. Loss of Habitat

Paragraph 97 and 98 suggest that, *despite a lack of current data on the distribution of sand eels within the site and the wider area to the spatial scale required for this assessment*, the effect of habitat loss is assessed to be negligible and probable. Given the importance of sandeel as a prey species for a wide range of species (including Atlantic salmon and sea trout), and a priority marine feature in their own right, we find it very hard to have any confidence in this assessment.

Paragraph 99 suggests that habitat loss will result in a negligible and probable effect on Atlantic salmon. However, we would highlight that our concerns relating to habitat loss would primarily be on prey species, such as sandeel, and we would again highlight our lack of confidence in the assessment of sandeel.

11.8.5.3. Cumulative Impact of Loss of Habitat

Again, we lack confidence in the assessment here, due to the considerable uncertainty in relation to the distribution of sand eels in the area.

³ Wendelaar Bonga, S. E. (1997). The stress response in fish. *Physiol. J. Rev.* 77, 591-625.

11.4.2.2. Introduction of New Habitat

Paragraph 100 states that localised, long term positive changes on the overall diversity and productivity of the seabed communities are expected to occur as a result of the introduction of hard substrate. It is likely that such structures will act as fish aggregation devices (FADs), rather than actually increasing biomass. However, if the structures do act as FADs we would also be concerned that such areas may in fact represent new 'pinch points' for predation of migrating smolts and returning adults, in an area which we must consider as a key migration route for salmon and a key feeding area for sea trout. This possibility is alluded to in paragraph 112, but does not appear to be considered further.

11.4.2.3. Electromagnetic Fields

This section makes reference to research by Normandeau *et al.* (2011) and indeed quotes averaged predicted magnetic fields above and horizontally along the sea bed for AC cables (Table 11.17). However, the figures quoted in Table 11.17 assume a burial depth of 1m, whereas the document makes frequent reference to burial of cables to a minimum depth of 0.6m. There appears to have been no effort to assess the predicted magnetic field values at this burial depth.

Paragraph 116 highlights the depths of the wind farm site and states that strength of magnetic field decreases with distance from source, concluding that the position of the particular species in the water column and water depth will influence the potential effects of EMFs. We agree – however this again highlights the vital importance of a monitoring strategy to determine swimming depth of migratory salmonids in the development area. In the absence of such monitoring, it is difficult to assess the risks of the development to migratory fish. We would note that the differing life strategies of Atlantic salmon and sea trout mean that these species must be treated differently in this respect (see below).

Paragraph 131 states that salmon and sea trout transiting the area of the wind farm will for the most not be exposed to the strongest EMFs as they normally swim in the upper meters of the water column during migration. We also note that the SALSEA project has shown that Atlantic salmon are capable of diving to considerable depths. The ES suggests that migration and feeding are mutually exclusive activities for salmon, a suggestion that is contradicted on page 10 of the 16B Annex of the ES which states: *Malcolm et al (2010) concluded based on research undertaken to date (Jakupstovu, 1986; Holm et al, 2005; Starlaugsson, 1995) that in general terms salmon spend most of the time close to the surface although dives to greater depths of up to 280m have often been observed. Dives do not appear restricted to offshore areas, persisting late into the migration on the return to home waters. Early studies (Jakupstovu, 1986) suggest an association between diving and feeding.*

The ES does not take into account the foraging behaviour of sea trout, which we (and the developers) assume use the area in question. No information is presented as to the depths at which such fish forage. Sea trout are also apparently more likely to be benthic feeders than salmon as on page 15 of Annex 16B it is stated that: *In addition, Pemberton (1976b) suggested a diel feeding pattern, with bottom feeding being greatest during the day and mid-water and surface feeding increasing between sunset and sunrise.*

We are aware that Marine Scotland Science are currently undertaking a research programme which aims to investigate electro-magnetic force impacts on salmonids. Until this work is completed, we are unable to assess the relative magnitude of this impact, or relate the figures quoted in Table 11.17 to those magnetic fields likely to initiate a behavioural response in salmonids.

11.8.5.4. Cumulative impact of EMFs

Again, until the research currently being undertaken by Marine Scotland Science is complete, we are unable to assess the relative magnitude of the cumulative impacts, or relate the figures quoted in Table 11.17 to those magnetic fields likely to initiate a behavioural response in salmonids. Until this work is completed, there is at least a theoretical risk that EMFs arising from both inter-array cables and offshore transmission cables could present a barrier to fish migration.

11.4.2.4 Operational Noise

No comment.

11.5 Mitigation measures and residual effects

We are very disappointed to see that no mitigation measures are included other than inter-array cable burial/protection, *where feasible*, are proposed to reduce the effects associated with the construction/decommissioning and operation phase of the development. We believe that **all** inter-array cabling should be buried to a suitable depth (and in the absence of any other information, we believe that the minimum depth should be 1m) or have a suitable shielding material placed over them. We do not believe that there should be any exceptions to this, irrespective of the technical difficulties involved. In addition, we would highlight our comments regarding mitigation in our response to section 11.4.12 (above).

11.9 Habitats Regulations Appraisal

We do not consider the information presented to be sufficiently robust to draw the conclusion that there are not likely to be significant effects, particularly with regard to Atlantic salmon and sea trout. We therefore consider that an appropriate assessment, based on pre-construction monitoring will be required. Clearly, the appropriate assessment must take into account the cumulative and in combination likely significant effects arising from the MORL and other developments.

11.10 Statement of Significance

The ES concludes that the construction/decommissioning and operation phase of the development will *in general terms* not result in significant effects in relation to EIA regulations. However, as highlighted above, we do not consider the information presented to be sufficiently robust to draw this conclusion, particularly with regard to Atlantic salmon and sea trout.

23.4.1. Construction/Decommissioning Phases of the Offshore Transmission Works

23.4.1.1. Increased Suspended Sediment Concentrations and Sediment Re-deposition

We note the recognition of the proximity of the proposed cable landfall to the River Spey and the possibility for fish to be disturbed prior to river entry and/or immediately after leaving the river if transiting the southern sections of the OfTW corridor. Paragraph 66 notes that works in close proximity to the shore should only be undertaken over a limited period of time, and that the seasonality or river entry and the diversity of runs should be noted. We would expect that, should the development be consented, close liaison with the Spey Fishery Board on the timing of such work should be a requirement of consent.

23.4.1.2. Noise and Vibration

No comment

23.4.2. Effects Arising from the Operational Phase of the Offshore Transmission Works

This section recognises that, given the central location of the OfTW corridor in the context of the Moray Firth area, the uncertainties in relation to migratory patterns not only for fish originating in the Moray Firth rivers but also in other areas of Scotland, and the proximity of the proposed cable landfalls to salmon and sea trout rivers (particularly the Spey), it is likely that salmon and sea trout will transit the OfTW area. This assumption is backed up by Annex 16B, which refers to the recent review by Marine Scotland Science, which suggests that these species migrate in both an easterly and westerly direction along the Moray coast. As stated earlier, we are aware that Marine Scotland Science are currently undertaking a research programme which aims to investigate electromagnetic force impacts on salmonids. Until this work is completed, we are unable to assess the relative magnitude of the impact of EMFs arising from either an AC or DC cable.

Conclusion

As stated above, ASFB recognises the importance of offshore renewable energy. However, the environmental statement has failed to demonstrate that the development will not adversely affect the integrity of the SAC rivers around the Moray Firth. Where a Natura site is involved, the onus is on the developer to demonstrate no impact and in the absence of that the precautionary principle will apply. Under these circumstances, we do not consider that the proposed development is compatible with the requirements of the Habitats Directive or Scotland's

Marine Nature Conservation Strategy. On that basis, we have no alternative but to formally object to the proposed development, until adequate monitoring and mitigation strategies have been put in place.

For further information please contact:

██████████ | Policy & Planning Director
████████████████████@asfb.org.uk

10 May 2012

Gayle Holland
Licensing Operations Team
Marine Scotland
Marine Laboratory,
PO Box 101, 375 Victoria Road,
Aberdeen
AB11 9DB

Dear Gayle

003/OW/BOWL – 8

RYA Scotland has no objection to the consent application submitted by Beatrice Offshore Windfarm Limited.

We welcome the minimum device spacing of 600 metres, the minimum rotor clearance of 25.4 metres above LAT and the commitment to work with stakeholders with regard to the precise location of buoys and beacons.

In Table 18.3 on potential impacts and mitigation measures, I presume that 'other media' include recreational sailing directions and pilots as these are key sources of information for recreational sailors.

The statement in section 28.5.6, paragraph 117 that burying the export cable in waters less than 10 metres is not an issue is ambiguous. It is presumably intended to mean that it is not an issue for the developers as the cable will always be buried or protected in such shallow waters.

Yours sincerely


Planning and Environment Officer RYA Scotland

[REDACTED]

Offshore Development Project Manager

SSE Renewables
One Waterloo St
Glasgow
G2 6AY

5 June 2012

[REDACTED]

A meeting was held today at Ithaca Energy to discuss the planning application for the development of wind farms in the area surrounding our Beatrice and Jacky operations in the Inner Moray Firth. This was in response to communication from SSE Renewables asking for feedback as part of the planning process for the development.

First of all thank you for the detailed reports and presentation material. Ithaca is the License Operator of the Beatrice and Jacky Fields. Duty Holder responsibility lies with Wood Group PSN who look after day to day safe operations.

Calum Riddell (WGPSN Operations Manager) attended our meeting and WGPSN views are included in our response. The bulk of the assets offshore are owned by Talisman (UK) Limited, and leased by Ithaca and although we will copy them on this response we do not represent them in this letter. You should consult them directly.

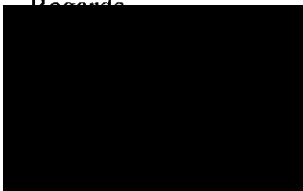
Our main concerns would be;

1. Will proximity of the wind turbines obstruct or restrict helicopter flight access which is important for all the offshore facilities?
2. Will the proximity of the wind turbines obstruct or restrict access of operational supply boats to and from the offshore platforms?
3. Will proximity of the wind turbines obstruct or restrict the installation of Mobile Offshore Drilling Units, or rigs, to the platforms? These require a 5 km radius of clear space around the platform for manoeuvrings and anchor setting and lifting. The vessels are towed into position using tugs and anchor handlers. If your planned installations approach within such areas we would need to review in more detail.
4. Will proximity of the wind turbines obstruct or restrict access for heavy lift crane barges, required for major mechanical operations and for decommissioning? Similar restrictions to drilling rigs.
5. Finally, both drilling units and barges, set and remove anchors which could potentially foul or damage submarine cables, especially if subject to dragging, so we request that any such cables be routed to avoid the 5Km exclusion zone.



Below I have expanded on some issues that we require further information on in some way in order to properly assess the application. In no particular order;

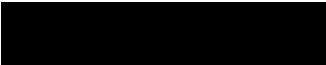
6. You appear to assume that flights can be restricted not to approach from the SE. This is not the case at present. Indeed the normal approach route is from the SE. Is our interpretation of this restriction correct. If this were to be the case every flight would pass over the turbines to the SE of Charlie, Alpha and Bravo. We request that this normal flight path be left unobstructed.
7. Why was 2.5km selected as a clear zone for Jacky as it seems that 5 Kms would be a better margin for operational reasons?
8. We request that you consult with the Helicopter operators to establish a safe installation distance, given we have no knowledge or experience of air turbulence and physical contact could present hazards. We would appreciate open communication of your discussions with them concerning acceptable flight path guidelines and provisions, and eventual final approval of such.
9. In the event that the turbine installations cause disruption to our flights will the impact costs be paid by SSE Renewables?
10. We would suggest that you contact consultancies familiar with barge operations and rig logistics such as Hereema and Senergy who managed our last rig move on Jacky last year and the anchor pattern impact assessment could be completed for your plans. As a larger assessment we will require confirmation that there would be no impact on our ability to drill wells, abandon wells and remove installations in addition to the helicopter operations of those activities.
11. Looking at the project timeline we request that the installation is implemented initially as far away from our operations as possible and moves closer over time. This will permit a more certain, gradual and possibly less restrictive assessment of the impact on air traffic through actual experience which is currently not available.

Regards


Operations Manager

CC


 Talisman (UK) Limited
Andrew Sutherland - Marine Scotland


CHIEF PILOT (ABERDEEN)

Your Ref: 003/OW/BOWL – 8

Our Ref:

The Scottish Government
Marine Scotland Licensing Operations Team
Marine Laboratory
PO Box 101
375 Victoria Road
Aberdeen
AB11 9DB

Bristow Helicopters Limited
Forties Road
Aberdeen Airport
Dyce
Aberdeen
AB21 0NT

7th June 2012

Dear Ms Holland,

CONSENT UNDER SECTION 36 AND SECTION 36A OF THE ELECTRICITY ACT 1989 AND MARINE LICENCES UNDER PART 4, SECTION 20 OF THE MARINE (SCOTLAND) ACT 2010 AND UNDER PART 4, SECTIONS 65 AND 66 OF THE MARINE AND COASTAL ACCESS ACT 2009 TO CONSTRUCT AND OPERATE AN OFFSHORE WINDFARM, OUTER MORAY FIRTH

Thank you for your correspondence dated 25th April 2012 regarding the above consent application submitted to MS-LOT by Beatrice Offshore Windfarm Ltd.


With regard to the Environmental Statement, we can only comment on sections relating to aviation, specifically helicopter operations.

Having reviewed Section 19 *Aviation and MOD* and the accompanying Technical Annex 19A, we are content with the findings of the assessment and mitigation measures proposed from our operational perspective. We therefore have no objections to the development in principle.

However, we would advise that our representation is from our operational perspective only and as such, views should be sought from the Beatrice Oil Field platform owner / operators Ithaca Energy, Wood Group and Talisman Energy with regard to any commercial impacts of the development or any impacts on platform Safety Cases or any other impacts.

Please do not hesitate to contact myself if you require any further clarification on the above.

Yours sincerely,


Chief Pilot (Aberdeen)



Marine Laboratory
375 Victoria Road
AB11 9DB

Ref: 003/OW/BOWL - 8
2 May 2012

Dear Sir/Madam

BEATRICE OFFSHORE WIND FARM

I have reviewed the documentation provided and have the following comments to make. As has been identified within the previous consultation and the submitted Environmental Statement, there is a need to seek the views of NATS, the MoD and affected aerodromes and offshore helicopter operators. More specifically for this project the following points should be taken into account:

There is a requirement to mark tall objects on aeronautical charts and this will be achieved by notifying the UK Hydrographic Office of the latitude, longitude and height of the mast. This should be done in advance of construction to enable the charts and databases to be updated in sufficient time to make aviators aware of the presence of a new obstacle.

The mandated obstruction lighting requirement is set out at Article 220 of the UK Air Navigation Order (ANO) 2009¹ and reflected in a related CAA Policy Statement². This requirement applies to any wind turbine generator that is situated in waters within or adjacent to the United Kingdom up to the seaward limits of the territorial sea and the height of which is 60 metres or more above the level of the sea at the highest astronomical tide. The Article requires medium intensity (2000 candela) steady red lighting mounted on the top of each nacelle and requires for some downward spillage of light. The Article allows for the CAA to permit that not all turbines are so lit, routinely, for the purposes of Article 220, the CAA will require that those turbines on the periphery of any windfarm need to be equipped with aviation warning lighting. The CAA will additionally provide planning advice related to the lighting of wind turbines beyond the limits of UK Territorial Waters along exactly the same lines as that for inshore turbines.

Meteorological masts are extremely slender rendering them potentially inconspicuous to aviators flying over the sea, particularly when there are no other structures nearby. This is potentially hazardous, particularly during helicopter operations when it may be necessary to descend in order to avoid icing conditions. Consequently the CAA recommends that all offshore obstacles (regardless of their location within or outside of territorial waters) that are over 60 m above sea level should be fitted with one medium intensity steady red light positioned as close as possible to the top of the obstacle³.

¹ <http://www.caa.co.uk/docs/33/CAP393.pdf>

² <http://www.caa.co.uk/application.aspx?catid=33&pagetype=65&appid=11&mode=detail&id=4495>

³ CAP 764 CAA Policy and Guidelines on Wind Turbines - Chapter 3 paragraph 5.10
(<http://www.caa.co.uk/docs/33/CAP764.pdf>)

If you have any further questions please do not hesitate to contact me.

Yours Faithfully,

[REDACTED]

Surveillance & Spectrum 4

Engineering and Programmes

Technical and Operational Assessment of Proposed Development at Beatrice (BOWL)

Our Reference - N/SFG/W(F) 8575

Your Reference - N/A

TOPA/W(F)8575 ◇ Issue 3

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Publication history

Issue	Month/Year	Change Requests in this issue
Issue 1	March 2010	
Issue 2	March 2011	Correction to diagram label
Issue 3	June 2012	Scottish Government Submission

Referenced documents

List of documents referenced in this publication, for example:

- (1) End-to-End Assessment Methodology - S1/-WI/03
- (2) Surveillance Technical Assessment Methodology - S1/-WI/01
- (3) Operational Assessment Methodology - S1/-WI/02

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1 Background

NATS En Route Plc ("NERL") is responsible for the safe and expeditious movement in the en-route phase of flight for aircraft operating in controlled airspace in the UK. To undertake this responsibility NERL has a comprehensive infrastructure of radars, communication systems and navigational aids throughout the UK, all of which could be compromised by the establishment of a windfarm. In this respect NERL is responsible for safeguarding this infrastructure to ensure its integrity to provide the required services to Air Traffic Control (ATC). In order to discharge this responsibility NERL assess the potential impact of every proposed windfarm development in the UK, this document defines the assessment of the potential impact of the proposal as detailed in section 2.

2 Wind-farm Details

NERL have been requested by The Scottish Government to assess the potential impact of an offshore wind turbine development at Beatrice Offshore (BOWL), Moray Firth Offshore.

Number of wind turbines have yet to be determined, however there will be up to 277 and they will lie within the boundary points as detailed below.

Turbine Locations

Boundary Point	Easting	Northing	Hub Height	Tip Height
A	347402	923462	-	Up to 200m
B	344218	919952	-	-
C	342802	921863	-	-
D	340606	923616	-	-
E	342258	927119	-	-
F	346177	933514	-	-
G	346424	935664	-	-
H	350332	938124	-	-
I	356044	934825	-	-
J	347402	923462	-	-

3 Sites Potentially Effected

The proposed development falls within the operational range of the following **NERL Infrastructure** systems;

Potentially Effected Infrastructure

Radar	Easting	Northing	Range (nm)	Bearing (True)
Alanshill Radar	390220	861480	43.9	323.7°
Great Dun Fell Radar	371030	532210	213.8	355.5°
Perwinnes Radar	392190	813510	67.0	336.2°
Tiree Radar	96820	740140	166.6	48.6°
Navigational Aids	Easting	Northing	Range (nm)	Bearing (True)
None				
AGA Comms Sites	Easting	Northing	Range (nm)	Bearing (True)
None				

4 Assessment of Effect on NERL Navigational Aids

No impact on NERL Navigational Aids

5 Assessment of Effect on NERL Air-Ground Voice Communication Systems

No impact on NERL Air-Ground Voice Communication Systems

6 Assessment of Effect on NERL RADAR

6.1 Predicted Effect on Alanshill

Using the theory as described in Appendix A and the specific propagation profiles to the turbines it has been determined that at a range of only 44nm and with limited terrain screening available to attenuate the signal, turbines of this size are likely to cause false primary plots to be generated.

A reduction of the primary radar's ability to detect small aircraft at low altitude in the airspace residing directly above the turbine is also anticipated.

The effect on the co-mounted Alanshill SSR has been assessed as negligible.

6.2 Predicted Effect on Great Dun Fell

The effect on Great Dun Fell has been assessed as negligible.

6.3 Predicted Effect on Perwinnes

The effect on Perwinnes has been assessed as negligible.

6.4 Predicted Effect on Tiree

The effect on Tiree has been assessed as negligible.

6.5 Summary of Potential Effect

The radar safeguarding assessment reveals that the turbine development is located within an area where there is no terrain shielding from the Primary Radar Service at Alanshill. Due to the large dimension of the wind turbine and the distance from the radar it is anticipated that the reflected power from the wind turbine will be of adequate value to be detected by the radar and consequently generate false plots. A reduction in the radar's probability of detection, for real targets, is also expected.

7 OPS Review Process

7.1 Required Reviewers of TOPA and their response

TOPA Responses

Unit or Role	Comment
RDP Asset Management	No-objection
Scottish Military Air Traffic Control	No-objection
Aberdeen Civil Air Traffic Control	No-objection
Prestwick Centre Civil Air Traffic Control	Objection

7.2 Output of Windfarm Assessment Group

The WAG recommends that an objection be raised based on the comments of Prestwick Centre Civil Air Traffic Control.

8 Conclusions

The proposed development has been examined by NERL's Technical and Operational Safeguarding teams. Your proposed development does conflict with their current safeguarding criteria and NERL would be likely to object to your proposed development as at today's date.

9 Appendix A – Radar Background Theory

9.1 PSR False Plots

When radar transmits a pulse of energy with a power of P_t the power density, P , at a range of r is given by the equation;

$$P = G_t.P_t/(4\pi.r^2)$$

Where G_t is the gain of the radar's antenna in the direction in question.

If an object at this point in space has a radar cross section of σ , this can be treated as if the object re-radiates the pulse with a gain of σ and therefore the power density of the reflected signal at the radar is given by the equation;

$$P_a = \sigma.P/(4\pi.r^2) = \sigma.G_t.P_t/((4\pi)^2.r^4)$$

The radar's ability to collect this power and feed it to its receiver is a function of its antenna's effective area, A_e , and is given by the equation;

$$P_r = P_a.A_e = P_a.G_r.\lambda^2/(4.\pi) = \sigma.G_t.G_r.\lambda^2.P_t/((4\pi)^3.r^4)$$

Where G_t is the Radar antenna's receive gain in the direction of the object and λ is the radar's wavelength.

In a real world environment this equation must be augmented to include losses due to a variety of factors both internal to the radar system as well as external losses due to terrain and atmospheric absorption. For simplicity these losses are generally combined in a single variable L .

$$P_r = \sigma.G_t.G_r.\lambda^2.P_t/((4\pi)^3.r^4.L)$$

9.2 SSR Reflections

When modelling the impact on SSR the probability that an indirect signal reflected from a wind turbine has the signal strength to be confused for a real interrogation or reply can be determined from a similar equation;

$$P_r = \sigma.G_t.G_r.\lambda^2.P_t/((4\pi)^3.r_t^2.r_r^2.L)$$

Where r_t and r_r are the range from radar-to-turbine and turbine-to-aircraft respectively. This equation can be rearranged to give the radius from the turbine within which an aircraft must be for reflections to become a problem.

$$r_r = (\lambda^2/(4\pi)^3)^{1/2} . (\sigma.G_t.G_r.P_t/(r_t^2.Pr.L))^{1/2}$$

9.3 Shadowing

When turbines lie directly between a radar and an aircraft not only do they have the potential to absorb, or deflect, enough power such that the signal is of insufficient level to be detected on arrival it is also possible that azimuth determination, whether this done via sliding window or monopulse, can be distorted giving rise to inaccurate position reporting.

9.4 Terrain and Propagation Modelling

All terrain and propagation modelling is carried out by a software tool called ICS Telecom (version 6.99). All calculations of propagation losses are carried out with ICS Telecom configured to use the ITU-R 526 propagation model.

10 Appendix B – Diagrams

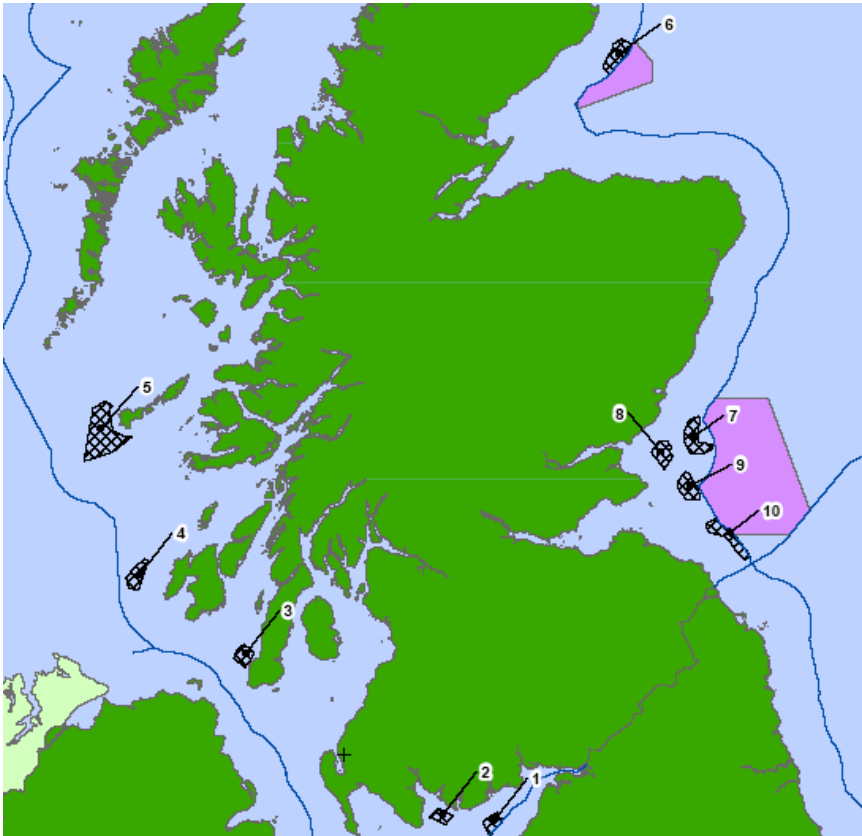


Figure 1: All 10 Exclusivity Agreement zones

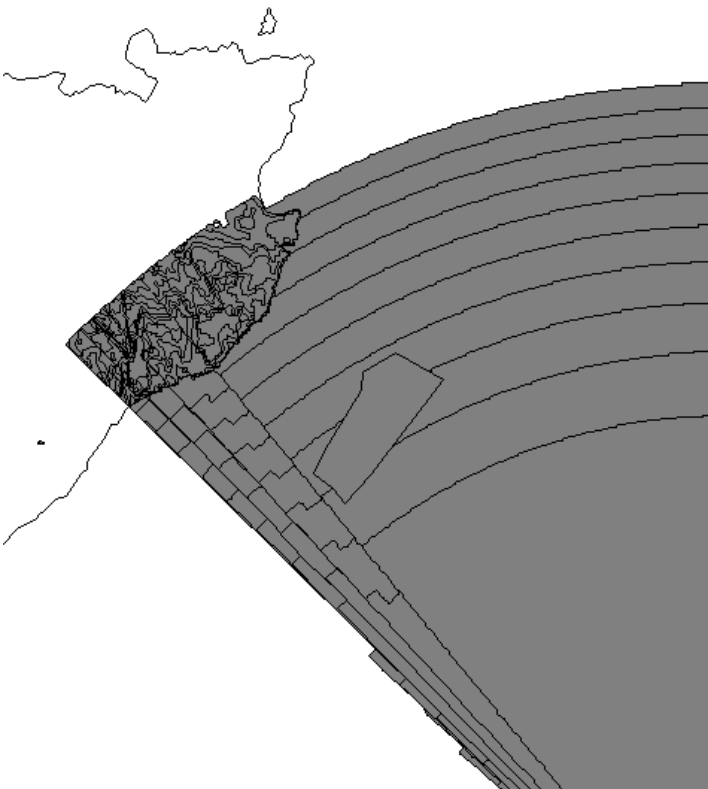


Figure 2: Line-of-sight from Allanshill at 20m, 40m, ... , 180m, 200m agl

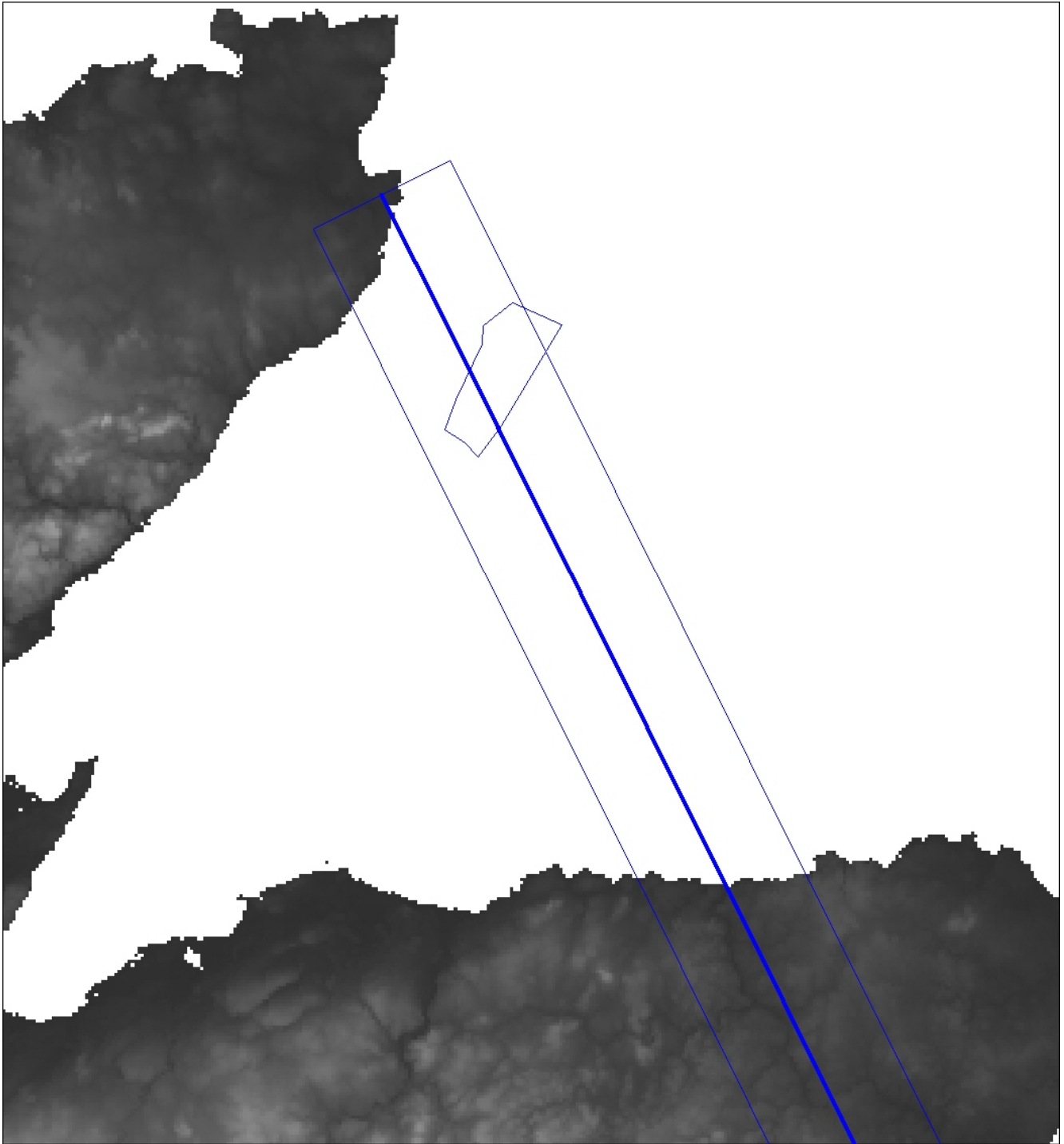


Figure 3: Site Boundary showing route the portion of WD4 from Aberdeen to Wick



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The Chamber of Shipping

Carthusian Court
12 Carthusian Street
London EC1M 6EZ

Fax: +44 (0)20 7600 1534

Email: [\[REDACTED\]@british-shipping.org](mailto: [REDACTED]@british-shipping.org)

Internet: www.british-shipping.org

Marine Scotland
Marine Laboratory
375 Victoria Road
Aberdeen
AB11 9DB

By email: ms.marinelicensing@scotland.gsi.gov.uk

7 June 2012

Dear Sir/Madam,

RE: 003/OW/BOWL – 8 APPLICATION TO CONSTRUCT AND OPERATE THE BEATRICE OFFSHORE WIND FARM

The Chamber of Shipping welcomes the opportunity to comment on Beatrice Offshore Windfarm Limited's (BOWL) application to construct and operate the Beatrice Offshore Wind Farm. We confirm that the Chamber has been consulted at various stages of the planning process and that we have provided advice on shipping and navigation issues.

We acknowledge that the proposed wind farm site is in an area with relatively low levels of commercial shipping activity and that the main concentrations of traffic on the Pentland Firth route are some 4-5NM from the site boundary. Previous concerns regarding reduction in available sea room between the project and the coastline have been addressed in earlier consultation. As a result, we agree with the assessment that impacts on commercial shipping are likely to be relatively low. However, we wish to make the following comments regarding the application:

1. Throughout the consultation process, our primary concerns have been the cumulative impacts of the Beatrice and Moray Firth wind farms on navigation. While we acknowledge that applications for the two projects are separate and that the extent of development within the Moray Firth Zone is currently unknown, we require clarification as to whether any future collaborative work will be produced. In addition, we request clarification over whether developments in the Moray Firth Zone will have any impact on the plans for Beatrice or vice-versa.
2. We note that wind turbines will be aligned in straight lines to aid navigation (see



Promoting our maritime future

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2107383

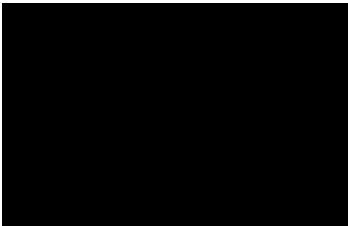
Chapter 18, Paragraph 99). We feel that this mitigation measure will be particularly important in reducing navigational safety risks.

3. The possibility of anchor interaction with both cable route options, particularly, in the Spey Bay area, remains a concern. Navigational stakeholders should be consulted on the planned Burial Protection Index (BPI) assessment. It should be noted that issues have arisen with the use of rock dumping as a cable protection mitigation measure at wind farms off the east coast of England. Where possible, cables should be buried at depths sufficient to ensure continued safe anchoring and navigation.
4. A full rationale for the possible application for 50m operational safety zones should have been provided in the Environmental Statement (ES). It should be noted that operational safety zones are not regarded as standard practice and developers should factor the impacts of operational safety zones into the Navigational Risk Assessment (NRA). We feel that the expected benefits of operational safety zones as a potential mitigation measure should have been assessed in the ES. Due to the lack of a clear rationale in the ES, any future application to DECC should include a revised NRA, clearly explaining why the mitigation measures outlined in the original application have proved inadequate in ensuring navigational safety.

While we are happy to accept the application on the basis that overall risks to navigation are low, we request that the issues raised in this response are addressed as soon as possible and that navigational stakeholders are kept informed of any developments.

The Chamber is willing to provide further input if necessary. If you have any questions regarding our comments, please do not hesitate to contact the undersigned.

Yours faithfully,



Policy Advisor, Safety & Environment
The Chamber of Shipping

Ms Gayle Holland
Marine Scotland
Scottish Government
Marine Laboratory
375 Victoria Road
ABERDEEN
AB11 9DB

Longmore House
Salisbury Place
Edinburgh
EH9 1SH

Direct Fax: 0131 668 8722
Switchboard: 0131 668 8600
@scotland.gsi.gov.uk

Our ref: AMN/16/H
Our Case ID: 201200658
Your ref: 003/OW/BOWL-8

8 June 2012

Dear Ms Holland

**The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2000
Application for consent to construct and operate an offshore wind farm, Outer Moray
Firth (Beatrice Offshore Wind Farm)
Environmental Statement**

Thank you for letter dated 25 April 2012 and the accompanying Environmental Statement (ES) requesting comments on the above. For information, this letter covers our comments on the ES for our role as consultees through the Scottish Ministers under the terms of the above Regulations. The comments in this letter relate to our statutory remit for scheduled monuments and their settings, category A listed buildings and their settings, gardens and designed landscapes appearing in the Inventory and designated wreck sites (Protection of Wrecks Act 1973). In this case, our advice also includes matters relating to marine archaeology out with the scope of the terrestrial planning system.

The Proposed Development

I understand the proposed wind farm is located approximately 13.5 km from the Caithness coastline at its closest point and consists of the following:

- Up to 277 wind turbines spaced no less than 600m apart with a maximum blade tip height of up to 198.4m;
- Inter array cables;
- Up to three meteorological masts;
- Metocean equipment and
- All foundations, substructures, fixtures, fittings, fixings, protections and cable crossings.

The offshore transmission works include:

- Up to three subsea export power cables, approximately 65 km in length;
- Three offshore substations and all foundations, substructures, fixtures, fittings, protections and cable crossings.

Terrestrial Assets

We have considered the potential for indirect effects on the setting of terrestrial assets within our statutory remit. We note that of the assets assessed within the ES, three within our statutory remit were identified as being subject to an effect, which are as follows:

- Dunbeath Castle (HB no. 7936) – effect of negligible significance;



- Cairn of Get (Index no. 90048) – effect of minor significance;
- Hill O'Many Stanes (Index no. 90162) – effect of minor significance.

We are content with the predicted significance of effects within the ES for Cairn of Get and Hill O'Many Stanes scheduled monuments. In terms of Dunbeath Castle category A listed building and its associated designed landscape, we consider that the significance of the effect on the setting of these assets would be 'minor adverse' as opposed to 'negligible'. We are content with the findings of the ES in relation to the significance of effects on the remaining assets within our statutory remit which were assessed.

Overall, we are content that there shall be no significant adverse direct, indirect or cumulative effects on terrestrial assets within our statutory remit, as a result of the proposed development.

Marine Assets

We are content that there are no designated cultural heritage assets within the Inner or Outer Study Areas.

We understand from the ES that the geophysical survey assessment identified nine targets and unknown anomalies within the Inner Study Area, which are considered to be of medium sensitivity. One charted wreck and three targets of medium archaeological potential have been identified within the Outer Study Area.

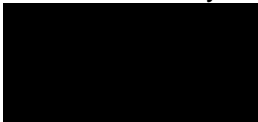
We are content with the proposed mitigation measures for the construction period, in relation to the nine sites of archaeological potential identified within the Inner Study Area. We would recommend a condition be attached to any consent/licence issued, requiring implementation of the Protocol for Archaeological Discoveries (Offshore Renewables Projects). There is no requirement for prior agreement or approval by Historic Scotland in relation to this.

Conclusion

Overall, we are content with the principle of the development, and consider there shall be no significant adverse effects on marine or terrestrial assets within our statutory remit. We are content with the assessment of potential effects on marine archaeology and with the proposed mitigation strategy in relation to identified sites which have archaeological potential. As such, we offer no objection to the application.

Please contact me should you wish to discuss the contents of this letter.

Yours sincerely



Senior Heritage Management Officer (EIA)

Your Ref: 003/OW/BOWL – 8

The Scottish Government
Marine Scotland Licensing Operations Team
Marine Laboratory
PO Box 101
375 Victoria Road
Aberdeen
AB11 9DB

26th July 2012

Dear Ms Holland,

CONSENT UNDER SECTION 36 AND SECTION 36A OF THE ELECTRICITY ACT 1989 AND MARINE LICENCES UNDER PART 4, SECTION 20 OF THE MARINE (SCOTLAND) ACT 2010 AND UNDER PART 4, SECTIONS 65 AND 66 OF THE MARINE AND COASTAL ACCESS ACT 2009 TO CONSTRUCT AND OPERATE AN OFFSHORE WINDFARM, OUTER MORAY FIRTH

On 5th June we submitted a letter to Marine Scotland outlining issues requiring further clarification on the BOWL consent application. Since this meeting we have met with BOWL representation to discuss the issues along with Talisman (the Beatrice Alpha, Bravo and Charlie platform owners) and WGSPN (Duty Holder for all the Beatrice/Jacky oil platforms). Please note this representation is sent on behalf of Ithaca, Talisman and WGSPN.

Following our meeting and subsequent phone calls with BOWL, we are satisfied that from the information BOWL have communicated the concerns we raised have been addressed and we have no objection to the Beatrice wind farm application, subject to the following requested conditions:

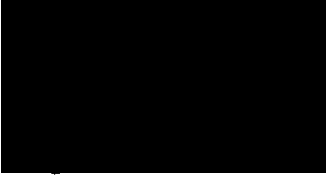
1. No turbines, offshore substation platforms or meteorological masts should be erected within 2.5km of the Jacky platform. The primary reason for this is to ensure minimal impact on helicopters accessing any jack-up alongside Jacky;
2. The wind farm export cables shall not be laid/positioned within 1.5km of the Jacky or Beatrice B platforms as currently planned they are too close. The current positioning of the cable route impacts our ability to position a drilling rig anchor pattern and may also impact future decommissioning (lifting unit) operations for Talisman Energy.

For information, if any amendment is required to the BOWL cable corridor as a result of this representation that moves it towards the currently suspended Polly well we understand this would be the most practical direction to go towards. We plan to plug and abandon this well in the future to comply with DECC guidelines on long term suspended wells. However, we do not have a date when this will be completed by at the moment.



Please do not hesitate to contact myself if you require any further clarification on the above.

Yours sincerely



Operations Manager

Cc:



Talisman (UK) Ltd
-Wood Group PSN



Moray Firth Sea Trout Project Response to the marine licence application for the Beatrice Offshore Wind Farm project

June 2012

The Moray Firth Sea Trout Project

The Moray Firth Sea Trout Project (MFSTP) is a collaborative project formed by all six Fisheries Trust surrounding the Moray Firth to conserve and protect local sea trout populations. The project partners have worked together to protect habitat through restoration and policy work, conserve stocks through catch and release policies and has ongoing research to improve our understanding and management. Sea trout angling is particularly important to local community Angling Associations that often rely on sea and brown trout angling to attract their membership and visiting anglers. Trout angling brings in vital revenue through visiting anglers and associated tourism. It is difficult to put a value on trout angling alone but in the Kyle of Sutherland District salmon and sea trout angling is estimated to bring in nearly £4 million annually and support nearly 150 jobs (Radford et al 2007). While on the Spey salmon and sea trout angling is estimated to generate £10.8 million in the local economy and support 420 full time equivalent jobs (Butler et al. 2009). However, there are worrying signs of decline in Moray Firth populations where there has been a 42% decline in the average sea trout rod and line catch over the last 10 years.

In light of these worrying signs that Moray Firth sea trout population are already under pressure and the project partners have significant concerns about the proposed development. There still seems to be significant uncertainty about the potential negative impacts of the development but no monitoring or significant mitigation has been proposed.

Sea Trout Conservation Status

The trout (*Salmo trutta*) is an important part of Scotland's natural heritage and as such is a priority species on the UK's Biodiversity Action Plan List and Scottish Natural Heritage have recently included sea trout on their Priority Marine Features list. Trout (*Salmo trutta*) are generally characterised as either; brown trout which reside in freshwater, or anadromous sea trout which migrate to sea to feed; both are the same species and readily interbreed as important components of a healthy functioning trout population, hence the need to conserve both brown and sea trout life forms.

Climate Change

Climate change is potential threat to trout populations both in freshwater systems and in the marine environment. The MFTSP acknowledges the need to limit greenhouse gas emissions and supports the Scottish Governments target to meet 50% of Scotland's electricity demand from renewable sources by 2020. However, the MFSTP feels very strongly that this target should not be met at the expensive of long term damage to local ecosystems and species.

Potential Negative Effects of offshore wind and BOWL

The large scale of the offshore wind developments that are planned for around our coastline amount to a significant cumulative impact on our marine environment and as such require the

highest possible environmental standards. Furthermore the relative juvenility of the industry and the unknown impact of these large scale developments in certain environments require that the precautionary approach is adopted at all levels. Our specific concern with the Beatrice development is the potential impact on sea trout in the Moray Firth. The Moray Firth is very important common resource for the sea trout from all the rivers that surround it. Sea trout migrate to sea primarily to feed and take advantage of the productive marine environment and we are very conscious of ensuring that they are not directly threatened nor the resources they rely on disrupted. The Beatrice development is situated on the Smith Bank which the ES has confirmed as important habitat for three species of sea trout prey; sandeel, herring and sprat and as result is likely a very important feeding area for Moray Firth sea trout populations.

The BOWL development could impact directly and indirectly on sea trout populations feeding in the Moray Firth during construction, operation and decommissioning. This could result in sea trout avoiding the development area which is potentially a very important feeding ground. Subsea noise and EMF resulting in disorientated behaviour and potentially increased susceptibility to predation, reduced feeding ability and changes in migration timing and route. Furthermore the development may disturb sea trout prey species and habitat resulting in a diminished prey resource.

The activities of most concern are outlined below:

- **Subsea noise during construction**
As outlined in the SNH commissioned report (Gill & Bartlett 2010) the most likely impacts is from structures installation requiring pile driving and that duration and timing are likely very important. Making an assessment of likely impact is very hard due to lack of knowledge about Salmonid response to subsea noise.
- **Subsea noise during operation**
The same SNH report concluded there was insufficient information about subsea noise during operation to make an assessment of impact but there could be long term ecological impacts.
- **Electromagnetic Fields (EMFs) associated with cabling or transmission works.**
The SNH report also outlined that Salmonids are very sensitive to EMFs and indeed may be impacted by them although the likely effect or response could not be determined on current knowledge. Until further research by Marine Scotland Science is concluded it is vital all cables are appropriately shielded.
- **Disturbance of benthic environment and loss of habitat**
The potential cumulative impact of multiple subsea structures on the benthic environment and on? key prey species needs to be clearly quantified and assessed according to the different subsea structure instalment options.
- **Aggregation of prey around subsea structures**
Although often highlighted as a potential positive effect the potential aggregation effects of the subsea structures may also serve as aggregating devices for predators as well.

General comments on the BOWL application

Marine Scotland Science (MSS) have outlined that when inadequate information exists on the use of the development area by anadromous fish then a suitable monitoring strategy should be deployed. MSS also go on to say monitoring undertaken at existing offshore developments such as Robin Rigg has been inadequate. However, despite the ES concluding that in the absence of detailed information on salmonid migratory routes it is assumed that Salmonids do

use the development area there is still no monitoring strategy in the ES and inadequate mitigation proposed. In light of the MSS guidance we find this completely inadequate and unacceptable.

Specific Comments:

11.4.1 Increased Suspended Sediment Concentrations and Sediment Re-deposition

The assessment of the impact of sediment on herring and sandeel eggs as *minor* seems inadequate considering their relative importance as a prey species. Little consideration seems to have been given to the very specific nature of sediment required by sandeels (Holland et al 2005) and that despite being mobile species any long term changes in the benthic sediment composition will have long term impacts on this very important prey species' habitat. In addition the assessment of fine sediment on mobile fish species has been based on a on a single study which only considered the effects of sediment in freshwater and seems inappropriate for this environment (Bertwell 1999).

11.4.12 Noise

The impact of subsea noise on sea trout is poorly understood as outlined in the SNH report (Gill & Bartlett 2010) but it also highlights the significant potential impact of subsea piling. Although soft start piling is suggested as a mitigation to allow avoidance of harmful noise level there is no indication of how long this "soft start" will last and whether it is long enough for sea trout adults or post smolts to leave the critical area. Furthermore although the use of soft start piling will allow of harmful levels of noise it does not take into account that sea trout will be "avoiding" the potentially key feeding habitat of the Smith Bank (development area) at key times of year. The scenarios outlined in Annex 7A show salmon (sea trout surrogate) exhibiting "*significant avoidance*" (75 dB_{ht}) over significant parts of the Smith Bank (Figure 10.17 2.4m pile) and a significant part of the Moray Firth (Figure 10.32 5m pile). Over prolonged periods of time for multiple years this could have significant impacts on Moray Firth sea trout populations. MSS advised in their comments (annex 5A) that it needed to be established what species were present and where. If adequate monitoring was conducted to determine where and when sea trout use the Smith Bank then adequate mitigation could be designed to not pile at key migratory or feeding times of year. Furthermore the impact of noise from piling on sea trout prey species is likely to be significant, particularly on herring and sprat which both were modelled to show large areas of avoidance (Annex 7A) but have been assessed as negative, moderate and unlikely.

11.4.2 Operation

11.4.2.1 Loss of Habitat

The loss of habitat effect on Herring has been assessed as negligible and probable, largely it seems in comparison to the larger Shetland / Orkney stock. Although the impacts on the wider herring population may be negligible any impact on the local herring population could have serious negative implications for locally feeding sea trout. The risk of habitat loss to sandeels which rely on specific habitat that is located on discreet patches of seabed that are present within the site has been assessed as negligible and probable. When the ES itself concludes that there is a lack of current data on the distribution of sandeels within the site there can be very little confidence in this conclusion. Furthermore the impact has been assessed as negligible on the assumption that there is potentially other Moray Firth habitat available despite also stating they rely on a very specific habitat type and consequently is limited in availability. Given the significance of sandeels as prey to both sea trout and the wider marine ecosystem and a Priority Marine Feature in their own right we have very little confidence in this assessment and consider further monitoring and mitigation essential.

11.8.5.3 Cumulative Impact lack of habitat

As above the lack of knowledge of sandeel distribution within the site leaves us lacking any confidence in this assessment of impact on this species.

11.4.2.2 Introduction of new Habitat

As described the construction of subsea structures and associated armouring will likely result in long term changes in overall diversity and productivity of the benthic environment within the development area. More specifically the subsea structures are likely to act as fish aggregation devices (FADs) but little consideration has been given to the fact that FADs will in turn attract predators and consequently increase predation risk to sea trout while on their feeding grounds.

11.4.2.3 Electromagnetic Fields

As summarised in the SNH Report (Gill Bartlett 2010) sea trout are potentially sensitive to EMF but the level of impact is poorly understood. Until further MSS research is completed into the sensitivity of salmon and sea trout the precautionary approach should be adopted. Assuming that sea trout will only be migrating near the surface (paragraph 131) and hence not affected is not adequate as the site is likely an important feeding habitat and sea trout will be feeding throughout the water column and near the sea bed. This highlights the need for pre deployment monitoring to understand how sea trout use the site and help ensure adequate mitigation is implemented. As a bare minimum ALL cables should be shielded or buried to an adequate depths as determined by ongoing MSS research, and not “*only where feasible*” as suggested in the ES.

Summary

The ES has not adopted the MSS scoping guidance that it should include information on the use of the development area by diadromous fish and where this information was lacking a monitoring strategy should be devised. The ES has instead assumed that salmon and sea trout do use the development site which in turn means any assessment made on the potential sensitivity or impact of the development has huge potential implications on the entire Moray Firth sea trout populations. This would be adequate if it was well understood how sea trout used this area and the potential impacts could be assessed and appropriate mitigation implemented. However, these factors are not well understood and the assessment of sensitivity, magnitude and probability of effect are based on very limited knowledge and as result very little confidence can be placed on these assessments. With such a low level of confidence in the assessments and following the developers own assumption that sea trout do use this habitat it seems entirely inappropriate to have no mitigation proposed beyond *soft start piling and burying / protecting cables where feasible*. The MFSTP still has significant concerns about the potential impacts of subsea noise, EMF, loss of habitat, disturbance of prey and the potential aggregation of predators.

In light of the above the MFSTP is formally objecting to the proposals until adequate monitoring and mitigation is put in place.

██████████
MFSTP Project Manager

Mob: ██████████

██████████@[googlemail.com](mailto:██████████@googlemail.com)

References

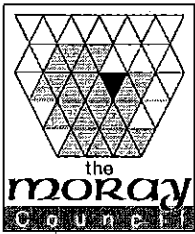
Birtwell, I.K., (1999) The Effects of Sediments on Fish and their Habitat. Fisheries and Oceans Canada. Science Branch. Marine Environment and Habitat Sciences Division. Freshwater Environment and Habitat Sciences Section.

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Radford A, Riddington G, Gibson H. 2007. An Economic Survey of Angling in the Kyle of Sutherland Region. <http://www.kylefisheries.org/uploads/Economic%20Survey.pdf>



DEVELOPMENT MANAGEMENT

██████████
Planning Officer
The Moray Council

High Street, Elgin, Moray IV30 1BX

Telephone: ██████████ Fax: 01343 563263

Gayle Holland
Marine Scotland
Marine Planning & Policy Division
Marine Laboratory
375 Victoria Road
Aberdeen
AB11 9DB

E-mail: ██████████@moray.gov.uk
Website: www.moray.gov.uk

Your Reference:

Our reference: 12/00753/S36 NMP/PAC

16th August 2012

Dear Sir(s)/Madam

12/00753/S36

**Construct and operate an offshore windfarm at The Beatrice Offshore Wind Farm
Moray Firth**

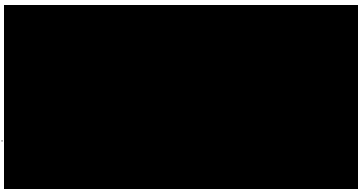
I refer to the above consultation, and to the proposed offshore wind farm submitted by Beatrice Offshore Windfarm Limited.

The Planning & Regulatory Services Committee of the Moray Council sat on 14th August and agreed to a consultation response being issued to Marine Scotland regarding the above, stating no objection to the proposal.

I trust this letter is sufficient, but should you require any further confirmation, please do not hesitate to contact me at the above address.

Please note that information associated with the application will be published on the Council's website at <http://public.moray.gov.uk/eplanning>.

Yours faithfully



Planning Officer

Beatrice Offshore Wind Farm - Environmental Statement

Marine Scotland Science has reviewed the ES submitted for the Beatrice Offshore Windfarm. Overall the ES, although very large, is well presented, contains the sections required including technical annexes and appropriate cross referencing. The figures used are clear and well set out with visible labels and scale bars. It is also good to see that comments from previous reviews/consultations were taken on board.

4 Process and Methodology

Section 4.2.1 does not discuss how it deals with effects on the environment that are unknown. The progression from para 6 to 7 suggests that there are no unknowns associated with the project.

6 Site selection

The site selection summary is very brief and does not summarise the information in the section presented in Section 6. Paragraph 38 in the section is not covered by the ES.

7 Project description

The ES adopts a Rochdale Envelope approach and states that the scope of the application stops at the MHWS mark. Consequently the precise nature of the work is currently unknown resulting in a general construction programme (Table 7.5) for the anticipated works with no detailed timing for the individual components of the project. Also by not including all the components of the project in the ES potentially the sum of the impacts of the entire project cannot be assessed.

Alternatives for different scenarios (including a no development scenario) are considered, using different devices and installation methods for a range of sizes consistent with current and future device designs. Differences in the size of the devices are reflected in the numbers of turbines to be used. The processes involved in operating the project are described for some aspects of the work in particular the installation of the turbine devices, interconnector cables and OFTW. The installation of a gravity based structure is estimated to take two weeks. The installation of 277 devices using this approach would take over 10 years to complete. If each turbine required 6,000 tonnes of rock for site preparation, a total of over 1.5 million tonnes would be required. On top of this would be the scour protection volume of 26,663 m³ per turbine (9.5.8. para 264). Where would the rock come from? How realistic are some of the options presented?

The types and quantities of raw materials needed for construction and operation are not detailed. Consequently although the different design options are discussed, it was not clear from the information included which options would use fewer resources in their construction and keep to a minimum the infrastructure required for their installation e.g. vessel activity for different devices, quarrying activities, sea disposal etc. How does this influence the efficiency in energy use and raw materials for the project (See section 4.2.1 Para 6)?

8 Designated Sites and Legislation

The main options and components of the project are shown on a series of maps. The lease area and OFTW corridor are clearly marked however, the turbine locations and the inter connector cables are not shown. The preferred option for the OFTW landfall and the preferred route to the onshore substation at Blackhillock are not shown in detail. This would be useful given the proximity of the OFTW landfall to the SSSI (51). Figure 8.2 has site 51 annotated as both a SAC and as a SSSI however, Annex 8a only refers to 51 as a SAC for the Lower River Spey-Spey Bay. Other activities such as Beatrice Platform, MORL site and Beatrice wind farm are also outlined on the maps. The area of land covered by the proposed windfarm lease and OTFTW corridor are provided.

9 and 21 Physical processes and geomorphology

Perhaps the most significant potential effects are related to the disturbance of seabed sediments. This is reflected in the ES with most of Section 9 focussing on these issues. Throughout the ES the level of impact and the sensitivity of the receptor in question are given, and a number of them repeated in Table 9.8. These assessments of the impact and sensitivity are considered to be appropriate throughout Section 9.

The good amount of attention paid to the potential cumulative effects was very welcome. The list of potential effects and reasoning behind the majority of them being scoped out early was good. The ES then focused on the developments occurring in and around the Moray Firth Round 3 site in an adequate level of detail.

The technical appendices submitted were all interesting, useful and extremely rigorous. They were very welcome as they helped explain some reasoning behind a number of the statements within the ES.

The multibeam echosounder data collected was processed into a bathymetry layer for the lease area. However, there is very little information presented on the survey method, standards and data processing. Also there is a reference to the collection of subsurface geophysical data recorded in section 9.2.5.2 para 20. Are these data included in the ES, does it include sub-bottom profiling information? This would be a very useful layer of information that would assist in the identification of the most appropriate foundation design for different parts of the lease area.

Can concerns over the potential for scour be taken into consideration at an engineering level i.e. factor in the extent of the predicted scour into the foundation design? What scour has been observed around the Beatrice wind turbines?

10 and 22 Benthic Ecology

The developer has adequately addressed the key issues in a rigorous and appropriate manner.

11 and 23 Fish and Shellfish Ecology

We note that there are a very large number of unknowns at this stage in terms of the development and that the ES attempts to assess a worst case scenario.

As a result, it should be noted that current knowledge is rather sparse in many cases and as such much of the superficially quantitative assessment of effects can be little more than expert opinion or informed guess work. It is in this context that LOT and MS should view the findings of this ES in general terms. Research planned by MSS in the coming year will help increase certainty over risk in relation to EMF. Monitoring work at a selection of wind farm sites could further help alleviate concerns over fish movement through these developments if desired.

The recognition of uncertainty in the ES assessment is welcomed.

Marine Fish and shellfish species

Sandeels

Due to the sensitivity of the species, potential area of impact from gravity base infrastructure and the lack of knowledge of density and distribution of patches of Sandeels. We do not agree that this impact can be assessed as negligible (section 11 para.98). A more conservative approach should be taken and the impact assessed at least as minor and probable rather than negligible and probable.

Due to the significance this species has in the food chain, it would be pertinent for the developer to establish the distribution of sandeels to identify the key areas (most dense patches) used by the species. We would recommend the developer try and carry out some further sampling between now and construction to improve the knowledge of distribution. This will help when micrositing the devices to enable the developer to avoid damaging key patches as these may be the most important in terms of the food chain links.

It would be useful for this extra sandeel sampling to be similar in methodology to that carried out by the MORL development to allow for the two data sets to be comparable and help identify/monitor cumulative impacts as well as impacts at the individual site level.

There may also be an opportunity to use the bird data to help identify sandeel patches. If species of bird that are known to prey on sandeels are present and shown to be feeding, this may indicate the presence of important/dense sandeel patches.

Herring

The developer has appropriately identified the potential issues for herring with regards to sedimentation and habitat loss. The developer has identified that herring may be affected by noise from construction and that soft start piling will be used to mitigate against physical damage from noise. However the duration of construction and the periods at which this noise activity will occur is of concern as this may restrict herring from spawning at the site. If this spans consecutive spawning periods for several years in a row it may have the potential of

displacing these fish permanently from the area. This is of concern because of the proximity to the Orkney/Shetland stock which is the least stable of the herring stocks and this stock has not recovered to the same extent as the other stocks, as a result would be more susceptible to added pressures upon it. It is difficult to see how this impact can be assessed as unlikely and again we would suggest this impact would be probable.

Changes in fishing activity

Although some consideration to changes in fishing activity has been shown, there has been little mention of displacement. Is it realistic that the same level of activity will continue during the operational phase? The cumulative impact of displaced fishing activity on sandeels for example has not been assessed here.

Freshwater and Migratory species

Section 11 Paragraph 48. It should be noted that the position of this wind farm puts it on potential migratory routes for all east coast salmon SAC rivers, not just those listed in table 11.8.

Construction Noise

Paragraph 80 (Chapter 11) states that the magnitude of noise effects is considered to be small, with salmon classified as medium sensitivity, with an overall expected outcome of probable negative, but minor impacts.

The developers have carried out modelling to show that a relatively small area of sea is affected by noise levels that will be detectable to salmon when compared to other species. They have based their assessment of hearing on the best available (but very limited) information that there is on this topic.

However, I am unclear how they are able to decide that the effects will be small. This is because they don't really know how fish will respond to the noise or what the consequences are for migrating salmon. For example, will migrating fish be permanently shifted from their regular migratory routes such that it affects homing, or will they be forced to migrate additional distance thereby compromising energy reserves and survival or would the activities only result in small and very short term changes in direction with no long-term consequences? Given the uncertainty over migratory routes (acknowledged by the E.S.), the limited information on behavioural responses to noise and the lack of robust previous monitoring of wind farm construction activities, it should be recognised that any assessment of likely impact will be highly uncertain.

EMF

Paragraph 118 states that EMF effects will be small due to the area affected by EMF. However, this ignores the fact that the cables are linear features requiring migrating fish to pass over them. As such the total area affected seems unimportant.

The ES correctly notes that there is evidence of eels, salmon and sea trout responding to EMF's, that the field strength is greatest close to the bed and that burying the cables reduces the chance of fish coming into close proximity to the cables. However, the ES also states that salmon will not come into proximity with the cables because they swim at shallow depths. This remains uncertain and is the subject of research by MSS. Furthermore, the power will eventually be exported to land at which point the cables will come into shallower water.

We note that although the ES states the magnetic field strengths expected from the cables, it does not also state the values that diadromous fish can be expected to respond to. We presume this is because this information is not reliably available. We also note that this is the subject of additional research by MSS.

Nevertheless, the values presented in Table 11.7 (which are very low compared to the earth's background magnetic field) generally support the assertion of a minor negative but probable impact for salmon, sea trout and eels

Operational Noise

The ES seems to suggest that salmon could detect noise from operational wind farms (turbines?) at distances of 0.4-25km based on work by Walhberg and Westerberg (2005), but that other studies suggest noise levels are insufficient to cause any behavioural reaction (Vella *et al.*, 2001). The ES then goes on to conclude that operational noise would constitute a negative, minor, but unlikely impact. Operational noise is one of the greatest concerns for this development because it is a potentially long term and large scale impact. Previous studies have suggested that salmon could use the noise of waves breaking on the shore to orientate them offshore, thereby assisting migration. If the noise coming from operational wind farms confuses this signal it could have knock on consequences for migratory routes and behaviour. One of the main problems with assessment of this risk is the lack of robust field based data on the movements of diadromous fish in offshore wind farm areas, compounded by relatively poor information on hearing and behavioural responses to noise. Therefore there must remain considerable uncertainty in the effects of operational noise at present that is perhaps under reflected in the "unlikely" classification that cannot be resolved at this time.

Mitigation measures

We note that no mitigation is proposed for the construction phase and that burial of cables is proposed for the operational phase. Burial seems to be a sensible precaution in the absence of further information on fish responses to EMF. The developers could explore options for construction outside of peak migration periods for smolts.

Monitoring

Given the unknown consequences of operational wind farms on fish migration and behaviour MS LOT may wish to consider the opportunities for assessing salmonid movement through the wind farm, funded either by the developer, groups of developers or a combination of developers and MSS. This could help inform future ES assessment. One option would potentially involve the deployment of acoustic receivers on wind farm structures with tagging of smolts in rivers and adults from coastal nets.

Cumulative assessment

We note that the cumulative assessment has considered the impact of other developments and concludes that a negative moderate cumulative effect is possible. This seems a reasonable assessment given the large number of uncertainties in the assessment.

Screening for AA (Table 11.23)

Given all the uncertainties we are not clear that a likely significant effect of SAC rivers would not occur for the project alone, but agree that in combination a likely significant effect seems appropriate. However, we once again emphasise the large number of uncertainties which can affect this assessment in either direction.

Aquaculture

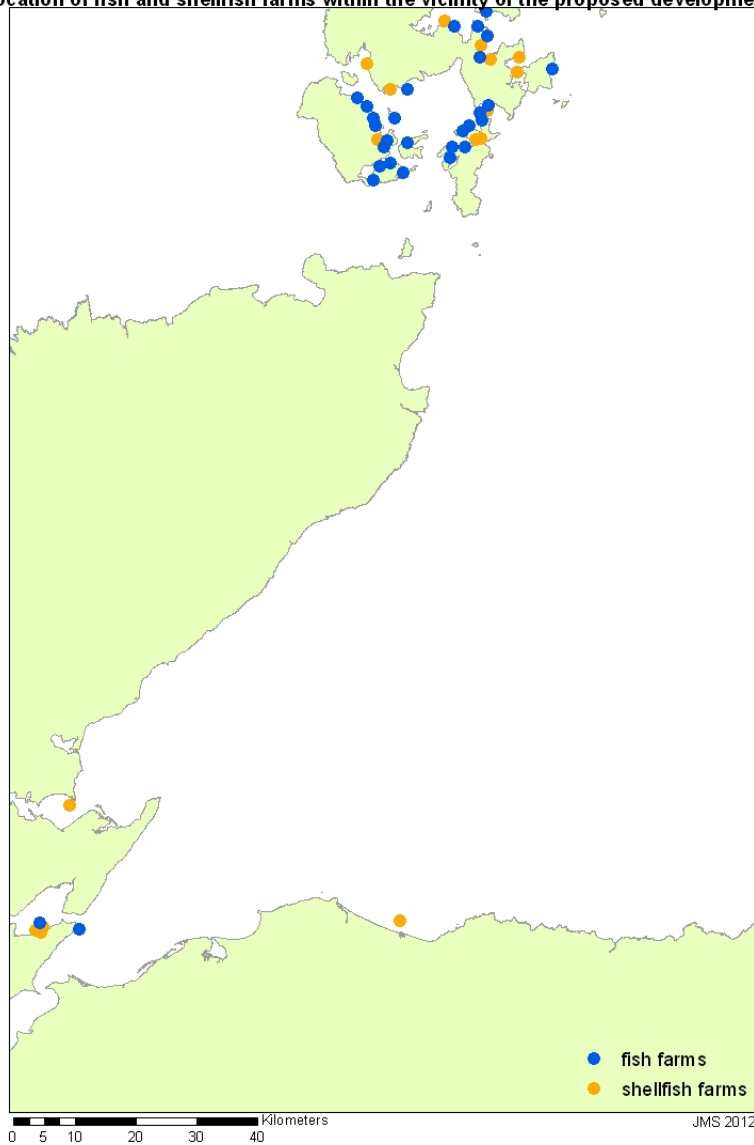
There are no aquaculture sites within the proposed boundaries of the Beatrice Offshore Windfarm site. There is however, an active mussel site close to where the cable route corridor joins the land between Norrie Scalp and Portgordon (see map attached below). This site is operated by Spey Bay Mussel Farm. This site is situated ~3km from the cable route corridor.

There are also another three active shellfish sites within the Moray Firth area, there is a mussel farm operated by Cromarty Mussels, a pacific oyster farm operated by Black Isle Seafood Ltd and another pacific oyster farm operated by MacKenzie Oysters. The closest site is ~90km from the boundaries of the Moray Offshore Wind Farm.

There is also 2 inactive finfish sites within the Moray Firth area. One is a rainbow trout and salmon site and the other a salmon site. Both owned by Northern Isles Salmon and have been inactive since 2003.

There is no other seawater aquaculture sites on the east coast of Scotland, to the south of the proposed development. To the north the next closest sites would be around Orkney.

Location of fish and shellfish farms within the vicinity of the proposed development



16 and 27 Commercial Fisheries

The maximum construction period of 5 years described (section 16, para 38) as the worst case scenario may need to be re-evaluated following assessment of the build time (possibly of 10 years) as suggested above.

Although we note that by the data presented by the developer the scallop fishing would appear to constitute a small proportion compared to the whole Moray Firth or UK waters (section 16 para 58). It is unclear at this point as to whether the developer has fully taken into consideration that there is a large wind development that will be impacting on the scallop ground in a similar way. It should also be noted that not all the ground in the Moray Firth is

suitable for Scallops with large areas of the Firth made up of Muddy sediments that are not favourable for this species.

The over 15m VMS data provided would support the assessment for loss of fishing grounds being classed as minor. However it is unclear as to the extent of the Moray Firth under 15 (non-VMS) vessel activity. The impact on this proportion of the fleet would be perceived as being of greater significance given the restrictions on ground to which these vessels are able to access and then the compounded effect of increased competition from other displaced vessel activity. Table 16.10 should perhaps show the significance of impacts on local and UK fleet. In general the UK fleet would show the sensitivities described but it would be likely that several of the perceived effects would be of greater sensitivity to more locally restricted vessels.

Our ref: PCS/119961
Your ref: 003/OW/BOWL-8

If telephoning ask for:

28 May 2012

Gayle Holland
Marine Scotland
Marine Laboratory
375 Victoria Road
Aberdeen
AB11 9DB

By email only to: MS.MarineLicensing@scotland.gsi.gov.uk

Dear Ms Holland

**Electricity Act 1989
Marine (Scotland) Act 2010
The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations
2000
Application for consent to construct and operate an offshore windfarm Outer Moray
Firth (known as Beatrice Offshore Windfarm)**

Thank you for your consultation letter of 25 April 2012 which SEPA received on 26 April 2012. We received the application and Environmental Statement (ES) direct from the applicant on 1 May 2012.

We understand that although separate scoping consultations were carried out for the windfarm and for the transmission a single Section 36 application and two supporting marine licences applications have been submitted.

We ask that the **condition** in Section 1 be attached to the consents. If it will not be applied, then please consider this representation as an **objection**. Please also note the advice provided below.

This advice is given without prejudice to any decision made on elements of the proposal regulated by us, which may take into account factors not considered at the planning stage.

Advice for the determining authority

1. Water Framework Directive

- 1.1 Based on the information provided we do not consider it likely that this development will result in the downgrade in any water bodies.
- 1.2 However given that the accidental introduction of Marine Non-Native Species (MNNS) has been highlighted as a risk for water body degradation, we recommend that controls should be included in development planning and marine licensing for Marine Non-Native Species in line with Water Framework Directive and Marine Strategy Framework Directive objectives, and EU Biodiversity Strategy targets. Accidental introduction of MNNS can also occur via attachment to construction plant, specialised equipment and moorings as these



Chairman
David Sigsworth
Chief Executive
James Curran



Dingwall Office
Graesser House, Fodderty Way,
Dingwall Business Park, Dingwall, IV15 9XB
tel 01349 862021 fax 01349 863987
www.sepa.org.uk

are moved from one area to another. We therefore ask that the measures to minimise the risk of introducing MNNS into the area be included in the Environmental Management Plan (requested by condition below).

2. Pollution prevention and environmental management

- 2.1 We consider that the pollution prevention principles and environmental mitigation measures outlined in the ES are acceptable but ask that a site specific Environmental Management Plan be a **condition** of permission. To assist, the following wording is suggested:

At least two (2) months prior to the commencement of any works, a full site specific environmental management plan (EMP) must be submitted for the written approval of the determining authority in consultation with SEPA [and other agencies such as SNH as appropriate] and all work shall be carried out in accordance with the approved plan.

Reason: to control pollution of air, land and water.

Detailed advice for the applicant

3. Pollution prevention and environmental management

- 3.1 Guidance on the types of issues that the Environmental Management Plan should address are outlined on our Pollution prevention and environmental management webpage at www.sepa.org.uk/planning/construction_and_pollution.aspx
- 3.2 Specific guidance on marine non native species can be drawn from:
- The alien invasive species and the oil and gas industry guidance produced by the Oil & Gas industry (www.ogp.org.uk/pubs/436.pdf);
 - SNH web-based advice on Marine non-native species (www.snh.gov.uk/land-and-sea/managing-coasts-and-sea/marine-nonnatives/);
 - Marine non-native guidance from the GreenBlue (recreation advice) (www.thegreenblue.org.uk/clubs_and_training_centres/antifoul_and_invasive_species/best_practice_invasive_species.aspx).

Regulatory advice

4. Regulatory requirements

- 4.1 Details of regulatory requirements and good practice advice for the applicant can be found on our website at www.sepa.org.uk/planning.aspx. If you are unable to find the advice you need for a specific regulatory matter, please contact a member of the operations team in your local SEPA offices at:

SEPA North Highland Team - Strathbeg House, Clarence Street, Thurso, KW14 7JS.
Tel: 01847 894422

SEPA North Grampian and Speyside Team - 28 Perimeter Road, Pinefield, Elgin IV30 6AF
Tel: 01343 547663

Should you wish to discuss this consultation, please do not hesitate to contact me on [REDACTED] or planning.dingwall@sepa.org.uk.

Yours sincerely

[REDACTED]
Senior Planning Officer
Planning Service

Copy to: [REDACTED] [@sserenewables.com](mailto:[REDACTED]@sserenewables.com)

Surfers Against Sewage comments on the Environmental Statement for Beatrice Offshore Windfarm

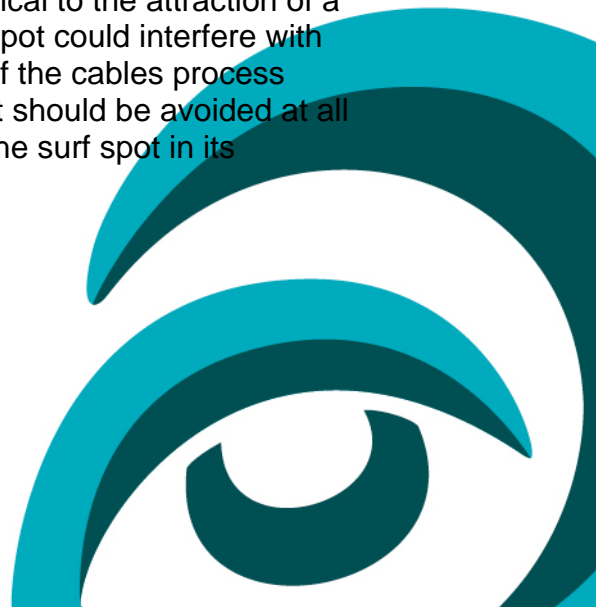
Surfers Against Sewage (SAS) would like to comment on the Environmental Statement (ES) for the Beatrice Offshore Windfarm. SAS would like to raise the following concerns:

We feel that “the need to prevent interference with legitimate users of the sea” (Chapter 3, section 3.2.3, p.3-2) should be considered in all aspects of the development process. As mentioned in the ES, surfing is a popular sport in Scotland, and Caithness is home to world-class breaks such as Thurso East, as well as many other popular spots mentioned in Table 9.2- Identified Physical and Coastal Process Receptors. It should be noted that we believe this list is not complete and further investigation is urgently needed. We would recommend consulting SAS further as well as the Scottish Surfing Federation and Surfing GB. Before any cable laying or other development work is permitted, the finalised landfall site should be monitored closely to ensure that development is not going to affect the coastal processes there.

The effects on coastal processes should be limited as much as possible, and it is good to see that our guidance has been noted. However, we would have expected to see it referenced throughout. However, section 9.5.6- Wave Regime Changes, raises some concern as the Fraserburgh area tends to already suffer from a lack of swell, and the potential for wave height and period to be decreased could result in less recreational activity due to conditions being altered, either as a result of the wind turbine foundations or cabling.

Whilst we are pleased with the fact that recreational water use is considered in many areas of the ES, we must raise concern over the following statements from section 29.4.3:

29.4.3- 76- “For surfers, the surfing wave quality is critical to the attraction of a location. The existence of a landfall point near a surf spot could interfere with the waves and the installation and decommissioning of the cables process could restrict access.” (p.29-11) This is something that should be avoided at all costs, as a landfall point could interfere not only with the surf spot in its





Surfers Against Sewage
Unit 2, Wheal Kitty Workshops
St Agnes, Cornwall, TR5 ORD

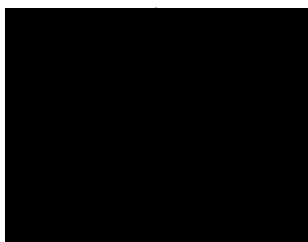
T: 01872 553 001 **F:** 01872 552 615
E: info@sas.org.uk **W:** www.sas.org.uk

immediate proximity but also others through the effect of longshore drift- whereby sediment can settle elsewhere as a result of changed currents around the landfall point, potentially effecting coastal processes in other parts of the coast.

29.4.3- 78- “Although it is possible that OfTW work could, for a short period limit access to the sea at a specific place, the proximity to other beaches means that it would not result in a change in the level of activity. Sensitivity to the OfTW activity is therefore considered to be low.” (p.29-12) SAS are concerned as no two surf spots are the same- different conditions will allow different beaches to produce surfable conditions of variable degrees. Eliminating a beach for the surfing, even for a short period of time, could have a big effect on the surfing community. Due to the varied shape and direction of the coastline, one beach may be receiving swell whilst another is blocked off completely, for example by a headland, so despite the “proximity to other beaches”, the level of activity could dramatically decrease.

If any development relating to the windfarm may have an effect on recreational water use, SAS would like to request that we are consulted, alongside the Scottish Surfing Federation and Surfing GB to ensure that there is negligible or no negative impact to recreational water users’ enjoyment of the coast.

Yours sincerely



Campaign Director
Surfers Against Sewage



Our Ref SCT6707B
Your Ref 003/OW/BOWL

JMP Consultants Limited
Mercantile Chambers
53 Bothwell Street
Glasgow
G2 6TS

28 June 2012

T 0141 221 4030
F 0800 066 4367
E glasgow@jmp.co.uk

www.jmp.co.uk

Gayle Holland
Marine Renewables Licensing Advisor
Marine Scotland
PO Box 101
375 Victoria Road
Aberdeen
AB11 9DB

Dear Gayle,

**THE MARINE WORKS (ENVIRONMENTAL IMPACT ASSESSMENT) REGULATIONS 2007
(AS AMENDED)
APPLICATION FOR CONSENT UNDER SECTION 36 AND 36A OF THE ELECTRICITY
ACT 1989 AND MARINE LICENCES UNDER PART 4, SECTION 20 OF THE MARINE
(SCOTLAND) ACT 2010 AND UNDER PART 4, SECTIONS 65 AND 66 OF THE MARINE
AND COASTAL ACCESS ACT 2009 TO CONSTRUCT AND OPERATE AN OFFSHORE
WINDFARM, OUTER MORAY FIRTH.**

With reference to your correspondence dated 1st June 2012 to Transport Scotland on the above development we write to inform you of our involvement as Term Consultants to Transport Scotland – Trunk Road and Bus Operations (TS-TRBO) in relation to the provision of advice on issues affecting the trunk road network.

We have received a copy of the full ES for the project and having reviewed the content, we would make the following comments on behalf of Transport Scotland.

Development Proposal

It is understood that the proposed development could consist of approximately 142-277 turbines depending on the selected turbine size at an offshore site in the outer Moray Firth.

It is noted that the submitted ES covers all off-shore elements of the development while the onshore elements (Transmission works) will be dealt with via a separate ES process.

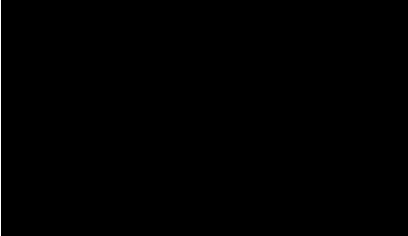
While no detailed information has been provided with regard to any onshore transportation requirements, we understand that all materials will be transported by site by sea and it is likely that the turbines themselves would be brought directly to the offshore facilities so there would not be any impact on the onshore road network associated with the movement of the turbines.

We would anticipate that there will be an increase in traffic to existing ports that may serve the construction phase of the development but this is likely to be associated with workforce movements and general HGV movements which would be spread over a long period of time.

We are therefore satisfied that the proposed offshore element of the development will not have any significant environmental impacts in relation to sensitive receptors adjacent to the trunk road network.

I trust that the above is satisfactory and should you wish to discuss any issues raised in greater detail, please do not hesitate to contact me at our Glasgow office.

Yours faithfully



Associate



@jmp.co.uk

Cc [Redacted], Transport Scotland Development Management



WDCS Scottish Dolphin Centre

Spey Bay, Moray

Scotland

Phone 44 (0) 131 661 7722

078 3449 8275

██████████@wdcs.org

www.wdcs.org

ms.marinelicensing@scotland.gsi.gov.uk

Friday 8th June 2012

Dear Gayle

WDCS comments on Beatrice Offshore Windfarm Environmental Statement

WDCS are endeavouring to assist with the environmentally sustainable development of marine renewable energy in Scotland. Whilst welcoming the Scottish Governments' commitment to renewable energy generation, particularly noting the potential consequences of climate change for cetaceans, we have serious concerns about current levels of uncertainty and the possible negative impacts these developments, both individually and cumulatively, may have on cetaceans (whales, dolphins and porpoises) in Scottish waters.

We recognise the timeframes within which the industry is required to build in order to meet targets is tight and we also recognise the existing technological limitations in using alternative sources to pile driving as well as the lack of established mitigation measures, however, the requirement to understand and mitigate impacts to ensure strict protection of European Protected Species (EPS), including all cetacean species, remains.

The Moray Firth is in a unique situation in that it is the most comprehensively studied region for cetaceans in Scottish waters, particularly the inner waters. We note that there has been some recent effort to further assess the offshore area, which may have been initiated due to seismic surveys associated with the oil and gas industry, and that the data available start to provide a solid baseline to inform decision making for all marine users, including the Beatrice Offshore Windfarm. We are also aware of, and welcome, the fact that the wind developers have worked closely with cetacean scientists in continuing and developing a suitable monitoring plan to understand the distribution of cetaceans and other species in the region.

However, the existing and significant uncertainties that remain include:

- Cetacean population trends and movements generally;
- Welfare implications of developments (especially pile driving);

- Acoustic and behavioural impacts; and,
- The lack of understanding of long-term population impacts for any cetacean species.

In addition, it is reported in the ES reports that bottlenose dolphins are anticipated to be displaced from core areas along the southern Moray Firth. We do not know if such displacement will be temporary or permanent. This disturbance will also be occurring in the centre of the range of this small population with unknown potential consequences for the animals and the integrity of their social groups. In addition to concerns about impacts on the animals themselves, as a result of this displacement, marine wildlife watching boat operators in this area whose business relies on the presence of the animals, are likely to be adversely affected. In a spirit of full disclosure, we note that the WDCS Dolphin Centre is located in Spey Bay and is an important tourist attraction in the area. We anticipate that our centre, where the dolphins are regularly seen at present, and which highlights the opportunities for local shore based observations of the dolphins, may be adversely impacted.

Given the considerable uncertainties that remain if developments are allowed to proceed, it is important that at the very least a well-considered robust research monitoring strategy is in place to understand and recognise potential individual and population level impacts on both nationally and internationally important species. Marine Scotland Science commented that the Beatrice Scoping Study contained *“no discussion of during and post development impact monitoring or assessment, or indication of how the results of any survey and monitoring work will be assessed as satisfactory or otherwise”*.

With this in mind, we would object to the Beatrice Offshore Windfarm development unless the following conditions are imposed on the consent:

- That an effective impact monitoring strategy is developed for the range of species that can reasonably be impacted;
- That the monitoring strategy is appropriate to consider cumulative impacts including, but not limited to, the MORL development;
- Collected data are made available to government, and all stakeholders, and that an adaptive approach is applied where development is halted should significant impacts be observed; and,
- Quarterly monitoring of business impacts (for example, local marine wildlife watching boat operators, cetacean researchers (Cetacean Rescue and Research Unit (CRRU)) and visitor centres such as the WDCS Dolphin Centre) should be required.

In addition, in order to ensure strict protection of cetaceans and other European Protected Species (EPS), it is essential that the Scottish Government commits to:

- Prioritising the development of alternatives to pile driving; and until such technology is available:
- Prioritising effective mitigation measures that do not introduce more noise pollution into the marine environment;

- Alternative and mitigation technologies that develop in the timeframe before construction of Beatrice commences would need to be implemented; and,
- Providing strong guidance to assist developers in meeting their environmental responsibilities, including through appropriately managing disturbance.

We also request that Marine Scotland include WDCS in the consultation of the construction methods statement at the point it becomes available. WDCS would be interested to meet with the MS Licencing Team to better understand the decision making process and any opportunities for consultation once decisions have been taken.

Specific comments on the Environmental Statement are appended.

Yours sincerely

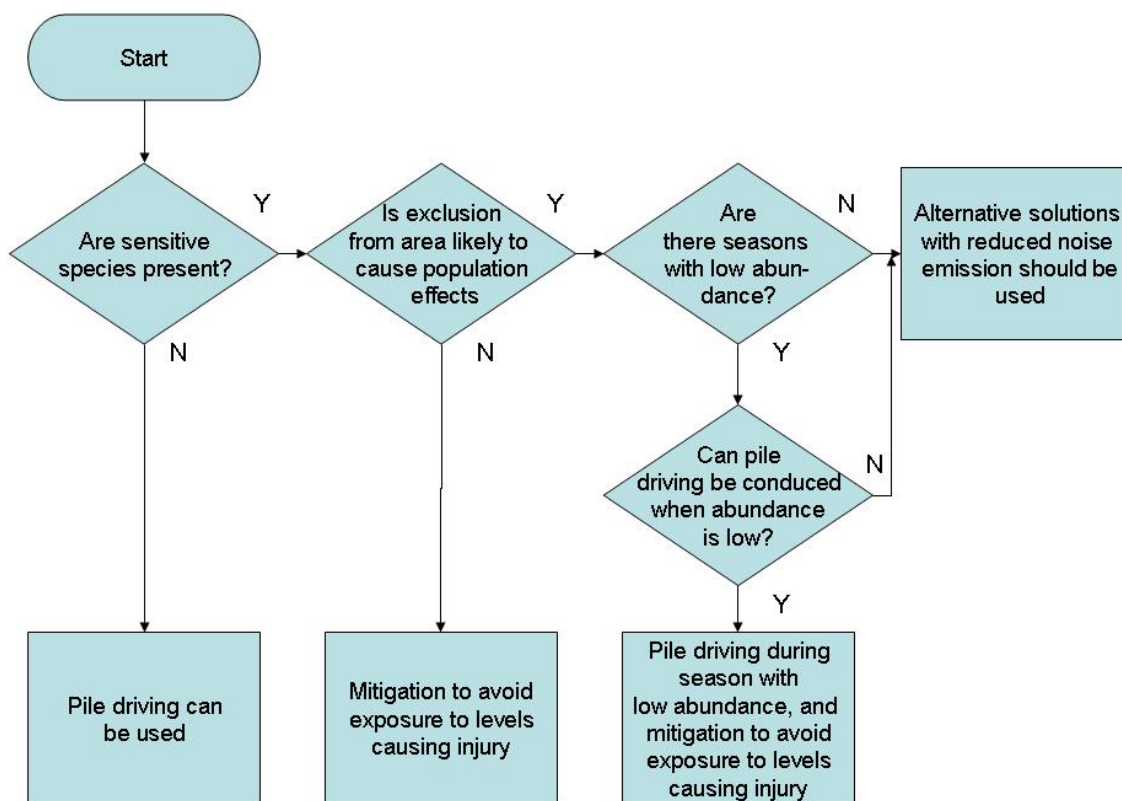
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WDCS Head of Policy for Scotland

General comments based on information from elsewhere in the world

Before considering the draft ES itself, we would like to draw your attention to the response of five world-leading marine mammal scientists to the US Arctic Ocean Draft Environmental Impact Statement (DEIS). This short statement, whilst focused on oil and gas activities in the Arctic, raises the key issues surrounding cumulative impacts, use of appropriate impact thresholds, additional baseline data and appropriate monitoring and mitigation for marine mammals, that are just as relevant for pile driving activities, including suggestions for meaningful monitoring and mitigation measures that should be more fully considered and implemented in this draft ES.

In addition, the ICES-Working Group on marine mammal ecology (WGMME) produced a “Review of the effects of wind farm construction and operation on marine mammals and provide advice on monitoring and mitigation schemes” in 2010. We believe the following simple flow diagram (in addition to the detailed advice) from section 4.5.2 of the WGMME Review to be particularly helpful.



The steps undertaken in such an approach are clearly laid out and therefore aid transparency and scrutiny.

Specific Comments on the Beatrice Offshore Windfarm Environmental Statement

We only offer comments on those sections that are directly relevant to marine mammals.

We note in section 17 of the covering letter to the application that an Appropriate Assessment has not been undertaken. Section 12.2.1 states that a site-specific assessment of effects upon these sites is provided in the Report to Inform an Appropriate Assessment document that will follow this ES. This is a matter of considerable public interest and WDCS looks forward to an opportunity to feed in to this work.

We believe that a licence to disturb European Protected Species will be required.

We understand the need for the Rochdale envelope approach (sections 6.3.2, 11; 7.2.2, 16). However without understanding the detailed design of a number of aspects of the wind farm it is very difficult for us to comment to a great level of detail. In particular, the lack of details of the construction techniques, vessels and methods that will be used during construction and decommissioning of the Project make substantive comment very difficult (7.2.2, 17). A lack of clarity can affect our ability to make an accurate assessment of the environmental information.

Table 6.1 Substructures and foundations considered. We highlight our concerns surrounding intense noise pollution resulting from pile driving and request that alternatives to pile driving be fully considered. Therefore our preferred options for substructure are jackets with suction piles or gravity base (7.7.2.1; 84). We have serious concerns over the noise generated from installing monopoles (7.7.3.1; 95) and we note that pin piles range in diameter from 2.4 m to 3m and so the term 'pin' is somewhat misleading.

It has been determined that the meteorological mast(s) will need to be installed using a 5m monopole. We request that a scientifically-robust field study is set up to consider the noise impacts at various ranges from the mast installation. This study should consider Natura species including bottlenose dolphins and harbour seals, but it should also consider those European Protected Species (EPS) that are likely to be encountered at the time of year that the met mast is proposed to be installed. This means that acoustic monitoring alone will not be sufficient. In order to determine potential impacts of piling the met mast on minke whales, visual surveys (boat or aerial) will be required.

Minke whales are very vulnerable to the impacts of intense noise pollution. A northern minke whale was found in the 2000 Bahamas military sonar mass stranding (Balcomb and Claridge, 2001). Thirty-four short-finned pilot whales (*Globicephala macrorhynchus*), one minke whale and two pygmy sperm whales (*Kogia breviceps*) stranded in the Outer Banks, North Carolina in January 2005 (Kaufman, 2005). Coincident with the stranding, one US Navy vessel was known to have used sonar about 90 nautical miles southeast of the stranding area (Kaufman, 2005). In one particularly noteworthy case in May 2003, researchers noted abnormal behaviour in killer whales (*Orcinus orca*), harbour porpoises and a minke whale in Haro Strait, in Washington State (Vancouver Aquarium Marine Science Centre, 2003). Simultaneously, the researchers heard an extremely loud screeching

sound while recording whale calls, which was later revealed to come from the mid-frequency SQS-53C sonar on a US Navy destroyer transiting the area.

Closer to home, there was a significant decrease in northern minke whale sightings rates in western Scotland during periods of naval exercises (Parsons et al., 2000) and a minke whale was seen to be seemingly fleeing military sonar off the west coast of Scotland during Exercise Joint Warrior (HWDT, personal observation).

More generally, Gedamke *et al.* (2011) suggest a reasonable likelihood that baleen whales at a kilometre or more from seismic surveys could potentially be susceptible to TTS. They demonstrate the large impact that uncertainty and variability can have on risk assessment. In a review of impacts of UK seismic surveys, Stone and Tasker (2006) reported all mysticetes combined remained significantly further from the source during periods of shooting on surveys with large volume airgun arrays. Although effects of active airguns on the physiology of the mysticetes around the UK are largely unknown, shorter blow intervals indicated an increase in the respiration rate of fin whales within 1km of the airguns during periods of shooting (Stone, 1998).

Minke whales are an important migratory species that reside in the Moray Firth during the summer months to forage. Whilst there has been some research in other parts of Europe on the impacts of pile driving on harbour porpoises, none exists for minke whales. The Moray Firth is a primary foraging area for minke whales and the impacts on them are not known. In order to meet the requirements of the EU Habitats Directive, minke whales should remain a focus of attention. An adaptive approach to monitoring and mitigation within the lifespan of construction is vital.

In addition to the boat-based and acoustic studies that occurred in recent years in the outer Moray Firth, there is a regular survey that occurs on the southern Moray Firth coastline from Gardenstown, undertaken by the Cetacean Rescue and Research Unit (CRRU). This study is significant because minke whales are coming into Scottish coastal waters to feed. This small scale minke whale study investigates the dive behaviour of minke whales in one of their primary foraging habitats. Such information can provide details of changes in behaviour due to activities associated with the wind farm development and can provide valuable insights into the level of impact to individuals that would not be possible on a wider scale. Consideration of changes in the foraging behaviour of minke whales is a vital issue to consider, particularly with regards to cumulative effects as development will be occurring at a number of key foraging habitats throughout Scottish waters.

We note that harbour seal population numbers in the Moray Firth have declined in the last decade. Given the uncertainties surrounding the status of the population and the potential impacts, a robust monitoring and mitigation plan is essential. This should include consideration of regular and active strandings monitoring for spinal injuries.

WDCS has already responded to the consultation regarding cable landfall (6.4.2) and our opinions remain the same.

We note that Table 7.5 details the construction calendar and that foundations will be installed from summer 2014 to the end of 2016.

Section 8.1.5 (28-34) describes the Scottish MPA Project. We note that WDCS has submitted a third party proposal for the southern Moray Firth to be a marine protected area (MPA) for minke whales. This site is currently a Search Location under the Scottish MPA Project.

Section 12 – marine mammals

We note in Table 12.2 that SNH commented: Proposed mitigation should consider full range of measures including alternative installation methods, seasonal restrictions, bubble curtains, jackets and vibro-piling. Zone of potential impacts should be defined from noise modelling for the range of construction activities.

The ES response follows: *“Noise modelling has concluded that impact piling during construction is the dominant noise source in terms of potential impacts to key species (Annex 7A). Many of the alternative installation methods and foundation types are currently untested at the water depths of the Wind Farm Site. Based on current knowledge of technologies and sites, the feasibility of alternatives cannot be proven.”* This is not a convincing argument and demonstrates considerable uncertainty that is unavoidable. Well planned and sufficient long term monitoring of key species, to include harbour seals, bottlenose dolphins, harbour porpoises and minke whales should be essential. The work done on harbour seals is theoretical and given their declining status more widely in Scotland, it is essential that a long term scientifically robust monitoring programme be established.

Further, that *“the INSPIRE noise model has been validated using actual measured data taken during the installation of a 1.8 m diameter pile at the Beatrice demonstrator project in the Moray Firth”* is not adequate considering the size increase in piles being proposed is considerable.

We recognise that worse case scenarios have been used (section 12.2.7) and believe this to be appropriate given the considerable unknowns surrounding the development of the wind farm. However as stated above, the use of the Rochdale envelope severely restricts the effectiveness of our response and opportunity to provide practical solutions.

We disagree with section 12.2.7.4 (Physical injury/death). Where noise induced impacts are followed by strandings, the source level does not need to be as high as those referred to in the ES. As detailed above, minke whales in particular have been found to be vulnerable to noise impacts and have stranded and died as a result.

Section 12.2.7.8 details the SPEAR model and ranking of noise impacts. Our understanding of this analysis is limited. However we have concerns about the ranking of noise sources when it may be the cumulative impact of a variety of sources that contributes to the greatest impacts.

Section 12.2.7.9 (49-54) is theoretical and given the considerable sensitivities of the species in the region to noise, should be monitored in a scientifically robust way and ground-truthed in order to be meaningful and to place in the context of individual and population level effects.

Section 12.4 (and Table 12.10 (harbour seals)) – The effectiveness of soft start has not been tested. Soft start is a management measure and is not a sufficient mitigation measure (including against death and injury) once piling is under way, unless it leads to shutting down the sound source once an

animal enters a pre-determined radius of the source. Once again we draw your attention to the US scientists' response to the Arctic DEIS, as mentioned above.

We disagree that behavioural disturbance will lead to a low/very low confidence level (where confidence is described as "the consequences for intermittent and constant exposure").

Section 12.2.9.4 - Recognising the considerable amount of uncertainty surrounding the acoustic threshold and behavioural data available; that a long-term analysis hasn't been completed for any cetacean species yet; and adding to this, the additional level of uncertainty surrounding population trends, movements and potential impacts; overall, we have grave concerns about application of the assessment framework developed by Thompson et al., (2011) to cetaceans, as the ES does.

Section 12.3.1.6 – SNH identified new Search Locations that were presented at the fourth MPA Stakeholder Workshop in April. The southern Moray Firth was included.

Plate 12.8 is confusing. Unfilled bars identify when no surveys occurred and yet there were minke whale sightings in these months? We assume not.

Section 12.5.1.1 demonstrates that in theory behavioural reactions of bottlenose dolphins will extend right up to the coastline. We do not know if the piling activities will act as a barrier to movement from one area to another. Paragraph 171 fails to consider that pile driving is likely to be occurring throughout the bottlenose dolphins range, both off Aberdeen and off Tay, in addition to the Moray Firth. Paragraph 172 states that "*the levels of received noise in this area are unlikely to result in displacement of all individuals*", which is not the level of displacement necessary to mean that the conservation objectives of the SAC are not met.

Paragraph 173 is entirely speculative and is based in considerable scientific uncertainty. A robust monitoring programme should be a requirement of consent to ground-truth these speculations (as is planned, paragraph 231).

The effects of displacement on harbour porpoises, minke whales and harbour seals during construction and operation are not currently known. A robust monitoring programme should be a requirement of consent to ground-truth these speculations.

Section 12.5.1.4 – We have considerable concerns about prey impacts resulting from the development, particularly salmonids and sandeels. A robust monitoring programme should be a requirement of consent to ground-truth these speculations.

Section 12.6 is titled Mitigation and Monitoring and yet no mitigation is proposed. We recognise that this is because this is a new industry and that existing mitigation techniques are unproven in such water depths. However the fact remains that conservation objectives should be met and mitigation is critical. Appropriate Assessment should be undertaken.

Paragraph 235 – MMOs and PAM are both monitoring measures. They are not mitigation measures in their own right. "Mitigation measures adopted from the JNCC piling protocol (e.g. the use of

MMOs and PAM operatives etc) will reduce the risk of injury and death (from already low levels).” The use of MMOs and PAM will only reduce risks of injury and death if shut down occurs. Shut downs should be required if animals swim into a predetermined area of the source whilst development is underway.

WDCS disagrees with determined probably of effects determined in Table 12.15. The definition of short term is somewhat misleading in that construction might last for two and a half years. The maximum longevity of a harbour porpoise in the UK is reported to be about 24 years (Lockyer, 1995), whereas most don't live longer than 10 years (Jefferson *et al*, 2008). Impacts that could span for a quarter of an animal's life could not be considered short-term.

Paragraph 244 states that “As presented in the CIADD the geographical extent of the study area for the cumulative assessment focuses on the Moray Firth. However, due to the highly mobile nature of marine mammals, it is recognised that animals may be affected by developments further afield”.

Paragraph 258 states that (subject to the uncertainties described in Sections 12.2.9.1, 12.2.9.2 and 12.2.9.3) noise disturbance is predicted to have a medium to short-term effect of medium magnitude which is probable and due to the sensitivity and conservation status of bottlenose dolphins, is considered to be of moderate significance. *“In the worst case, some individuals that suffer behavioural effects may be excluded from the key foraging areas along the south coast (e.g. Spey Bay) during the period of cumulative piling (two years).”* *“Noise levels such as this are not predicted to form a barrier to movement (P. Thompson pers. comm), although they may influence movement rates between different parts of the population's range.”* *“In addition, Spey Bay is only one of a number of key foraging areas regularly used by animals in the Moray Firth, and whilst there may be noise disturbance in this area the quality of the foraging habitat will not itself be affected. Given the current levels and range of background noise in the Moray Firth at different sea states to which marine mammals have habituated together with the precautionary nature of the 75 dBht threshold, it is considered probable that a significant proportion of individuals will continue foraging in these areas of lower disturbance.”*

There may be a long term effect – i.e. permanent displacement and given that the disturbance is occurring in the middle of their range, the implications are unknown, but may result in splitting this population into two smaller populations.

It's not clear how cumulative impacts are proposed to be the same for harbour porpoises as individual development impacts, when the MORL development is proposed to take longer to construct and as a result animals will be impacted for a longer time period (paragraph 262).

Paragraph 265 – seals are being used as a proxy species for minke whales? We would seriously question the levels of confidence in taking this approach. We question the conclusion based on this approach that *“southern coastal distribution is unlikely to be affected”*.

Paragraph 266 states that *“the Moray Firth and Firth of Forth represent just a small proportion of their natural range and are only likely to be affected in the summer months when minke whales occur closer to shore”*. However the ES is missing the point that the minke whales return to Scottish

waters each summer to feed. There is no evidence that they can simply shift to other foraging grounds as there is no such data to substantiate this. Minke whales come into Scottish coastal waters to forage and so whilst the impacts are “only likely to be affected in the summer months when minke whales occur closer to shore” (paragraph 266) this doesn’t make them any less significant. Baleen whales cannot be considered in the same way as dolphins and porpoises. The assumption is that minke whales can go elsewhere to forage but this is totally unfounded.

Harbour seals model - In general WDCS support this approach to understand long term impacts (not withstanding a requirement to protect individual animals in the vicinity of activities). However we have serious concerns about some of the considerable data gaps and resulting limitations and assumptions (which are acknowledged within the document).

Given that this is such novel work, and if such an approach is likely to be used, it would benefit from peer-review. Doing so might also assist in the development of this long-term approach, where appropriate, more widely across regions.

We draw your attention to Reichmuth (2009) and Kastak (2008), which may be important references even though they are not formally published. PTS was accidentally induced to this very species (a harbour seal) at a maximum received sound pressure of 184 dB re 1 microPa with a duration of 60 s, so a SEL of 202 dB re 1 microPa/s. With the experimental results from one seal's PTS, the 202 dB SEL would, according to the figure on p. 21, have a probability of occurring at .01. Further, it’s disturbing that this seal suffered PTS without any warning at all, indicating a threshold function with no advance notice.

This seal suffered PTS with a pure tone, rather than an impulsive sound, but this is the only real data that exists. To be precautionary that value should be used, unless it can be demonstrated that the same wouldn't have occurred with an impulsive sound. Moreover, if one would prefer to limit oneself to airgun data only, then a TTS onset level of 164.3 dB re 1 microPa²s for harbour porpoise should be used (Lucke et al., 2009).

dB(ht) is likely not appropriate to use for injury. The idea behind dB(ht) is that animals are sensitive at different frequencies, so their audiogram should be used to calculate injury. However, the curve for injury is not dependent on an animal's audiogram. The injury curve is flattened across frequencies, since when a sound is loud enough, it doesn't matter as much how sensitive an animal is at that frequency (Fletcher and Munson, 1933).

Moreover, an audiogram-based frequency weighting function like dB (ht) would mean that baleen whales are 20-30 dB more sensitive to TTS at lower frequencies than mid-frequency specialists, which seems implausible, given the limited data that do exist, i.e. there is too much filtering with this method at lower frequencies.

The values for intensity that cause PTS are too high. Gedamke (2011) is useful in this regard. Here the authors show what the consequences of inaccuracy in assumptions regarding acoustic sensitivity can look like.

More generally, TTS should be used to consider long-term (as well as short term) effects rather than PTS that is used, as repeated TTS may lead to PTS. In addition, the use of TTS will lead to less uncertainty because more data are available.

In summary, whilst we support the approach, as the report itself states, great care is required regarding available data and as a result, appropriate data to input and resulting outputs. If this approach is taken forward, a commitment should be required to ground-truth the population modelling projections for the life-time of the development. This would require a long term monitoring strategy (as the report suggests will be undertaken) that enables understanding of sufficient power to provide robust assessments of population status. Given the small population size and protected status of this population, there needs to be a commitment to an adaptive approach should the model turn out to be inaccurate within the time-frame.

Therefore, adequate in-field monitoring should be undertaken during construction and operation to ensure that the proposed population modelling impacts calculated in theory are accurate. Should any more negative impacts occur then the development should be halted. However we note that it is likely that any long-term negative impacts are unlikely to be documented during the timing of construction itself, unless these impacts are dramatic.

Paragraph 278 states that there could be a maximum of 104 construction vessels within the Wind Farm and the Moray Firth Round 3 Zone at any one time. It also states that *“there is little scientific evidence to suggest that injury from ducted propellers is likely to present a risk in the Moray Firth”*. We are not aware of any dedicated surveillance studies of beaches throughout the Moray Firth to investigate levels of injury from ducted propellers in the Moray Firth. Should such data exist, it should be made available. Absence of evidence is not the same thing as evidence of absence.

Paragraph 283 makes unsubstantiated assumptions about the level of flexibility in the diets of cetaceans, especially bottlenose dolphins, suggesting that *“there are other key foraging areas for bottlenose dolphin within the Moray Firth”* but without knowing how far impacts to prey species are likely to extend.

Paragraph 285 – Whilst it is anticipated that operational noise levels will be much lower than construction noise, there is no data available on impacts of the species that can be anticipated in the Moray Firth and so a long-term monitoring plan should incorporate operational noise impacts on cetaceans.

Section 12.9.7 (residual cumulative impacts) relies on mitigation measures *“that will be required”* (section 12.6) but which *“don’t currently exist”* beyond ramp up and acoustic deterrent devices, both of which are only proposed (not demonstrated) to be effective at mitigating injurious impacts. No mitigation is proposed to deal with wide scale behavioural impacts.

Table 12.20 determines *“significance of effects”* without any basis in scientific knowledge or certainty. As a result **adequate in-field monitoring should be undertaken during construction and operation to ensure that the proposed theoretical probabilities of effects that are proposed in theory are accurate.**

Section 12.11 makes conclusions that have no basis in scientific knowledge or certainty. As a result **adequate in-field monitoring should be undertaken during construction and operation to ensure that the proposed theoretical probability of effects that are proposed in theory are accurate.**

Section 20.3.4.5 discusses the value of dolphin tourism in the Moray Firth. We agree with Section 20.4.3. which states that “there could also be effects as a result of any disturbance or injury to coastal or marine wildlife interests (e.g. for wildlife watching) during construction, operation or decommissioning of the Wind Farm”. This is important to WDCS, not because of the animals alone, but also because we have two Visitor Centres in the Moray Firth, which WDCS supporters, local communities and tourist visitors come to in order to see the dolphins. Further, our adoption programme is based on this population and impacts observed will influence how we report to our supporters globally, as we provide three monthly updates on the individual adoption animals.

Paragraph 190 in Section 20.4.3.2 states that *“It is not likely that the number of dolphins displaced would be as large as to impact on the tourists’ opportunities to see them. The effect on tourism is therefore considered to be low.”* However no evidence is provided to substantiate this and it appears to be a gross generalisation, considering section 12 considered that the animals might be excluded from some sites, including Spey Bay.

Marine wildlife research appears not to have been considered in the assessment of impacts. There are a number of field research studies that could be impacted as a result of activities associated with the wind farm, including those of WDCS and the Cetacean Research and Rescue Unit. Any increases in strandings will result in increased post mortem requirements of the Scottish Agricultural College (SAC) and this appears not to have been considered.

The cable route landfall site is located at Spey Bay (Section 24.1.1.15) and is anticipated to take up to 120 days. We anticipate short term impacts to cetacean species, including bottlenose dolphins. Displacement of cetaceans that use the area should be anticipated and it is important that these are fully accounted for, monitored and reported on to inform future cable developments to shore.

Ducted propellers have an unknown but most likely significant impact on the local population of harbour seals. This matter is being investigated and urgently needs to be better understood. As a result, we disagree with the ES assessment of these impacts (Section 24.4, paragraph 135). At the very least, active and regular surveillance should be undertaken to ensure that any marine mammals that result in injuries consistent with ducted propellers are found and in fresh enough condition that they can be post-mortemed.

Finally, recent publications on the potential impacts of intense noise sources on baleen species require serious consideration, especially as no data currently exists on impacts of pile driving. A JNCC published study reported that “studies have indicated some level of stress, with alterations in surfacing, respiration and dive cycles being observed in mysticetes in response to the use of seismic airguns, sometimes at considerable distances from the source. Although effects of active airguns on the physiology of the mysticetes found around the UK are largely unknown, in one study, shorter blow intervals indicated an increase in the respiration rate of fin whales within 1km of the airguns during periods of shooting”. More recently, for two days after the 9/11 attacks in the US, shipping

traffic ground to a halt in the Bay of Fundy, Canada, and underwater noise fell by six decibels. During that time, stress-hormone levels in endangered north Atlantic right whales there were lower than in readings taken during September in the following four years. The implications of similar impacts as a result of continuous pile driving in primary foraging habitat cannot be known but should be considered.

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Unknown

From: [REDACTED]@classmail.co.uk]
Sent: 17 June 2012 16:23
To: MS Marine Licensing
Subject: Re: 003/OW/BOWL - 8: Application Consultation: One Week After Reminder: 14 June 2012
Follow Up Flag: Follow up
Flag Status: Purple

Nil return

[REDACTED]
From: MS.MarineLicensing@scotland.gsi.gov.uk
Sent: Thursday, June 14, 2012 2:09 PM
To: [REDACTED]@classmail.co.uk
Subject: 003/OW/BOWL - 8: Application Consultation: One Week After Reminder: 14 June 2012

Dear Mr [REDACTED]

ELECTRICITY ACT 1989

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

The Electricity (Applications for Consent) Regulations 1990

MARINE (SCOTLAND) ACT 2010

MARINE AND COASTAL ACCESS ACT 2009

The Marine Works (Environmental Impact Assessment) Regulations 2007 (as amended)

APPLICATION FOR CONSENT UNDER SECTION 36 and 36A OF THE ELECTRICITY ACT 1989 AND MARINE LICENCES UNDER PART 4, SECTION 20 OF THE MARINE (SCOTLAND) ACT 2010 AND UNDER PART 4, SECTIONS 65 AND 66 OF THE MARINE AND COASTAL ACCESS ACT 2009 TO CONSTRUCT AND OPERATE AN OFFSHORE WINDFARM, OUTER MORAY FIRTH.

The deadline for providing comments on the Beatrice Offshore Wind Farm detailed above was **8th June 2012**. As the deadline has now passed please contact me immediately to arrange an extension to the consultation period if you wish to provide comments. If you have no comments to make please submit a "nil return" response.

You should already have received a copy of the Environmental Statement.

Yours sincerely,

Gayle Holland

Gayle Holland

Marine Renewables Licensing Advisor

Marine Scotland – Marine Planning & Policy Division

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

Tel: + 44 (0) 1224 295600

S/B + 44 (0) 1224 876544

Fax: + 44 (0) 1224 295524
Email: gayle.holland@scotland.gsi.gov.uk
ms.marinelicensing@scotland.gsi.gov.uk
Web: <http://www.scotland.gov.uk/marinescotland>
<http://www.scotland.gov.uk/topics/marine/licensing/marine>

From: Holland G (Gayle) **On Behalf Of** MS Marine Licensing
Sent: 01 June 2012 12:08
To: [REDACTED]
Subject: 003/OW/BOWL - 8: Application Consultation: One Week Before Reminder: 1 June 2012

Dear Mr [REDACTED]

ELECTRICITY ACT 1989

The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2000
The Electricity (Applications for Consent) Regulations 1990

MARINE (SCOTLAND) ACT 2010

MARINE AND COASTAL ACCESS ACT 2009

The Marine Works (Environmental Impact Assessment) Regulations 2007 (as amended)
**APPLICATION FOR CONSENT UNDER SECTION 36 and 36A OF THE
ELECTRICITY ACT 1989 AND MARINE LICENCES UNDER PART 4, SECTION 20 OF
THE MARINE (SCOTLAND) ACT 2010 AND UNDER PART 4, SECTIONS 65 AND 66
OF THE MARINE AND COASTAL ACCESS ACT 2009 TO CONSTRUCT AND
OPERATE AN OFFSHORE WINDFARM, OUTER MORAY FIRTH.**

Please find attached the consultation letter for the above application. I would be grateful for any comments you have by **8th June 2012**. If you are unable to meet this deadline, please contact us to arrange an extension to the consultation period. If you have no comments to make please submit a "nil return" response.

You should already have received a copy Environmental Statement.

Many thanks,
Gayle

<<A2951569.pdf>>

Gayle Holland

Marine Renewables Licensing Advisor
Marine Scotland – Marine Planning & Policy Division
Scottish Government | Marine Laboratory, PO Box 101 | 375 Victoria Road | Aberdeen AB11 9DB
Tel: + 44 (0) 1224 295683
S/B + 44 (0) 1224 876544
Fax: + 44 (0) 1224 295524
Email: gayle.holland@scotland.gsi.gov.uk



nature's voice

RSPB SCOTLAND

Gayle Holland
Marine Renewables Licensing Advisor
Marine Scotland – Marine Planning & Policy Division
Scottish Government
Marine Laboratory
PO Box 101
375 Victoria Road
Aberdeen
AB11 9DB

26th July 2012

Dear Ms Holland

Beatrice Offshore Windfarm and Offshore Transmission Works Application for Marine Licenses and Section 36 and 36A Consents

Thank you for inviting RSPB Scotland to comment on the above application to install up to 277 No. (198m to blade tip) wind turbines with a maximum capacity of 1000MW, plus ancillary structures including cabling, met masts, and metocean equipment in the Moray Firth. The total development area is approximately 131.5 km² and sits at the north westernmost point of the Smith Bank.

We welcome the co-ordinated approach that the Crown Estate and Marine Scotland has encouraged as part of the licensing process and note that this is the first of the major proposals from the Moray Firth Offshore Wind Developers' Group. We are also pleased to note the detail of the combined boat and aerial bird surveys and the work that has been undertaken on the marine habitats and other important species that utilise the site and surrounding area.

With the exception of gannet - and possibly fulmar - the majority of the seabirds associated with the site are suffering long-term and, recently, accelerating declines¹. We are therefore deeply disappointed to note that the ES lacks up-to-date information on bird populations of the designated sites which are most likely connected with the application area (such as, but not

¹ <http://jncc.defra.gov.uk/page-3201>

North Highland Office
ALBA
Main Street
Golspie
Sutherland KW10 6TG

Tel 01408 634404
Fax 01408 633708

www.rspb.org.uk/scotland



exclusively limited to, the East Caithness Cliffs Special Protection Area (SPA), North Caithness Cliffs SPA, Pentland Firth Islands SPA, Hoy SPA, Marwick Head SPA etc.).

As connectivity between birds utilising the proposed development area and the Natura network of protected sites is likely, and the possibility that the proposal will have a significant effect on these sites cannot be ruled out beyond reasonable scientific doubt, appropriate assessments under the terms of the Conservation (Natural Habitats &c) Regulations 1994 (as amended) will be required. The current status of many of the qualifying interests of these SPAs is likely to be unfavourable and up-to-date information is essential to enable the necessary examination of impact predictions within appropriate assessments.

RSPB Scotland therefore **objects** to these proposals pending the supply of further information on the current breeding status and trends for the various seabirds associated with the relevant SPAs to facilitate the required Appropriate Assessments.

Furthermore, although the quality and layout of information presented within the ES is generally good, we consider the interpretation and assessment of potential effects unsatisfactory. A suitably precautionary approach has not been adopted in many instances and whilst we accept that there are many unknown impacts from such a development in this location, we do not agree that these are either insignificant or unworthy of further investigation.

We strongly recommend that this proposal is considered in combination with **all** other relevant projects and not just the Moray Off-Shore Renewables Project. If you are minded to approve the above application despite our holding objection then we recommend that further work to avoid, mitigate or at the very least properly investigate the poorly understood constraints is captured through agreement with statutory consultees and RSPB Scotland. We recommend that mitigation in the form of turbine removal from important spawning areas be considered and that any consent is conditional on a commitment to undertake a bespoke avian radar study. We are particularly disappointed to note that, despite our recommendation during the Scoping consultation, no radar studies have been carried out. These would offer an effective way of evaluating the volume, direction, timing and height of bird flights (especially migratory geese and swans) through the windfarm site. In our view, such information is essential to judging the impacts of the development proposals.

We provide more specific comment in the appendix below.

Yours sincerely,

[Redacted signature]

[Redacted name], Conservation Officer, North Highland

cc. [Redacted], WDCS; [Redacted], SSE; [Redacted], JNCC; [Redacted], JNCC; [Redacted], SNH.

Appendix

Holding Objection by RSPB Scotland to Beatrice Offshore Windfarm and Offshore Transmission Works Application for Marine Licenses and Section 36 and 36A Consents

1. Survey methodologies

We consider that boat and aerial surveys generally conform to current best practice and that estimates of numbers derived from these are, mostly, representative of bird usage of the site at times of survey. However, whilst we welcome the attempts made to evaluate goose and swan flights across the site, we consider that the information provided may significantly underestimate avian activity. It is not clear how, from two widely-separated locations on either the north or south shores of the Moray Firth, it can be assumed that all flights will have been detected during survey periods. Even for such large birds as geese or swans distant, or particularly high-flying, flocks may be missed leading to underestimates of total bird movements. Details of extrapolation from survey data have not been provided.

During the scoping process RSPB Scotland stressed the need to collect flight height data using radar² and it is a failing, in our opinion, that this has not been done. Observations previously made from the Beatrice platform and during the boat-based observations neither target migrants nor the nocturnal period and dubiety remains over the accuracy of flight height estimates for collision risk modelling. Given the scale, location and nature of the proposed development, and in the absence of further site specific information, we believe that the potential for significant adverse effect upon a range of avian species, particularly those on passage remains: the information provided in the Environmental Statement (ES) is insufficient to permit a contrary conclusion.

2. Are the assessments of numbers of birds affected by displacement, collisions, barrier effects acceptable?

No. The ES fails to compare numbers of birds potentially affected by the proposed development with population figures at time of survey. Comparisons made with historic information on SPA populations significantly underestimate risk; given the connectivity between birds utilising the proposed development area and the Natura network of protected sites and their likely current unfavourable conservation status, up-to-date information is required from the relevant SPAs to facilitate the necessary comparisons within appropriate assessments.

Operations and activities likely to cause direct or indirect disturbance to birds will be at a maximum during the predicted five year construction phase and will continue to a lesser extent for the duration of the development. Whilst the evidence to determine the significance of displacement effects is sparse, we remain unconvinced by the arguments presented to suggest that impacts on either breeding or wintering guillemots, razorbills or puffins will be of minor significance³. The loss through displacement of optimum foraging opportunities could result in

² RSPB/ERM 13th April 2010.

³ Section 13 Beatrice Offshore Windfarm Ltd Wind Farm Ornithology Page 13-38 April 2012

reduced breeding success or loss of such affected individuals from the population, as recognised in the ES.⁴ In addition, if density dependence is in operation, a worse-case scenario might exist in which displaced birds create an increased level of competition for a limited resource, reducing the productivity and survival of an even larger group of birds than just those originally displaced.

Displacement impacts from development equate to effective loss of habitat which could affect foraging availability or efficiency. Habitat loss would be particularly serious if windfarm infrastructure is placed in areas holding sandeels, on which many seabirds depend. Sandeels are substrate-specific, inhabiting discrete patches of seabed with a sandy bottom. Sandeel populations are known to exist in the Smith Bank and there is evidence from the results of the benthic survey that they are present within the site of the proposed development. The ES acknowledges the lack of current data on sandeel distribution, both within the site and in the wider area to the spatial scale required for this assessment.⁵ It also recognises that construction effects, eg pile driving, can put species such as sandeel and herring at risk from noise affecting both their abundance and distribution not only during construction but potentially beyond, if fish populations are significantly affected⁶. It is not sufficient, therefore, to assume that effects from construction activity will be negligible on either sandeels or herrings, or the birds that depend on them, on the basis that there will be similar habitat elsewhere in the Moray Firth⁷. We recommend that mitigation, through avoidance of important spawning areas, would be a more appropriate course of action than that currently proposed.

3. Collisions

For reasons cited above we believe that collision risk to migrant birds is likely to be underestimated. Whilst collision risk estimates are presented for comparison using a range of avoidance rates (ranging from 95% to 99.5%), assessment should be based on an avoidance rate of 98%, as recommended in SNH's guidance, unless there is an alternative specific recommendation for a particular species. Revised assessments should be provided, not only for this development proposal alone, but also cumulatively with other developments impacting on relevant populations and should be incorporated into new population modelling.

Proposals have been advanced by the Applicant to utilise CCTV systems to minimise public or environmental risk. RSPB Scotland recommends that, should this proposal be consented, it be conditional on the use of CCTV (including infrared cameras) and radar systems to additionally evaluate bird flights and collisions within the windfarm site to inform future decision-making

⁴ Annex 13 A Beatrice Offshore Windfarm Ltd. Ornithological Technical Report. Sect 2.70 Page 23.

⁵ Section 11 Beatrice Offshore Wind Farm Ltd. Wind Farm Fish and Shellfish Ecology Environmental Statement *page 11-30*

⁶ Section 13 Beatrice Offshore Wind Farm Ltd. Wind Farm Ornithology page 13-38

⁷ Section 11 Beatrice Offshore Wind Farm Ltd. Wind Farm Fish and Shellfish Ecology Environmental Statement *page 11-30*.

and, if necessary, to trigger temporal turbine shut-down should collisions be greater than anticipated.

4. Barrier effects

For species such as guillemot, razorbill and puffin, the energetic costs of individual flights are likely to be greater than for other species associated with the site. Birds that use their wings for underwater propulsion typically have reduced wing areas relative to body mass and whilst such a high “wing loading” reduces drag and permits more effective propulsion underwater, it also lowers aerial manoeuvrability and increases energy expenditure⁸. Thaxter et al⁹ recorded guillemots and razorbills as having relatively direct flight paths to and from distant foraging locations; the total distance travelled was only 20% higher than expected from direct flight in a straight line between the colony and feeding area for guillemots and 32% higher for razorbills. Whilst the extra energetic costs of individual flights which deviate to avoid a windfarm are likely to be small and not significant alone, as foraging flights are regular – and may have to be yet longer to reach alternative feeding grounds to which birds are displaced – they might further reduce productivity, in which case the combined effect is a significant impact. For all species the energetic costs of windfarm avoidance will be additive to existing stresses such as adverse weather or food shortage and the paucity of evidence of barrier effects on the species concerned does not mean that these effects do not exist or that it is right to conclude no significant impact. Further work is required to determine the origin of birds associated with the site (please see our comments on tracking studies below) and surrounding area, and what avoidance behaviour is exhibited by these species in particular, in order to judge potential barrier effects on bird populations from the relevant SPAs. Where barrier effects exist, and are potentially combined with additional density-dependent displacement, the resultant increased flight activity is likely to lead to reduced productivity, in which case the combined outcome is likely to be a significant negative impact on the associated SPAs.

5. Lighting

Marine navigational marking, including lights and marks on significant and intermediate peripheral structures, will be provided in accordance with a variety of requirements¹⁰. Birds on migration, especially at night and during bad weather, can be particularly susceptible to adverse impacts of artificial lighting, such as lighthouse attraction which occasionally kills many hundreds of birds through collision. Knowledge of bird flights at night through the site of the proposed windfarm is almost non-existent (hence our request for radar work). The site lies on a migratory route for a number of species and whilst birds may traverse the site on a broad front and at a range of altitudes, the likely potential negative effects of placing tall, lit structures over a 131.5 km² footprint, requires a proper assessment.

⁸ Pennycuick, C. J. (1997). Actual and ‘optimum’ flight speeds: field data reassessed. *J. Exp. Biol.* 200, 2355-2361.

⁹ Influence of wing loading on the trade-off between pursuit-diving and flight in common guillemots and razorbills. C. B. Thaxter, S. Wanless, F. Daunt, M. P. Harris, S. Benvenuti, Y. Watanuki, D. Grémillet and K. C. Hamer. *The Journal of Experimental Biology* 213, 1018-1025 © 2010.

¹⁰ Beatrice Offshore Wind Farm Ltd. Section 7 Environmental Statement Project Description Arcus Renewable Energy Consulting Ltd April 2012 Page 7-53

6. Tracking Studies

We commend the Applicant's seabird tracking study. However, it should be remembered that it involves a small number of individual birds, and even smaller number have yielded useful results. The sample obtained comes from a small part of one SPA and results span short periods in a single breeding season. Furthermore, the low retrap rate suggests that the fitting of tracking devices may have influenced survival and behaviour. The possibility of age- or sex-based biases has not been examined, although we appreciate that this would be difficult with small sample sizes.

Nevertheless, this work does suggest that these birds, during the study period at least, generally favoured a feeding location to the South West rather than within the site of the proposed development. Birds from further north within the East Caithness Cliffs SPA (and from other SPAs) may, of course, forage within the development site or transit it en route to other feeding areas. Together with other data, eg from the FAME¹¹ project, there is evidence that some breeding individuals, at least, make more extensive foraging trips than was originally thought. Razorbills fitted with geolocators on Orkney, for example, were shown to pass through or forage within the windfarm site although the colony appears to be beyond the mean maximum foraging range given in Thaxter et al 2012.¹² The implications of this should be fully assessed.

7. Habitats Regulations Appraisal

The method of apportioning seabirds to SPAs for the necessary Appropriate Assessments is inconsistent with current SNH/JNCC guidance: each SPA within the foraging range of each species should be considered sequentially and as if the whole impact is on each SPA. Then any assumptions should be made explicit in reasoning why it is unlikely that the whole impact is likely to be borne by a small colony on the edge of its foraging range.

The matrix approach to assessing significance of impacts is not appropriate in considering potential impacts on Natura sites as it lacks the necessary rigour demanded by Habitats Regulations tests. We understand that similar advice was given by SNH.

8. Population modelling

Stochastic modelling was carried out to investigate the impact of collision mortality on great black-backed gulls at East Caithness Cliffs SPA but for other species predicted collision and displacement impacts were fed into deterministic models. Stochastic modelling would seem to be more informative and if it is not to be carried out for all species of concern, a full justification should be provided.

9. Cumulative Impact Assessment

¹¹ <http://www.fameproject.eu/en/>. Site last accessed 2th July 2012.

¹² Thaxter et al, (2012). *The use of seabird foraging ranges for identifying potential marine protected areas*. Biological Conservation

It is essential that assessment of cumulative impacts be done at an appropriate level. For breeding populations, that is likely to be the regional population or that of relevant SPAs. Consideration may also have to be given to the number of non-breeding birds within the population, which is likely to be poorly known for many seabirds. However, for populations outwith the breeding season - especially at sea – our knowledge of numbers is even more uncertain.

Regardless of which population is under consideration, however, it is essential that cumulative impacts on that population are assessed in a complete manner. It is not appropriate, for example, to consider cumulative impacts arising only from the Beatrice and Moray Offshore Wind Farms upon the Great Britain wintering population of herring gull or great black-backed gull. If a regional population estimate is not available and the Great Britain population is to be the basis for assessment, then all windfarms (and, indeed, other developments impacting on the species at sea and on land) must be considered.

KG 26th July 2012



Marine Scotland Licensing Operations Team
Marine Laboratory
PO Box 101
375 Victoria Road
Aberdeen
AB11 9DB

Moray Offshore Renewables Ltd
40 Princes Street
EDINBURGH
EH2 2BY
0131 556 7602

11 June 2012

Dear Sirs

Application for consent under section 36 and 36A of the Electricity Act 1989 and Marine Licences under Part 4, Section 20 of the Marine (Scotland) Act 2010 and under Part 4, Sections 65 and 66 of the Marine and Coastal Access Act 2009 to construct and operate an offshore wind farm, Outer Moray Firth

Your Reference: 003/OW/BOWL - 8

Moray Offshore Renewables Ltd (MORL) warmly welcomes the submission by Beatrice Offshore Wind Limited (BOWL) of its application for the Beatrice Offshore Wind Farm located in the Moray Firth within Scottish Territorial Waters.

MORL's applications for their three proposed wind farms and associated transmission infrastructure for the generation of up to 1.5GW in the Moray Firth will be submitted shortly and will allow Marine Scotland and all relevant stakeholders to consider the full extent of the proposed offshore wind farm developments in the Moray Firth side by side.

As MORL are finalising their own assessments for their proposals consideration has been given to how those assessments fit with BOWL's ES. MORL have a limited number of comments on the BOWL ES which they believe would be helpful to BOWL, Marine Scotland and relevant stakeholders to highlight at this stage.

MORL also wish to highlight its continued opposition to the proposed location of the BOWL export cable.

Offshore Transmission Works (OfTW)

MORL maintains its opposition to the proposed location of the BOWL offshore export cable through Round 3 Zone 1 (the MORL Zone) which was awarded to MORL in 2010. The location of this cable risks reducing the maximum capacity which can be achieved within the MORL Zone as well as creating the risk of potential:

- delays in delivering in development in the this part of the MORL Zone if the OfTW development programme conflicts with that of MORL;
- health and safety issues in managing the development of separate infrastructure projects in close proximity to each other; and

- operational constraints for any operational wind farm in the event of works to install/maintain the OfTW.

Whilst MORL recognises that the area in which BOWL have proposed to locate the cable will not be the subject of the current MORL applications for section 36 consent (which cover the eastern development area of the MORL Zone), it is important to take into account that areas of the western extent of the MORL Zone would be sterilised from future development in the event that 1.5MW MORL Zone capacity is not achieved in the eastern development area.

It is apparent from the BOWL ES that there are a number of alternative routes open to BOWL (see Figure 6.2). Having narrowed the options down to five possible routes, Paragraph 36 of the BOWL ES states that the selected route for the BOWL OfTW was the preferred route by BOWL, SHETL and MORL. It should be noted that MORL's clear and consistently stated preference is that the BOWL works with MORL to ensure any route does not conflict with the development of the MORL Zone. MORL's preference as stated in the BOWL ES can therefore only be regarded as a preference in relation to the five options with which it was presented. MORL remains of the view that an alternative route which does not inhibit the ability of the MORL Zone to reach its capacity of 1.5GW should be selected.

MORL Rochdale Envelope Parameters

BOWL's cumulative assessments of its project with that of MORL are based on the best information available at the time of the BOWL cumulative impact assessment of the two projects. However, the parameters for the MORL Rochdale Envelope were only finalised in April 2012. The finalised MORL Rochdale Envelope includes a number of different parameters from those assessed by BOWL. MORL believes that this may lead to a difference between the cumulative assessments in the BOWL and MORL ESs.

Key parameters in the MORL Rochdale Envelope which have changed and which may affect the outcome of cumulative impact assessments include:

- Maximum blade dimension and rotational speed have been updated for some turbine models based on supplier information,
- Increase in the minimum spacing of turbines,
- Removal of semi-submersible offshore floating platforms (OSPs), and
- Reduction in pile size for OSFs from 3m to 2.5m.

The MORL ES will assess cumulative effects based on the Rochdale Envelope as set out in the BOWL ES together with MORL's updated Rochdale Envelope parameters.



Approach to Assessment

There are a number of areas where the BOWL and MORL assessments differ in their approach to the assessment of the likely significant effects of the projects. This includes the adoption by MORL of additional analysis in relation to key species. BOWL and MORL have worked collaboratively (and continue to do so) to develop tools that have been used in some of the MORL assessments acknowledging that the effects of both projects need to be assessed cumulatively. In adopting a quantitative approach MORL has been able to either reduce the number of conservative assumptions or show that some assumptions used in the assessments are indeed conservative. The further analysis carried out by MORL also has the advantage of increasing the level of certainty in the MORL assessments.

In adopting this approach MORL believes that there are a number of cumulative effects which are likely to differ with those assessed by BOWL. Depending on the EIA discipline this may mean that in some areas the MORL ES will have different findings in terms of the significance of the cumulative effects (in some cases more, but in others less, than the equivalent BOWL cumulative assessment).

MORL welcomes the opportunity for ongoing engagement with Marine Scotland, stakeholders and BOWL in the development of offshore wind farms in the Moray Firth. In the event that you wish to discuss in detail any of the above comments then please do not hesitate to contact our Consenting Manager, Sarah Pirie (sarah.pirie@edpr.com).

Yours sincerely,

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MORL Project Director