

	<b>Safety &amp; Airspace Regulation Group</b>	<b>DAP 1E</b>
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<b>Title of Airspace Change Proposal</b>	<b>Moray Firth TMZ – Airspace Change Proposal</b>
<b>Change Sponsor</b>	<b>Beatrice Offshore Wind Farm Ltd and Moray Offshore Renewables Ltd</b>
<b>SARG Project Leader</b>	<b>[REDACTED]</b>
<b>Case Study commencement date</b>	<b>8 August 2015</b>
<b>Case Study report as at</b>	<b>26 August 2015</b>
<b>Report Reference</b>	<b>SARG/ERCD/AG/Moray Firth TMZ</b>

<b>Instructions</b>
<p>In providing a response for each question, please ensure that the ‘Status’ column is completed using the following options:</p> <ul style="list-style-type: none"> <li>• <b>Yes</b></li> <li>• <b>No</b></li> <li>• <b>Partially</b></li> <li>• <b>N/A</b></li> </ul> <p>To aid the SARG Project Leader’s efficient Project Management it may be useful that each question is also highlighted accordingly to illustrate what is resolved ( <span style="background-color: green; color: white; padding: 2px;">Green</span> ), <b>not resolved</b> ( <span style="background-color: yellow; padding: 2px;">Amber</span> ) or <b>not compliant</b> ( <span style="background-color: red; color: white; padding: 2px;">Red</span> ) as part of the SARG Project Leader’s efficient project management.</p>

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<b>1.</b>	<b>Introduction</b>	
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This report describes the environmental considerations relevant to the proposal for the implementation of a Transponder Mandatory Zone (TMZ) in the Moray Firth, which is proposed in order to maintain safe air traffic operations in the presence of offshore Wind Turbine Generators (WTGs). This airspace change proposal (ACP) has been jointly submitted by Beatrice Offshore Windfarm Ltd (BOWL) and Moray Offshore Renewables Ltd (MORL).

This assessment is based upon information presented in the proposal document entitled “Moray Firth Transponder Mandatory Zone, Airspace Change Proposal” (27<sup>th</sup> July 2015), plus associated consultation material and any subsequent information received as the result of queries raised with the sponsor following submission of the ACP.

<b>2.</b>	<b>Guidance to the CAA</b>	<b>Status</b>
<b>2.1</b>	<b>Is the proposal consistent with Government policy and/or guidance from Government to the CAA?</b>	<b>Yes</b>

Guidance issued to the Civil Aviation Authority sets<sup>1</sup> out a framework for the environmental objectives that the CAA must consider when assessing airspace change proposals. In addition to these objectives, there may be other legitimate operational objectives, such as the overriding need to maintain an acceptable level of air safety, the desire for sustainable development or to enhance the overall efficiency of the UK airspace network, which need to be considered alongside these environmental objectives. The Government looks to the CAA to determine the most appropriate balance between these competing characteristics.

Flights over National Parks and AONBs are not prohibited by legislation<sup>2</sup> as a general prohibition against over-flights would be impractical. Government policy focuses on minimising the over-flight of more densely populated areas below 7,000 feet (amsl), but balances this with CO<sub>2</sub> emissions between 4,000 and 7,000 feet (amsl). However, where it is practical to avoid over-flight of National Parks and AONBs below 7,000 feet (amsl), the Guidance asks that the CAA encourages this.

<sup>1</sup> DfT, Guidance to the Civil Aviation Authority on Environmental Objectives Relating to the Exercise of its Air Navigation Functions, January 2014

<sup>2</sup> National Parks and Access to the Countryside Act 1949, National Parks (Scotland) Act 2000, and “Duties on relevant authorities to have regard to the purposes of National Parks, Areas of Outstanding Natural Beauty (AONBs) and the Norfolk and Suffolk Broads Guidance Note”, DEFRA 2005.

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<b>3.</b>	<b>Rationale for the Proposed Change</b>	<b>Status</b>
<b>3.1</b>	<b>Does the rationale for the ACP include environmental reasons?</b>	<b>No</b>

No – the rationale for the TMZ does not include environmental reasons. The sponsors’ overall aim of the Moray Firth TMZ is to maintain the safety, effectiveness and efficiency of the airspace surrounding the wind farms by mitigating the effects of the WTGs on Primary Surveillance RADAR (PSR)-based Air Traffic Services (ATS) operations. “If the radar clutter associated with the Moray Firth offshore wind farm WTGs were not mitigated, RAF Lossiemouth Air Traffic Control Officers (ATCOs) providing a Deconfliction Service (DS) would be required to avoid the clutter by 5nm. ATCOs providing a Traffic Service (TS) would be required to limit the service in the vicinity of the Moray Firth offshore wind farms and may encounter problems maintaining track identification in areas of intense clutter. The limiting of services would have a detrimental impact on the flexible use of the Moray Firth Class G airspace by military and civilian aircraft and on the safety and efficiency of the RAF Lossiemouth LARS owing to increased ATCO workload.”<sup>3</sup>

<b>4.</b>	<b>Nature of the Proposed Change</b>	<b>Status</b>
<b>4.1</b>	<b>Is it clear how the proposed change will operate, and therefore what the likely environmental impacts will be?</b>	<b>Yes</b>

Yes the nature of the proposed change is described clearly. This will be a single TMZ, implemented in two phases, but proposed by two windfarm developers.

“The proposed Moray Firth TMZ lies beneath Class G uncontrolled airspace; however, it would be bounded by portions of Class E + TMZ controlled airspace of base FL75 where the carriage and operation of an altitude reporting transponder is already mandatory. Above FL100 the carriage of a serviceable transponder is also mandatory.” “The proposed TMZ would extend from sea level to the base of Y904 controlled airspace, which is FL75. To the east of Y904, where there is no controlled airspace, the top height of the TMZ would be FL100.”<sup>3</sup>

“This proposal will not result in any changes to current Instrument Flight Procedures or any other flight procedures in the vicinity of the BOWL and MORL offshore wind farms. The intention is to maintain the existing routings and Air Traffic Management (ATM) operation within the airway Y904 and Helicopter Mandatory Route X-ray and with aircraft under the control of Lossiemouth. The operation of the TMZ is designed to have minimal impact on ATS provision.”<sup>3</sup>

<sup>3</sup> Moray Firth Transponder Mandatory Zone, Airspace Change Proposal” (27th July 2015)

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“As RAF Lossiemouth maintains a 24 hour Quick Reaction Alert service, the TMZ would be permanently active. It is recognised that the ongoing work to develop an enduring technical mitigation solution with the MOD might, if successful, render the TMZ obsolete in the future.”<sup>3</sup>

A potential drawback of establishing a TMZ is that non-transponding aircraft may choose to take an alternative route in order to ‘bypass’ the TMZ, resulting in a change in traffic patterns and ATC workload in this area. It is possible that some General Aviation (GA) operators might elect to route on or closer to shore to avoid the TMZ requirements rather than routing offshore through the TMZ. Although a seven month study carried out by RAF Lossiemouth between 1st October 2014 to 30th April 2015, showed that only two non-transponding GA aircraft entered the region. This shows that the impact on the non-transponding aircraft would be minimal.

In order to remove this issue there will be a facility for non-transponding aircraft to request transit of the TMZ from the controlling authority if they make radio contact with the controlling authority (RAF Lossiemouth) 5 minutes prior to planned entry of the TMZ. The controlling authority will give authorisation for transit at a specific altitude and for a specific time period wherever possible.

Additionally a General Aviation (GA) body has also identified “that it would be unusual for one of our aircraft (GA) operating under VFR rules to be that far offshore (12 nm). Those few that were out there are likely to be transponder equipped. The RMZ would require Mode C or Mode S, but there is the facility to speak to Lossiemouth to request penetration of the RMZ if not so equipped. Overall the impact on our operations will be minimal”<sup>4</sup>

Therefore, it is anticipated that there will be little, if any, traffic displacement due to the proposed Moray Firth TMZ inhibiting GA flight operations.

Accepting that, the sponsor anticipates that the environmental impact of the Moray Firth TMZ will be neutral within the three main categories of noise, CO<sub>2</sub> emissions and local air quality. Further consideration of each category will be outlined later in this report.

<b>4.2</b>	<b>Have alternative options been considered, and have the environmental impact of each alternative been assessed?</b>	<b>Partially</b>
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Yes a number of alternative technical options have been considered (including “Do Nothing”).

However these options were not assessed for their environmental impacts as the safety and efficiency of the airspace was the primary focus of the proposal. That being said the environmental impacts for the proposal and the difference of impact between the options should be negligible.

<sup>4</sup> Light Aircraft Association (LAA) consultation response

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<b>5.</b>	<b>Noise</b>	<b>Status</b>
<b>5.1</b>	<b>Has the noise impact been adequately assessed?</b>	<b>Yes</b>

Given that it is not possible to assess quantitatively the potential impact as any assumptions about GA traffic patterns and the occurrence of any re-routing would be too theoretical to support any findings. Additionally, based on the likely occurrence of any such noise impact (which the traffic surveys undertaken by the sponsor suggest will be minimal, with only two non-transponding aircraft in the region in a seven month period), the use of a qualitative assessment by the sponsor is reasonable for this proposal.

<b>5.2</b>	<b>Has the noise impact been adequately presented in the consultation and the submitted proposal?</b>	<b>Yes</b>
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Yes – as noted in 5.1 above the likely noise impact will be negligible (if any) and this is explained in both documents.

<b>6.</b>	<b>Emissions</b>	<b>Status</b>
<b>6.1</b>	<b>Has the impact on CO<sub>2</sub> emissions been adequately assessed?</b>	<b>Yes</b>

The sponsor states that this proposal will not change the trajectories of flights as there will be access procedures even for aircraft which are not transponder equipped. Due to the insignificant affects (if any) of the proposal the analysis of exhaust emissions and fuel burn has not been undertaken. Only aircraft without a working transponder and with no radio will be required to route around the TMZ. Hence as the seven month study showed (with only two non-transponding GA aircraft in the region) there will be no measurable impact on exhaust emissions and fuel burn.

The sponsor acknowledged that whilst it is possible that some GA operators might elect to route on or closer to shore to avoid the TMZ requirements rather than routing offshore through the TMZ. This is anticipated to be an insignificant proportion based on the seven month study which showed only two non-transponding aircraft in the region and the addition of the facility for non-transponding aircraft to request transit of the TMZ from the controlling authority.

Based on the scale of any likely impact in terms of longer routes (minimal, if at all), the consideration of the impact on CO<sub>2</sub> emissions for this proposal is reasonable.

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<b>6.2</b>	<b>Has the impact on CO<sub>2</sub> emissions impact been adequately presented in the consultation and the submitted proposal?</b>	<b>Yes</b>
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Yes – the likelihood of negligible (if any) negative impact in CO<sub>2</sub> emissions is explained.

<b>7.</b>	<b>Local Air Quality</b>	<b>Status</b>
<b>7.1</b>	<b>Has the impact on Local Air Quality been adequately assessed?</b>	<b>Yes</b>

The sponsor recognises for a number of reasons, this proposal is very unlikely to have any impact on local air quality:

- The proposed TMZ lies offshore;
- The anticipated impact upon traffic patterns is minimal (if any):
- Any traffic affected will be light aircraft (that have relatively low emissions);
- There is no Air Quality Management Areas in the vicinity.

<b>7.2</b>	<b>Has the impact on Local Air Quality been adequately presented in the consultation and the submitted proposal?</b>	<b>Yes</b>
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Yes - the expectation of no impact on LAQ is explained in both documents.

<b>8.</b>	<b>Tranquillity</b>	<b>Status</b>
<b>8.1</b>	<b>Has the impact on tranquillity been adequately considered?</b>	<b>Yes</b>

Based upon the expectation that this change will have minimal (if any) changes on traffic patterns and the fact that the proposal does not affect any National Parks or Areas of Outstanding Natural Beauty (AONBs), as there are no NPs or AONBs near the proposed TMZ, the potential impact on tranquillity has been adequately considered by the sponsor as minimal (if any) impact on.

<b>8.2</b>	<b>Has the impact on tranquillity been adequately presented in the consultation and the submitted proposal?</b>	<b>Yes</b>
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Yes – tranquillity has been briefly considered in both documents, the sponsor anticipates that it is unlikely that both tranquillity and visual intrusion will be impacted by any GA displacement and, in the worst case, the number of aircraft negatively affected are not likely to increase significantly upon implementation.

<b>9.</b>	<b>Visual Intrusion</b>	<b>Status</b>
<b>9.1</b>	<b>Has the impact of visual intrusion been adequately considered?</b>	Yes

Based upon the expectation that this change will have minimal (if any) changes on traffic patterns and the fact that the proposal does not affect any National Parks or AONBs, the potential impact on visual intrusion has been adequately considered by the sponsor.

<b>9.2</b>	<b>Has the impact of visual intrusion been adequately presented in the consultation and the submitted proposal?</b>	Yes
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Yes – visual intrusion has been adequately considered in both documents.

<b>10.</b>	<b>Biodiversity</b>	<b>Status</b>
<b>10.1</b>	<b>Has the impact upon biodiversity been adequately considered?</b>	Yes

Yes – based on the anticipated impacts of this proposal, there is unlikely to be any impact specifically upon biodiversity.

<b>10.2</b>	<b>Has the impact upon biodiversity been adequately presented in the consultation and the submitted proposal?</b>	Yes
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Yes – whilst there is no specific mention of biodiversity in the documents, this is not unreasonable considering that any environmental impacts are likely to be minimal (if any).

<b>11.</b>	<b>Continuous Descent Approaches</b>	<b>Status</b>
<b>11.1</b>	<b>Has the implementation of, or greater use of, CDAs been considered?</b>	No

Consideration of CDAs is not relevant for this proposal.

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12.	Impacts Upon National Parks and/or AONBs	Status
12.1	<b>Does the proposed change have an impact upon any National Parks or Areas of Outstanding Natural Beauty (AONBs)?</b>	No

The statutory purposes of National Parks are to conserve and enhance their natural beauty, wildlife, and cultural heritage and to promote opportunities for the understanding and enjoyment of their special qualities by the public. The statutory purpose of AONBs is to conserve and enhance the natural beauty of their area. In exercising or performing any functions in relation to, or so as to affect, land in National Parks and AONBs, the CAA is required to have regard to these statutory purposes under s.19 and Schedule 2 of the Civil Aviation Act 1982. This duty was re-stated in the revised Air Navigation Guidance issued in 2014.

This duty was also reiterated in the Aviation Policy Framework (March 2013) which stated “the CAA has legal duties to have regard to the purposes of National Parks and Areas of Outstanding Natural Beauty and must therefore take these into account when assessing airspace changes.”

Whilst recognising this duty it is also true that flights over National Parks and AONBs are not prohibited by this legislation as a general prohibition against over-flights would be impractical.

In the case of this proposal there are no National Parks or AONBs near the proposed TMZ, therefore there is anticipated to be no effect upon it or any other National parks or AONBs.

13.	Traffic Forecasts	Status
13.1	<b>Have traffic forecasts been provided, are they reasonable, and have these been used to reflect the future impact of the proposal?</b>	No

The proposal is not expected to have any impact on traffic numbers and for that reason it is unnecessary to present traffic forecasts in this instance. This omission is reasonable based upon the nature of this proposal.

14.	Consultation	Status
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<b>14.1</b>	<b>If undertaken, has evidence of non-aviation stakeholder consultation been provided?</b>	<b>Yes</b>
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Yes the consultation did include non-aviation stakeholders. The consultation was available on the sponsor's website and was accessible by any interested parties. The sponsor's aim for the consultation was primarily to seek industry comment on the proposal and to refine this accordingly prior to submission to the CAA.

The stakeholders and consultees were agreed in accordance with CAA guidance and totalled 112 individuals or organizations representing airports, local aerodromes, national associations, the National Air Traffic Management Advisory Committee (NATMAC), and non-aviation stakeholders such as local MPs and local councils.

<b>14.2</b>	<b>Has account been taken of the results of the environmental factors raised by consultees or has evidence been provided to indicate why this has not been possible?</b>	<b>Yes</b>
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No environmental factors were raised by consultees.

<b>15.</b>	<b>Compliance with CAP 725</b>	<b>Status</b>
<b>15.1</b>	<b>Have all environmental assessment requirements specified in CAP 725 been met, where applicable?</b>	<b>Yes</b>

Yes – all requirements have been met where applicable and where relevant.

<b>16.</b>	<b>Other Aspects</b>	<b>Status</b>
<b>16.1</b>	<b>Are there any other aspects of the ACP, that have not already been addressed in this report, that may have a bearing on the environmental impact?</b>	<b>No</b>

There are no other aspects to note.

<b>17.</b>	<b>Recommendations</b>	<b>Status</b>
<b>17.1</b>	<b>Are there any recommendations for the Post-Implementation Review?</b>	<b>Yes</b>

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The sponsors should ensure that monitor and record instances on non-transponder traffic being denied access to cross the TMZ are monitored and recorded, and that the reason for any such refusals is also recorded. This data will then be used in the Post Implementation Review (PIR).

<b>18.</b>	<b>Government Approval</b>	<b>Status</b>
<b>18.1</b>	<b>Is the approval of the Secretary of State for Transport required in respect of the environmental impact of the airspace change proposal?</b>	<b>No</b>

No – As it is anticipated that the proposal will not result in a significant detrimental environmental impact approval from the Secretary of State is not necessary for this proposal.

<b>19.</b>	<b>Conclusions</b>	
<b>19.1</b>	<b>Can an overall environmental benefit be demonstrated (or justified/supported)?</b>	<b>No</b>

No overall environmental benefit is likely, and the sponsor has not set out to claim any such benefit. The key reasons for proposing this change do not include environmental ones.

Overall, the sponsor anticipates that the environmental impact of a new TMZ will be neutral, or at worst an insignificant negative impact arising from any re-routed GA traffic, within the categories of noise, CO<sub>2</sub> emissions and local air quality. It is not anticipated that the TMZ will reduce the environmental impact of aviation in the relevant airspace; however, the sponsor feels that it is reasonable to expect that the environmental impact of aviation will not worsen because of the change. Both tranquillity and visual intrusion are unlikely to be impacted by any GA.

Acknowledging the scale, characteristics and current activity in the area of the TMZ, the sponsors' case for a minimal (if any) environmental impact is reasonable and supported to the extent that is possible. If implemented, monitoring the occurrence of any refusals to access the TMZ will provide evidence at the post-implementation review of the scale of any environmental impacts.

<b>Outstanding Issues</b>		
Serial	Issue	Action Required

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<b>Additional Compliance Requirements (to be satisfied by Change Sponsor)</b>	
Serial	Requirement

<b>Environmental Assessment Sign-off/Approvals</b>			
	Name	Signature	Date
Environmental Assessment completed by (ERCD representative)	██████████	████████████████████	26 August 2015
Environmental Assessment approved by (Head of ERCD)	██████████	████████████████████	6 November 2015