

# MORAY FIRTH TRANSPONDER MANDATORY ZONE

STAKEHOLDER CONSULTATION FEEDBACK REPORT ISSUE 2

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## EXECUTIVE SUMMARY

From 31<sup>st</sup> March until 24<sup>th</sup> June 2015 the Developers conducted stakeholder consultation on the proposal to introduce a Transponder Mandatory Zone (TMZ) in the Moray Firth to act as mitigation for the impact of radar blanking on the Ministry of Defence (MOD) Primary Surveillance Radar (PSR) at RAF Lossiemouth.

### *What is the Issue?*

Wind Turbine Generators (WTG) within the Moray Firth offshore wind farms are likely to cause false primary radar returns to be presented on RAF Lossiemouth's Air Traffic Control (ATC) radar display screens. These false tracks can obscure the primary returns generated by actual aircraft and impede an Air Traffic Control Officer's (ATCO) ability to recognize genuine aircraft returns. Large numbers of WTGs can also saturate the radar processing systems leading to impaired radar performance.

Before the Developers can erect WTGs they must agree an ATC mitigation scheme with the MOD. At this time, there is no proven technical solution or mitigation technology which can be used to upgrade the radar to remove the 'clutter'; therefore, an operational solution is required until such time that an enduring technical solution can be found.

### *Proposed Solution*

It will be necessary to deploy Range Azimuth Gating (RAG) commonly referred to as radar blanking, over the area of the consented wind farms before they are operational to prevent detection of radar returns from the turbines; however, radar blanking will also remove primary radar returns from aircraft within the blanked area. To mitigate this removal of primary radar data, it is proposed to establish a TMZ over the consented wind farms and the surrounding area so that aircraft in the area will be visible to ATC in Secondary Surveillance Radar (SSR).

The Developers are required as part of the airspace change process to consult with relevant stakeholders. The consultation document provided information to allow stakeholders to make a decision on the impact of the proposed TMZ. The stakeholder consultation document can be found at <http://www.morayfirthtmz.co.uk>.

This consultation report provides feedback to stakeholders who responded to the consultation. It will be published on <http://www.morayfirthtmz.co.uk> and will be emailed to all stakeholders who responded to the consultation. This report should be read in conjunction with the stakeholder consultation document. All acronyms and technical terms are explained in full in the stakeholder consultation document.

# 1. OVERVIEW OF CONSULTATION PROCESS

The Moray Firth TMZ stakeholder consultation lasted for a period of 12 weeks, commencing on 31st March 2015 and concluding on 24th June 2015. Any responses received after the consultation closed, but before the publication of this consultation report, were considered and offered the same weighting as if they had been received during the defined consultation period.

The consultation document was sent by a combination of email (where available) and post to 112 consultee organisations or individuals representing airports, local aerodromes, national associations, and the National Air Traffic Management Advisory Committee (NATMAC). The consultee list is at Annex C of the Moray Firth TMZ stakeholder consultation document.

Responses were invited via email to [consultation@morayfirthtmz.co.uk](mailto:consultation@morayfirthtmz.co.uk) or via post to a PO Box address.

# 2. OVERVIEW OF RESPONSES

## 2.1 RESPONSE STATISTICS

Fourteen consultation responses were received as summarised in the pie chart at Figure 1.

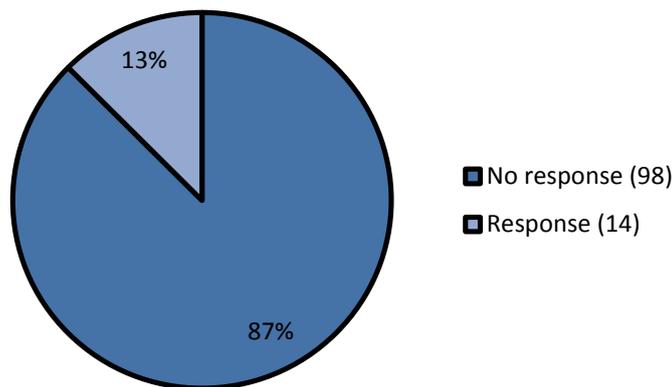


Figure 1. All stakeholder responses pie chart

The classification of respondent is shown in Figure 2 (either Aviation or Non-aviation). The responses (objection/ support/ no objection) to the preferred option of a TMZ in the Moray Firth plus RAG blanking of the RAF Lossiemouth PSR are shown in Figure 3.

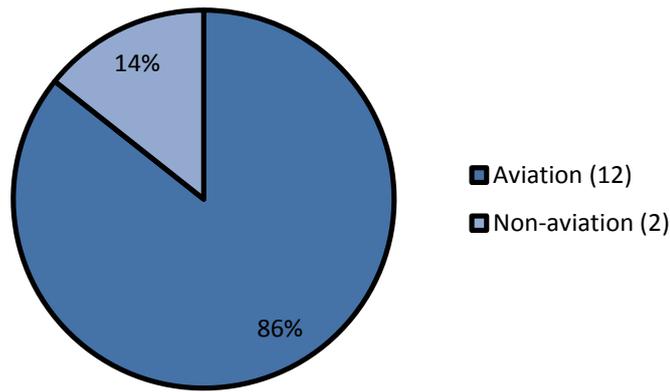


Figure 2. Type of respondent pie chart

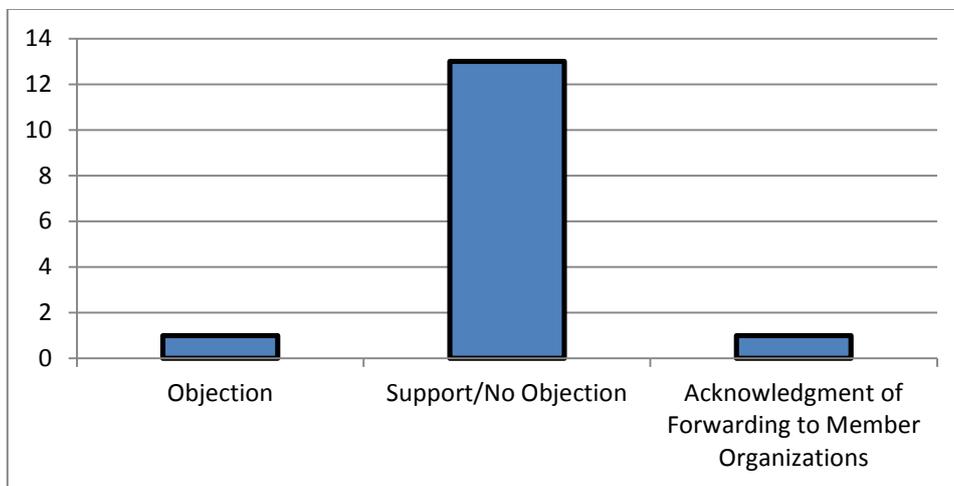


Figure 3. Responses to preferred option

## 2.2 KEY THEMES

### *Theme 1: Impact on existing procedures and the need for new procedures*

A number of stakeholders identified a requirement for new operational procedures in the Moray Firth to accommodate non-transponding aircraft in the TMZ and develop procedures for transponder failure in the TMZ. There is a need, in particular, to limit the impact on Wick procedures and controller workload as Wick is a non-radar unit with a single ATCO controlling position and the majority of Wick instrument procedures transit the proposed TMZ.

The Developers and RAF Lossiemouth ATC are aware of the need for new and revised procedures to be agreed between the local ANSPs and aviation operators. RAF Lossiemouth is currently undertaking a safety assessment of the TMZ on its operations and updating its operational safety case; these activities will identify any new procedures or any revisions to existing procedures which might be necessary. It is SATCO RAF Lossiemouth's intention, with the support of the Developers, to convene a working group with local aviation stakeholders to agree any new procedures well in advance of the Moray Firth TMZ being promulgated. It is anticipated that any TMZ approval will be contingent upon the agreement and successful implementation of these new procedures well in advance of the proposed April 2018 TMZ promulgation date.

There is ongoing analysis to understand the number of non-transponding aircraft operating into and out of Wick, as these statistics are not currently held. The prevalence of non-transponding aircraft at Wick will undoubtedly inform the most appropriate mitigation for the impact of the TMZ on Wick operations and Wick's freedom to procedurally separate non-transponding aircraft in the Moray Firth.

### *Theme 2: Need for ATCO and aircrew training*

Some stakeholders highlighted the need for ATCO and aircrew training to ensure the safe and efficient operation of the TMZ airspace.

It is envisaged that the RAF Lossiemouth safety assessment regarding operation of the TMZ will contain training needs analysis to be discussed and agreed with local ANSPs and aviation operators as part of the Moray Firth TMZ implementation working group.

The Developers will also offer support to, and work closely with, Wick and Aberdeen ATC to facilitate the necessary safety management activities required to assess and implement any identified operational mitigations.

### *Theme 3: Precedent for TMZs and investigation of technical mitigation solutions*

Some stakeholders expressed concern that TMZs were becoming commonplace mitigation for the effects of WTGs on PSRs and that they would prefer that the Developers investigate new radar technical mitigations to be identified and implemented, thereby enabling TMZs to be withdrawn.

The Developers have committed to working with the MOD to identify, trial and deploy a suitable long-term mitigation at RAF Lossiemouth, enabling the Moray Firth TMZ to be withdrawn as soon as practicable.

Some stakeholders asked if new radar technologies had been investigated prior to the exploration of the Moray Firth TMZ mitigation option.

This information was included in the consultation document which explained that: "At this time, there is no proven technical aviation mitigation solution which eliminates the predicted impact of WTGs on MOD Watchman Primary Surveillance Radar. The Developers, along with other wind industry organisations, are continuing to work with the MOD to identify suitable mitigation technologies. Until such time as this technology is proven and delivered, an alternative mitigation needs to be established over the Moray Firth offshore wind farms".

## 2.3 FURTHER ANALYSIS DURING CONSULTATION

The Developers continue to conduct analysis to understand the prevalence of non-transponding aircraft in the vicinity of the TMZ and Wick. This analysis will inform the identification of the most appropriate mitigation to resolve the impact on Wick instrument procedures.

The Developers contracted NATS Procedural Design Group (PDG) to conduct an impact assessment, on behalf of HIAL, of the HIAL Inverness and HIAL Wick instrument flight procedures in relation to the proposed Moray Firth TMZ. These assessments were provided to HIAL to enable an understanding of the potential impact on the HIAL SMS prior to the conclusion of consultation. PDG is additionally assessing the impact of the proposed TMZ on the new Wick GNSS procedures in light of recent feedback from SARG regarding IFP/TMZ infringement considerations.

### 3. THE PROPOSAL

#### 3.1 MODIFICATIONS TO THE PROPOSAL

During consultation analysis work was undertaken, in conjunction with the MOD, regarding the likely construction vessel traffic in the wind farm and the potential visibility of these vessels to the RAF Lossiemouth PSR. As a result of this activity, the proposed promulgation date of the Moray Firth TMZ has moved from July 2017 to April 2018, as this date is 3 months in advance of first turbine blade erection and the first visibility of windfarm associated clutter to RAF Lossiemouth.

Concerns regarding the proliferation of TMZs as mitigation for offshore wind farms led the Developers to devise a TMZ promulgation plan which phases the activation of the TMZ in accordance with the wind farm construction timetables. As such, Phase One (shown at Figure 4) would be promulgated in April 2018. The remainder of the Moray Firth TMZ, Phase 2 (illustrated in full at Figure 4) would be promulgated at a later date when MORL has confirmed its construction programme following the award of a Contract for Difference (CfD). This would be no later than 3 months before turbine blade erection commences within the remainder of the development area.

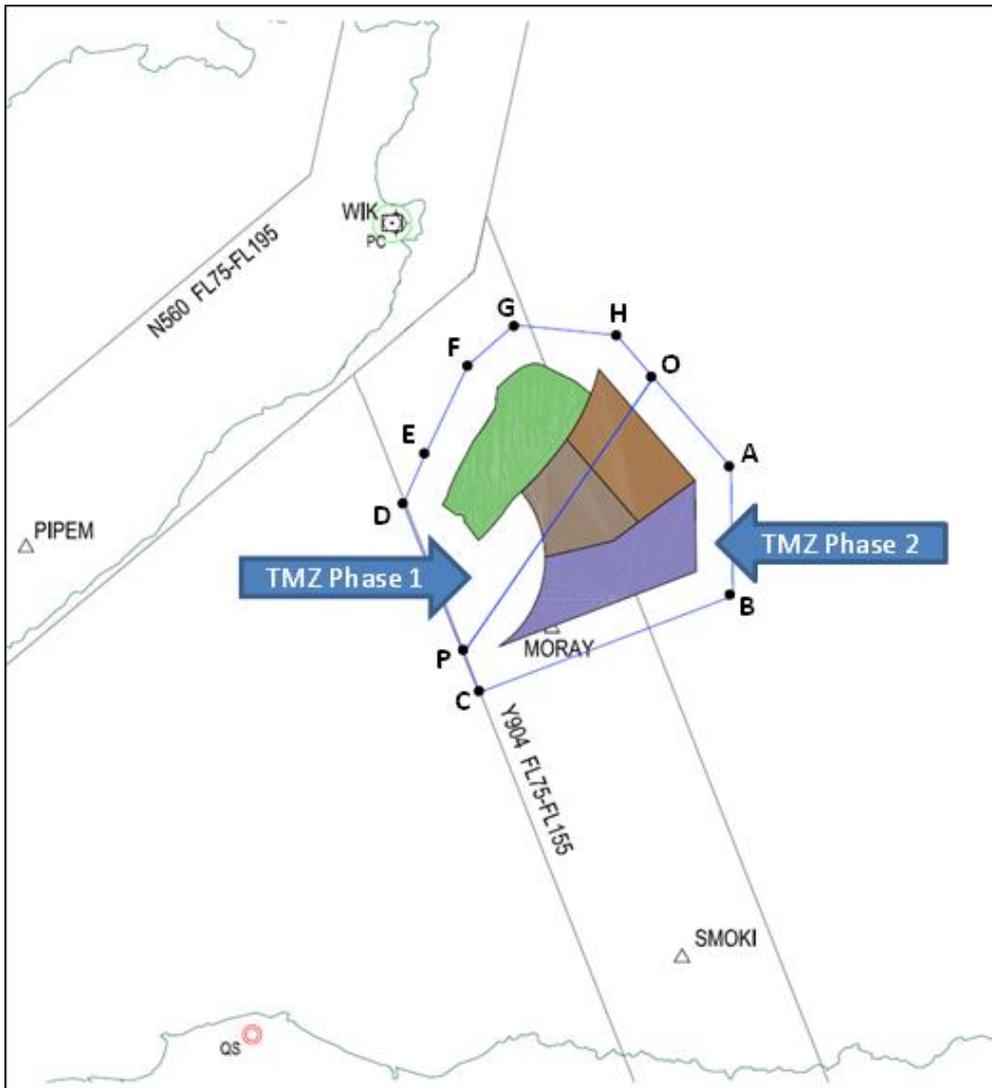


Figure 4. Proposed Moray Firth TMZ (Phases 1 & 2)

### 3.2 SUMMARY OF INTENDED AIRSPACE CHANGE PROPOSAL

As a result of careful consideration of the consultation responses, the Developers will proceed with an airspace change proposal to the CAA. The basis of this proposal will be as per Option 5 in the Consultation document; the implementation of the Moray Firth TMZ with associated RAG blanking on the RAF Lossiemouth PSR until such time as a permanent technical mitigation solution is available. The proposed Moray Firth TMZ will extend from the surface to FL100 outside CAS, and from surface to the base of CAS beneath Y904. The TMZ will have a 2nm buffer around the RAG blanked area overhead the offshore wind turbines.

The ACP will request that Phase One (shown at Figure 4) is promulgated initially in April 2018. The second Phase of the TMZ, to include the whole Moray Firth TMZ (shown at Figure 4) will be promulgated no later than 3 months before turbine erection commences within the three consented wind farms within the MORL zone. This phasing of the TMZ is designed to limit the impact on local airspace users as much as practicable. The proposed coordinates of the TMZ are in Table 1.1.

| Boundary Reference | Latitude      | Longitude     |
|--------------------|---------------|---------------|
| A                  | 581352.7801N  | 0023029.6207W |
| B                  | 580642.1273N  | 0023023.4770W |
| C                  | 580122.6972N  | 0025655.4542W |
| D                  | 581152.8636N  | 0030449.3381W |
| E                  | 581434.3990N  | 0030233.8130W |
| F                  | 581936.1622N  | 0025802.6109W |
| G                  | 582151.1871N  | 0025310.7227W |
| H                  | 582116.1994N  | 0024224.5231W |
| O                  | 581854.1022N  | 0023834.6891W |
| P                  | 5803333.4124N | 0025833.3393W |

Table 1.1 Coordinates for proposed TMZ Phases.

### 3.3 NEXT STEPS

The Developer will submit a formal ACP to the CAA; on receipt, the regulator will conduct a documentation check to ensure all of the required documentation has been included in the submission. The CAA will aim to provide a decision as to whether it accepts or rejects the proposal within 16 weeks of a successful documentation check. The Director Airspace Policy is the decision-maker regarding the approval of the Moray Firth TMZ ACP. If a stakeholder organisation wishes to present new evidence or data, it should submit it in writing to:

The Director (Moray Firth TMZ)  
Group Director Safety & Airspace Regulatory Group,  
CAA House,  
45-49 Kingsway,  
London,  
WC2B 6TE