

Burbo Bank Transponder Mandatory Zone Post Implementation Review

CAP 1719

A large, abstract graphic composed of overlapping, semi-transparent blue shapes in various shades, ranging from light cyan to deep navy blue, covering the bottom two-thirds of the page.

Published by the Civil Aviation Authority, 2018

Civil Aviation Authority,
Aviation House,
Gatwick Airport South,
West Sussex,
RH6 0YR.

Enquiries regarding the content of this publication should be addressed to:

Airspace and ATM Aerodromes, Safety and Airspace Regulation Group, CAA House, 45-59
Kingsway, London, WC2B 6TE

The latest version of this document is available in electronic format at www.caa.co.uk

Contents

Executive Summary	4
Scope and Background of the PIR.....	5
What is a Post Implementation Review	5
Background to our conclusions in this PIR Decision.....	5
Conditions attached to the CAA’s decision to approve the change.....	5
Data collected for the purpose of the PIR.....	6
Objectives and Anticipated Impacts.....	7
The original proposal and its objectives.....	7
Anticipated Impacts	7
CAA Assessment	8
Operational Assessment	8
Safety.....	8
Operational Feedback.....	8
Air Navigation Service Provision	9
Utilisation and Track Keeping.....	9
Traffic.....	9
Infringements and Denied Access.....	9
Letters of Agreement (where applicable).....	9
Environmental Assessment	9
Community Stakeholder Observations	10
International Obligations.....	10
Ministry of Defence Operations	10
Any other impacts.....	10
Conclusion.....	10

Executive Summary

1. The CAA's airspace change process is a seven-stage mechanism that is set out in detail in CAP 725/CAP1616. Under this process DONG Energy submitted proposals to the CAA to extend the existing Burbo Bank wind farm located in Liverpool Bay. To mitigate the impact of this on BAe Warton's Primary Surveillance Radar (PSR) they proposed an associated Transponder Mandatory Zone (TMZ) cover the wind farm. Stage 7 of this process is a Post Implementation Review (PIR) that normally begins one year after implementation of the change. The CAA commenced the PIR to review the impact of its decision and the implemented change on 12 October 2017. The content and outcome of that review process by the CAA is discussed in detail in this report.
2. On 02 January 2018, the CAA introduced a new process for making a decision on whether or not to approve proposals to change airspace design. Irrespective of whether the CAA decision to approve the change was made under the previous process (set out in CAP 725), we will conduct all Post Implementation Reviews in accordance with the process requirements of CAP1616. However, when assessing the expected impacts against the actual impacts we will use the methodology adopted at the time of the original CAA decision in order to do so.
3. During the review process, the CAA considered the original Airspace Change Proposal, CAA Decision Documents, sponsor provided Burbo Bank PIR document, ANSP and aviation stakeholder feedback including from the General Aviation Alliance (GAA) organisations and the Ministry of Defence (MoD).
4. As a result, the CAA has reached the following conclusions:
 - The implemented change, as one of a 3-part mitigation process, has achieved its aims and objectives, as described in paragraphs 14 and 15 of this document, within an acceptable tolerance level.
 - The impacts on safety, environmental and airspace efficiency are as anticipated. There has been a positive effect on safety, with a neutral impact on environmental aspects, and airspace efficiency has not been compromised.
 - No other significant issues have arisen from the PIR which would require modifications to be made, or would mean the change should not be confirmed as permanent.
 - The implemented design satisfactorily achieves – within acceptable tolerance limits – the objective and terms of the CAA's decision, and the change is confirmed as permanent.

Scope and Background of the PIR

What is a Post Implementation Review?

5. The CAA's approach to decision-making in relation to proposals to approve changes to airspace is explained in its Guidance on the Application of the Airspace Change Process, CAP 1616. This detailed Guidance specifies that the seventh and last stage of the process is a review of the implementation of the decision, particularly from an operational perspective, known as a Post Implementation Review (PIR).
6. The Guidance states that the purpose of a PIR *"is for the change sponsor to carry out a rigorous assessment, and the CAA to evaluate, whether the anticipated impacts and benefits in the original proposal and published decision are as expected, and where there are differences, what steps (if any) are required to be taken"*.
7. If the impacts are not as predicted, the CAA will require the change sponsor to investigate why, and consider possible mitigations or modifications for impacts that vary from those which were anticipated to meet the terms of the original decision.
8. A PIR is therefore focused on the effects of a particular airspace change proposal. It is not a review of the decision on the airspace change proposal, and neither is it a re-run of the original decision process.

Background to our conclusions in this PIR Decision

9. On 05 September 2015 the CAA approved the Burbo Bank Airspace Change Proposal to implement a TMZ over the off-shore wind farm with effect from 23 June 2016. In our Decision Document dated 30 March 2016, we provided factual information and background to the change. We recommend readers of this report read the Burbo Bank Decision Document, which is on the CAA website [here](#), (Reference: ACP-2014-06) in conjunction with this document.

Conditions attached to the CAA's decision to approve the change.

10. The CAA Operational Assessment of the Burbo Bank Airspace Change Proposal recommended that BAe Warton monitor and record all instances of non-transponder

traffic being denied access to the TMZ, and to record the reason for any such refusal. To date there have been no refusals, nor have there been any requests by non-transpondering aircraft to enter the TMZ. This reflects the traffic pattern study that the vast majority of GA aircraft in the area are transponder fitted, and supports the traffic survey observations that most of sports and recreational pilots look to minimise over-water flight time and prefer to fly over land or along the coastline.

Data collected for the purpose of the PIR

11. By letter of 12 October 2017 the CAA requested from the change sponsor the data sets/analysis and stakeholder feedback covering the following questions by end October 2017:
 - Have the key objectives been met?
 - What have been the ATM requirements in terms of safety, delay, capacity and efficiencies?
 - Have there been any areas of contention, including other airspace user concerns?
 - Has the stakeholder encountered any issues or challenges in applying or managing the airspace change?
 - Has the stated aim of the airspace change been achieved in respect of ATM requirements?
 - Have any other benefits been realised aside from those mentioned?
 - Are there any recommendations for refinement to the airspace change?
 - Any other pertinent information.
 - Information including reasons for any instances where non-transpondering traffic is refused access to cross the TMZ.

12. BAe Warton is the air navigation service provider (ANSP) currently providing air traffic control services within the TMZ during the times they provide a Lower Airspace Radar Service (LARS). As part of the ACP BAe Warton were authorised by the CAA to operate Secondary Surveillance Radar (SSR) alone and suppress the wind turbine returns on their Primary Radar within the bounds of the TMZ. The CAA has received the document 20171027 Burbo Bank TMZ (PIR) from the sponsor which incorporates feedback from BAe Warton. The purpose of this document is to assist the CAA in creating its own PIR, and it will be published on the CAA website.

13. By letter of 15 November 2017 the CAA requested feedback and comments from the General Aviation Alliance (GAA) organisations via the Chairman of the Future Airspace

Strategy VFR Implementation Group (FASVIG), the Ministry of Defence (MoD), and Liverpool Airport.

Objectives and Anticipated Impacts

The original proposal and its objectives

14. The original proposal was developed to negate the impact of increasing levels of wind turbine-generated Primary Surveillance Radar (PSR) clutter caused by the Burbo Bank Extension windfarm development, in addition to the existing Burbo Bank windfarm development. In support of the ACP, Osprey Consulting Services Ltd provided evidence that indicated that the proposed Burbo Bank Extension offshore wind turbines will create clutter on BAe Warton's PSR. It was assessed that when operative the wind turbines will collectively create a level of radar clutter that, without mitigation, would:
- Distract controllers with false targets.
 - Require controllers to take unnecessary avoiding action that would erode the levels of effectiveness and efficiency.
 - Create significant difficulties associated with the ability of Warton Radar controllers to maintain aircraft track identity, both in respect of known and unknown traffic.
 - Limit Warton Radar controllers' ability to provide the full suite of air traffic control services.
 - On occasion, necessitate re-routing of traffic away and clear of radar clutter, resulting in an increase in track mileage.
 - Generically precipitate a "less safe" operating environment than is currently the case.
15. The proposed TMZ forms part of a 3-stage mitigation programme: the introduction of a TMZ covering the Burbo Bank Wind Farm Extension; approval for BAe Warton to provide radar services within the TMZ using SSR only; and radar blanking of the wind farm-related PSR returns within the associated TMZ airspace.

Anticipated Impacts

16. The anticipated impacts were to maintain a safe airspace environment and maintain BAe Warton aerodrome flying and air traffic service` (ATS) operations near Burbo Bank, whilst

minimising the impact on flying operations, in particular to the military, light general aviation and offshore helicopter operations.

CAA Assessment

Operational Assessment

17. The following is a summary of the CAA's conclusions.

Safety

18. Without the radar blanking the Burbo Bank offshore wind turbines would be 'visible' to BAe Warton's PSR, and the resultant 'clutter' requires mitigating so that a safe air traffic service can be provided in the area. The CAA is content that the TMZ remains an essential component of this mitigation and is an appropriate construct to ensure the maintenance of a safe airspace environment, until such a time as a technical solution could be applied to BAe Warton's primary radar.

19. To date there have been no safety related incidents where the Burbo Bank TMZ has been a contributory factor. To this end the CAA is content that the TMZ provides an airspace design that is at least as safe as that previously provided.

Operational Feedback

20. As of 22 January 2018, the GAA organisations responded via the Chairman of FASVIG that there had only been one comment from their members, and that this was supportive of the TMZ.

21. Liverpool Airport replied on 16 November 2017 stating that *'from an operational point of view they have no issue with the Burbo Bank TMZ since its introduction. On a positive side, it has enabled Liverpool to have information on aircraft operating below Controlled Airspace'*.

22. By way of reply on 01 December 2017, the MoD stated that the Burbo Bank TMZ had no impact on operations from RAF Woodvale, and that RAF Valley saw it had *'a positive effect with reducing their mid-air collision risk in that area due to cooperating targets being detected by their TCAS'* (Traffic Collision Avoidance System).

23. The Offshore helicopters operated by Babcock Mission Critical Services Offshore, based at Blackpool are medium twin aircraft which are transponder equipped and therefore not impacted by the TMZ.

Air Navigation Service Provision

24. BAe Warton have demonstrated that adequate resource is in place to support the operation, as no additional resource was required.

Utilisation and Track Keeping

25. The TMZ is utilised regularly by BAe Warton aircraft and any other operator requiring access to the area. There are no track keeping issues associated with a TMZ.

Traffic

26. The actual operational impacts of the introduction of the TMZ appear to be as forecast in the original proposal. Operations at BAe Warton have been able to continue without disruption caused by additional radar clutter, and safety is enhanced by creating a 'known traffic environment' in the TMZ against other transponding traffic.
27. There have been no refusals of entry into the TMZ during the time of its operation.
28. Feedback from the military, Liverpool Airport and a GA pilot all state that the TMZ enhances operations in the area. There has been no negative feedback concerning the TMZ or its impact on traffic in the area.

Infringements and Denied Access

29. A refusals log has been kept by BAe Warton air traffic control. To date there are no instances of any aircraft being refused access to the TMZ. Neither are there are reports of inadvertent infringements of the TMZ.

Letters of Agreement (where applicable)

30. No new LoAs were made for the introduction of the TMZ.

Environmental Assessment

31. As stated in the original CAA Assessment, the introduction of the TMZ did not alter traffic patterns. In addition, it has not introduced new traffic volumes or changed tracks over the

ground. Therefore, the environmental impact is viewed as minimal, if any, as per the sponsors original assessment which is deemed reasonable.

Community Stakeholder Observations

32. The CAA requested feedback of the General Aviation community via the General Aviation Alliance. In a 3-month period there was only one response which was positive about the introduction of the TMZ.
33. In addition, the CAA considered the feedback from the Military and Liverpool Airport as affected stakeholders. Both were supportive of the TMZ.

International Obligations

34. No neighbouring states are impacted by the change.

Ministry of Defence Operations

35. Feedback from the MoD was supportive of the introduction of the Burbo Bank off-shore wind farm TMZ.

Any other impacts

36. No other impacts were identified, or issues of significance have been raised in feedback whilst compiling this PIR.

Conclusion

Conclusion

37. The implemented change, as one of a 3-part mitigation process, has achieved its aims and objectives, as described in paragraphs 14 and 15 of this document, within an acceptable tolerance level.

38. The impacts on safety, environmental and airspace efficiency are as anticipated. There has been a positive effect on safety, with a neutral impact on environmental aspects, and airspace efficiency has not been compromised.
39. No other significant issues have arisen from the PIR which would require modifications to be made or would mean the change should not be confirmed as permanent.
40. The implemented design satisfactorily achieves – within acceptable tolerance limits – the objective and terms of the CAA's decision, and the change is confirmed as permanent.

Civil Aviation Authority

03 October 2018