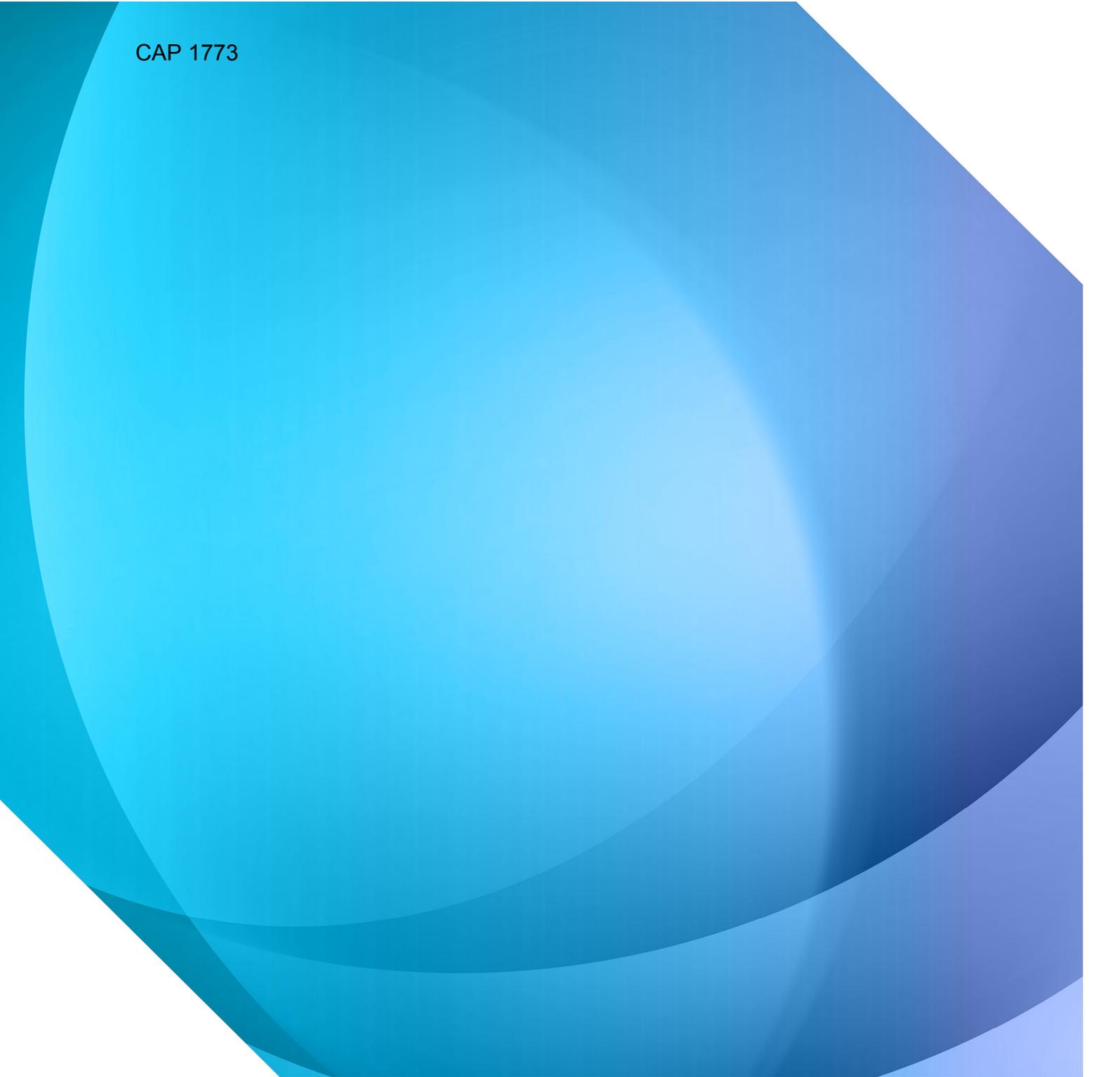


Walney Transponder Mandatory Zone

Post Implementation Review

CAP 1773

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.

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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 (now Ørsted¹) submitted proposals to the CAA to extend the existing Walney offshore wind farm located in the Irish Sea. 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 10 January 2019. 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 Walney 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 15 to 17 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.

¹ Dong Energy became Ørsted on 31 October 2017.

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 25 September 2015 the CAA approved the Walney Airspace Change Proposal to implement a TMZ over the off-shore wind farm with effect from 22 July 2017. In our Decision Document dated 25 September 2015, we provided factual information and background to the change. We recommend readers of this report read the Walney Decision Document, which is on the CAA website [here](#), (Reference: ACP-2014-08) in conjunction with this document.

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

10. The CAA Operational Assessment of the Walney 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-transponding aircraft to enter the TMZ. This reflects the evidence provided in the original Safety Case Pt.1 which stated that '*aircraft do not routinely fly over the area of the Morecombe Bay Offshore Windfarms*', and the traffic survey which stated that flow was predominantly along a 'coastal route' and that traffic was 'predominantly transponder equipped and always in two-way radio contact'.

11. Whilst assessing the ACP submission, the CAA questioned the size of the proposed TMZ, specifically regarding the proposed requirement for 2nm buffers around the zone which would also penetrate EG D046/B and subsequently removed these from the design. The CAA stated BAe Warton should record full details of instances where a buffer on the TMZ would have directly prevented an incident impacting on aircraft safety. To BAe Warton's knowledge there have been no instances on non-radio, non-transponder traffic above or in the vicinity of the Walney TMZ.

Data collected for the purpose of the PIR

12. By letter of 09 April 2018 the CAA requested from the change sponsor the data sets/analysis and stakeholder feedback covering the following questions by end August 2018:
 - 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-transponding traffic is refused access to cross the TMZ.
 - Information where the application of a TMZ buffer would have directly prevented an incident impacting on aircraft safety.

13. 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 20180906 Walney TMZ PIR Issue 1R 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.

14. By letter of 10 January 2019 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), Isle of Man, Blackpool and Liverpool Airports.

Objectives and Anticipated Impacts

The original proposal and its objectives

15. The original proposal was developed to negate the impact of increasing levels of wind turbine-generated Primary Surveillance Radar (PSR) clutter caused by the Walney Extension wind farm development. In support of the ACP, Osprey Consulting Services Ltd provided evidence that indicated that the proposed Walney 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.
16. The originally proposed TMZ formed part of a 3-stage mitigation programme: the introduction of a TMZ covering the existing Morecombe Bay offshore wind farms and the

new Walney 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. This was later amended via an addendum removing the existing wind farms around which Bae Warton had been able to successfully operate.

Anticipated Impacts

17. The anticipated impacts were to maintain a safe airspace environment and maintain BAe Warton aerodrome flying and air traffic service` (ATS) operations near the Walney Extension wind farm, whilst minimising the impact on flying operations, in particular to the military, light general aviation and offshore helicopter operations.

CAA Assessment

Operational Assessment

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

Safety

19. Without the radar blanking the Walney 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.
20. To date there have been no safety related incidents where the Walney 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.
21. The CAA approved Walney TMZ removed the sponsor requested 2nm buffers as TMZs are not a part of the buffer policy. This also ensured a more efficient use of airspace, and seamlessly ended the TMZ at the edge of the adjacent danger areas. To date no known non-radio, non-transponder aircraft have operated in the area, and no instances of when a buffer on the TMZ would have directly prevented an incident impacting on aircraft safety has occurred.

Operational Feedback

22. As of 05 March 2019, the GAA organisations responded via the Chairman of FASVIG that there had been no comments from their members.
23. Liverpool Airport replied on 05 March 2019 stating that *'the introduction of the TMZ over the Liverpool Bay area has been great in increasing our knowledge of unknown traffic in the area, given the fact it is now a TMZ'*.
24. Blackpool Airport replied on 14 January 2019 stating that *'as we are a non-radar unit, the presence of the Walney TMZ has little or no impact'* and that *'As a Unit we have no objection'*.
25. By way of reply on 24 January 2019, the MoD stated that the Walney TMZ *'had no impact on current Military Operations'*.
26. The Isle of Man replied on 06 March 2019 stating that *'they hadn't noticed any significant impact following the implementation of the TMZ'*. They added that as *'they can only use their primary radar to 30nm range, the TMZ does give them more reassurance of detection of traffic in that area which would imply a slightly positive benefit'*.
27. 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

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

Utilisation and Track Keeping

29. 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

30. 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. Warton ATC consider that the removal of the proposed buffer from the TMZ 'is not ideal', however there has been no negative impact on their operations to date.

31. There has been no negative feedback concerning the TMZ or its impact on traffic in the area. The only feedback received has been either neutral or positive.

Infringements and Denied Access

32. 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. In addition, all operators in the area have had serviceable transponders.

Letters of Agreement (where applicable)

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

Environmental Assessment

34. As stated in the original CAA Assessment, the introduction of the TMZ was unlikely to alter traffic patterns or introduce new traffic volumes or changed tracks over the ground. There have been no refusals of entry to the TMZ, therefore the environmental impact is viewed as minimal, if any, as per the sponsors original assessment which is deemed reasonable.

Community Stakeholder Observations

35. The CAA requested feedback of the General Aviation community via the General Aviation Alliance. In a 2-month period there were no responses about the introduction of the TMZ.
36. In addition, the CAA considered the feedback from the Military, Blackpool, Liverpool and Isle of Man Airports as affected stakeholders. No negative comments were received, with Liverpool Airport supportive of the TMZ and the Isle of Man noticing slight positive benefits.

International Obligations

37. No neighbouring states are impacted by the change.

Ministry of Defence Operations

38. Feedback from the MoD stated current Military operations are not impacted by the Walney offshore wind farm TMZ.

Any other impacts

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

CAA Conclusion

Conclusion

40. The implemented change, as one of a 3-part mitigation process, has achieved its aims and objectives, as described in paragraphs 15 to 17 of this document, within an acceptable tolerance level.
41. 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.
42. 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.
43. 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

08 March 2019