



Clash Gour Airspace Change Proposal

ACP-2021-046

Stage 2 Stakeholder Engagement Document

Date: 4th July 2022
Revision: Issue 2
Ref: 71609 020

Document Details

Reference	Description
Document Title	Clash Gour Airspace Change Proposal
	Stage 2 Stakeholder Engagement Document
Document Reference	71609 020
Issue	Issue 2
Date	4 th July 2022
Client Name	Force9 Energy
Classification	Public

Issue	Amendment	Date
Issue 1	Formal Submission	9 th June 2022
Issue 2	Post Stage 2 Gateway feedback	4 th July 2022

Approval Level	Authority	Name
Author	Osprey CSL	██████████
Reviewer	Osprey CSL	██████████
Client Approval	Force9 Energy	██████████

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Glossary of Terms

Acronym/Term	Definition
ACP	Airspace Change Proposal
CAA	Civil Aviation Authority (UK)
CAP	Civil Aviation Publication
CGH	Clash Gour Holdings
DP	Design Principle
DPE	Design Principles Evaluation
EDFR	EDF Renewables
GA	General Aviation
IOA	Initial Options Appraisal
PSR	Primary Surveillance Radar
RAF	Royal Air Force
SoN	Statement of Need

1 Introduction

1.1 Overview

Force9 Energy (Force9), jointly with EDF Energy Renewables Limited (EDFER) is developing the Clash Gour Wind Farm (Clash Gour) in the name of its wholly owned subsidiary Clash Gour Holdings (CGH). Clash Gour will be a substantial onshore windfarm which will be located in the Moray Council Area, approximately 13 Nautical Miles (NM) southwest of RAF Lossiemouth and 15 NM southeast of Inverness Airport. Clash Gour will consist of 48 wind turbines with a maximum blade tip height of 180 metres (m) above ground level (agl). Figure 1 below provides the location of the three individual wind turbine array areas which will comprise Clash Gour.



Figure 1 Clash Gour Wind Farm Location

As part of the development consent process for Clash Gour, CGH, through Force9, engaged with relevant aviation stakeholders to determine the impact of Clash Gour's operational wind turbines on aviation radar systems and operations. In particular and relevant to the ACP, both the Ministry of Defence (MOD) and Inverness Airport have confirmed that, without mitigation, the development will have an operational effect due to an adverse impact on their ability to provide an Air Traffic Service (ATS) as a result of interference (radar clutter) caused by the detection of the operational wind turbines by the current PSR systems in operation at RAF Lossiemouth and Inverness Airport.

Both Inverness Airport and the MoD agree that the proposed development is capable of mitigation. On that basis and under the terms of Scottish Government Policy, agreement has been reached between CGH and both Inverness Airport and the MOD on the wording of conditions which are expected to be attached to the grant of any consent. The conditions will require CGH to agree aviation mitigation plans with those parties.

As part of a scheme for mitigation of the predicted wind turbine effects on the Royal Air Force (RAF) Lossiemouth and Inverness Airport Primary Surveillance Radars

(PSR), EDFR and Force9 are progressing with an Airspace Change Proposal (ACP) in accordance with Civil Aviation Authority (CAA) Civil Aviation Publication CAP1616

1.1.1 Document Purpose and Scope

This Airspace Change Proposal (ACP) is being developed in conformity with Civil Aviation Publication (CAP) 1616 [Ref 1] as regulated by the UK Civil Aviation Authority (CAA).

In accordance with CAP 1616, the purpose of this document is to provide a narrative, explaining the steps, rationale, and outcomes of engagement activities that have taken place in Stage 2 of the process. Full details regarding the progress of this ACP can be found on the CAA Airspace Change Portal, available via the link below.

<https://airspacechange.caa.co.uk/PublicProposalArea?pID=403>

This document is structured as follows:

1. Introduction (this Section)
2. CGH Stage 2 Engagement Activities
3. References
4. Stage 2 Stakeholder List (Appendix A1)
5. Engagement emails to Stakeholders (Appendix A2)
6. Stage 2 Responses Received (Appendix A3)
7. Stage 2 Stakeholder Correspondence (Appendix A4)

It is recommended that this document is read alongside the Design Options Document, available on the CAA Airspace Change portal. The Design Options Document provides additional context and the proposed design options included as part of this ACP.

This is Issue 2 of the Stage 2 Stakeholder Engagement Document which has been updated (from Issue 1) to reflect CAA feedback relating to engagement.

Please note, this document is not intended to act as a formal response to any stakeholders, it is exclusively a record of engagement activities that have taken place. In addition, it must be highlighted that this document refers to Stage 2 only and does not include any engagement that occurred during Stage 1. Furthermore, this document does not act as a basis for formal consultation, which takes place in Stage 3.

2 CGH Stage 2 Engagement Activities

2.1 Overview

This section of the document describes the engagement activities that CGH have undertaken as part of Stage 2 of the CAP 1616 process. Please note that this section includes relevant responses, with more detail supplied in the Annexes or as stand-alone documents on the ACP portal.

2.1.1 Stage 2 Engagement Requirements

Following the completion of Step 2A (Options Development), in complying with the CAP 1616 process, a change sponsor is required to carry out a round of engagement with key stakeholders to test their Design Options against the Design Principles (DPs) agreed at Stage 1.

It must also be noted that during Step 2B Initial Options Appraisal (IOA), it becomes much clearer as to which stakeholders are impacted, as the proposed design options are analysed in more detail. As per CAP 1616, Appendix C, Paragraph C29, *“this insight should be used to inform the development of the consultation strategy in Stage 3”* [Ref 1].

2.2 Method of Stakeholder Engagement

In their Mid-2020 Population Estimates (Scotland) report published on 25 Jun 21[Ref 2], National Records of Scotland identified that population density in the vicinity of Clash Gour was, on average, fewer than 50 people per square kilometre and the population of the nearby Highlands region was, on average, 9 people per square kilometre.

This low population density was reflected in attendance of just 2 stakeholders at the Stage 1B (Design Principles) Focus Group that was held in Elgin Town Hall on 30 Nov 21. The Sponsor therefore concluded that, for Stage 2, engagement via email, with an additional offer to meet in person or via electronic means, was likely to elicit a more comprehensive and effective response.

Taking into account the demographical and geographical challenges of engagement and having identified a comprehensive stakeholder engagement list (see Annex A1) which included those stakeholder bodies that contributed to the development of the Design Principles in Stage 1, each was sent an email on 29 Mar 22 by the ACP Sponsor. The email (copy at Annex A2) gave a brief overview of the project, explained why the feedback of stakeholders was being sought, described how to provide such feedback and gave a deadline for responses of 29 April 22. The email also included an attached document (available on the CAA portal) which showed the draft Design Options and offered stakeholders opportunity for a face-to-face personal meeting or an online call. A reminder email was sent on 14 Apr 22.

No stakeholders sought face-to-face meetings or an online call.

2.3 Planning Authority Engagement

As part of the stakeholder list, the following Authorities were contacted:

- Moray Council
- Highland Council
- Scottish Government, Energy Consents Unit

Although they had been approached, Cairngorms National Park Authority requested that it was not included in further consultation following Stage 1 of the ACP process.

2.4 Design Principles Validation

As specified in CAP 1616, Appendix C, Paragraph C27 [Ref 1] “*the change sponsor is required to design options that meet the design principles developed during Stage 1b they must seek feedback from key stakeholders to test their hypotheses.*” [Ref 1]. Based on this, CGH took steps to seek feedback on the proposed design options. Stakeholders were provided with an adequate timeframe (4 weeks [29/03/2022-29/04/2022]) within which to respond.

In total, 13 responses were received (Babcock’s response referred to both Police Scotland and Scottish Air Ambulance operations). One, from Ann Burgess, did not relate to the aviation aspects of this proposal, another, from Canny Comms was on behalf of a manufacturer of radar absorbent materials; both have been included for completeness but do not relate to this specific proposal. A submission from NATS, arrived after the closing date but was still included in this analysis.

Documents, in the form of attachments, were provided by the BGA, Highland Gliding Club and Deeside Gliding Club. These will be included as standalone submissions on the CAA Airspace Change Portal.

Whilst detailed analysis of the responses will be considered in subsequent stages, they can be broadly summarised as follows:

- The majority of the GA community, particularly the BGA, BMAA, GAA, Highland Gliding Club and Deeside Gliding Club did not feel that the potential impact, particularly on safety but equally additional costs and impact on their operations, was justified. They highlighted that there are already a number of windfarm installations which have no mitigation in place and emphasised the importance of considering a ‘Do Nothing’ option. Of importance, the BGA responses suggests that Highland Gliding Club was not included in this engagement process; this is not correct, and a response was provided by the Club.
- The MOD, particularly representing RAF Lossiemouth, raised concerns about not considering the wider impact of proposed solutions; both on their operations and Instrument Flight Procedures, but equally on the flightpaths of other airspace users. This was particularly a concern with regard to the cumulative effect of windfarm installations that were already without mitigations. Of relevance, RAF Lossiemouth is still to receive its Thales STAR NG primary surveillance radar and its Wide Area Multi-lateration installation under Project MARSHALL. Their effectiveness against such installations is therefore currently unclear.

- Scottish Air Ambulance and Police Scotland (through Babcock) stated that Options 7E and 7F would have no operational impact on them.
- NATS, as the State Air Navigation Service Provider but equally the provider of radar facilities to MOD at Swanwick, raised no objections.

The far higher response than that seen in Stage 1B validates the method of engagement chosen. Whilst there were few direct comments regarding the Design Principles themselves, the range of responses elicited, from there being no justification for mitigation to concerns over the individual and cumulative impact of unmitigated windfarm development, illustrate that the Design Principles and options considered reflect wide-ranging and contested views which can now be taken into account.

Based on such broad feedback, elicited from an appropriate cross-section of stakeholders, we therefore consider that the Design Principles have been validated. We accept that feedback reflects widely differing opinions and perspectives on the issue of windfarm mitigation; importantly, it is for subsequent stages of the CAP 1616 to seek to address these.

Whilst some stakeholders felt that some options had already been discounted, we can categorically state that this is not the case and could be a reflection of the minimal engagement in Stage 1. Following the submission of all Stage 2 documentation, the change sponsor shall engage with all respondents and signpost them to the finalised Stage 2 documentation on the CAA Airspace Change Portal. All options, together with the comprehensive feedback obtained during Stage 2, will then be considered carefully and in detail, before progressing and engaging further. As per the CAP 1616 process, stakeholders will be consulted on the final design options within Stage 3 of the process.

2.5 Regulatory Engagement

2.5.1 Overview

As part of the CAP 1616 process, the change sponsor is required to engage with the CAA as and when appropriate to facilitate progressing through the various stages and steps within the process. This engagement has taken place with the nominated Case Officer/Technical Regulator at the CAA.

References

Ref No	Source	Link
1	UK CAA	https://publicapps.caa.co.uk/modalapplication.aspx?appid=11&mode=detail&id=8127
2	National Records of Scotland	https://www.nrscotland.gov.uk/files//statistics/population-estimates/mid-20/mid-year-pop-est-20-report.pdf

Table 1 References

A1 Stage 2 Stakeholder List

Organisation	Representative
Representative Aviation Organisations	
Airspace4All	[REDACTED]
Airport Operators Association (AOA)	[REDACTED]
Airfield Operators Group (AOG)	[REDACTED]
Aircraft Owners and Pilots Association (AOPA)	[REDACTED]
Airspace Change Organising Group (ACOG)	[REDACTED]
Association of Remotely Piloted Aircraft Systems UK (ARPAS-UK)	[REDACTED]
Aviation Environment Federation (AEF)	[REDACTED]
British Airways (BA)	[REDACTED]
BAe Systems	[REDACTED]
British Airline Pilots Association (BALPA)	[REDACTED]
British Airline Pilots Association (BALPA)	[REDACTED]
British Balloon and Airship Club	[REDACTED]
British Business and General Aviation Association (BBGA)	[REDACTED]
British Gliding Association (BGA)	[REDACTED]
British Helicopter Association (BHA)	[REDACTED]
British Hang Gliding and Paragliding Association (BHPA)	[REDACTED]
British Microlight Aircraft Association (BMAA)	[REDACTED]
British Model Flying Association (BMFA)	[REDACTED]
British Skydiving	[REDACTED]
Drone Major	[REDACTED]

General Aviation Alliance (GAA)	[REDACTED]
GAA	[REDACTED]
Guild of Air Traffic Control Officers (GATCO)	[REDACTED]
Honourable Company of Air Pilots (HCAP)	[REDACTED]
Helicopter Club of Great Britain (HCGB)	[REDACTED]
Heavy Airlines	[REDACTED]
Iprosurv	[REDACTED]
Isle of Man CAA	[REDACTED]
Light Aircraft Association (LAA)	[REDACTED]
Low Fare Airlines	[REDACTED]
Military Aviation Authority (MAA)	[REDACTED]
Ministry of Defence - Defence Airspace and Air Traffic Management (MoD DAATM)	[REDACTED]
Ministry of Defence - Defence Airspace and Air Traffic Management (MoD DAATM)	[REDACTED]
NATS	[REDACTED]
NATS	[REDACTED]
Navy Command HQ	[REDACTED]
PPL/IR (Europe)	[REDACTED]
PPL/IR (Europe)	[REDACTED]
UK Airprox Board (UKAB)	[REDACTED]
UK Flight Safety Committee (UKFSC)	[REDACTED]
United States Air Force Europe (3rd Air Force-Directorate of Flying (USAFE (3rd AF-DOF))	[REDACTED]

Local Aviation Stakeholders	
Cairngorm Gliding Club Feshiebridge	[REDACTED]
Gama Aviation	[REDACTED]
Highland Aviation Inverness	[REDACTED]
Highland Gliding Club Easterton	[REDACTED]
Inverness Airport Aerodrome Operations Manager	[REDACTED]
Inverness Airport Manager Air Traffic Services	[REDACTED]
Inverness Airport Manager Air Traffic Services outgoing (email both)	[REDACTED]
RAF Lossiemouth Senior Air Traffic Control Officer	[REDACTED] [REDACTED]
MOD Flying Club RAF Lossiemouth	[REDACTED]
PDG Helicopters HQ (Inverness Airport)	[REDACTED]
Police Scotland (helicopters operated by Babcock)	[REDACTED]
Scottish Charity Air Ambulance (operated by Babcock)	[REDACTED]
Grampian Microlight and Flying Club (Insch Airfield)	[REDACTED]
Deeside Gliding Club (Aboyne Airfield)	[REDACTED]
Deeside Gliding Club (Aboyne Airfield)	
Strathaven Airfield	[REDACTED]
Local Representative Bodies	
Moray Council	[REDACTED]
Moray Council	[REDACTED]
Highland Council	[REDACTED]
Highland Council	[REDACTED]

Scottish Government, Energy Consents Unit	[REDACTED]
Scottish Government, Energy Consents Unit	[REDACTED]
Local Representative Bodies That Requested No Further Consultation	
Cairngorms National Park Authority	[REDACTED]
Cairngorms National Park Authority	[REDACTED]
Cairngorms National Park Authority	[REDACTED]

A2 Engagement emails to Stakeholders

The following email, with an associated attachment outlining draft Design Options, was sent by the ACP Sponsor to all stakeholders on 29 Mar 22.

Dear Sir or Madam,

We are contacting you to request your input to the development of Design Options as part of an Airspace Change Proposal (ACP) for the Clash Gour Wind Farm. Force 9 Energy (F9) and its development partner EDF Renewables (EDFR) are developing the Clash Gour Wind Farm in the name of a wholly owned subsidiary, Clash Gour Holdings Limited (CGH). CGH is progressing with a process for airspace change in order to mitigate the impact the development is predicted to create, through radar detection of the operational wind turbines by the Primary Surveillance Radar (PSR) in operation at both Royal Air Force Lossiemouth and Inverness Airport.

CGH started the ACP in September 2021 with the submission of a Statement of Need to the CAA. During February 2022, the first of a seven-stage change process was successfully completed when the proposal passed through the Stage 1 DEFINE Gateway. The work undertaken during Stage 1 helped to establish a prioritised shortlist of Design Principles that have acted as a framework against which Design Options have been drawn up. We would now like to share these with those representative bodies that contributed to the development of the Design Principles in Stage 1, to ensure that stakeholder concerns have been properly understood and accounted for in designing these options. We are seeking any views or comments that you may wish to express regarding the draft procedure designs shown in the attached document by return email (consultation@clashgour.com). Details of how to respond are also included in the attached document and all responses should be returned by Friday 29th April 2022. Should you wish to discuss the design proposals in more detail, we can offer the opportunity of a face-to-face personal meeting or an online call. Thank you for your engagement in this airspace change process.

Following an enquiry by the MOD, the Sponsor felt that the following additional information would be helpful to stakeholders. This was sent by email on 7 Apr 22:

Dear Sir or Madam

We have been asked by a consultee what the upper level of any ACP change in relation to the proposed Clash Gour wind farm would be. We would confirm that the top height of any proposed ACP change is still to be determined based on stakeholder feedback and we would welcome suggestions that would help resolve the issue for consultees.

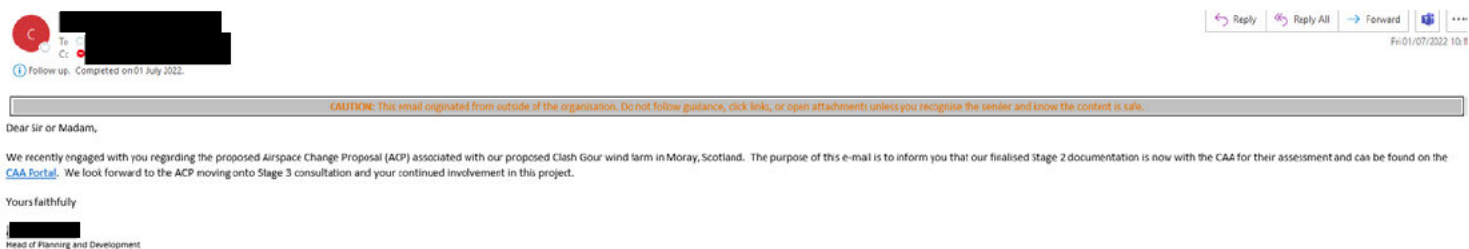
An email by way of reminder was also sent to all stakeholders on 14 Apr 22:

Dear Sir or Madam,

Clash Gour Holdings contacted you on 29th March requesting feedback on our design options to mitigate against radar interference anticipated as a result of the Clash Gour Wind Farm on the Inverness Airport and Royal Air Force Primary Surveillance Radar systems.

Thank you if you have already responded. We understand that not everyone is going to be able to respond, however if you are able, we would appreciate your feedback by the 29th April 2022. We can offer the opportunity of a face-to-face personal meeting or an online call to discuss the proposals.

In addition to the above correspondence, the change sponsor sent the following email to all stakeholders which is aimed at 'signposting' where all of the completed Stage 2 documentation can be found.



A3 Stage 2 Responses Received

Organisation	Representative		Further Action
Representative Aviation Organisations			
Airfield Operators Group (AOG)	██████████	Response received 14 Apr 22	No further action required until Stage 3.
British Gliding Association (BGA)	██████████	Response received 25 Apr 22	No further action required until Stage 3.
British Microlight Aircraft Association (BMAA)	██████████	Response received 28 Apr 22	No further action required until Stage 3.
General Aviation Alliance (GAA)	██████ ██████████	Response received 7 Apr 22	No further action required until Stage 3.
Ministry of Defence - Defence Airspace and Air Traffic Management (MoD DAATM)	██████████████ ██████████	Response received 29 Apr 22	No further action required until Stage 3.
NATS	██████████	Response received 10 May 22	No further action required until Stage 3.
Local Aviation Stakeholders			
Highland Gliding Club Easterton	██████████	Response received 26 Apr 22	No further action required until Stage 3.
Inverness Airport Manager Air Traffic Services outgoing (email both)	██████████	Response received 13 Apr 22	No further action required until Stage 3.
MOD Flying Club RAF Lossiemouth	██████████	Response received 29 Mar 22	No further action required until Stage 3.
Police Scotland (helicopters operated by Babcock)	██████████	Response received 25 Apr 22	No further action required until Stage 3.

Scottish Charity Air Ambulance (operated by Babcock)	██████████	Response received 25 Apr 22	No further action required until Stage 3.
Deeside Gliding Club (Aboyne Airfield)	██████████	Response received 26 Apr 22	No further action required until Stage 3.
Local Representative Bodies			
Nil Responses			
Additional Responses			
Related to an interest in walking in the area rather than the aviation issues	██████████	Response Received 14 Apr 22	No further action required.
Email regarding radar absorbent materials	██████████	Response Received 21 Apr 22	No further action required.

A4 Stage 2 Stakeholder Correspondence

From: [REDACTED]
Sent: 25 April 2022 10:47
To: [REDACTED]
Cc: [REDACTED]
Subject: Re: Clash Gour Wind Farm - Airspace Change Proposal Design Options

Dear [REDACTED]

Thank you for consulting us on the ACP Design Options (ACP-2021-046) relating to the Clash Gour development.

We have considered their implications detailed in your report of 28 March 2022 and conclude that Options 7(E) or 7(F) would have no operational impact on Babcock MCSO's flying operations in support of the Scottish Ambulance Service and Police Scotland, and would therefore be our preference.

Best regards,

[REDACTED]

[REDACTED]

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From: [REDACTED]
Sent: 25 April 2022 18:40
To: [REDACTED]
Cc: [REDACTED]
Subject: Re: Clash Gour Wind Farm - Airspace Change Proposal Design Options

Dear [REDACTED]

Please find enclosed the feedback from the British Gliding Association.

Kind Regards

[REDACTED]

The detailed response referred to in the email above can be seen on the CAA Airspace Change portal.

From: [REDACTED]
Sent: 28 April 2022 12:09
To: [REDACTED]
Cc: [REDACTED]
Subject: RE: ACP-2021-046 Clash Gour Wind Farm - Airspace Change Proposal Design Options

Dear [REDACTED]

I would like to respond to your Stage 2A – Design Options engagement for this ACP on behalf of the British Microlight Aircraft Association (BMAA). This response will comment in general on the ACP, as a national stakeholder representing approximately 4000 flying members.

From reading through the document sent to us on 29 March, it would appear that your favoured option is 7F. That is, with Range Azimuth Gating plus a Transponder Mandatory Zone (TMZ) to enable radar operators to still identify aircraft operating within the area against the radar returns background of the turbines. Whilst one can understand the reasoning behind the analysis of this option, we would point out a serious flaw on page 6 of your document, under Terminology, part 'SSR' in the table. And that is the statement "As such all commercial aircraft and the vast majority of general aviation aircraft are transponder equipped." (My underlining). **I would ask where you got the information from that the vast majority of GA aircraft are transponder equipped? My experience, as a GA microlight pilot, is that it is incorrect and so I would strongly disagree with you.**

Whilst we understand the dilemma in mitigating the problems with radar coverage around windfarms, I would point out that the creation of a TMZ will impact on and disadvantage a significant section of GA aircraft owners and pilots. In general, if such TMZ areas are created for the commercial benefit of organisations such as Force9 Energy/EDF, it will either exclude a significant number of our Association's members – and that of other GA associations – from flying in such areas or require that they incur the relatively significant cost of equipping with transponders. A cost which has a significant commercial benefit to developers / windfarm operators but a significant cost to our members. A dangerous precedent, in our view.

As the BMAA we would therefore ask that this impact be noted and addressed within this ACP.

Considering the relative costs of this windfarm development (likely several hundred million £) and the costs imposed on aircraft owners and pilots (approximately £2000-4000/installation, depending on aircraft category) we would like to suggest that it would be minimal cost to the developers to offer to equip the GA aircraft fleet that are currently not so equipped, as part of the mitigation measures. After all, the mitigation cost of the radar problem that the developers will have to bear will make such transponder equipage cost to the developers seem minimal.

Regards

[REDACTED]

From: [REDACTED]
Sent: 26 April 2022 18:46
To: [REDACTED]
Subject: Clash Gour Wind Farm - ACP Stage 2 Engagement

Dear [REDACTED]

Please find attached feedback from the Deeside Gliding Club related to the above mentioned Clash Gour windfarm Stage 2 Engagement.

Regards,

[REDACTED]

The detailed response referred to in the email above can be seen on the [CAA Airspace Change portal](#).

From: [REDACTED]
Sent: 07 April 2022 14:20
To: [REDACTED]
Subject: RE: Clash Gour Windfarm - Airspace Change Proposal Design Options

Hi [REDACTED]

Thank you for your email.

> what the upper level of any ACP change in relation to the proposed Clash Gour wind farm would be
It is the GAA's current opinion that a TMZ is unnecessary.

If one is deemed necessary then to prevent it becoming Restricted Airspace by default it must contain suitable management facilities and so should not be from the ground up where these facilities are not available due to topography etc, and also the top should be as low as possible.

Regards

[REDACTED]

[REDACTED]

General Aviation Alliance

Email: [REDACTED]

From: [REDACTED]
Sent: 26 April 2022 13:09
To: [REDACTED]
Subject: Re: Clash Gour Wind Farm - Airspace Change Proposal Design Options

Dear [REDACTED]

Thank you for the reminder of your deadline for responding to your consultation.

Please find attached the response from Highland Gliding Club Ltd

Kind regards

Robert Tait
Chairman
Highland Gliding Club Ltd

The detailed response referred to in the email above can be seen on the [CAA Airspace Change portal](#).

From: [REDACTED]
Sent: 13 April 2022 16:23
To: [REDACTED]
Subject: RE: Clash Gour Windfarm - Airspace Change Proposal Design Options

Dear [REDACTED]

If I understand the question correctly you are asking what the upper limit would be of any airspace restrictions introduced through your ACP? If that is the case, then the proposal, as I understood it, was to introduce a TMZ or Transponder Mandatory Zone. This is a lateral restriction as any upper limit upper would render the TMZ as ineffective as the height of an aircraft flying through that area without a transponder would be unknown to the controller. In the UK, above 10000' (Flight Level 100 or FL100) it is mandatory to carry a transponder anyway (there are a few specific instances where this does not need to be complied with) so nominally the TMZ would operate from surface to FL100.

Hope that helps,

Kind regards,

[REDACTED]

[REDACTED]

PUBLIC

From: [REDACTED]
Sent: 29 April 2022 11:48
To: [REDACTED]
Subject: Clash Gour ACP Stage 2 MOD Response

Good morning [REDACTED]

I am writing to you to provide the MOD response to Stage 2 – Design Options for ACP-2021-046. All of the relevant MOD stakeholders were given the opportunity to comment and the responses are included in this letter.

78 Sqn (Swanwick (Mil))

The ATM equipment used by 78 Sqn is provided by NATS and therefore any potential impact on radar sensors – and thus coverage – is captured through NATS processes, in which 78 Sqn are a stakeholder.

As a TMZ is a formal airspace structure with certain rules attached, controllers would have to be aware of its presence, so it would have to be plotted on the displays and detailed on the Support Information System. This has the potential for a minor increase to controller workload to ensure compliance with TMZ rules and checking activation status if it is not a permanent structure. If the proposed TMZ option was to have an upper limit of around 5000 feet, it would probably not need to be displayed as traffic would likely be receiving an ATS from Lossiemouth or Inverness, rather than 78 Sqn. A top level of flight level 100 would seem to be the appropriate absolute maximum, as aircraft operating above that level should be operating with a transponder.

RAF Lossiemouth

Although the intent of this ACP is to determine a solution that mitigates the effect of wind turbines on ATM equipment sensors, such a solution needs to consider the overall impact to the Lossiemouth ATC AoR, where existing wind turbines negatively impact the radar display.

Option 1 Feedback – Temporary wind turbine suspension

MOD agrees that this option is likely to be unmanageable from an operational perspective, as it would need to happen many times within a day, especially during departure/recovery waves.

Option 2 Feedback – Permanent SSR Alone operations

Lossiemouth agrees that it would not be an ALARP and Tolerable solution and would significantly increase air safety and MAC risks.

Option 3 Feedback – Infill radar

An infill radar would be an appealing option to MOD but it is seemingly discounted as an option within the engagement documentation, which should ideally take place at the end of stage 2, once stakeholder responses are considered.

Options 4 & 5 Feedback – Controlled airspace

Any introduction of or change to classification of airspace to mitigate against wind turbine clutter would need to take account of issues such as access to airspace, traffic funnelling etc. Such airspace would also require a control authority to be nominated, with increased workload anticipated for whichever ANSP took this on, as well as greater demand on resource. It would still present clutter but it could be deemed as not being aircraft as it would be a known traffic environment. If airspace classification was to be changed it should not be for a small local area, it needs to consider impact and be suitable for the whole AoR.

Option 6 Feedback – RMZ

As the documentation states, an RMZ would not prevent false tracks from appearing and would therefore be of little benefit when applying an ATS, especially if it was a deconfliction service.

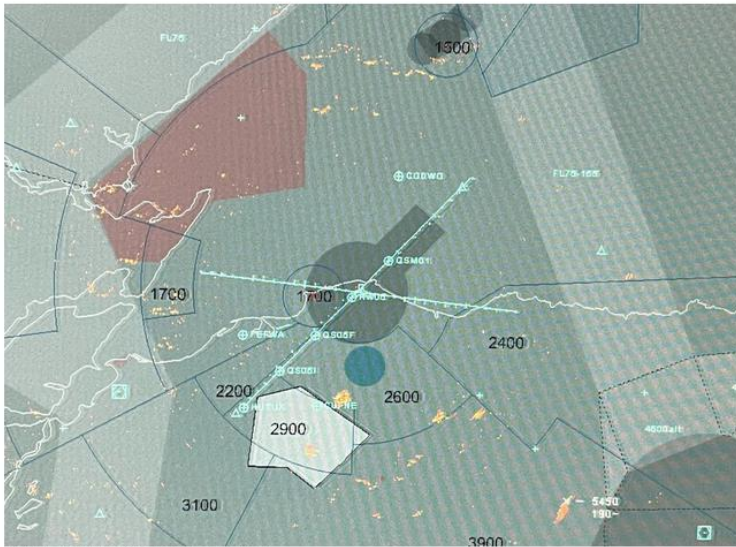


Figure 1 - Proposed TMZ on LOS Radar Display

Figure 1 depicts the Lossiemouth AoR with one of the proposed RAG blanked/TMZ area to the south plotted (note this is rough plotting, no guarantee of accuracy). The extended centrelines and RNP procedure map overlays are visible, as well as the Easterton Gliding area (blue circle south of the MATZ). Existing Wind Turbine developments already create a challenge when operating IFR to the south of LOS (clutter visible) for approaches to RWY05, with 2x developments already in situ in the vicinity of the proposed Clash Gour. One of the existing areas of clutter would be covered by the proposed TMZ however the other would not as it is just on the NE edge between TMZ and Easterton.

The presence of the overland TMZ and associated blanking potentially in such close proximity to (and potentially overlapping) existing published IFR arrival/departure procedures may be unacceptable to MOD and they will therefore be seeking further guidance about what is permissible under current regulations and policy. However, if it were to be deemed acceptable, the dimensions of the area must be simple in shape and contain a buffer (size would need to be safety assessed to agree).

Any blanked area and associated TMZ would need to be checked against WAM coverage to ensure there are no gaps or areas of poor coverage that would render aircraft invisible to the controller. As WAM is not yet in service, this is difficult to verify; however, when there is greater clarity on the option(s) to be proposed at stage 3 of the ACP then a request can be made to the relevant authority. An assessment on the performance of the STAR NG radar would also need to be made, to identify the likely impact of the wind turbine on the sensor and what is required to mitigate it, whilst remaining within the bounds of its Release to Service and not undermining the Terminal ATC Operating Safety Case. In the event of a loss of WAM (planned or unplanned maintenance, random failures etc.) the blanking would mean any aircraft operating in the TMZ would not be shown and therefore an ATC Service could not be applied. Operating IFR to runway 05 when Primary (STAR NG) only, is a safety concern to Lossiemouth.

All IFR approaches to RWY05 will be impacted (PAR, TACAN, SRA) and the blanked area would limit Surveillance Radar Approaches to a northerly feed-in, which would limit flexibility and reduce the effectiveness of the service being provided. The TMZ location would funnel non-cooperative traffic to the north, which would put it into conflict with traffic on IFR approaches to RWY05, as well as IFR departures from RWY23, whereas without the TMZ they can freely route to the south of the approach/departure lane. It will also impact RNP procedures (not yet published but in progress), the TACAN Hold for RWY05 and likely to impact ATS provision for departures on the MID23 South. It should be noted that any impact to Lossiemouth procedures may have a knock-on impact to Inverness ATC procedures.

Formation stream departures and arrivals would be affected if any ac has an unserviceable transponder, as track ident of each formation element would not be possible through the TMZ. This would mean avoiding the TMZ to the south which then brings higher terrain into the equation, which is not acceptable for fast jet recoveries where fuel is often at a premium. The TMZ also impacts overall traffic flow in the AoR to the south of Lossiemouth, with potential funnelling of non-transpondering traffic into the 05 approach/23 departure lane, further exacerbated by location of Easterton. Occasionally, Typhoons general handle, south of Lossiemouth whereby SSR often drops out (due manoeuvring), this may further limit where fast jets can freely operate. All of these factors would mean an increase in ATC workload, especially if Lossiemouth were to be the authority for the airspace.

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Note that the Lossiemouth STAR NG is not yet in-service and no RSP report or technical analysis of the impact on the STAR NG has been available to Lossiemouth ATC. Therefore the above comments are based on the assumption that, given the location and the impact of current wind turbine development on the current PSR, the development is highly likely to have an impact on the STAR NG.

Additional points

MOD understands from conversations with the Sponsor that the mitigation that is to be achieved through this ACP will only be the temporary solution, until a technical solution is reached that will negate the requirement for airspace structures.

Summary

Overall, it is shown that all of the options would have a negative impact on Lossiemouth operations, with the potential to negatively impact air safety. It is crucial that the solution mitigates not only the direct effect of the wind turbines, but how its existence impacts traffic outside solution itself e.g. through traffic displacement, re-routing traffic from a benign area to one that could have safety implications. The Sponsor should also be aware that the solution may exacerbate the cumulative effect of existing wind turbine installations that are without mitigations. The MOD recognises that for the short term there will need to be airspace mitigation, until a permanent solution is determined by the Sponsor, and MOD will continue open and honest conversations throughout the ACP process.

If any of the detail stated here is unclear, please feel free to ask for an explanation.

Best regards,

[Redacted]

[Redacted] SO2 Airspace Plans | Defence Airspace and Air Traffic Management | [Redacted]
[Redacted]

From: [Redacted]
Sent: 29 March 2022 16:46
To: [Redacted]
Cc: [Redacted]
Subject: Re: Clash Gour Windfarm - Airspace Change Proposal Design Options

Lossie Ops,
Please pass below to who ever might deal with this at station level RAF Lossiemouth. It's not an MFC matter.
Regards

[Redacted]

Sent from my iPad

The response for Moray Flying Club (above), which is based at RAF Lossiemouth, is reflected in the comprehensive MOD response (also above) which includes consideration of operations from RAF Lossiemouth.

From: [REDACTED]
Sent: 10 May 2022 15:08
To: [REDACTED]
Subject: RE: [EXTERNAL] Clash Gour Wind Farm - Airspace Change Proposal Design Options

Good Afternoon,

After consultation with several of our units, we can confirm no impact on NATS. Thank you for including us in your consultation.

Many Thanks,

[REDACTED]

NATS

[REDACTED]
NATS Policy
Ops and Integration for NATS Airports

[REDACTED]

NATS Swanwick

www.nats.co.uk



NATS Internal

From: [REDACTED]
Sent: 14 April 2022 12:50
To: [REDACTED]
Subject: Re: Clash Gour Wind Farm - Airspace Change Proposal Design Options

Thank you for contacting me regarding the above.

I sit on NATMAC as the representative of the Airfield Operators Group. We have members in the nearby area, so I have no input to make. Good luck with your progress.

Regards

[REDACTED]

Sent from my iPhone

The following submissions were also made to the consultation. Though they do not relate to the aviation aspects of this proposal, they have nevertheless been included for completeness.

From: [REDACTED]
Sent: 27 April 2022 20:21
To: [REDACTED]
Subject: Development of Clashgour wind farm

I have studied the proposal for the Clashgour wind farm with considerable interest, because, with some friends, I have enjoyed walking in that part of the world, at least in part because it is remote from anything except trees, heather and water.

For example, we walked a circuit from Dallas, round Loch Dallas and back through the southernmost part of the projected wind farm. It would have been 100% enjoyable if it had not been for two waterlogged stretches on the route we were following, which required a lot of effort and energy to negotiate. On that occasion we covered 14.5 miles. Most people, I imagine, would not contemplate a walk as long as that.

My photo-log of that walk is at <https://protect-eu.mimecast.com/s/SdjeCcVKAfQXnRiGVYt5?domain=geograph.org.uk> if you wish to see exactly what route we followed and where we encountered difficulties. The two worst parts are inside the boundaries of Clash Gour wind farm

While I regret the prospect of covering vast swathes of countryside with turbines, I understand the need for renewable energy. On the other hand, I welcome the advent of easier access for walkers to various places thanks to wind farm access roads. A walk from Mulben to Rosarie over Knockan and MacHattie's Cairn is much easier and more enjoyable now than it was when one had to wade through rank heather for two or three miles.

The new path network is a wonderful idea, and I wish it would extend to more of the total area, and include links so that Berryburn would also be accessible as part of the network.

However I see that the path network is fairly remote from most of the surrounding public roads. I hope that you have included in your plans, or will include, some access by road with parking so that people wishing to take shorter walks on your new path network will actually be able to get to the network in the first place. Take a leaf out of the Forestry Commission's book!

Best wishes

[REDACTED]

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From: [REDACTED]
Sent: 21 April 2022 20:51
To: [REDACTED]
Cc: Lindsay Compton [REDACTED]
Subject: FW: Clash Gour Wind Farm - Airspace Change Proposal Design Options

Dear [REDACTED]

Apologies for the slow response to your email but I have been on leave. However, this is a challenge to which we could bring considerable effect. Advanced Material Development (AMD) for whom Canny Comms provides a marketing and communications function, has a nano technology solution which can reduce radar signatures by up to 40dbs and we have been working with wind farm technologists to prove the effect of this innovative solution.

May I suggest that we set up an intro call with our technical team and founder to better understand your specific challenges, and for you to hear the likely solutions we could bring to the problem. Please let me know if that is acceptable and who you would like to attend the meeting. We will then get our EA to organise the meeting at a mutually agreeable time and date.

I look forward to hearing from you.

Regards,

[REDACTED]



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[REDACTED]

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