

CAA CAP 1616 Options Appraisal Assessment (Phase I Initial)

Title of airspace change proposal	Norfolk Vanguard Windfarms		
Change sponsor	Vattenfall Wind Power		
Project no.	ACP-2018-03		
Case study commencement date	14/08/2020	Case study report as at	17/08/2020

Account Manager: [Redacted]	[Grey]	Airspace Regulator (Engagement & Consultation): [Redacted]	[Yellow]	IFP: [Redacted]	[Orange]	OGC: [Redacted]	[Dark Blue]
Airspace Regulator (Technical): [Redacted]	[Green]	Airspace Regulator (Environmental): [Redacted]	[Purple]	Airspace Regulator (Economist): [Redacted]	[Light Blue]	ATM (Inspector ATS Ops):	[Red]

Instructions

To aid the SARG project leader’s efficient project management, please highlight the “status” cell for each question using one of the four colours to illustrate if it is:

Resolved - GREEN
 Not Resolved – AMBER
 Not Compliant – RED
 Not Applicable - GREY

Guidance

The broad principle of economic impact analysis is **proportionality**; is the level of analysis involved proportionate to the likely impact from that ACP? There are three broad levels of economic analysis; qualitative discussion, quantified through metrics, and monetised in £ terms. The more significant the impact, the greater should be the effort by sponsors to quantify and monetise the impact.

1. Background – Identifying the impact of the shortlist of options (including Do Nothing (DN) / Do Minimum (DM))		Status	
1.1	Are the outcomes of the options’ scenarios clearly outlined in the proposal?	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
1.1.1	Has the change sponsor produced an Options Appraisal (Phase I - Initial) which sets out how they have moved from the Statement of Need to the airspace change design options? [E12]	Yes, the sponsor has produced the Initial Options Appraisal and introduced the Radar Blanking mitigation solution with corresponding TMZ for Norfolk Vanguard and Boreas windfarms.	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
1.1.2	Does the list of options include a description of the change proposal?	Yes, the description of the proposed four options plus the do-nothing option is explained thoroughly.	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
1.1.3	Has the sponsor stated on what criteria the longlist of options has been assessed?	Yes, the sponsor used the criteria listed under CAP 1616 Appendix E Table E2.	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
1.1.4	Where options have been discounted, does the change sponsor clearly set out why?	The sponsor clearly set out the reason of discounting in Stage 2A Design Principle Evaluation Document. According to DP Evaluation, Option A, B and C were all rejected even though the sponsor concluded that Option B provides a feasible solution.	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
1.1.5	Has the change sponsor indicated their preferred option in the Options Appraisal (Phase I - Initial)? [E8]	Yes, the sponsor has indicated their preferred option will be Option D due to the simplified boundary of the TMZ and the benefit from a minimum 2 NM buffer which would allow ATC to spot infringement of the TMZ by non-transponder equipped aircraft before they enter the RAG blanked area.	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
1.1.6	Does the Initial Options Appraisal (Phase I - Initial) detail what evidence the change sponsor will collect, and how, to fill in any evidence gaps and how this will be used to develop the Options Appraisal (Phase II - Full)?	The IOA does not detail the evidence the change sponsor will collect for further stages because the anticipated level for this ACP has been indicated as Level 2B and the assessment requirements are scalable. The sponsor completed the minimum requirement for this initial step of the options	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

		appraisal.	
1.1.7	Does the plan for evidence gathering cover all reasonable impacts of the change? [E12]	The sponsor has not detailed any further development for the next stages of the options appraisal. So, no plan for evidence has yet been discussed in the IOA.	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>

2. Direct impact on air traffic control		Status			
2.1	Are there direct cost impacts on air traffic control / management systems? If so, please provide below details of the factors considered and the level in which this has been analysed.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
2.1.1	<i>Examples of costs considered (please add costs that have been discussed, and any reasonable costs that the Airspace Regulator (Technical) feels have NOT been addressed)</i>				
		Not applicable	Qualitative	Quantified	Monetised
2.1.2	Infrastructure changes	X			
2.1.3	Deployment	X			
2.1.4	Training	X			
2.1.5	Day-to-day operational costs / workload / risks	X			
2.1.6	Other (provide details)		X	N/A	N/A
2.1.7	Comments The Sponsor stated there are no known costs which would be imposed on commercial aviation except routine AIRAC updates to FMS and flight planning systems.				
2.2	Are there direct beneficial impacts on air traffic control / management systems? If so, please provide details and how they have been addressed:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
2.2.1	<i>Examples of benefits considered</i>	Not applicable	Qualitative	Quantified	Monetised
2.2.2	Reduced work-load		X	N/A	N/A

2.2.3	Reduced complexity / risk		X	N/A	N/A	
2.2.4	Other (provide details)	X				
2.2.5	<p>Comments</p> <p>The sponsor indicated Option A and C will increase ATZ workload and impact on capacity leading to a reduction in ATC resilience and added Options B & C will have no such impact. Besides, the sponsor underlined the do-nothing option does not provide any mitigation against radar clutter which might affect an air traffic controller's ability to identify aircraft via primary radar returns and hence introduce the risk of failing to detect a potential conflict between aircraft.</p>					
2.3	<p>Where monetised, what is the net monetised impact on air traffic control (in net present value) over the project period?</p> <p>N/A</p>					
2.4	<p>Are the direct impacts on air traffic management analysed accurately and proportionately?</p> <p>All the criteria listed under CAP 1616 are addressed in the IOA and qualitatively analysed in comparison with the do-nothing option.</p>				<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	

3. Changes in air traffic movements / projections					Status	
3.1	What is the impact of the ACP on the following and has it been addressed in the ACP proposal?				<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
		Not applicable	Qualitative	Quantified	Monetised	
3.1.1	Number of aircraft movements		X	X	N/A	
3.1.2	Type of aircraft movement		X	N/A	N/A	
3.1.3	Distance travelled		X	N/A	N/A	
3.1.4	Area flown over / affected		X	N/A	N/A	
3.1.5	Other impacts	X				
3.1.6	<p>Comments</p> <p>The sponsor indicated there would be no increase in effective capacity and further explained that relative difference in capacity between each of the option is not likely to affect ATC sector monitor values.</p> <p>In terms of GA access, the IOA states GA users without an operating transponder will have a one-off cost to access the TMZ. The cost will</p>					

	comprise the cost to purchase a transponder and will be circa £2,000. However, the anticipated demand from GA aircraft without a transponder is minimal given the offshore location which is 47 km from the Norfolk coastline.				
3.2	<p>Has the forecasting of traffic done reasonably using best available guidance (e.g. DfT WebTAG, the Green Book, Academic sources...etc?)</p> <p>All CA(T) carry transponders, and as such are likely to be provided with a crossing service for the area proposed and as such are not likely to be adversely affected. Of the remaining traffic the sponsor estimates just 0.16% will not carry a transponder and as such just 0.16% (or a negligible number) are likely to be adversely affected.</p> <p>KC: So – while the above data is based on a 7 days traffic sample, it is considered acceptable as to expend any further effort would not be proportionate given the low likely level of impact of this ACP.</p>	<input checked="" type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>			
3.3	<p>What is the impact of the above changes (3.1) on the following factors below?</p> <p>KC: The sponsor has assessed the expected impact on Fuel burn/CO2 as 6.3 MT of enabled savings, Given the location, and expected effect of this ACP, and that it is entirely expected to be confirmed as a Level 2B it is proportionate and acceptable that no assessment of Local Air Quality or noise have been carried out. Assessment of the baseline has been provided in terms of the expected impact on local communities, as have the impact of the options although the impacts of the other options are considered to be equal. No assessment has been carried out of Local air quality, this is acceptable given the location of the proposal (entirely over the sea with very minimal effect expected on “other traffic”) Similarly any effect on tranquillity is expected to be minimal, as just 0.16% of traffic is likely to be impacted.</p>				
		Not applicable	Qualitative	Quantified	Monetised
3.3.1	Noise	X			
3.3.2	Fuel Burn		X	N/A	N/A
3.3.3	CO2 Emissions		X	N/A	N/A
3.3.4	Operational complexities for users of airspace		X	N/A	N/A
3.3.5	Number of air passengers / cargo	X			
3.3.6	Flight time savings / Delays	X			
3.3.7	Air Quality	X			

3.3.8	Tranquillity				
3.4	<p>Are the traffic forecast and the associate impact analysed proportionately and accurately according to available guidelines (e.g. WebTAG or the Green Book?)</p> <p>Traffic Forecast has not been provided in the IOA even though for Level 2B longer-term CO₂ emissions based on a 10-year traffic forecast is still a requirement under CAP 1616.</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3.5	<p>What is the total monetised impact of 3.3? (Provide comments)</p> <p>N/A</p>				

4. Benefits of ACP					Status
4.1	Does the ACP impact refer to the following groups and how they are impacted by the ACP?				
		Not applicable	Qualitative	Quantified	Monetised
4.1.1	Air Passengers	X			
4.1.2	Air Cargo Users	X			
4.1.3	General aviation users		X	N/A	N/A
4.1.4	Airlines		X	N/A	N/A
4.1.5	Airports	X			
4.1.6	Local communities	X			
4.1.7	Wider Public / Economy		X	N/A	N/A
4.1.8	<p>Comments</p> <p>The IOA outlines that GA users may incur increased fuel burn if they are forced to reroute around the TMZ if GA aircraft doesn't have a transponder. However, the sponsor anticipated fuel burn impact would be negligible due to less than 2 aircraft expected per week.</p>				
4.2	How are the above groups impacted by the ACP, especially (but not exclusively) looking at the following factors below:				
4.2.1	Improved journey time for customers of air travel	N/A			

4.2.2	Increase choice of frequency and destinations from airport	N/A
4.2.3	Reduced price due to additional competition because of new capacity	N/A
4.2.4	Wider economic benefits	The introduction of the wind farm is anticipated to provide CO ₂ e benefits of c. 6.3 million tonnes per annum. However, this benefit is not an airspace change related benefit but will only be realised if the airspace change is implemented.
4.2.5	Other impacts	Safety benefits as the change will provide a safe and effective mitigation against the radar issues associated with wind turbine generators.
4.2.6	Comments	
4.3	What is the overall monetised impacts associated with 4.1 and 4.2 the above? N/A	
4.4	What are the non-monetised but quantified impacts of the above? (Insert details of description) N/A	
4.5	What are the qualitative / strategic impacts described above? The design proposal is for the implementation of radar blanking alongside a TMZ to provide mitigation solution for the interference caused by the wind turbine generators from the radar display. Radar blanking will also remove primary radar returns of aircraft within the blanked area.	
4.6	What is the overall monetised benefits-costs ratio (BCR) of the policy? Is it more than 1? N/A	
4.7	Have the sponsors provided reasonable justification for the proportionality of analysis above? The sponsor stated in the IOA that the environmental impact assessment has been conducted on the basis of CO ₂ emissions in line with the requirements for a Level 2B change and added it is not sponsor's anticipation that there would be a perceptible change to noise impacts to stakeholders on the ground due to the location of the airspace change and therefore no analysis has been undertaken.	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
4.8	If the BCR is less than 1, are the quantitative and qualitative strategic impacts proportional to the costs of the ACP? N/A	

5. Other aspects	
5.1	Nil

6. Summary of Assessment of Economic Impacts & Conclusions		
6.1	The sponsor's IOA fulfils the minimum requirement for the IOA by providing the qualitative analysis for all relevant criteria. All four options that were listed in the Stage 2A were included and analysed qualitatively in comparison with the do-nothing option. Option A, B and C were discounted at Stage 2A because they didn't meet with all the design principles. The sponsor anticipated Option D would have no significant impact and underlined that the overall CO _{2e} benefits from the windfarm project will outweigh the negligible fuel burn costs to GA aircraft. The sponsor stated their preferred option would be Option D due to its simpler TMZ shape.	
Outstanding issues?		
Serial	Issue	Action required
1	Traffic forecast has not been provided in the IOA.	Longer-term CO ₂ emissions (based on a 10-year traffic forecast) will be required in the next stage.
2	The Sponsor stated Option D is the only option which will be carried forward to consultation. However, as the IOA indicates there are two viable options, Option C and D. Therefore, these two should be taken forward to consultation before discounting an option at this first phase of options appraisal.	All viable options shown in the IOA should be taken forward to Consultation with a detailed environmental and economic analysis.

CAA Initial Options Appraisal Completed by	Name	Signature	Date
Airspace Regulator (Economist)	[REDACTED]	[REDACTED]	17/08/2020
Airspace Regulator (Environmental)	[REDACTED]	[REDACTED]	24/08/2020
Airspace Regulator (Technical)	[REDACTED]	[REDACTED]	24/08/2020

ATM – Inspector ATS (Ops)			Click or tap to enter a date.
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