

K6. Air Traffic Flow Analysis

US Wind Offshore Wind Project

ESS Group

Offshore Ocean City, Maryland

Air Traffic Flow Analysis

May 18, 2022



Capitol Airspace Group

capitolairspace.com

(703) 256 - 2485



Introduction

The Federal Aviation Administration (FAA) conducts aeronautical studies to ensure that proposed structures do not affect the safety of air navigation and the efficient utilization of navigable airspace by aircraft. Proposed structures undergoing aeronautical study that exceed obstacle clearance surfaces will be identified as having an adverse effect. If the FAA determines that the adverse effect would impact a significant volume of operations, it could be used as the basis for determinations of hazard. For visual flight rules (VFR) operations the threshold is one flight per day. For instrument flight rules (IFR) operations the threshold is one flight per week.

Capitol Airspace previously conducted an obstruction evaluation and airspace analysis for the US Wind Offshore wind project (black outline, **Figure 1**). This analysis determined that 938-foot-tall wind turbines would require an increase to Potomac (PCT) Terminal Radar Approach Control (TRACON) minimum vectoring altitudes (MVA). If this IFR impact would affect as few as one operation per week, it could be used as the basis for determinations of hazard.

In order to determine the number of IFR operations potentially affected by proposed wind turbines, Capitol Airspace conducted an air traffic flow analysis for the US Wind Offshore wind project. This analysis is an assessment of historical flight tracks that can be used to determine the likelihood of airspace impacts affecting a significant volume of future operations.

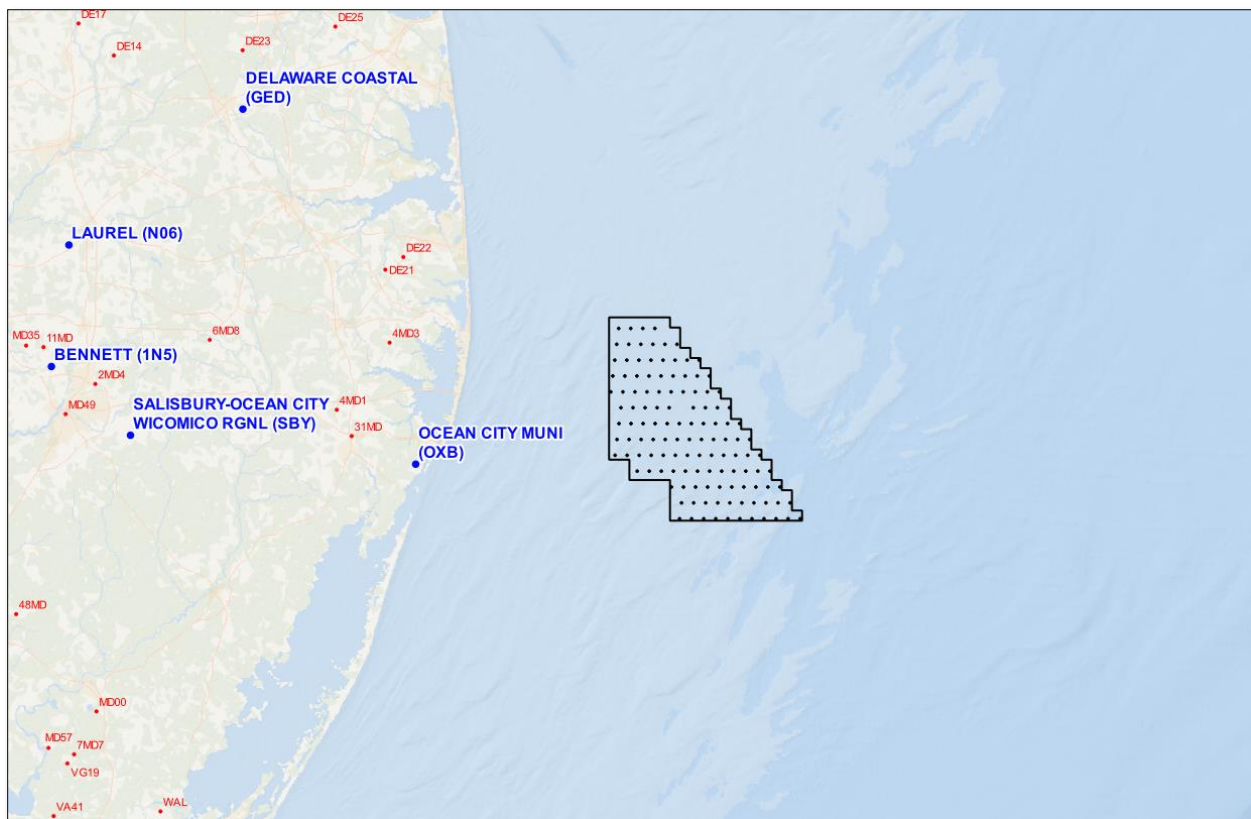


Figure 1: Public-use (blue) and private-use (red) airports in proximity to the US Wind Offshore wind project (black outline)



Methodology

Capitol Airspace evaluated FAA National Offload Program (NOP) flight tracks in proximity to the US Wind Offshore wind project for the 2019 and 2020 calendar years. Ultimately, the 2019 and 2020 datasets resulted in the same number of flights within the affected airspace. The flights depicted in this report are from the 2020 dataset. The FAA NOP data contained radar returns associated with flights receiving air traffic control services.¹ Each flight that had at least one radar return within the affected airspace was analyzed for altitude and direction trends to determine its likely operation.

Minimum Vectoring Altitudes²

In order to accommodate proposed wind turbines, the FAA must modify MVA sector boundaries or establish isolation areas with an increased MVA. Depending on the type of MVA chart, the modifications would implement either a three or five nautical mile (NM) buffer around wind turbines exceeding the MVA sector's obstacle clearance surface. Flights that maintained one or more specific headings within the affected volume of airspace operated in a manner consistent with receiving radar vectoring services. These flights also maintained or climbed/descended to maintain an altitude within the affected airspace. The historical presence of these flights is an indicator that the required MVA sector modifications could affect future air traffic control operations.

¹ NOP data excludes certain military flights due to the sensitive nature of some operations.

² The study area is in proximity to Dover (DOV) Radar Approach Control (RAPCON) and Patuxent (NHK) Navy Radar Air Traffic Control Facility (RATCF) airspace. However, Department of Defense (DoD) MVA charts, including those for Navy RATCF, Army Radar Approach Control Facilities (ARAC), and Air Force RAPCON facilities, are not publicly released. Capitol Airspace requests these charts from the DoD and assesses for them when copies are provided. However, unreleased or updated charts could result in lower height constraints than those depicted in this report.



Findings

Potomac (PCT) TRACON

The Sector NHK-F MVA is 1,800 feet above mean sea level (AMSL) and the associated obstacle clearance surface is 849 feet AMSL. At 938 feet tall, proposed wind turbines in the western and central sections of the study area (red area, [Figure 2](#) & [Figure 3](#)), including up to 104 proposed locations, would exceed this surface. Proposed wind turbines in this area would require an increase to the Sector NHK-F MVA from 1,800 to 1,900 feet AMSL. This increase would affect both the FUSION 3 and FUSION 5 MVA charts.

FUSION 3 (PCT_MVA_FUS3_2021)

Sector NHK-F

Flight track data indicates that two flights (purple tracks, [Figure 2](#)) operated within the affected airspace (dashed red outline, [Figure 2](#)). This flight total represents an average of *0.04 flights per week* which is below the FAA's threshold for a significant volume of operations. Additionally, it is not likely that all of these flights were receiving radar vectoring services.

FUSION 5 (PCT_MVA_FUS5_2021)

Sector NHK-F

Flight track data indicates that three flights (purple tracks, [Figure 3](#)) operated within the affected airspace (dashed red outline, [Figure 3](#)). This flight total represents an average of *0.06 flights per week* which is below the FAA's threshold for a significant volume of operations. Additionally, it is not likely that all of these flights were receiving radar vectoring services.

Additionally, the US Wind Offshore wind project is located approximately 40 nautical miles outside of Potomac (PCT) TRACON airspace. As a result of these findings, it is possible that Potomac (PCT) TRACON would not object to modifying Sector NHK-F to accommodate 938-foot-tall wind turbines. This mitigation option is subject to FAA approval.

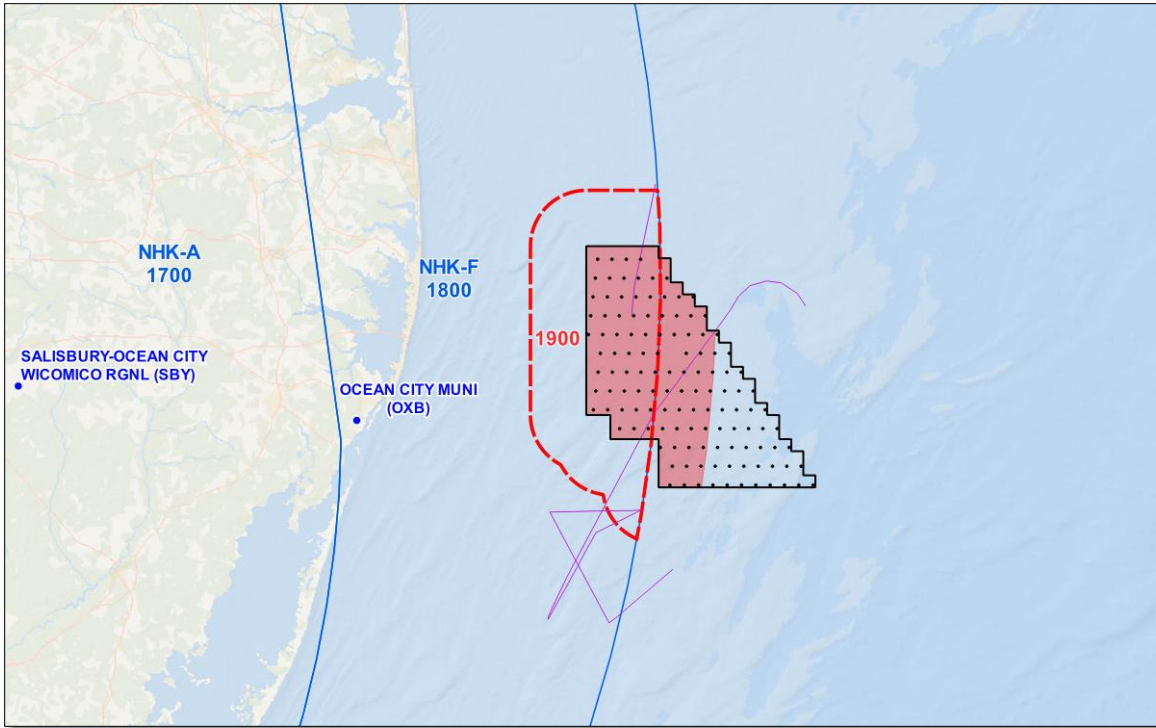


Figure 2: Historical flight tracks (purple) that potentially received radar vectoring services within the required 3 NM isolation area (dashed red)

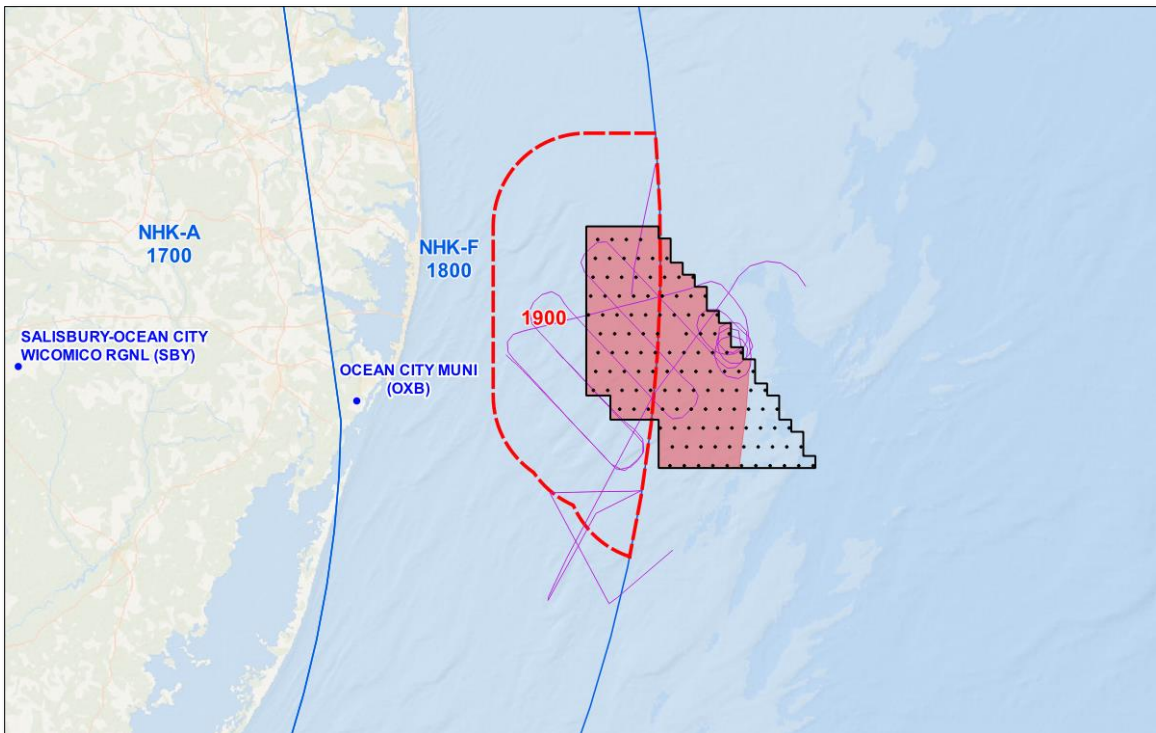


Figure 3: Historical flight tracks (purple) that potentially received radar vectoring services within the required 5 NM isolation area (dashed red)



Conclusion

Capitol Airspace assessed historical FAA radar track data covering the period of one year to determine the number of operations that could be affected by 938-foot-tall wind turbines.

Proposed wind turbines in the western and central sections of the study area, including up to 104 locations, would require an increase to Potomac (PCT) TRACON MVAs from 1,800 to 1,900 feet AMSL. As many as two flights (FUSION 3 chart) or three flights (FUSION 5 chart) could have been receiving radar vectoring services within the affected airspace. These flight totals represent averages of *0.04 flights per week* and *0.06 flights per week*, respectively, which are below the threshold for a significant volume of IFR operations. Additionally, the US Wind Offshore wind project is located approximately 40 nautical miles outside of Potomac (PCT) TRACON airspace.

As a result of these findings, it is possible that Potomac (PCT) TRACON would not object to modifying the affected MVA sectors in order to accommodate 938-foot-tall wind turbines. This mitigation option is subject to FAA approval prior to receiving favorable Determinations of No Hazard.

Please contact **Dan Underwood** or **Candace Childress** at (703) 256-2485 with any questions regarding the findings of this analysis.