

GR-9 Aviation

This Global Response addresses the following aviation-related comment topics:

- Compliance with Federal Aviation Administration (FAA) requirements
- Airspace
- Terrain
- Turbulence
- Radar systems
- Lighting
- Aerial firefighting

Compliance with Federal Aviation Administration Requirements

Several commenters referenced a letter submitted by Backcountry Against Dumps on January 29, 2020, to the FAA in connection with the FAA's review of the proposed aeronautical study for the Campo Wind Project with Boulder Brush Facilities (Project) (please refer to Comment Letter O5 and Responses to Comments O5-30 and O5-66 through O5-86). The letter was previously submitted to the Bureau of Indian Affairs (BIA) as a comment on the Final Environmental Impact Statement prepared for the Project by the BIA. Please refer to the BIA-issued Record of Decision, which includes responses to comments received on the Final Environmental Impact Statement. The Record of Decision was published online on May 12, 2020, with notice in the San Diego Union Tribune East County edition and a post on www.CampoWind.com.

The U.S. Congress has charged the FAA with the responsibility of promoting air commerce in the United States. As a part of this responsibility, the FAA is tasked with ensuring air safety and preserving the National Airspace System. It is through these mandates that the FAA draws its authority to conduct aeronautical studies of tall structures, including evaluating wind turbines (Title 14 of the Code of Federal Regulations Part 77). In conducting each study, the FAA's prime objective is to ensure the safety of air navigation and the efficient utilization of navigable airspace (FAA Order 7400.2M Paragraph 6-3-1[a]). Since this Project is required to obtain Determinations of No Hazard from the FAA for Project wind turbines, safety and efficiency of air traffic operations throughout the Project vicinity will be ensured. As discussed in Chapter 2.5, Hazards and Hazardous Materials, the Developer would be required to submit form FAA 7460-1 to the FAA 45 days prior to the start of construction. Appropriate filing of these forms to the FAA would ensure that the Project complies with FAA regulations. With compliance with FAA regulations, it was determined that the Project would result in less-than-significant impacts regarding airport hazards.

Responses to Comments

The January 29, 2020, letter submitted as Exhibit 13 of Comment Letter O5 does not directly comment on the Draft Environmental Impact Report or its analysis of hazard impacts; however, responses are provided herein for informational purposes. The January 29, 2020, letter submitted to the FAA made the following claims:

- The Project site is an active military, commercial, and private airspace
- Aviation concerns are exacerbated by mountainous terrain
- Wind turbines create turbulence that can adversely affect aircraft flying above the Project Site
- Wind facilities interfere with radar systems (both with respect to increased clutter threshold and blade flash effect)
- Lighting is not adequate mitigation because placement is too low and night vision goggles do not detect the lighting
- Emergency air-support services would be adversely affected by Project facilities

These issues are addressed in the following paragraphs.

Airspace

The Project Site is not an active military, commercial, or private airspace. There are no military training routes or military operations areas overlying the Project Site. Each wind turbine aeronautical study solicits feedback from 10 different government offices, including Airports, Instrument Flight Procedures Impact Team, Flight Standards, Technical Operations, Frequency Management, United States Air Force, United States Navy, United States Army, Department of Homeland Security, and the Department of Defense Siting Clearinghouse. Specific to the Department of Defense Siting Clearinghouse review, all military services assess the Project to determine if there is a risk associated with adverse impacts on the military's operations and readiness. To date, there have been no objections or concerns raised by any of the military services nor the Department of Defense Siting Clearinghouse. As the Project is required to obtain Determinations of No Hazard from the FAA for Project wind turbines, safety and efficiency of air traffic operations throughout the Project Site will be maintained after the Project is constructed and during the Project's operation.

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Terrain

The introduction of the Project does not alter the existing conditions of the terrain of the Project Site, and the FAA considers both the terrain and the height of the wind turbines in each wind turbine aeronautical study.

Turbulence

Turbulence created by wind turbines is not expected to adversely affect aviation within the Project vicinity. The University of Kansas has researched the effect of wind turbine wake turbulence on smaller, general aviation aircraft operating at low airspeeds and at low flight altitudes when operating near wind turbine sites or at general aviation airports that are in proximity to wind farms.¹ This research indicates that turbulence from a wind turbine could affect a small, general aviation aircraft flying at very low altitudes. However, this turbulence diminishes as the distance downstream from a turbine increases from 1 to 4.5 rotor diameters. And, by 9 rotor diameters, “the turbulent energy peaks disappear completely.”²

Radar Systems

The FAA will not allow unmitigatable or unacceptable levels of wind turbine interference with radar systems. At the conclusion of the FAA’s aeronautical study process, the FAA will issue a Notice of Presumed Hazard for any proposed wind turbine that would be deemed to cause such an unmitigatable or unacceptable level of interference to radar systems. And, therefore, the proposed wind turbine could not be constructed.

Lighting

Lighting is sufficient and adequate mitigation to reduce hazard impacts associated with aviation to less-than-significant levels. Although there is no published military airspace overlying the Project Site, the Developer has committed to installing FAA-approved obstruction lighting that ensures nighttime conspicuity for both civilian, military, and emergency operators. This lighting will comply with FAA’s marking and lighting guidance described in FAA Advisory Circular 70/7460-IL. As stated above, the United States Air Force, United States Navy, United States Army, Department of Homeland Security, and the Department of Defense Siting Clearinghouse are agencies that provide feedback to the FAA as part of the aeronautical study process. Concerns by these agencies, if any, with regard to turbine lighting and its potential effects on night vision

¹ Zheng, Z.C., and H. Wu. 2018. *Classification of Wind Farm Turbulence and Its Effects on General Aviation Aircraft and Airports*. Final Report No. K-TRAN: KU-16-3. The University of Kansas Department of Transportation. January 2018. <http://dmsweb.ksdot.org/AppNetProd/docpop/docpop.aspx?clienttype=html&docid=10103113>.

² Zheng and Wu 2018, p. 20.

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goggles would be addressed during the aeronautical study process leading to Notices of Presumed Hazard in the event concerns could not be mitigated to the satisfaction of these agencies.

Aerial Firefighting

The Project would consist of a maximum of 60, 586-foot-tall wind turbines to be erected on ground elevations from between approximately 3,030 and 4,320 feet above mean sea level. The turbines would be located on the Campo Band of Diegueño Mission Indians Reservation and not within the jurisdiction of San Diego County. The Off-Reservation gen-tie line would be located on private lands within the San Diego County jurisdiction. The steel pole structures would vary in height by location, up to a maximum height of 150 feet. As with any vertical construction in San Diego County that could impact fire aviation, there are procedures to mitigate any potential hazards to California Department of Forestry and Fire Protection (CAL FIRE) helicopters and planes. Once a project has been approved for construction, the heights and exact locations are submitted to the CAL FIRE Chief that commands the San Diego County Aviation Division. Then, a request is made to the CAL FIRE San Bernardino offices to update the Aviation Hazard Map. The Aviation Hazard Map is entered into the navigational system and studied by pilots and controllers prior to construction. If the turbines are on the Aviation Hazard Map, then the potential hazard is minimized.