

## **Appendix K – Aviation Systems, Inc. Feasibility Evaluation**



September 1, 2009

Mr. John Hafner  
CPV Renewable Energy, LLC  
50 Braintree Hill Office Park, Suite 300  
Braintree, MA 02184

Re: North Dakota Wind Project (Updated), 09-N-0492.006 (A)

Dear Mr. Hafner:

Pursuant to your request, Aviation Systems, Inc. (ASI), has performed an updated evaluation of the feasibility of the North Dakota Wind Project. The purpose of the study is to determine the feasibility of erecting wind turbines with a tip height of up to 500 feet above ground level (AGL), from an aviation and airspace point of view. We have reviewed the above referenced project against aviation and airspace criteria set forth in Federal Aviation Regulation (FAR) Part 77 (14 CFR 77) *Objects Affecting the Navigable Airspace*; FAA Order 8260.3B, the *United States Standard for Terminal Instrument Procedures (TERPs)* and; FAA Order JO 7400.2G, *Procedures For Handling Airspace Matters*. The criteria in these documents comprise the factors the Federal Aviation Administration (FAA) will use in evaluating the aeronautical compatibility of the project when it is submitted for their official regulatory review. Our findings include the following:

- The project consists of proposed wind turbines to be located within an area 11.1 x 10 nautical miles (NM) in the State of North Dakota.
- Ground elevations within the area range from 1960 feet above mean sea level (AMSL) to 2230 feet AMSL. With a proposed turbine height of 500 feet AGL, the highest point of the project would be 2730 feet AMSL. See attached map depicting the project and surrounding area. A 50-foot buffer was added for terrain variations and to establish the "target" height of 2780 feet AMSL.
- The nearest public airport is Ashley Muni (ASY) Airport, located 7.63 NM, south of the project centerpoint. The project would impact the Airport VFR Traffic Pattern above 2382 feet AMSL and FAA would issue a Determination of Presumed Hazard. (Map Sector C)
- The project would have no impact on Minimum Vectoring Altitudes (MVA) or En-Route Low Altitude Airways (MEA). However, two En-Route

2510 West 237th Street • Suite 210 • Torrance, CA 90505  
Tel: 310.530.3188 • Fax: 310.530.3850 • Email: asi@aviationsystems.com • www.aviationsystems.com

Airways, V561 and V15 overlap a portion of the project (broken green map line is centerline). These airways are eight miles wide and have Minimum Obstruction Clearance Altitudes protected at 2400 and 2500 feet AMSL respectively. These levels constitute an FAA Obstruction Standard and the FAA may initially issue Notices of Presumed Hazard. However, Obstruction Standards are not considered ultimate Operational Limitations and the FAA should issue Determinations of No Hazard after conducting an extended study.

- No Long Range Radar Sites are within 60 NM of the search area centerpoint. Development is unlikely to impact Air Defense and Homeland Security radars. Further radar impact study is not necessary.
- Minimal to no impact to Weather Surveillance Radar-1988 Doppler (WSR-88D) weather radar operations. Further radar impact study is not necessary.
- The project would be located outside the boundaries of Military Operations Areas (MOA) or Restricted Areas.
- Future plans for Ashley Airport (as relayed to ASI by the North Dakota Aeronautics Commission) call for a rebuilding of runway 14/32 and the development of an instrument approach procedure. The FAA is required to protect the airspace for future approaches. Except for Sector C, sector limits listed below are potential heights based on currently known obstacles and terrain features. Wishek Municipal (6L5) is also expected to implement an instrument approach in the future.
  - Sector A – 2300' AMSL – ASY RNAV (GPS) Runway 14 Primary Area
  - Sector B – 2300' to 2550' AMSL – ASY RNAV (GPS) Runway 14 Secondary Area
  - Sector C – 2382' AMSL – ASY VFR CAT C Traffic Pattern
  - Sector D – 2386' to 2780' AMSL – Runway 32 Outer Departure Area
  - Sector E – 2599' to 2780' AMSL – Runway 08 Outer Departure Area
  - Sector F – 2737' to 2780' AMSL – Wishek Muni (6L5) Runway 14 Outer Departure Area
  - Sector G – 2498' to 2690' AMSL – ASY Runway 32 Outer Departure Area
  - Sector H – 2780' AMSL – “Target Height”

Additionally, any structure over 200 feet AGL, in this case the turbines, requires notice to the FAA and also would require lighting in accordance with FAA Advisory Circular (AC) 70/7460-1K, change 2. After suitable locations are selected and at your request, ASI can handle the FAA filing process pursuant to the notice requirements of FAR Part 77 and follow-up until the No Hazard Determinations are issued by the FAA. We will be able to negotiate selective

lighting so that not all of the turbines would require the extra expense of installing and maintaining lights.

FAA makes changes to the National Aviation System everyday. New approaches are published, departure procedures are changed, new runways are planned, MVAs are modified, etc. Therefore, it is possible for the study findings to become obsolete in a relatively short time period. We recommend that prior to filing specific sites within the study area, the study findings be reviewed for currency. Studies greater than 12 months old should automatically be re-visited and their findings confirmed.

Our findings are intended as a planning tool, in conjunction with the resolution of other pertinent issues. Actual construction activities are not advisable until the FAA Determinations of No Hazard are issued.

Sincerely,

  
Jerry Chavkin  
Vice President, Airspace Operations

Attachments

