

**BEFORE
THE OHIO POWER SITING BOARD**

In the Matter of the Application of Clear)
Mountain Energy Center, LLC for a Certificate)
of Environmental Compatibility and Public) Case No. 23-0045-EL-BGN
Need to develop, Construct, a 100 megawatt)
Solar-Powered Electric Facility located in)
Clermont County, Ohio)

**RESPONSE TO STAFF'S DATA REQUESTS
DATED MARCH 25, 2024**

- 1) Please provide the maximum values of the three-second wind gust speeds expected for the Project area. Also provide the 50- and 100-year maximum wind speeds.

RESPONSE: Wind design values will follow Ohio Building Code 2015 IBC which follows ASCE 7-10 Risk Category I which is equal to the following:

- **Three second wind gust: 105mph (ASCE 7-10)**
- **50-year max wind speed: 90mph (ASCE 7-10)**
- **100-year max wind speed: 96mph (ASCE 7-10)**

- 2) What design considerations, efforts, or precautions will be taken to assure that the facility will not be negatively impacted by the maximum wind speeds?

RESPONSE: Designs will follow the local building code to account for site specific wind speeds and wind gusts. Racking manufactures that we partner with, have developed wind loading models to ensure the safest position during solar plant operation. In addition, in areas of higher winds, automated wind stowing systems can be put in place that used self-powered anemometers positioned within the site to measure real time wind speeds. This data will educate the stow system to engage the tracker and put it into a stow mode during high winds.

- 3) Provide a history of tornadoes in the project area.

RESPONSE: According to The Tornado Project, online database of US tornados (<http://www.tornadoproject.com/alltorns/ohtorn.htm>) there have been approximately 17 tornados ranging in magnitude from 0 to 4 on the Fujita (F) scale, with four of those tornados recorded at F-2 magnitude or above in Clermont County. According to the FEMA website hazards.fema.gov, Clermont County is at moderate risk of tornados,

which is similar to counties in the southwest region of Ohio. Generally tornado risk is more pronounced (moderate and above) in more flat central and western portions of the state, and less pronounced (low to moderate) in the southern and eastern portions of the state.

- 4) What is the safe angle or stow mode for the panels during high wind occurrences?

RESPONSE: This level of design will be evaluated once a final equipment of model and tracker is selected, however, in general, the safe stow angle in stow mode for high wind conditions is the max tracker range angle which can be between 50 degrees and 60 degrees depending on product. The panels would stow toward the wind to reduce the risk of damage from wind.

- 5) Will there be meteorological stations at the facility to monitor wind speed and direction, and would this data be used for adjustments in the tracker system and the implementation of the stow mode?

RESPONSE: As stated in the Clear Mountain CECPN Application, there will be approximately 6 meteorological stations through the site. The data from these stations will be used by the operations system to manage the panels and tracker system during operations. Final equipment has not yet been selected but one method of wind stowing is automated to stow into the direction of the wind to increase stability and decrease loads on the structure and panels.

- 6) What loads or forces would be expected on the panels, racking, pilings, and tracking mechanisms for various wind velocities?

RESPONSE: Exact structural calculations will be done in the detailed design period once final equipment has been determined, with the exterior trackers to experience more effects due to exposure to wind. Expected types of loads are wind loads, snow loads, seismic loads, and dead loads. Various combinations will be analyzed to find the worst case scenario and design for it. Supplemental preliminary top of pile load calculations have been requested from Nextracker, the assumed tracker system for the Project. These preliminary calculations have not yet been received but can be provided to OPSB by April 19, 2024.

- 7) What stresses would be induced in these various components and how do these stresses compare to the maximum allowable stresses of the panels and supporting structures?

RESPONSE: Exact stresses on the piles, racking system, and panels will be determined during detailed design period once final equipment has been selected. Stresses that are put on the panels will be modelled to ensure that they are less than the max allowable.

Stresses put on supporting structures are modelled in both the strong and weak axis to ensure they are designed for allowable stresses.

- 8) What is the height of the tallest structure at the solar facility, including the project substation?

RESPONSE: Design is not yet finalized, but based on the preliminary design details presented in the Clear Mountain CECPN Application, the tallest component in the substation will be a lightning mast at approximately 120 feet, the second tallest structure (transmission poles) will be approximately 85 feet in height.

- 9) Through what angles would the panels be rotated when tracking the sun during the daylight hours?

RESPONSE: Depending on the final tracker system product, which has not been selected yet, the total tracking angle could be +/- 60 degrees, or +/- 50 degrees.

- 10) What would be some differences in the guidelines offered in ASCE 7-10 and 7-16 with respect to this Project?

RESPONSE: The current Ohio Building code IBC 2015 refers to ASCE 7-10. There are more updated versions of the ASCE standards, including ASCE 7-16, available for reference. Going from ASCE 7-10 to ASCE 7-16 includes some updated data and requirements for wind speeds and building requirements. These updates include:

- Basic wind speed maps have been revised outside of hurricane zones and have decreased wind speeds in some areas.
- Updated wind maps have been provided for Risk Category I.
- Added new ground elevation factor to velocity pressure
- Updates on the provisions providing guidance for design for tornados
- New Wind Speed map for tornados

The Project will be designed to the most current building code required in Ohio at the time of final design and construction.

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Summary: Response to Staff's March 25, 2024 Data Request electronically filed by
Teresa Orahood on behalf of Herrnstein, Kara.