

Exhibit P
Photovoltaic Installation Evaluation on Marion
Municipal Airport
Spohnheimer Consulting Airspace Systems, LLC

December 21, 2020

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Issue: A large photovoltaic (PV) installation is proposed near Marion, OH, and its potential effects on operation of the Marion Municipal Airport (KMNN) are addressed briefly.

Background: The closest corner of the proposed installation's location is approximately 3 nautical miles (NM, depicted by the yellow line in Figure 1) west of the airport. The installation's dimensions are approximately 10,650 feet east-west and 8,000 feet north-south. The height of the proposed PV array is up to 15 feet above ground level. The airport has two runways, Runway 07/25 and Runway 13/31. The runway threshold elevations range from 986 to 994 feet above mean sea level (AMSL). The ground elevation at the proposed PV location is approximately 935' MSL (corner elevations are ~920-950' MSL, placing the entire PV installation about 50 feet below airport elevation).



Figure 1

An on-field Very High Frequency Omnidirectional (VOR) serves all runway thresholds with circling minima of approximately 650' above the field, and three of the airport's runway ends are served by Global Positioning System (GPS)-based instrument approach procedures. Runway 25 also has an Instrument Landing System (ILS) Localizer installed, but currently there is no published approach procedure using it.

Analysis: Public-use airports are generally served by ground-based aids for navigation, communications, and surveillance purposes. Blockage or reflection of these signals to aircraft can derogate performance. However, these facilities are not normally intended to provide coverage at lower-than-airport elevations, while aircraft are required to fly a minimum of 500' above the ground unless on an approach to a runway. The on-field VOR (en route navigational aid) radiates essentially zero energy to its local horizon, and since the PV installation is below the VOR's elevation, the proposed PV panels will not be illuminated by the VOR. As a result, the VOR's operation will not be affected by reflections of VOR energy by the PV panels.

Conclusion: At a distance of ~3 NM from the airport, the proposed installation presents essentially no risk to operation of the airport and nearby aircraft.

A handwritten signature in black ink, appearing to read "L. Nelson Spohnheimer". The signature is written in a cursive, flowing style.

L. Nelson Spohnheimer
Managing Partner

This foregoing document was electronically filed with the Public Utilities

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Summary: Application - 19 of 30 (Exhibit P – Photovoltaic Installation Evaluation on Marion Municipal Airport) electronically filed by Christine M.T. Pirik on behalf of Marion County Solar Project, LLC