

Unmanned Aerial Systems/Solar Arrays: Utilization by PMI for Design/Development



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The ability of unmanned aerial vehicle systems (i.e., drones) to assist in a variety of activities in the environmental and energy areas has been and is continuing to expand rapidly.

A number of environmental service organizations and governmental environmental agencies utilize drones.

A February 2021 Environmental Council of the States (“ECOS”) report notes that state environmental agencies have used drones to undertake activities such as:

- Surveillance
- Enforcement
- Permit support documentation
- Waste and landfill inspections
- Illegal dumping of chemicals, oils, or waste tires
- General emergency response functions including facility discharges, train derailments, truck accidents, and oil spills
- Investigation of unusual events

The Arkansas Department of Energy & Environment – Division of Environmental Quality (“DEQ”) is one of the state environmental/energy agencies utilizing drones. See link [here](#) to Dan Pearson’s (DEQ’s) Arkansas Environmental Federation presentation describing the agencies utilization of drones.

Another example is the Louisiana Department of Environmental Quality’s utilization of drones for enforcement purposes. (See blog post Utilization of Drone to Identify Illegal Dump Site [here](#).)

The ECOS report notes that agencies use drones because of their ability to:

- Quickly obtain data
- Provide more effective response to emergencies
- Ensure worker safety
- Improve environmental results

Environmental services and/or energy development is another example of an area in which the usefulness of drones has been demonstrated. A previous blog [post](#) noted that in the environmental services area the Little Rock/Springdale environmental engineering firm of Pollution Management, Inc. (“PMI”) operates a drone for certain environmental/engineering services.

The post noted that drones have certain potential inherent advantages when it comes to their ability to cost effectively observe for various purposes larger or relatively inaccessible areas. However, it was also noted that utilization of drones for income-producing purposes is subject to Federal Aviation Administration (“FAA”) rules and regulations. As a result, PMI personnel utilizing a drone have passed the FAA Part 107 Aviation Exam.

A relatively newer use for drones is in the renewable energy area. For example, PMI utilizes drone flights to collect data on sites to be converted into solar arrays. The drone capabilities allow them to produce aerial imagery in 3D surfaces of the project sites. This data is used to design the final grading plan for the solar array site along with a staking plan with precise locations of all necessary components to be installed.

PMI utilizes a DJI Phantom 4 ProV 2.0 capable of taking 20 MP photos. The importance of such equipment is that it provides crystal clear imaging of the project site that is unattainable by satellite imagery. Once the drone flight is complete, the imported data is acquired into the drone software. Such software takes the data and produces a geo located aerial map and a contour shaped file of the project site.

Additional steps are needed to complete the mapping activity.