



## Temporary Solar Powered Runway Lighting System Polacca, Arizona USA



### PROJECT OVERVIEW

<b>Location:</b>	Polacca, Arizona USA
<b>Date:</b>	April 2013
<b>Owner:</b>	The Hopi Tribe
<b>Site:</b>	Polacca Airport - Hopi Reservation
<b>Product:</b>	Solar-powered AV-425 runway and AV-70 taxiway light fixtures
<b>Application:</b>	Temporary runway edge, runway end, threshold and taxiway lighting

### BENEFITS

- Automatic dusk-till-dawn operation - no standby personnel required
- Solar LED lighting best value for money at 1/3 of the cost of mains power lighting installation
- Suitable as an emergency back-up system installed alongside traditional mains-powered lighting
- Perfect for permanent or temporary runway, taxiway, threshold, barricade applications.
- Robust long-lasting, low maintenance fixtures
- Ideal for temporary or permanent runway lighting applications

Avlite's reliable solar-powered runway lighting system enhances safety of air medivac operations at this general aviation airport in the Arizona desert

### Background

Due to an unreliable lighting system (subsequently decommissioned) at this public, general aviation airport, the owners needed a robust, reliable and cost effective airfield lighting system that would provide temporary runway edge lighting until a new runway and hard-wired lighting system could be installed.

Due to a limited budget, the most cost effective solution was sought that didn't require major construction works nor underground cabling or trenching. Without an ATC tower and with limited facilities, Polacca Airport needed runway lighting that could be set to operate automatically to allow for general aviation night landings of fixed wing aircraft and to enable night medivac operations to the Polacca Indian Health Service - located nearby.

### The solution

Situated in northeast Arizona, Polacca receives on average 276 sunny days per year equating to between 9 and 14 sunlight hours per day - ideal conditions for solar-powered airport lighting. The 4200 ft runway was supplied with Avlite's solar-powered airport lighting solution - the robust AV-425 white LED runway edge lights and bi-directional red/green LED threshold lights and several blue AV-70 taxiway lights. All of which were easily installed on Avlite's mounting plates, frangible couplings and stake mounts.



### Dusk-til-dawn automatic operation

The AV-425 with external on/off switch was the best solution for Polacca's runway edge and threshold lighting, as it has three selectable operation modes; always on, dusk-til-dawn and standby. The dusk-til-dawn mode allows for complete automatic operation that eliminates the need for the presence of airport personnel during aircraft landings at night - a specific requirement of the airport's owners. When set to dusk-til-dawn mode, integrated sensors in the light are able to detect when the ambient light threshold drops sufficiently and the light will begin operation automatically.

### The benefits of Avlite's solar-powered airport lighting

The commissioning of Avlite's solar-powered airport lighting system increases Polacca airport's usability and enhances airport safety and efficiency. The automated dusk-til-dawn mode streamlines the operation of airfield lighting, reducing personnel involvement, increasing efficiency in airport movements and reducing time, maintenance and battery replacement costs associated with other forms temporary runway lighting.

### The RF lighting option

Avlite's AV-425 also has an RF option that gives an airfield even more flexibility when it comes to lighting. In addition to controlling the light's intensity settings to suit localised standards (ICAO or FAA), the RF capability of Avlite's AV-425-RF allows the operator to set and control individual light groups (runways, taxiways, helipad or obstruction) and control the lights from anywhere in the airfield with practically unlimited range, through the use of the AvMesh® communication network.

The proprietary AvMesh® network enables each light to transmit and receive commands allowing the airfield to be expanded or altered at anytime. **AvMesh® is self realizing** meaning once deployed, the airfield lights will undertake a period of network mapping whereby the system automatically determines an efficient path to relay command messages through the airfield. **AvMesh® also has redundancy.** Once the system has mapped an efficient relay of command messages a secondary sub-network is mapped for added redundancy. Should an individual light sustain damage, or stop working, it will not effect the operation of the other lights which will continue to operate as programmed.

"The solar powered lights provided a means of having (runway) edge lighting without installing temporary electrical infrastructure at a much higher cost."

**Jason Musselman**  
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