

Aircraft Detection Lighting Systems (ADLS)

MEETING 23-02

Lan Norris, FAA/AJV-A540, [presented](#) on Aircraft Detection Lighting Systems (ADLS). Lan first explained wind turbine marking and lighting standards (see [slides 2-4](#)). He explained that there is currently no way to mark the tip of the blade, so lights are placed as high as possible on the turbine nacelle and they must be visible to aircraft approaching from all directions. Lan then explained and showed examples of wind farm lighting configurations ([slides 5-6](#)). He said the Obstruction Evaluation Group (OEG) receives complaints about the many flashing lights from large wind farms. Wind farms less than 499' might qualify for reduced lighting, though the trend is to build turbines higher to catch more sustained wind, so there aren't many of those.

A way to mitigate light pollution is to use ADLS ([slides 7-8](#)), which is like a light switch used to turn the lights on and off when the sensor-based system detects an approaching aircraft. The horizontal radar detection is 3 NM and the vertical radar detection is 1,000' above the tallest wind turbine. ADLS is not always ideal. For example, ADLS might not be a good solution for a wind farm near a VFR route with a lot of traffic, or in areas with terrain limitations. [Slides 9-10](#) show examples of ADLS coverage areas.

Lan discussed the responsibilities of the owner/operator if they want to use ADLS ([slide 13](#)). The FAA's role is shown on [slides 14-17](#). Airports Safety Research and Development oversees evaluating the systems for safety, and making sure it is following Advisory Circular (AC) 70/7460-1. They conduct an on-site performance assessment, including flight check. Then they issue the one-time Technical Note, which says the system meets the AC standards. OEG then reviews the required documents and issues a lighting recommendation letter for ADLS.

The pros of ADLS include compliance with laws requiring light mitigation, reduced impact of nighttime lighting on nearby communities, reduced impact to migratory birds, and extension of the life expectancy of the obstruction lights. The cons include additional cost, must be continuously monitored, lighting outage complaints, and ADLS is not depicted on aeronautical charts. Other concerns are listed on [slide 19](#), including that ADLS is not tracked in the Digital Obstacle File (DOF). Lan said the biggest concern he hears is that pilots may become disoriented. [Slide 20](#) shows mitigations that the FAA is taking regarding ADLS, including adding ADLS to the Digital Obstacle File (DOF) and pilot training and outreach. Lan concluded by saying that ADLS is becoming more common. He noted that there are some ADLS related updates coming to the Aeronautical Information Manual (AIM) and Aeronautical Information Publication (AIP) next year.

Rich Boll, NBAA, asked how many ADLS systems are out there. Cindy Whitten, FAA/AJV-A540, said there is currently no way to track that. There is an automation change in process to incorporate tracking that number, since they are getting that question more often from states and municipalities. There is currently no way to search the Obstruction Evaluation/Airport Airspace Analysis (OE/AAA) system to gather that data. Rich said one of his concerns is with the 3 NM/1,000' activation for airplanes that might be experiencing an emergency. They think they're gliding to an open area, but instead it's a wind farm that lights up suddenly. He asked if that had been part of the testing. Rich suggested that a solution for those with an ADLS system would be to respond to any emergency codes in their area by turning the lights on. Lan said he could take that suggestion to the Airports R&D group. Rich said NBAA would

appreciate that. Rich asked for AOPA's opinion on that concern. Jim McClay, AOPA, said they are aware of ADLS but have not considered that particular scenario.

Jennifer Hendi, FAA/AJV-A250, said the Obstacle Data Team (ODT) is not currently tracking ADLS data. The suggestion has been made to add it to the DOF and Aeronautical Information Services is currently looking into that. After internal discussions, we are not sure a charted indication of ADLS is the correct solution, but it is being looked at as well. She thanked Lan for his briefing.