

# FACT SHEET: WIND ENERGY AND LIGHTING

Every day, rural communities benefit from wind energy. Wind development provides new income for land-owners, new tax revenue to fund schools and services, and creates local career and job opportunities. County officials are responsible for enacting siting or zoning standards that help ensure wind development is supported by local residents. Many seek to address the issue of lighting.

## Requirements for lighting

- › The Federal Aviation Administration (FAA) provides wind turbine lighting standards to increase the visibility of systems for pilots. See Figure 1 on reverse side.<sup>1</sup>
- › Systems must consist of aviation red (FAA L-864) obstruction lights that are either flashing, strobe, or pulsed. This lighting must be synchronized to flash with nearby systems.
- › In some cases, the FAA will not require that every turbine in a wind farm feature this lighting.
  - › Lighting may be placed on turbines at the perimeter of the wind farm, although unlit sections of the perimeter cannot exceed 804 meters or .5 statute mile.
  - › Within the perimeter of a cluster of wind turbines, there can be no unlit section larger than 1.6 kilometers or 1 statute mile.<sup>2</sup>
- › Turbines with a rotor tip height above 499 feet must be lit no matter the configuration of a wind farm or nearby turbines.
  - › Wind energy systems above 699 feet must feature lighting on the nacelle—the housing for the generator at the top of a turbine that is connected to the rotor—as well as at a midpoint on the turbine’s mast, placed between the nacelle at the top of the turbine and the ground.

## Recommendations

- › While zoning standards must comply with FAA regulations, local officials may include provisions that limit the amount of obstruction lighting used if possible, or require alternative approved lighting systems.<sup>3</sup>
  - › Alternative lighting systems that have been approved by the FAA are Aircraft Detection Lighting Systems for wind turbines. These reduce persistent lighting for wind turbines by using obstruction lights that only activate when radar systems detect an approaching aircraft.
- › Developers should meet with stakeholders to determine ways to minimize this visual impact from ground level while considering site configuration for a project or a lighting plan.
- › Mitigating the visual impact of turbine obstruction lighting can be difficult due to lighting requirements and the unique nature of these lights in areas where wind projects are built. Minimizing impacts from homes may be possible by avoiding direct viewsheds from residences, or using existing tree cover or other vegetation to block lighting.



## Sources

1 “Advisory Circular 70/7460-1 L.” Federal Aviation Administration, U.S. Department of Transportation, Aug. 17, 2018, [faa.gov/documentLibrary/media/Advisory\\_Circular/AC\\_70\\_7460-1L\\_-\\_Obstruction\\_Marking\\_and\\_Lighting\\_-\\_Change\\_2.pdf](https://www.faa.gov/documentLibrary/media/Advisory_Circular/AC_70_7460-1L_-_Obstruction_Marking_and_Lighting_-_Change_2.pdf). Accessed June 2019.

2 Ibid.

3 Rynne, Suzanne, et al. “Planning for Wind Energy.” American Planning Association, 2011, [planning-org-uploaded-media.s3.amazonaws.com/publication/online/PAS-Report-566.pdf](https://planning-org-uploaded-media.s3.amazonaws.com/publication/online/PAS-Report-566.pdf). Accessed June 2019.



FIGURE 1. WIND TURBINE LIGHTING

