

What Is The Purpose Of Wind Farm Lighting?

by Edvard



Aircraft Warning Lights

Wind farm lighting includes:

1. Aircraft warning lights that are installed on tops of some turbine nacelles and
2. Night lights around [wind farm](#) buildings, parking lots, or other facilities.

Aircraft warning lights on top of tall telecommunications towers are known to be highly problematic for night-flying migratory birds (*though not bats*) during cloudy weather when the birds cannot navigate via the stars and are attracted to the lights, thereby colliding with the towers, guy wires, or each other.

Recent U.S. research indicates that **white strobe lights with brief pulses** are more **bird friendly** than solid or slowly pulsating red or white lights, since they seem to be less of an attractant to migrating birds on cloudy nights.

The windy sites most favorable for wind farm development often, though not always, have clear skies at night when night-flying birds are not attracted to artificial lights.

To minimize the **risks that night-flying migrant birds** will be attracted to [wind turbines](#) during overcast weather, aircraft warning lights would ideally be:

1. White strobe lights and
2. Placed a top a limited number of turbines to help show the wind farm outline, rather than on every one, consistent with national and local regulatory requirements.

In many low-risk cases far away from airports, such lights might not be needed at all; for example, U.S. law requires aircraft warning lights **only on structures 200 feet or higher**.

If aviation regulations provide flexibility regarding the type of aircraft warning lights to be used, it would also be important to consult with local residents regarding their aesthetic preferences, while also explaining the bird-friendly advantages of white strobe lights.

At the **Mexico La Venta II project**, only a small number of the 98 turbines have aircraft warning lights, which appears to be adequate for showing any pilots that might be in the area that there are multiple structures around, without potentially attracting numerous migrating birds to the turbines on overcast nights.

Night lighting close to ground level can also be managed to **minimize bird and bat mortality**.

Night lights around worker compounds, parking lots, and other wind farm facilities can attract to the wind farm migratory birds during cloudy weather, as well as bats and nocturnal birds (owls and nighthawks) that seek out the flying insects that concentrate around night lights.

In this regard, wind farm **night lighting** can be managed to minimize risks to birds and bats in ways that do not compromise worker safety and operational security.

These approaches include the use of:

1. Sensors and switches to keep lights off **when not needed** and
2. Lighting fixtures that are **hooded and directed downward** to minimize the skyward and horizontal illumination that could attract night-flying birds and bats to the vicinity of wind turbines.



Wind turbine lighting signalization (on photo: SIEMENS wind turbine)

Resource: *Greening the Wind | Environmental and Social Considerations for Wind Power Development* – George C. Ledec, Kennan W. Rapp and Roberto G. Aiello

Source:

<http://electrical-engineering-portal.com/what-is-the-purpose-of-wind-farm-lighting>