California Energy Commission
Public Interest Energy Research (PIER) Program
ENVIRONMENTAL AREA RESEARCH

Comparing Utilization Data for Siting New Wind Power Generation

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Fact Sheet

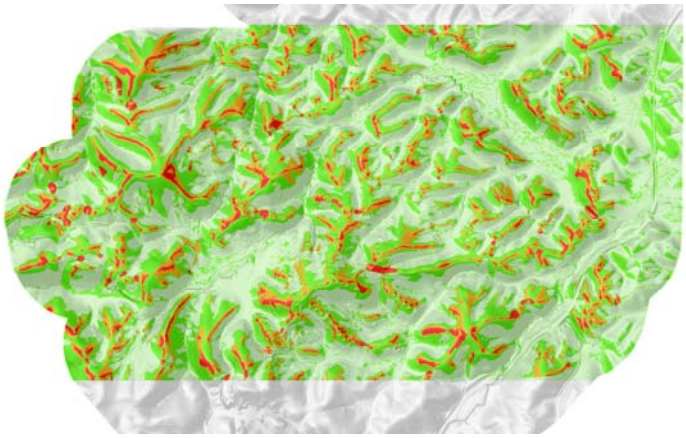
The Issue

As wind energy development continues throughout California and the nation, bird fatalities due to collisions with wind turbines remain an environmental and regulatory issue. Accurately predicting avian fatality rates at wind energy sites would be a valuable mitigation tool.

Avian fatality rate and pre-construction usage data are available from wind facilities nationwide; however, these data have not been adjusted for observer biases. Possible observer biases include a declining observer detection rate with increasing distance of the bird from the observer, a variable portion of the surveyed area that is hidden from the observer due to complex terrain, and shifts in detection rates with change in observation session duration. Without correcting for observer biases, avian fatality rate data and use data collected from different wind energy facilities cannot accurately be used for conclusions about the effects of wind turbines or their operations on fatality rates.

Project Description

Avian use data from the Altamont Pass wind resource area in Alameda County will be adjusted for observer biases so the data can be used to develop predictive models of avian use. The models will be used to prepare maps of least-hazard wind turbine locations and to promote repowering of the Altamont Pass wind resource area. Additionally, fatality rate estimates in reports from across North America will be reviewed, and the reported results corrected for differing assumptions and methods.



Golden eagle hazard zones (red and orange areas) with respect to wind turbine locations, based on flight data recorded in the Altamont Pass.
Source: Shawn Smallwood

PIER Program Objectives and Anticipated Benefits for California

If successful, the project will develop predictive models of avian fatality risk and allow for careful placement of wind turbines to minimize avian collisions in the Altamont Pass wind resource area. The project will also establish reliable relationships between avian use rates and fatality rates so that preconstruction use surveys can be used to accurately predict fatality rates.

Project Specifics

Contract Grant Agreement Number: PIR-08-025
Contractor: Kenneth Shawn Smallwood
City/County: Davis, Yolo County
Application: Nationwide
Assembly District: 8
Senate District: 5
Contract Amount: $181,800.00
Match Funding: $15,400.00
Contract Term: 7/29/2009-3/31/2013

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