STATE OF CALIFORNIA
ENERGY RESOURCES CONSERVATION
AND DEVELOPMENT COMMISSION

Development of Statewide Guidelines for Reducing Wildlife Impacts from Wind Energy Development	)))	Docket No. 06-OII-1 Developing Statewide Avian Guidelines

COMMENTS OF
CENTER FOR ENERGY EFFICIENCY AND RENEWABLE TECHNOLOGIES (CEERT)
ON REVISED STAFF DRAFT GUIDELINES

Submitted May 14, 2007

CEERT would like to thank the Commission for outstanding leadership in the construction of the CEC/CDFG Guidelines for Reducing Impacts to Birds and Bats From Wind Energy Development (Guidelines). Bringing such a diverse range of stakeholders together to work collaboratively is a difficult task and the guidance of such a process is always a key to its success.

As the Guidelines are further developed, the comments and concerns of the public stakeholders become more important. Fortunately, in developing the Guidelines, many of the stakeholders have gained a deeper understanding of all the issues and have learned to work constructively to resolve disputes and identify points of consensus. CEERT has worked very closely with other key stakeholders that have been involved in this effort including Audubon California, Sierra Club, and the California Wind Energy Association. While we did not have time to come to complete agreement on joint comments, you will find that these varied groups have a great deal of shared concerns and common vision for the use of these Guidelines.

Additionally, CEERT solicited technical comments from Wallace Erickson of WEST, Inc. (Attachment A) His professional biological opinion helped form the foundation for CEERT's specific editorial recommendations.

We greatly appreciate your consideration of our concerns as they represent an effort by multiple stakeholders to move forward on this difficult issue and create a set of guidelines that both protect important wildlife species while also promoting responsible wind development.

1. Statewide Science Advisory Committee

At line 383 following "The Energy commission, in consultation with the CDFG" insert: *"and CEQA lead agencies".*

At the end of line 385 insert:

The establishment and of this advisory committee would take place through an open and public process which allows input from all interested stakeholders.

Strike lines 1364 through 1369 and line 1372 beginning with "The scientific advisory committee would..." through line 1380.

2. Experimental Mitigation Fund

Strike lines 573 to 576 and insert:

Project developers and permitting agencies should ensure that appropriate measures are incorporated into the planning and construction of the project to avoid and minimize impacts. Consider compensation as a last option to mitigate or offset significant impacts that cannot be avoided or minimized in other ways. Development of effective compensation measures should involve the CEQA lead agency, project proponent, and the wildlife agencies through the CEQA process.

At line 607 insert:

- Contribute to an "Experimental Mitigation Fund" to determine the effectiveness of various unproven or untested mitigation strategies. The funding would be applied in a focused fashion in order to achieve statistically significant and scientifically defensible testing of mitigation strategies. Proven mitigation strategies could then be incorporated into future wind projects.

3. Bats—Monitoring Protocol for Rigorous Regional Studies

Strike lines 460-483; 743-746; 1889-1883 and 2521-2533. At line 460, and/or the appropriate spot in Chapter 5, insert:

Contribution to several regional multi-year bat acoustic monitoring studies is recommended in lieu of pre-permitting and operational bat acoustic monitoring at every project site. Contribution to the regional studies does not replace the recommended operational fatality monitoring described later in Chapter 5. The predictive power of pre-construction bat surveys remains unclear. Monitoring echolocation calls has limitations and acoustic detectors often are used in the field without a thorough understanding of these limitations, the underlying assumptions, or the use of standardized protocols (Hayes 2000, Sherwin et al. 2000, Weller and Zabel 2002, Gannon et al. 2003, Arnett et al 2006). Because current pre-construction studies have not yet linked pre-construction monitoring data with post-construction fatality, a critical link necessary for understanding potential risk of wind farms to bats, Bat Conservation International has partnered with developers in the Eastern U.S. to conduct multi-year studies evaluating how well pre-construction

assessment of bat activity levels predict bat mortality during site operation (Arnett et al. 2006).

Because of the poor predictive nature of current bat study methods and desire to allocate funds in the most effective manner, wind developers should contribute $25,000 per 100 MW of installed capacity to an "experimental mitigation fund." This bat specific portion of the fund would be used to monitor pre- and post-construction bat activity at wind energy facilities in several regions across different habitat types and Wind Resource Areas in California to improve the predictive power of pre-construction studies and develop effective avoidance and minimization strategies. The data from the pre and post-construction acoustic monitoring at these regional studies would be correlated with the bat fatality data collected at the wind facilities during the recommended operational fatality monitoring.

All wind developers would pay into this fund and the monies would be supplemented by the State of California. The funds would be managed by a nationally recognized non-profit organization focused on bat conservation research and would be applied strategically in a focused fashion in order to achieve statistically valid and scientifically defensible testing of risk assessment, risk reduction, and mitigation methodologies. A more detailed plan for the regional studies should be developed by the managing organization to determine how study sites are selected, how acoustic data from the studies as well as the fatality monitoring data from wind developers will be collected, analyzed and shared.

Objectives of Regional Bat Studies

- Determine activity of different bat species groups using the proposed wind project area prior to and after construction.

- Determine temporal and spatial patterns of bat species group activity at proposed turbine locations and existing meteorological towers located across the wind project area.

- Determine if indices of pre-construction bat activity can predict post-construction bat fatalities at turbine locations at the wind project area.

- Determine relationships of bat activity prior to and after construction with weather conditions, fog, and other environmental variables.

- Determine patterns of post-construction bat fatality in relation to weather conditions, fog, and other environmental variables and assess the predictability of fatality based on these factors.

- Evaluate study design, temporal and spatial variation, and sample size requirements and offer suggestions for standardizing protocols for future acoustic detector studies.

- Develop strategies to avoid and minimize impacts to bats.

Recommended standardized monitoring protocol for the regional studies include pre and post construction acoustic monitoring at ground level and at the highest practicable level above the ground (usually 50 meters). Monitoring stations should be placed at representative habitats throughout the study area. Data should be screened for spikes of activity and bat activity should be recorded as total bat passes and mean passes per detector night and per detector hour (excluding nights with measurable precipitation). Site-specific monitoring protocol would be determined based on consultation with bat experts, CDFG and USFWS.

4. Adaptive Management

Strike lines 636-660; 2404-2440; 776-797 and 2494 2504 and insert:

The first priority for wind energy development is to collect scientifically sound data in order to avoid and minimize impacts (see "Impact Avoidance and Minimization" in Chapter 4). If upon completion of the operations monitoring period, the results of the operations monitoring report are different than those allowed in the permit, the CEQA lead agency in consultation with the appropriate wildlife agencies (e.g. CDFG and USFWS), will determine if additional mitigation, credits for future development, or adaptive management should apply.

In cases where 1) impacts are deemed to be less than the permitted amount, 2) the permitted amount was deemed significant, and 3) the mitigation included quantifiable compensation, the developer may earn a credit towards future development. Other ongoing mitigation measures may be re-considered at that time as well. If the permitted amount did not include measurable compensation as mitigation, then no credit will be earned.

In cases where 1) impacts are determined to be more than the permitted amount, 2) the permitted amount was deemed significant, and 3) the mitigation included quantifiable compensation, then developer may pay additional amounts to accommodate the increase in impacts. When the increases in impacts are extreme (as determined by the CEQA lead agency), current and proven-effective adaptive management techniques should apply. In cases where the increase in impacts is not significant under CEQA, no additional mitigation or adaptive management should apply."

5. Site Access

Delete lines 780 through 797 and 2494 through 2504. Instead, immediately following line 797 on page 19 and/or in the appropriate spot in Chapter 5, insert:

Site Access

Upon completion of operations monitoring in compliance with permit terms, CDFG, USFWS, or permitting agencies may desire to conduct long-term monitoring on a periodic basis to understand trends and bird migration over the life of the permit. Access to the project sites for these purposes should not be unreasonably withheld. Results of any follow-up studies would not trigger additional mitigation requirements.

6. Pre-Construction

Throughout the Guidelines, replace each use of the term "pre-permitting" with the term "pre-construction". In many local permitting jurisdictions it is acceptable for a wind project permit to be approved before final completion of all pre-project studies. Conditions in the permit will generally require the project proponent to complete studies that are underway before construction begins and outline the grounds for any mitigation strategy that may relate to these studies.

7. Operations Monitoring

Line 739 and 2515 - 2519: Bird Use Counts (BUCs) should not be recommended as part of post-construction monitoring (see also WEST comments attached). Post-construction BUCs are not particularly helpful, above and beyond carcass searches, in assessing collision risk. Rather, post-construction BUCs are only potentially helpful in limited situations where displacement impacts (e.g., to ground-nesting grassland birds) is a significant concern at a site.

8. Implementation of the Guidelines

In implementing the Guidelines it should be noted that throughout the process of developing the Guidelines many wind energy companies have also been actively engaged in project development and made good faith efforts to address impacts to avian and bat species without clear guidance. While the adoption of the Guidelines as a reference for developers and lead agencies will be of utility to future development, the Guidelines should state that they are not meant be directly applied to projects which have already begun detailed scientific pre-construction studies. For these projects the Guidelines will remain an important resource to the lead agency and developer. The developer should be encouraged to take all reasonable measures to follow the Guidelines through the remainder of the development process.

9. Significant

Lines 921, 923, 2172, 2240, 2241: In these lines and anywhere else in the guidelines, replace the work "substantial" with the work "significant." The word "substantial" is not defined in the guidelines (or anywhere else we are aware of) and, without a definition, will be subject to wide interpretation. The word "significant" is defined in CEQA.

10. Tiering Structure

We believe that the Guidelines already follow a structure of roughly four tiers. These tiers are not meant to be viewed rigidly. There is variation of study protocol within each tier that should be tailored to each site. Additionally a project may move between tiers if initial study feedback shows unexpected levels (higher or lower) of potential impact. An outline of this approach is explained below.

Tier 1 – Infill, Repowers, Projects Contiguous to existing low-impact development

The Energy Commission has undertaken a concerted effort to encourage the repowering of older first-generation wind resource sites. A variety of state policy objectives also place a high value on the full development of the State's wind resource areas. Given these pressures for rapid development of wind energy, the Guidelines should make a concerted effort to identify project types and settings which would qualify for a streamlined development process. While the science around the biological impacts of repowered sites is still developing there are some things which can be reasonably said about these sites. Statistically, new wind turbine designs reduce collision risk for birds and bats because of greater spacing between the turbines, a reduction in the overall number of turbines, slower rotational speeds of the blades and increased height between the lowest tip of the blade and the ground level. While repowers may increase the impacts to certain species, the overall impacts from a repowering are substantially reduced. There are no pre-construction repowering study techniques which have been shown to reduce impacts. Of more value has been a comparison of the mortality data from existing wind resources using older technology and mortality data from newer projects with more modern technology. These comparisons generally show that avian mortality is reduced through the installation of more modern technology. (See e.g. enXco V Study in Solano County.) These mortality data have also helped to inform micro siting efforts for repowering projects. In some repower sites which have a moderate level of impact, some use monitoring may be useful in helping to advise micro-siting decisions.

Streamlined review should also be considered for in-fill projects which are surrounded by existing wind energy development. Such streamlined review may not be appropriate if the in-fill site contains unique habitat or nests for protected species. Projects which are contiguous to existing wind development may also qualify for streamlined study requirements if there are no special circumstances warranting detailed site-specific analysis. The same considerations for in-fill projects must also be made for projects contiguous to low-impact resources. To qualify for stream-lined review, a site should be made up of habitat comparable to the existing resource and should also not possess ecological features or topographical differences which could significantly alter the way an airborne species would interact

with the site. Care should be used in determining a reduced study protocol for a contiguous but new site.

Tier 2- The majority of new wind projects in California

The Guidelines first section, "A Step by Step Approach" does a very good job identifying the pre-construction protocols for most of the anticipated wind development in California. These projects will break new ground for wind development in California, but will also in most cases build upon existing wind resource areas. They should utilize the growing collection of data from existing wind resources here in California. However, the new projects will necessarily exercise caution in their development process by performing pre-construction studies to identify any potential for significant impacts.

Tier 3- Sites which possess characteristics which cause additional concern

During the initial site screening process some sites for potential new wind development may be found to possess characteristics which could cause additional concern. These sites may require additional study duration or specific study protocols focused upon a certain species or type of impact. Characteristics which may trigger this type of concern are: known avian migration stop-over destinations such as water bodies within or immediately adjacent to the project; fully protected or threatened or endangered species nesting on or adjacent to a proposed site; sites near or contiguous to wind projects which have experienced significant mortality to avian populations that cannot be mitigated.

Tier 4- Sites which should not be considered for wind development

Wind development should not be considered on land protected by the state or federal government as: designated wilderness areas, National Parks or Monuments, State Parks, Regional Parks, wildlife or nature preserves.

We look forward to continued work with the Energy Commission and CDFG to ensure that these guidelines achieve the goal of protecting bird and bat species while promoting responsible wind development.

Respectfully Submitted,

Paul Vercruyssen
CEERT
1100 11th Street, Suite 311
Sacramento, CA 95814
916.442.7785

Attachment A

Comments on the 2nd Draft of the CEC Wind Power Guidelines
Wally Erickson, WEST Inc., 2003 Central Ave. Cheyenne WY 82009
Submitted May 14, 2007

Lines 371 – 375. Since migration is generally believed to be a very broad-front phenomenon, and because there is likely some risk of collision to migrating birds at all wind projects, this statement could be easily interpreted to mean all sites should have nocturnal surveys. We believe this is not the guidelines intention. A more accurate statement might be "If the characteristics of the site and surrounding area suggest significantly higher than normal risk of collision to nocturnal birds, nocturnal surveys may be needed".

Lines 387 and on - The primary objective should be to collect information useful for predicting the direct and indirect impacts of the project on birds and bats.

Lines 410 and on – It should be stated that the methods described for BUC's provide quantitative data on larger birds like raptors, waterfowl and other waterbirds, but provide less precise information on smaller birds, because the effective viewsheds for smaller birds is much less than 800 m (closer to 100 m or less for most). If the focus of the BUC's is on larger birds, the project size is large, and with relatively low diversity of habitats, and limited topographic variation within the site, fewer points than 1 per square mile would be sufficient to characterize the larger bird utilization.

Lines 418-419: Would replace the term "all" with "most". It is also very important that comparisons of data from different studies accounts for possibly different survey periods. If studies are only conducted during peak periods of the day, raptor use at that site would be biased high compared to studies conducted during "all" times of the day.

Lines 436 and on, Lines 1552/1556. Raptor nest searches. Another purpose of the raptor nest searches that should be added is that they are used to aid in predicting impacts. Nests that are farther than 1 mile from the project are not likely to be impacted by construction activities. If the primary purpose of the nest surveys is to identify nests affected by construction activities, then a nest search within 1 mile of the project should be sufficient and will identify those breeding raptors most at risk from the project. Raptors nesting beyond 1-mile may still be at risk from the wind project, but the BUC's during the summer should measure the level of utilization the site gets from those breeding raptors.

Lines 460 – The tools identified for conducting pre-project bat studies have not been shown to provide information strongly associated with predictions of risk or impacts. It is our recommendation to set up a research approach where the tools are tested to determine which are best at predicting impacts.

Lines 661-746. If the plan is to monitor a site two years, I would suggest monitoring the turbines the first year after operation, and then wait a few years to complete the 2nd year of monitoring. This would provide time for the habitat to improve in temporarily disturbed areas, provide more time for birds to possibly habituate, and possibly incorporate more temporal variation in bird utilization at the site.

The number of turbines to sample should really reflect the desired precision in your fatality estimates. A larger sample might make more sense for a smaller project, and a smaller sample (than 30%) might make more sense for a larger project, with many factors such as habitat diversity, anticipated risk, availability of nearby data.

Lines 739 and 2515 - 2519: The primary use for which we have seen bird use counts used during operations was to look at whether different species show differences in risk of collision. Some data already exists to show that species like turkey vultures and common ravens and waterfowl are less susceptible to collision, than other raptor species. The BUC's during operations do not provide very useful information regarding the susceptibility of songbirds due to high imprecision in the estimates, and that nocturnal migrant songbirds are not seen during most diurnal surveys. Rather than collect general avian use data to address collision risk, we feel it would be better to conduct collaboratively funded research and select projects specifically addressing displacement of target species (e.g., grassland birds) or behavior of target birds (e.g., burrowing owls) near turbines.

Lines 1409: Acoustic monitoring has been the most common method currently used, but it has yet to be shown to be strongly associated with risk of collision. Many biases are associated with the method. See comment above (Line 460)

Table 1, page 41: Mist netting has not been shown as a tool that correlates with risk. The method is difficult to use in windy conditions. We believe that point counts generally are a more common and comparable metric. While mist-netting may occasionally pick up some additional species that point counts do not, point counts usually pick up many more species than mist-netting does. Mist-nets are low to the ground and not at the heights of turbines, further limiting their relevance to predicting risk. Furthermore, most risk assessments for wind power are not conducted on a individual songbird species basis, and the fact that a species is documented in a mist-net that was not seen in a point count provides little information on the risk of collision.

Lines 1531-1534. Requirement of getting complete coverage of a large project site is likely not necessary, especially in areas that do not have much habitat diversity. There is a difference also between getting complete coverage of the project area, and getting complete or near complete coverage of the most likely turbine locations. The latter is more clearly defined; the project area could include all the areas in between likely turbine strings.

Lines 1578-on: Small bird counts might be useful if conducting a displacement effect study, but are typically not very useful for predicting fatality rates. It can usually be

determined from the habitat types of the project what species are likely to be breeding at the site. The standard approach to breeding bird surveys is to conduct 3 visits to the site during the breeding season and I would recommend using that standard rather than the every two week standard suggested in the guidelines.

Lines 1583-1585 – The typical design for larger projects is to sample the project area rather than complete coverage. Complete coverage is almost never attained in field studies.

Lines 1609 – This section is a bit out of place. BACI designs are a very general description of studies using data collected before and after a treatment (e.g. construction of a wind project) at both the treatment sites and reference sites. Protocols used to collect the data can be, for example, point counts, transects, area searches, nest searches etc. Many BACI studies use only one reference site, and while this is not optimal, it can provide the information necessary for testing hypotheses and estimating effect sizes. The guidelines should state this, rather than saying that a BACI design with only one reference site is unacceptable.

The discussion of estimating density of birds in this section is not needed. Generally speaking, it is not necessary to estimate true density of birds in a BACI design, and most studies do not. The more important factor is to make sure data is collected using exactly the same protocols at the reference and impact sites. I would suggest eliminating the discussion of estimating density from this section. In general, estimating density usually only is possible for breeding bird surveys.

An impact gradient design with data collected before and after the wind farm may be more powerful than a BACI design, depending on the species involved. Data collected at far distances from turbines are the "reference data", and this approach not only provides information on whether there is an effect, it also attempts to quantify the distance at which the effect no longer exists. The assumption is that the data collected at the farthest distances from turbines are not impacted by the turbines, and these data farthest from turbines are the reference sites. See Erickson et al. 2007 (Erickson, Strickland, Johnson and Shaffer. 2007. Protocol for Investigating Displacement Effects of Wind Facilities on Grassland Songbirds. Peer Reviewed Technical Publication. NWCC.)

Lines 1664 – Area searches. Area searches may be conducted for a BACI design at small sites. For general pre-project data, area searches are usually only conducted when it is important to identify any threatened or endangered species that exist near the turbines.

Lines 1680 – 1716. Diurnal migration counts for small birds, and mist-netting have not been shown to be a good predictor of impacts. See Comment above regarding Table 1, page 41 for a discussion of the limitations regarding mist-netting. Diurnal migration counts for raptors have been conducted at some sites, but usually in cases when there is some support to suggest the site has potential for higher rates of migration by raptors (e.g., coastal).

Line 1717 – Again, as with many of the techniques, methods such as use of radar for determining passage rates, flight heights and flight directions of nocturnal migrating animals has yet to be shown as a good indicator of risk of collision. Before making strong recommendations regarding the methods to be employed, collaboratively funded research should occur to determine the usefulness of the methods, especially radar. It would be my recommendation to only conduct pre-project nocturnal studies at sites that has features that might strongly concentrate nocturnal birds (e.g., coastal). Most sites would not qualify. We again suggest looking at much of the on-going studies and research in other parts of the country to determine whether the methods are useful for predicting impacts.

References

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