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September 7, 2006

California Energy Commission
Dockets Office, MS-4
Re: Docket No. 06-OII-1
1516 Ninth Street
Sacramento, CA 95814-5512

RE: Docket No. 06-OII-1: CESA Comments on Workshop #2 Issues
Developing Statewide Avian Guidelines

Dear CEC Docket Unit:

Please find the enclosed original hard copy of the Clean Energy States Alliance (CESA) Comments regarding the above mentioned docket.

These comments were filed with Docket Unit electronically, via email, on September 7 2006.

Please note that the Sept. 7th comments that were filed electronically indicate enclosures to accompany the comments, however there are no enclosures for the CESA comments. Please disregard that notation. This has been corrected on the hardcopy that we submit now.

If you have any questions, please do not hesitate to contact me.

Sincerely,

A handwritten signature in cursive script that reads "Maria Blais".

Maria Blais
Program Coordinator

Enclosure

Managed by:

Clean Energy Group • 50 State Street • Montpelier, VT 05602
(802) 223-2554 • fax (802) 223-4967
Email: Maria@cleanegroup.org
www.cleanenergystates.org



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California Energy Commission
Dockets Office, MS-4
Re: Docket No. 06-OII-1
1516 Ninth Street
Sacramento, CA 95814-5512

Re: Docket No. 06-OII-1: CESA Comments on Workshop #2 Issues;
Development Statewide Avian Guidelines

Dear Commissioners:

These comments are submitted on behalf of the Clean Energy State Alliance (CESA) (electronically and by mail). The comments respond specifically to the Notice of Staff Workshop #2 and related questions identified in the Agenda for Workshop #2, held on August 28 & 29, 2006.

CESA is a nonprofit, multi-state coalition of state clean energy funds and programs working together to develop and promote clean energy technologies. CESA seeks to identify and address barriers to the development and growth of viable renewable energy resources in the United States.

➤ **Pre-Permitting Diurnal Bird Monitoring**

1. Should the guidelines recommend a model or standard pre-permitting study effort? What should the duration, intensity, and frequency be?

Yes, the guidelines should establish some *general, recommended* standard or model protocols for pre-permitting assessment studies. This would provide developers and local agencies with information on the type of baseline studies that likely would be most useful. However, the guidelines, at the same time, should allow for *flexibility* in performing project assessment based on consultation with the state wildlife agency and based on the extent of existing information from projects in locations close to the proposed projects or in comparable habitat types.

The guidelines should reflect that there are multiple reasons and objectives for conducting pre-permitting studies. For example, a lesser level of effort should be recommended when comparing multiple sites for potential development (i.e., macro-siting) versus the greater level of effort warranted to determine how best to develop a selected site (micro-siting). That is, if a company is evaluating multiple sites, it should not be required to perform quantitative baseline studies at each site. For micro-siting, however, baseline studies should determine how the site is being used by avian species and whether it is characterized by areas of high concentration of avian species.

The guidelines also should distinguish between studies that are intended to provide data for post-construction comparisons and studies conducted solely for providing data for facility siting and design.

The appropriate site-specific protocol for a project should be determined based on the objectives for the study and the particular location and risk factors at the site. Therefore, the site-specific elements of a study plan and the study's duration, frequency, and intensity should be determined in consultation with the California Department of Fish & Game (CDFG) and depend on the objectives of the study, the size of the project, availability and extent of existing and applicable information in the vicinity of the project, the habitats potentially affected, and the likelihood of the occurrence of sensitive-status species.

CESA proposes use of the following standard study recommendations:

- Existing information on species of interest and their habitats in the vicinity of the project area should be reviewed and spatial information should be mapped. Sources of existing information should include information compiled by resource agencies and recognized databases.
- The length of the study should be based on the study objectives and the existing knowledge about a site. Pre-assessment monitoring of one year usually should be adequate for micro-siting facilities at most sites when species occur year-round and there is limited available information about the site. However, additional, quantitative monitoring may be warranted if use comparisons are to be made with post-construction data relative to highly variable parameters, such as average use or trend in use of a site by a particular species of concern. State wildlife agency biologists should be consulted in the early planning stages to reach agreement on appropriate protocols and level of effort.
- Information on vegetation and land cover types, habitat for the species of interest, and physical characteristics of the project area should be collected.
- At a minimum, an assessment of potential bird and bat habitat should be performed at each site being considered for development (see discussion below regarding bat assessments).
- One year of monitoring for occurrence and relative abundance of species of concern may be necessary if little is known about the site. Studies should be conducted as seasonally and spatially appropriate, with the intensity and frequency of monitoring to be determined in consultation with the state wildlife agency. The monitoring *may* include radar and other appropriate tools, such as acoustic monitoring, to develop an understanding of bird and bat migration characteristics and activities if there is significant concern regarding the potential impacts to nocturnal migrants at the proposed site.

- At a minimum, one raptor nest survey should be conducted during the breeding season within 1-mile of the project site to determine the location and species of active nests with the highest likelihood of impacts from siting and operation of the wind farm. A larger survey area or more than one survey may be required, based on the species of interest and if there is likelihood of the presence of threatened or endangered raptor species. The extent and duration of the raptor nest survey should be determined through consultation with the state wildlife agency.
- At sites where the objective is to predict impacts or to design the facility to avoid impacts to a specific species or group of species and there is significant uncertainty about the likelihood of impacts, a minimum of one full season of avian use surveys is recommended following current state-of-the-art protocols to estimate the use of the project area by avian species during the season(s) of most concern (usually spring/early summer).
- Once a public review process is commenced (e.g., permit application, publicly funded studies) the results from all studies, including raw survey data, should be considered public information and shared with the relevant state and local agencies.
- Field work should include a means of estimating uncertainty (e.g., detection probabilities).

2. When/why is study beyond the standard study protocol needed?

The guidelines should provide that additional monitoring may be recommended by the state wildlife agency for good cause, including in the following circumstances:

- Rare, threatened or endangered species are identified within or near the project area.
- The site is adjacent to an area recognized as nationally important to birds, such as a national wildlife area or similar area specifically designated to protect birds.
- The site contains relatively large concentrations of raptors known to be high risk for collision with turbines.
- The site is a known area of concentration during migration.

3. When/why is less study than the standard study effort needed?

The guidelines should allow for an initial phase I avian risk (site) assessment (See NWCC *Studying Wind Energy/Bird Interactions: A Guidance Document*) to determine if impacts to species of concern are likely. This may be adequate if there are recent studies available from

projects (including studies of existing wind facilities) in comparable habitat types in locations close to the proposed project and the likelihood of impacts to species of concern is low.

- 4. Which pre-permitting study methods provide the best value in terms of efforts expended and birds saved? and**
- 5. What pre-permitting study methods are most useful in aiding modern siting technique?**

Methods will vary depending on the objectives of the study, the species of interest, and the landscape. In general, relative abundance of diurnal species is best determined by some form of probability sampling. For example, in heavy cover, point counts are the most useful and cost effective approach for developing baseline data on use. In grasslands and shrub-steppe where passerines are the primary target, belt transects may be most appropriate technique for estimating species occurrence and relative abundance. Sampling should be distributed randomly or systematically throughout the area of interest, carried out by experienced observers, and performed at the appropriate time of day in appropriate weather conditions, based on published methodology and as determined in consultation with the state wildlife agency.

- 6. What techniques can be most readily compared to other pre-construction studies in other states and around the world?**

- Data on similar species, collected with similar protocols and in similar plant communities and landscapes can be readily compared to studies elsewhere in the country.
- National standards have not been developed for acoustic monitoring of migrating birds. At present, this technique is most likely to be used effectively only in the context of a research project.
- Similarly, with radar monitoring, there is variation in equipment and protocols and an absence of peer reviewed standards of conducting studies. The guidelines should provide specific data quality parameters unless this technique is being used in the context of a research project. If radar monitoring is required for a specific project, then the most suitable protocol should be developed in consultation with the state wildlife agency.

➤ **Pre-Permitting Migratory Bird Monitoring**

- 1. What circumstances might require a detailed assessment of migratory bird passage?**

In areas that contain land features and plant communities that may be important for migrant species and are likely to concentrate birds, or provide staging, stopover or wintering areas, a detailed survey of migratory bird passage is warranted.

2. What techniques are appropriate to quantify numbers and altitude of migratory birds?

Quantitative monitoring should be required normally only if there is a particular reason to believe migration will be concentrated at the site.

For landscapes and plant communities that may be important for migrants, **passage migration counts** are recommended to determine the number of birds flying through or over an area. Quantitative monitoring of passage migration should *only* be recommended if there is a particular reason to believe migration will normally be concentrated at a site. Observational studies using methodology discussed above should be used for diurnal migrants (e.g., raptors). Full quantification of nocturnal migration is very difficult and can only be approximated with radar. However, an index of migration activity can often be obtained by diurnal counts of a nocturnal migrating species during their daily stop-over.

Radar should *not* generally be required for monitoring unless there are high risk factors involved, such as a suspected migration concentration area for species of concern. Radar is relatively expensive and has a number of limitations including: it is not yet possible to recommend one system or another; and radar does not allow positive identification of species; and radar can not distinguish birds from bats. When recommended, the cost of radar studies should be shared with public funding sources, if possible (e.g., PIER funding, USFWS).

➤ Operations Monitoring

1. What study techniques have been most effective predictors of avian activity and mortality?

There has not been sufficient research and evaluation performed at this time to establish what study techniques constitute the most effective predictors of avian activity and mortality. This is an area where PIER funded research would be useful.

At sites that support reasonable densities of native breeding birds, as determined by the pre-construction assessment, the guidelines should recommend follow-up monitoring using the same techniques as those used during the pre-construction assessment.

The purpose of “fatality” studies should be to:

- Determine the approximate number of collision fatalities of birds and bats on a per turbine/MW basis
- Estimate the influence of physical and biological factors such as weather, topography, and habitat on fatality levels
- Evaluate risk predictions from pre-construction studies

The purpose of “avian use” studies should be to:

- Determine whether birds relative abundance appears to be influenced by turbines while nesting, foraging, or migrating

“Fatality: and “use” studies also should be used to:

- Evaluate cumulative effects

The following protocol represents a pragmatic, incremental, cost effective monitoring approach to effectively predicting avian mortality:

- When fatalities are uncertain or considered likely for species of concern, the guidelines should recommend two to three years of mortality surveys to determine possible effects. The survey methods and techniques should be developed from published methods and in consultation with the state wildlife agency to establish a sampling design that will result in data collection with sufficient frequency at a statistically valid sample of turbine locations within the project to meet the objectives of the study. If the results are determined significant by a technical advisory group, additional surveys may be requested to consider longer term effects.
- A technical advisory committee should be established to review monitoring results and make suggestions to the permitting agency regarding the need to adjust mitigation and monitoring requirements.
- Carcass searches can be expected to be the most intensive and costly part of the post-construction monitoring program. Carcass searches should cover the period of interest. For example, if passerine fatalities during migration are of greatest interest, then the duration of carcass searches should be 6 weeks during the spring migration and 8 weeks during the fall migration period. In most cases, carcass searches should be conducted at least once a week at a site, to minimize loss of carcasses due to scavenging. Carcass searches to quantify fatalities should include an estimate of carcass detection and carcass removal and be conducted by trained personnel.
- If sampling is required, a probabilistic sampling design should be used (e.g., random, stratified random, systematic with a random start).

2. Are there any circumstances in which no operations monitoring would be required?

Yes. If baseline data indicates a very low level of native bird diversity and numbers and data from other sites supports this conclusion, follow-up monitoring studies should not be recommended or required.

3. Under what circumstances might operations monitoring need to be continued indefinitely?

Monitoring may be required beyond three years if dictated by the study objective. For example, if substantial mortality is observed and mitigation measures are implemented, mitigation measures should be evaluated.

4. Is there a point at which the responsibility for post-construction monitoring should shift to the public?

Due to the challenging economic viability of wind projects today, if substantial mortality is *not* observed during the first two to three years, additional post-construction monitoring that is desired by state and local agencies should be supported by public funding. Such monitoring would be used in support of general research or to establish the longer term effects of wind projects on habitat and species.

5. Are there circumstances in which monitoring reports should not be available to the public?

No. Developers should be required to include the results of pre-construction surveys in their project development plans. Post construction survey and monitoring results should be submitted to the state wildlife agency as a condition of local and state approvals.

6. Should monitoring reports include raw data?

Yes. Developers should be required to make raw survey data available for both pre- and post-construction monitoring, and associated weather conditions.

7. Should wind energy sites offer some level of open access to outside parties for follow-up studies?

Yes, if allowed by surface owner.

8. Would a clearinghouse or centralized database of California wind/wildlife monitoring reports be useful? How should it be organized, and what agency would maintain it?

Yes. CEC and the state wildlife agency should consider developing a database for the collection of bird and bat-related data from California wind energy projects. This database should be used by PIER researchers to increase understanding of environmental effects of turbines on wildlife including the potential for cumulative effects related to habitat displacement or direct mortality. The results of these analyses will be particularly valuable for informing future monitoring requirements. In particular, the database should be used to determine which monitoring data and

techniques are most useful for predicting impacts, and to update the guideline recommended protocols.

➤ **Bat/Wind Turbine Interactions:**

1. How applicable are bat/wind turbine studies from other regions to California?

It has *not* been established that bat/wind turbine studies from other regions are applicable to California. Recent studies have documented large bat kills by moving wind turbine blades at some wind-energy installations along the forested ridge tops in the Northeast, in farmland in Iowa, and mixed prairie and farmland in southern Alberta. However, very few studies have been designed to actually estimate bat fatalities. Therefore, the impact of wind projects on bat species in California remains an open question.

Because relatively little is known about the causes or population consequences of bat mortalities or about migratory behavior of many bat species, and because many of the bat species involved do not have special protection status, it may be premature for California to establish standard or detailed study protocols that place substantial burdens on wind developers. Instead, it may be better public policy for CEC to utilize the PIER research program to determine: (a) what is the threshold of bat use and behavior that triggers a population problem, (b) what pre-construction analysis is most effective at predicting impacts, and (c) what mitigation could be effective at reducing bat mortality. The research also should include surveys of existing wind facilities in a variety of landscapes to determine if bat fatalities are correlated to landscape features, technology, etc. The PIER research then could be used to establish best methods and protocols for estimating impacts to bats.

- 2. What features of a site might indicate that detailed bat studies are required? and**
- 3. Would year-round pre-construction acoustic studies be warranted at such sites or only during peak migratory periods?**

At this time, the guidelines should require that developers consider the potential impact of proposed sites on bat populations. In forested areas, forest edges and ridge tops are of concern for bats. Bats also tend to be detected in higher concentrations around bodies of water and in well-vegetated areas. Specifically, in sites with these features, a site assessment should be performed for bats, including a data search to determine if hibernacula exist nearby and a habitat inventory to determine if there are likely areas of concentration.

Unfortunately, each of the existing sampling techniques and methodologies (acoustic detection, radar tracking, and mist netting) has significant limitations in effectively determining bat activity and likelihood of impact. More research is needed to establish reliable sampling techniques for assessing abundance, activity patterns, migration behavior, and whether pre-construction indices of bat activity can predict relative risk at a specific site. If a sampling option is recommended, the use of acoustic detection with AnaBat is probably most effective. Because bats generally echolocate as they fly, microphones sensitive to the frequency of sounds that bats use can

provide a measure of bat activity to determine if there are a relatively large number of bats in an area.

The guidelines should recommend post-construction fatality searching. Post-construction monitoring for bat mortality should use state-of-the-art search survey protocols and be required for the duration of two to three years. However, if the monitoring indicates larger than expected bat fatalities, additional monitoring may be required by the state wildlife agency.

More detailed bat studies should be required only if it is determined through monitoring at wind sites in California that wind projects are causing a significant impact on state or regional bat populations.

Sincerely,



Mark Sinclair
Deputy Director
Clean Energy States Alliance

cc:

Dr. Susan Sanders, CEC
Rick York, CEC
Misa Ward, CEC
Kelly Birkinshaw, CEC
Paul De Morgan, RESOLVE