

STATE OF CALIFORNIA
ENERGY RESOURCES CONSERVATION
AND DEVELOPMENT COMMISSION

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

COMMENTS OF THE
CALIFORNIA WIND ENERGY ASSOCIATION
ON JULY 2007 COMMITTEE DRAFT GUIDELINES

The California Wind Energy Association (“CalWEA”) appreciates this opportunity to provide written comments on the July 2007 Committee Draft report, “California Guidelines for Reducing Impacts to Birds and Bats from Wind Energy Development” (“Committee Draft”). CalWEA members include 16 companies involved in California wind energy developments, including AES Wind Generation; Ameron International; Babcock & Brown LP; CalWind Resources, Inc.; Coram Energy Group, Ltd.; Clipper Windpower, Inc.; enXco Development Corp.; Eurus Energy America Corp.; Invenergy, LLC; Renewable Energy Systems Americas, Inc.; Oak Creek Energy Systems, Inc.; San Gorgonio Farms, Inc.; UPC Wind Management, LLC; Vestas American Wind Technology; and WindPro Insurance.

I. INTRODUCTION AND SUMMARY

CalWEA understands that the state’s AB 32 greenhouse-gas reduction goal is not a free pass on the environmental scrutiny of wind projects, nor is the wind industry seeking such a pass. However, the importance of achieving the state’s AB 32 goal makes it critically important that the Guidelines achieve the Committee’s goal of accelerating wind energy development while ensuring that projects are environmentally sound. *By imposing study requirements that go far beyond what is necessary to determine and mitigate significant impact under the California Environmental Quality Act (CEQA), the Committee Draft fails to meet this goal, and we therefore strongly oppose it.* If adopted, the Committee Draft would significantly increase the time necessary to permit a wind project, increase permitting costs by millions of dollars per project, and expose wind projects to large financial risks. In the context of a strong national and global market for wind energy, the effect will be to discourage investment in California wind projects.

While the guidelines are characterized as “voluntary,” the prescriptive approaches that it advocates will undoubtedly become the default approach of lead agencies regardless of their merit in specific cases, including projects in low-impact areas. Indeed, lead agencies are

already using the draft guidelines and some have even suggested their retroactive application. Lead agencies that wish to deviate from the standard approach will risk being sued by project opponents who will use the CEC document, and the authoritative weight of the State that it carries, as evidence of insufficient study of potential environmental impacts under CEQA. Thus, the Guidelines will support litigation against wind projects. Agencies that are not deterred from deviating from the guidelines' rigid requirements will nevertheless have to justify in detail any deviations, which will raise costs and impose delays.

For these reasons, we strongly encourage the Committee to heed the following primary recommendations. Additional and more detailed recommendations are presented further below.

- 1. Set aside the scheduled date, September 26, for adopting the Committee's final draft (to be issued on September 14).** The Committee Draft requires fundamental and significant changes if the imposition of substantial and unjustified burdens on wind energy development in California is to be avoided. The necessary changes are unlikely to be made by September 14, and there will be little or no opportunity to propose changes to the final draft. To guard against application of the Committee Draft prior to its revision, the Committee should apply a "Draft – Do Not Cite" overlay to each page of the posted document, as was done with previous drafts.
- 2. Modify the prescriptive nature of the Committee Draft.** The Guidelines prescribe particular courses of study and particular methods at every site, despite various types of terrain, varying wildlife populations, differences in knowledge bases at various sites, and various techniques that may be applied with equal -- or greater -- scientific validity. Instead, the guidelines should recognize the various project circumstances that may exist and various appropriate methods. At a minimum:
 - ▶ the Guidelines should clearly state that they are untested, and that CEQA lead agencies need not require project proponents to follow the recommended courses of study and may use their own discretion in applying the Guidelines in view of local circumstances, existing information, and their own judgment and experience.
- 3. Eliminate recommendations that exceed the requirements of CEQA, and promote streamlined environmental review.** The Committee Draft prescribes studies that are not necessary to determine whether a project will have significant impacts under CEQA, and states that *all impacts* must be mitigated, not just those deemed significant under CEQA. The prescribed studies effectively amount to state-mandated research and data collection efforts that go far beyond what is required under CEQA. Further, requiring minimization or mitigation of non-significant impacts holds the wind industry to a much higher standard than are other industries with far greater environmental impacts. These prescriptions are likely to result in every project, including repowers, being required to conduct a full-blown EIR even when estimated impacts are well below significant levels. At a minimum, the final Guidelines should:
 - ▶ eliminate the recommended two years of post-construction bird use counts and all acoustical monitoring for bats. These studies alone would add *millions of dollars* to

an already costly permitting process (see Appendix C), without providing meaningful information that would inform the permitting process,

- ▶ insert the word “significant” before the word “impact” throughout the document, and remove suggestions that non-significant impacts must be eliminated, minimized or mitigated,
- ▶ encourage lead agencies to consider the use of negative declarations, mitigated negative declarations, and categorical exemptions where pre-permitting assessment has demonstrated that avian and bat impacts are not significant or can be reduced to a less-than-significant level.

- 4. Remove the improper elevation of CDFG and USFWS authority in the CEQA Process.** The Committee Draft contains dozens of statements that encourage consultation with or require approval by both the California Department of Fish and Game and the U.S. Fish and Wildlife Service before deviating from the recommended protocols. Requiring such extensive input and sign-off from these agencies -- which are understaffed and have frequently been unable to respond to requests for review within the required comment period provided under CEQA-- will add months, if not years, of delay to a process that already routinely far exceeds the one-year timeframe intended under CEQA for preparing and certifying an EIR. Further, by elevating the authority of the CDFG and USFWS in the CEQA process, the Draft Guidelines create backdoor authority during the CEQA permitting process for agencies that do not have such authority now.

- ▶ The Guidelines should properly reflect the requirements of CEQA, which requires the lead agency to seek input from wildlife agencies at various points, but does not obligate them to defer to the views of those agencies or to wait an unreasonable period of time for their responses. The Commission should modify all statements that state or imply that deviating from the recommended protocols in the Guidelines requires the approval of wildlife agencies (see Appendix A for a list of such statements).

- 5. Strongly discourage the retroactive application of the guidelines.** Wind project developers – some in the last stage of the permitting process – have been told that approval of their EIRs and study methods may need to wait for, and be revisited based on, the final version of the Guidelines. Such retroactive application could set projects back by several years. The Guidelines should strongly advise lead agencies to apply the document prospectively only.
- 6. Eliminate all references to discredited reports.** The Committee Draft continues to cite a 2004 report by Smallwood and Thelander (and other reports that rely upon it), despite the fact that *the Commission’s own independent reviews* cast serious doubt on the credibility of the report’s findings and conclusions. Application of the report’s findings could result in inaccurate impact predictions and ineffective mitigation. See

Appendix B for a summary of the peer reviews obtained by the Commission, the seriousness of which was minimized in the CEC's summary of those reviews.

II. Additional Recommended Changes to the Committee Draft

Note: All of the above recommendations are not repeated in this section; some points in this section provide further elaboration on the above points, and others were not noted above. All are critically important to the wind industry.

1. A New Approach is Needed

- a. The guidelines should be oriented around CEQA

The document is not oriented around determining and mitigating *significant* impacts, which is inconsistent and at odds with the focus of California's premier environmental law, CEQA. Throughout the document, the word "impact" is used without qualification or is used with undefined modifiers (e.g., "high", "low", "substantial"), suggesting – and in some cases stating – that less-than-significant impacts must be studied and mitigated. The focus of this document must be on CEQA; otherwise, the Guidelines will result in holding the wind industry to a much higher standard than other land-use projects, including those with far greater environmental impact.

The Committee should insert the word "significant" before the word "impact" throughout the document, and eliminate suggestions that non-significant impacts must be minimized or mitigated. For example, eliminate the word "fully" on line 1043 ("The permit conditions may have to include mitigation measures that address the other wildlife laws discussed below, in addition to those required by CEQA, to avoid, minimize, and fully mitigate impacts to birds and bats.") and modify the language on lines 525-527 ("Project developers and permitting agencies should ensure that appropriate measures are incorporated into the planning and construction of the project to avoid or minimize impacts as much as possible.").

- b. Reduce the excessive prescriptiveness of the guidelines

The Guidelines prescribe particular courses of study at every site, despite various types of terrain, varying wildlife populations, differences in knowledge bases at various sites, and various techniques that may be applied with scientific validity. Instead, the guidelines should focus on the *information that is needed* to determine whether significant impacts are likely to occur at proposed project sites, and should recognize the *various existing sources of information and the various scientifically valid techniques* that can provide the needed information.

Early in the process, CalWEA proposed a decision-tree approach oriented around collecting enough information to make a determination of significant impact under CEQA. (See, e.g., CalWEA's September 9, 2006, comments, section II.A.1). Staff never engaged in discussion about this proposal.

2. Requirements for Studies that Are Not Necessary to Make Determinations of Significant Impact Under CEQA Should Be Eliminated

The Guidelines prescribe specific, long-term field studies that are not necessary to make determinations of significant impact under CEQA. These excessive study requirements effectively constitute state-mandated research projects at the expense of the wind industry. While a laudable objective, burdening every wind project with research requirements is not appropriate, and would raise costs by at least \$2.5 million per project without necessarily reducing impacts. (See Appendix C for an estimate of additional costs.) A recent appellate court decision, *Kerncrest Audubon Society*,¹ underscores this point.

Kerncrest clarifies that CEQA requires studies sufficient to permit a reasoned and reasonable conclusion about the likely adverse environmental effects of a proposed project. The court found that conducting nightly avian studies during a spring migration period for multiple years would exceed the mandate of CEQA's information gathering provisions and would hamper development of this key source of renewable energy. Many of the Committee Draft's recommendations are similarly excessive and unnecessary, going far beyond current local agency and industry permitting practice under CEQA.

At the August 13, 2007, hearing, CalWEA objected to the wind industry being singled out to conduct general research while other industries (fossil fuel, housing, timber, etc.), whose impacts on the same species are likely far greater, do not face such requirements. The response of a CDFG representative was, effectively, "well, we're writing guidelines for the wind industry here, not for those other industries."² This is far from adequate justification for burdening an industry whose overall environmental impacts are far lower than these other industries.

a. Bird use counts

The Guidelines would require bird use counts to be conducted *every week for three years* (one year prior to construction and two years after) at most sites. This blanket requirement is not scientifically justified, nor are the particular methods prescribed appropriate to characterize bird use or impacts at most sites. "One size fits all" does not apply to wind resource areas whose ecological conditions vary.

The Committee Draft states that bird use counts should be conducted for 30 minutes once every week for all four seasons in most cases, with enough sampling points to achieve an average minimum density of 1 to 1.5 sample points per square mile, stratified among different habitat types (see pages 44 -45). The appropriate sampling frequency and sampling density cannot be predetermined; instead, it should be determined based on site-specific conditions. The sampling frequency and density prescribed in the Committee Draft is both excessive and likely to be ineffective at many sites. In addition, as we have commented in the past, depending upon

¹ *Kerncrest Audubon Society, et al. v. City of Los Angeles Department of Water and Power, et al.* (Fifth District Court of Appeal, No. F050809) CalWEA has joined in a request that this opinion be published.

² Hearing transcript had not been issued by the date that these comments were due.

the site, scientifically defensible information may already exist that would obviate the need for BUCs or the application of BUCs 52 weeks of the year. We recommend that the specificity of the sampling frequency and density be omitted, and that the following statement be added: “the sampling frequency and density should be determined on a case-by case basis.” This change will assure that the costs for monitoring will be consistent with the information needs for a particular site.

Use and abundance can be more effectively characterized through more intensive sampling in relevant seasons and by examining available local, regional and statewide data. Bird count studies should be informed by the geography, topography, climatic patterns, habitat types, proximity to drainage channels and/or other bodies of water, known migration routes, and the presence of existing wind farm or other human developments.

There is no need to conduct post-construction bird use counts across the board, since carcass searches can be conducted to determine impact. Moreover, unless the one-year mortality data is at odds with predicted impact, an additional year of mortality monitoring would be unwarranted. (See CalWEA’s comments dated August 11, 2006, and September 11, 2006.) If mortality is greater than predicted, it may be appropriate to conduct post-construction use and abundance surveys in order to understand the mortality. However the type of survey conducted and the methods should depend upon the behavioral characteristics of the species of interest and the mortality conditions. For example, for nocturnal migrants, methods appropriate to the species should be used, rather than bird use counts, which are for diurnal birds.

The Guidelines should state that the purpose of operational monitoring is to confirm predicted levels of mortality and, if necessary, to explain higher than predicted levels of mortality. Any studies beyond this purpose should be publicly funded.

b. Acoustical monitoring for bats

The Guidelines would require bat acoustical monitoring studies *at every site, continually for three years*, even though the document itself states that this technique “has yet to be shown to be strongly associated with estimates of collision risk or impacts” (Committee Draft, line 2004). (For the same reason, the Committee Draft declines to require radar as a method of studying night migrating birds; see Committee Draft line 1805.) In addition, effective avoidance and minimization strategies do not yet exist.

Further, due to a general void of information about bats, as indicated on lines 1911-13, the results of acoustical studies are unlikely to enable determinations of significant impact to be made, because they will not by themselves adequately characterize bat populations (which is why publicly funded research is needed). As with bird use counts, there is no need to conduct post-construction acoustic studies at every project, since carcass searches can determine actual bat mortality and any needed monitoring should be tailored to understanding the mortality found.

CalWEA supports, with certain exceptions, the concept outlined by CEERT in its May 14, 2007, comments as amended on May 21. In view of the limited understanding of wind-bat

interactions, CEERT proposed that the Guidelines recommend that lead agencies require project developers to contribute \$25,000 per 100 MW of installed capacity to a fund that would also be supplemented by the state. The fund would be managed by a nationally recognized non-profit bat research organization and would be focused on regional bat studies.

The research that CEERT proposes to improve monitoring, prediction and mitigation techniques still would exist within a larger information void about bats. CEERT's proposal anticipates, perhaps, that larger, ongoing research efforts may someday enable the results of effective monitoring to be placed in a larger context that enables determinations of significant impact to be made. As such, the proposed research fund should not be labeled a "mitigation fund" because there has been no determination of significant impact that needs to be mitigated. The fund should instead be termed a "research fund" that is being established with the wind industry's support to contribute to a better understanding of the issues in the long-term.

In the same vein, the guidelines should indicate that a wind project should not be required to pay into the fund where it can be shown that there is little possibility of significant impact (e.g., where bat presence in the area is known to be very low). This should not have to await the results of the bat research fund or further iterations of the guidelines.

3. The Guidelines Should Remove Suggestions and Requirements that Improperly Elevate the Authority of CDFG and USFWS in the CEQA Process

The Draft Guidelines require consultation with, *or approval by*, the California Department of Fish and Game and the U.S. Fish and Wildlife Service on the study methods to be used at many points prior to and after issuance of a land use permit by the CEQA lead agency. Requiring extensive input and sign-off from these agencies -- which are understaffed and have frequently been unable to respond to requests for review within the required comment period provided under CEQA-- will add months, if not years, of delay to a process that already routinely far exceeds the one-year timeframe intended under CEQA for preparing and certifying an EIR. Further, the wind industry has often witnessed differences of opinion among personnel in these agencies; such differences will further complicate and delay the process.

Further, by elevating the authority of the CDFG and USFWS in the CEQA process, the Draft Guidelines create backdoor authority during the CEQA permitting process for an agency that does not have such authority now. The Guidelines will undermine and dilute a local agency's constitutional land use authority over wind projects.

Because CDFG and USFWS are charged with administering zero-tolerance wildlife laws, they are likely to set a high bar for all projects in order to catch a few projects that may be unable to comply *to the letter* with rigid wildlife laws which prohibit the inadvertent take of even one individual of certain species. However, by their nature, wind projects cannot achieve zero bird mortality. While the wind industry supports good faith attempts to limit unnecessary bird and bat mortality, it disagrees that funding expensive and unnecessary research is required to demonstrate such good faith.

The recommendations in the Guidelines should properly reflect the requirements of CEQA, which requires the CEQA lead agency to seek input from wildlife agencies at various points, but does not obligate them to defer to the views of those agencies or to wait an unreasonable period of time for their responses. The Commission should eliminate all statements that state or imply that deviating from the recommended protocols in the Guidelines requires the approval of wildlife agencies (see Appendix A for a list of such statements).

4. The Guidelines Should Foster Streamlined Permitting for Low-Impact Projects

The Guidelines should encourage local agencies to streamline permitting for repowers and new projects in existing development areas known to have low environmental impacts, as CEQA enables for repowered fossil fuel plants and other industrial projects. (See, for example, CEQA exemptions for co-generation facilities, pipeline projects and geothermal projects.) There is no reason to expect that the less-than-significant impacts of an existing project will rise to significant levels as a result of repowering the project. Existing available evidence suggests that repowering will, in fact, reduce impacts.³

CalWEA made a specific proposal for streamlining environmental review (see our October 9, 2006, comments, section I.B), which was never entertained by staff. If streamlining is not specifically encouraged in these guidelines, the prescriptiveness of the guidelines will pressure lead agencies to require full EIRs in every case.⁴ To avoid this result, we recommend adding the following language to the Committee Draft:

After line 511 on page 13 insert:

"These Guidelines are intended to allow lead agencies to make informed permitting decisions. They are not intended to suggest that lead agencies should require the preparation of an Environmental Impact Report (EIR) for all wind projects. The appropriate level of CEQA review should be made on a project-by-project basis by the local lead agency. For example, where pre-permitting assessment has demonstrated that avian and bat impacts are less than significant or can be reduced to a less than

³ See CalWEA's October 9, 2006, comments in this process (sections II.A.1 and II.A.2). Since that time, an additional year of data has been collected at two Altamont projects, one comprised of 65-kW turbines and the other of 330-kW turbines. The data is consistent with earlier findings that mortality is substantially reduced with larger turbine size. See "Progress Report: Fatality Searches at the Patterson Pass and Tres Vaqueros Wind Projects 25 January 2005 – 31 December 2006," January 2007, prepared for Babcock & Brown by WEST Inc. In addition, we note that the expectation that repowering will significantly reduce fatalities at the Buena Vista project in the Altamont Pass (a condition of a settlement with the Attorney General's office) was sufficiently strong to support investment in that repower project, which has now been completed. (Contra Costa County has not yet produced data from its avian monitoring program for this project.)

⁴ While the Committee Draft's proposed "Category 1" appears to promote reduced study requirements for that category, it is unlikely to achieve that goal because the informational requirement is not limited to determining whether impacts are likely to be significant, and because the reduced study requirement contains numerous caveats, such as discouragement of correlation. In addition, the draft suggests that the CDFG and USFWS should concur that a project belongs in Category 1 before so categorizing it.

significant level through mitigation, these Guidelines encourage lead agencies to consider use of negative declarations, mitigated negative declarations, or categorical exemptions, where appropriate."

After line 1073 on page 30 insert:

"These Guidelines are intended to allow lead agencies to make informed permitting decisions. They are not intended to suggest that lead agencies should require the preparation of an Environmental Impact Report (EIR) for all wind projects. The appropriate level of CEQA review should be made on a project-by-project basis by the local lead agency. For example, where pre-permitting assessment has demonstrated that avian and bat impacts are less than significant or can be reduced to a less than significant level through mitigation, these Guidelines encourage lead agencies to consider use of negative declarations, mitigated negative declarations, or categorical exemptions, where appropriate.

"EIRs are required under CEQA when there is substantial evidence, in light of the whole record before a lead agency, that a project may have a significant effect on the environment. (CEQA Guidelines section 15064(a)(1)."

After line 1092 at p. 31:

"Negative declarations or mitigated negative declarations may be appropriate where pre-permitting assessment show less than significant impacts on avian or bat species. Thus, negative declarations are allowed by the CEQA Guidelines "if the lead agency determines that there is no substantial evidence that the project may have a significant effect on the environment." (CEQA Guidelines section 15064(f)(3).) Mitigated negative declarations allow lead agencies to impose mitigation measures on proposed projects to reduce identified impacts to less than significant levels prior to approval.

"CEQA may also allow for streamlined review for certain replacement or reconstruction projects, also known as repowering projects. Thus, section 15302 of the CEQA Guidelines provides that, under appropriate circumstances, a categorical exemption may be used for 'the replacement or reconstruction of existing structures and facilities where the new structure will be located on the same site as the structure replaced and will have substantially the same purpose and the same capacity as the structure replaced.' (CEQA Guidelines section 15302. If pre-permitting assessment shows that the impacts of replacing the existing structures is less than or similar to the existing wind project, use of this CEQA tool may be appropriate."

5. Shutdowns and Other Unproven Adaptive Management Techniques Should Not Be Encouraged

As discussed in our May 14, 2007, comments and previous comments, the adaptive management concept is still in its infancy for use in wind projects, and there are no guidelines or accepted methods for such an approach for wind projects. Further, putting curtailment and

seasonal shutdowns on the table as a potential mitigation option, as the Committee Draft does, will upset project financing due to the extremely high risk exposure it places on a project. Adaptive management for wind projects, particularly curtailment and seasonal shutdowns, should therefore be discouraged at this time.

CalWEA generally supports the specific language put forward by CEERT in its May 14, 2007, comments as a substitute for the adaptive management language in the April draft (which remains largely unchanged). However, CEERT's references to "permitted amounts" and amounts "allowed in the permit" must be modified. "Permitted amounts" of mortality implies that there will be a specified level of mortality allowed in the permit, which is not commonly done. Unlike a power plant, which is allowed under its permit to release a certain amount of pollutants which can be easily controlled and measured, avian and bat fatalities cannot be predicted or controlled, and year-to-year variances should be expected. Therefore, the reference should be to impacts that are consistently and substantially higher than the pre-permitting estimates of mortality.

6. The Guidelines Should Enable Permits to be Issued before Completion of Studies

We concur with the request of CEERT in its May 14, 2007, comments that the word "pre-permitting" be replaced with "pre-construction" to enable project developers to complete studies after a conditional permit is issued but before construction begins, with permit modifications occurring as necessary prior to construction.

In conclusion, we again urge the Committee to take as much time as is necessary to review these comments and make the changes necessary to ensure that the adopted product achieves the Commission's goal of accelerating the development of environmentally sound wind energy development in California.

Respectfully submitted,



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CALWEA APPENDIX A

July 2007 Committee Draft Guidelines: Instances where consultation with CDFG and/pr USFWS is advised or required

CDFG & USFWS Approval Required or Implied

Page 10 Line 401

“The lead agency should consult with CDFG, USFWS, and other experts to assess whether these data are credible, scientifically defensible, and applicable to the repowering site.”

Page 10 Line 406

“Determine the adequacy of this information in consultation with the CEQA lead agency, USFWS, CDFG, and other appropriate stakeholders (such as a conservation organization representative).”

Page 11 Line 428

“Early consultation with the lead agency, CDFG, USFWS, and local environmental groups is a crucial step in designing pre-permitting studies and deciding whether or not modifications to the standardized methods are warranted.”

Page 12 Line 484

“Consult with bat experts, CDFG, and USFWS before reducing acoustic monitoring during any portion of the one-year monitoring period.”

Page 12 Line 496

“Consult with a bat biologist with experience in acoustic analysis and with CDFG and USFWS before making decisions on the level of effort needed for screening and analyzing the pre-permitting acoustic data.”

Page 14 Line 546

“Therefore, consult with CDFG, USFWS, and species experts in the development of site-specific ratios and fees to use in establishing compensation formulae.”

Page 16 Line 664

“The selection process must be scientifically defensible and should be developed in consultation with CDFG, USFWS, and other knowledgeable scientists and appropriate stakeholders.”

Page 16 Line 675

“Consult CDFG, USFWS, and other knowledgeable scientists and appropriate stakeholders before modifying search plot size.”

Page 18 Line 730

“Conduct bat acoustic monitoring nightly for two years using the same methods as for pre-permitting monitoring if CDFG, USFWS, and other knowledgeable scientists and appropriate stakeholders consider this information a necessary adjunct to the bat fatality data.”

Page 25 Line 908

“A “yes” answer to question #1 should prompt early and close consultation with CDFG and USFWS to develop a study plan that addresses potential impacts of constructing and operating the project on listed or special-status species.”

Page 32 Line 1151

Direct consultation with CDFG is required to ensure that a proposed project will meet the intent of Fish and Game Code statutes for the protection of wildlife species. Several California Fish and Game Code sections that relate to protection of avian wildlife resources and are relevant to wind energy projects are described below.

Page 52 Line 1812

“Consult the USFWS, CDFG, and migratory bird experts to review study design and analytical methods to determine whether the proposed studies would answer questions about risk to nocturnal migrating birds.”

Page 56 Line 1991

“Make decisions on refraining from acoustic monitoring during any portion of the one-year monitoring period only after consulting a bat biologist, CDFG, and USFWS.”

Page 72 Line 2594

“Category 2 projects may be able to reduce the level of study effort for year two if the results of year one monitoring indicate fatality rates equal to or lower than estimated during pre-permitting studies and if CDFG, USFWS, and experts agree such a reduction is warranted.”

Page 73 Line 2649

“For operations monitoring of bats, evaluate the pre-permitting data and consult with CDFG, USFWS, and other knowledgeable scientists and appropriate stakeholders to determine whether information about the ambient level of bat activity is a necessary adjunct to the bat fatality data.”

Page 74 Line 2657

“The methods should be consistent with those used during pre-permitting studies, and the study design should be confirmed in consultation with CDFG, USFWS, and other scientists and stakeholders who were involved in developing the pre-permitting studies.”

Page 74 Line 2669

“The turbines to be sampled can be selected at random, via stratification, or systematically as long as the lead agency, CDFG, and USFWS has determined that the selection process is scientifically defensible.”

CDFG & USFWS Consultation Advised

Page 11 Line 460

“Consult with the USFWS, CDFG, raptor biologists, and appropriate stakeholders to establish which 460 species to search for and to develop the site-specific survey protocol.”

Page 19 Line 233

“Consultation with the U.S. Fish and Wildlife Service (USFWS), California Department of Fish and Game (CDFG), CEQA lead agency, and other appropriate stakeholders is an important step during this process, yielding valuable information and establishing contacts with key individuals and organizations.”

Page 16 Line 637

“Consult the CDFG, USFWS, and other knowledgeable scientists and appropriate stakeholders regarding study protocol and the duration of an operations monitoring program.”

Page 17 Line 689

“Establish the frequency of carcass searches after analyzing the results of pilot scavenging trials and in consultation with USFWS, CDFG, and other knowledgeable scientists and appropriate stakeholders.”

Page 22 Line 824

“Early coordination with CDFG is highly recommended during the early site-screening stage, both as a source of information about special-status biological resources and as a way to communicate with those CDFG biologists who might be involved in the CEQA review of the project.”

Page 25 Line 929

“Yes” answers to questions #7 through #9 should prompt consultation with CDFG, USFWS, and scientists with expertise in migratory birds and bat biology.”

Page 28 Line 983

“The developer should contact landowners; local environmental groups; and local, state, and federal wildlife management agencies such as CDFG and USFWS early in the permitting process.”

Page 29 Line 1013

“The CEQA lead agency and project proponent should consult frequently with CDFG and USFWS throughout the impact analysis and mitigation development process and particularly during development of permit conditions.”

Page 32 Line 1129

“For projects that impact listed species, project developers will need to consult with CDFG and may consider preparing a regional conservation plan or Natural Community Conservation Permit plan to seek permit coverage.”

Page 33 Line 1181

“Presence of fully protected species will require close coordination with CDFG to ensure impacts are minimized.”

Page 37 Line 1273

“In deciding how to categorize a proposed project and when proposing to deviate from the standardized monitoring level, consult with the CEQA lead agency, USFWS, CDFG, biologists with specific expertise, and other appropriate stakeholders.”

Page 39 Line 1367

“An important component in the development of pre-permitting studies is early consultation with the lead agency, CDFG, USFWS, local environmental groups, and any other stakeholders with an expressed interest in the project.”

Page 46 Line 1573

“Consult with the CEQA lead agency, USFWS, CDFG, and conservation organizations to establish the list of target raptor species for nest surveys and to develop the appropriate search protocol for each site, including timing and number of surveys needed, search radius, and search techniques.”

Page 63 Line 2268

“Determine the extent of the buffer zone in consultation with CDFG, USFWS, and biologists with specific knowledge of the affected species.”

Page 72 Line 2579

Consult the CDFG, USFWS, and other knowledgeable scientists and appropriate stakeholders regarding study protocol and the duration of an operations monitoring program.

Page 76 Line 2758

“Establish the frequency of carcass searches at a wind energy project site after analyzing the results of pilot scavenging trials and in consultation with USFWS, CDFG, and other knowledgeable scientists and appropriate stakeholders.”

Page 77 Line 2779

“Establish such stratified sampling protocol only after careful review of pilot scavenger removal studies and in consultation with USFWS, CDFG, and scientists familiar with post-construction survey protocols.”

CALWEA APPENDIX B

[See separate PDF file containing April 11, 2007, letter from William Warren-Hicks, Eco-Stat, Inc., to CalWEA regarding his **review of the CEC document entitled “Avian/Wind Statistical Peer Review Project, Consultant Report,” prepared by the California Institute for Energy and Environment (December 2006).**]

CALWEA APPENDIX C

Estimated Costs for Bird Use Counts and Acoustic Monitoring Recommended in July 2007 Committee Draft

Note: Estimating costs are difficult because the Guidelines (e.g. Line 435 to 502) base sampling on a minimum project area of 1 sq. mile or turbines 1 mile apart. The costs are also dependent on sampling frequency. Table 1 is a summary of the types, frequency, sample station density, and duration recommended for the different categories of projects. Table 2 provides cost estimates based on Table 1 and a 7,000 acre project.

Table 1. Summary of Types, Frequency, Sampling Station Density and Duration Described in Guidelines

METHODS RE-COMMENDED FOR ALL OCCASIONS	FREQUENCY AND SAMPLING STATION DENSITY	CATEGORY 1	CATEGORY 2	CATEGORY 3
Pre Assessment Monitoring				
Birds	BUCs (30 min/wk/station; 1 to 1.5 station/sq. mile)	BUC – may not need full year if other data available	BUC – 1 yr (52 weeks)	BUC – 1 yr (52 weeks) may be longer
Bats	Acoustic Monitoring (AM) 1 to 1.5 station/sq. mile; monitor all night and dawn and dusk except in areas with cold winters, e.g. N. Cal. and higher elevations	AM - may not need full year if other data available	AM – one year	AM – one year +
Operations Monitoring				
Birds	BUCs same as Pre-Assessment	BUCs – 1 yr	BUCs – 2yrs but not consecutive yrs	BUCs – 2 yrs but not consecutive yrs
Bats	AM same as Pre-Assessment Monitoring	AM – 1 yr	AM – 2 yrs but not consecutive yrs	AM – 2 yrs but not consecutive yrs

Table 2. Estimated Costs for Bird Use Counts and Acoustic Monitoring Based on Level of Frequency of Sampling Shown in Table 1 (assumes 7,000 acre project)

METHODS RECOMMENDED FOR ALL OCCASIONS	ESTIMATED COSTS BASED ON TABLE 1 LEVEL OF EFFORT	CATEGORY 1	CATEGORY 2	CATEGORY 3
Pre-Assessment Monitoring				
Bird Use Counts (BUCs)	BUCs (30 min/wk/station; 1 to 1.5 station/sq. mile; <i>Costs will vary depending upon aerial size of project</i>	BUC – may not need full year if other data available; Unable to determine might consider \$20K per sampling station	BUC – 1 yr (52 weeks); based on 7,000 acres ~ \$340 K/yr (\$50 K in protocol development and approval, \$291 in sampling and data analysis and report development)	BUC – 1 yr (52 weeks) may be longer As much or more as Category 2
Acoustic Monitoring	Acoustic Monitoring (AM) 1 to 1.5 station/sq. mile; monitor all night and dawn and dusk except in areas with cold winters, e.g. N. Cal. and higher elevations <i>Costs will vary depending upon aerial size of project</i>	AM – may not need full year if other data available; <i>Unable to determine representative cost</i>	AM – one year ~ \$492 K (\$142 K sampling, \$110 for detectors, data analysis \$240)	AM – one year + As much or more as Category 2
Operations Monitoring				
Birds	BUCs same as Pre-Assessment	BUCs – 1 yr; Costs same as Pre-assessment	BUCs – 2yrs, therefore double costs for Pre-assessment up to \$700 K	BUCs – 2yrs, therefore double costs for Pre-assessment up to \$700 K
Bats - Estimated Cost for BUCs and Acoustic Monitoring Based on Level of Effort Shown In Table 1.	AM same as Pre-Assessment	AM – 1 yr	AM – 2 yrs but not consecutive yrs	AM – 2 yrs but not consecutive yrs
Total		n/a	~ \$2.5 million	~ \$2.5 million +

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April 11, 2007

Nancy Rader
Executive Director
California Wind Energy Association
2560 Ninth Street
Suite 213-A
Berkeley, CA 94710

Dear Ms. Rader,

I have completed a review of the California Energy Commission document entitled *Avian/Wind Statistical Peer Review Project, Consultant Report*, which was prepared by the California Institute for Energy and Environment and dated December 2006 (termed the "CEC Consultant Report"). The CEC Consultant Report reviewed the document entitled *Developing Methods to Reduce Bird Mortality in the Altamont Pass Wind Resource Area*, by K. Shawn Smallwood and Carl Thelander (termed the "Altamont report"). The CEC Consultants Report summarizes the comments of three peer reviews performed on the Altamont report. Each of the three peer review teams consisted of experts in statistics and ecology. The three peer reviews are included as attachments to the CEC Consultant Report.

The objectives of my review were to (1) examine the Executive Summary of the CEC Consultant Report to verify that the peer reviewers' comments were properly referenced, (2) compare the conclusions of the peer reviews to those generated by myself (October 11, 2006 and October 24, 2006) and Dr. Eric Smith (September 18, 2006) for CalWEA, and (3) provide comments on the CEC Consultant Report's major recommendations.

The following are major findings of my review of the CEC Consultant Report:

- A. The detailed findings of the peer reviewers are consistent with those provided by myself and Dr. Eric Smith. After a close review of the comments provided from all reviewers, I find that the comments are remarkably similar in both context and detail. All of the reviewers found major issues in the survey design, the implementation of the survey methods, the statistical analysis of the data, presentation of the survey data and associated analysis results, and credibility of the report's findings. In general, myself, Dr. Smith, and the peer-review teams all conclude that the study is flawed and the study conclusions are not supported by the data or analysis.
- B. The Executive Summary of the report, however, does not present the peer reviewers' comments in a comprehensive manner, and minimizes the impact of the peer reviewers' technical review on the credibility that can be attributed to the findings and conclusions of the Altamont report. I found a large amount of detail and technical content in the peer review team's comments that is not properly referenced in the Executive Summary.
- C. Given the flawed nature of the Altamont report, I find it difficult to draw information from the report's findings that will pave the way for future research. I continue to believe that the data collected during the Altamont survey could, after a thorough quality assurance examination,

be re-analyzed using correct statistical procedures. The results from this re-analysis could then be used as the basis for future research funding.

The three peer reviews consist of several hundred pages of comments. Many of the comments cast doubt on the credibility of the Altamont report's findings and conclusions. In many cases, the Executive Summary does not convey the seriousness of the peer reviewers' findings. To illustrate the point, consider this statement from the Executive Summary (p. ii):

In general, all of the reviewers were explicit in pointing out that the authors had taken on an important issue and had done a credible job with the resources that were available to them. The reviewers also recognized study difficulties related to the limited ability to manipulate the site to meet the data collection requirements for statistical analyses.

In contrast to the above statement, the peer reviewers explicitly provided comments that lead to the conclusion that the authors did not provide a credible statistical evaluation of the Altamont data, which is consistent with the findings of the reviews by Dr. Smith and myself. For example:

Comments from Peer-Review Team 1:

- *The study furthermore has three methodological flaws that may alter the conclusions drawn from the study: 1) turbine strings were sampled haphazardly, 2) results were not adjusted for observer ability, and 3) adjustments for scavenger removal relied on other studies and did not account for differences in vegetation type or height. (CEC Consultant Report, Attachment A, p. 2)*
- *Furthermore, the authors use one-way ANOVA seemingly without regard for the underlying assumptions of the procedure, which include normality of error distribution and homogeneity of variance across variable levels. (CEC Consultant Report, Attachment A, p. 7)*
- *The LSD tests described on p.38 indicate that the relationship between distance and height is not linear (i.e., the 43-m tower mean is less than the intermediate height towers.) So the presentation of this figure, and the analysis it represents is meaningless. (CEC Consultant Report, Attachment A, p. 10)*
- *The predictive model is flawed. The variables examined are clearly not independent and so summing the accountable mortality values across variables (p. 188) must necessarily overestimate the predicted impact. All model results are suspect because of this flaw. Furthermore, this is a complex study with many potential confounding factors, yet the development of the predictive model strikes us as simplistic and fails to account for such effects. (CEC Consultant Report, Attachment A, p. 20)*

Comments from Peer-Review Team 2:

- *Much effort went into collecting massive amounts of data; however, the authors should have focused more effort on study design and collected their data more wisely. Likewise, the data analyses could have been more thoughtful and sophisticated. The statistical analyses are applied in an automated manner that fails to fully utilize the data at hand and ignores potential confounding of variables. It seems like many of the statistics were calculated just for the purpose of producing statistical tables to the point of data dredging. Furthermore, the mathematical assumptions behind statistical tests like one-way ANOVA are ignored and thus the reported P-values should be treated as approximations. The large number of statistical tests likely resulted in many Type I errors; therefore, statistically significant findings should be treated more as an indicator of what should be explored in future studies. (CEC Consultant Report, Attachment B, p. 5)*

- *It is likely that some number of the reported test results were statistically significant. But due to the very large number of univariate tests conducted, there is a high probability that a number of “significant” results were based on pure chance. (CEC Consultant Report, Attachment B, p. 8)*
- *The authors use simple linear regression to show that mortality counts increase linearly with turbine tower height. The mathematical assumptions behind linear regression are not valid with this particular dataset (likely nonlinearity, non-normal distribution of errors, unequal variances) thus inadequately demonstrating statistically conclusive evidence that mortality counts are greater for taller turbines. (CEC Consultant Report, Attachment B, p. 13)*
- *The authors write, “...we recently found that 85%-88% of the carcasses occurred within 50m of the wind towers.” The absence of any described systematic method of how they searched beyond 50m makes this estimate questionable. (CEC Consultant Report, Attachment B, p. 18)*
- *The authors state that, of the 1162 carcasses whose fatality was attributed to the wind turbines, 198 were more than 90 days old. Table 3.1 on pp. 64 and 65 counts fatalities as Type A (both fresh and old) and Type B (fresh; used to estimate mortality). The difference between Type A and Type B should be the number of carcasses older than 90 days. In fact the difference is $1162 - 923 = 239$ which is larger than the 198 reported on p. 52. What happened to the other 41? Bats account for some, but not all. (CEC Consultant Report, Attachment B, p. 21)*

I note that comments from the Peer Review Team 3 were consistent in content and tone to the above comments from Review Teams 1 and 2. There are many other comments contained in the peer reviews that serve to negate the findings and conclusions of the Altamont Study. In large part, Dr. Smith and I provided comments that are consistent with these peer reviews.

In addition, I found (in my October 11, 2006, review) many unexplained inconsistencies between the SPSS data used in the Altamont report analysis and the field collection forms generated during the Altamont site sampling. The peer reviewers did not comment on these basic data quality issues. The peer-review teams may not have been aware that these issues existed.

Based on a review of the CEC-conducted peer reviews, and based on the reviews of Dr. Smith and myself, I can only conclude that the Altamont report's findings and conclusions are not currently supported by the technical analyses provided in the report. The large number of survey design and statistical errors in the report that were consistently noted by all reviewers serve to provide little or no credibility to the Altamont report's findings

Sincerely,

submitted by email

William Warren-Hicks, Ph.D.
CEO