STATE OF CALIFORNIA
ENERGY RESOURCES CONSERVATION
AND DEVELOPMENT COMMISSION

	)	**Docket No. 04-IEP-1K**
In the Matter of:	)	**2005 Energy Report:**
The Preparation of the 2005 Integrated	)	**Committee Draft**
Energy Policy Report (Energy Report)	)	**Document Hearings**

COMMENTS OF THE CALIFORNIA WIND ENERGY ASSOCIATION ON CHAPTER 6 OF THE 2005 DRAFT ENERGY REPORT

Pursuant to the Notice of Committee Hearings, posted on the Commission's website on September 15, 2005, the California Wind Energy Association ("CalWEA") submits these comments on Chapter 6 of the 2005 Committee Draft Integrated Energy Policy Report ("Draft Energy Report" or "Draft Report").

I. SUMMARY OF COMMENTS

CalWEA finds much to support in the Draft Energy Report. We are very pleased to see the following:

1. The Draft Report recognizes that the avian mortality problem in the Altamont is unique, by rejecting staff recommendations to implement untested mitigation measures beyond the Altamont.

2. The Draft Report recognizes the serious flaws in the 2004 PIER consultant report on Altamont Pass avian-wind issues, whose inflated avian mortality estimates have been widely quoted in the press. We look forward to Commission management submitting the report for outside independent review to put to rest the debate over the scientific validity of the report's conclusions.

3. CalWEA strongly supports the Draft Report's recommendation that the CPUC take action to encourage the repowering of existing wind projects—both to help meet RPS goals and to reduce avian fatalities in the Altamont. And we propose a simple principle that this Commission could endorse: project owners should be allowed to retain the full value of their existing contracts for their current deliveries when they repower, and be paid short-run avoided cost on incremental deliveries.

4. We agree largely with the Draft Report's assessment of the barriers that must be overcome for the state to meet its RPS goals: an overly complex and non-transparent

procurement process that has produced too few long-term power purchase agreements; the need for new and upgraded transmission to access renewable resources, and the need to understand the impact of integrating large amounts of intermittent renewables into the electricity grid.

We caution, however, that the intermittency "barrier" is presently one of perception; it may be determined in a recently initiated PIER study that significant quantities of wind can be added to the system without imposing significant costs or requiring significant changes in system resources or operating procedures.

We urge the Commission to make certain modifications in its final report. As the Draft Report amply indicates, there is plenty of work to do if the RPS goals are going to be met, so we should avoid spending time on solutions that do not address real problems.

5. We strongly urge the Commission to remove the Draft Report's call for the *development* of statewide protocols for studying avian mortality to address site-specific impacts. Staff documents in support of the Energy Report process never suggested that existing sets of protocols are inadequate, nor has staff studied local siting processes in the state. Wind facilities in California are sited with appropriate environmental review, which is why the Altamont avian fatality problem remains unique.

   CalWEA does, however, support a set of protocols issued by the National Wind Coordinating Committee and cited by staff; these protocols were authored by a former staff member of this Commission. We would support a Commission recommendation that local siting authorities adopt these protocols for use when they deem studies to be necessary. Giving additional weight to study protocols would require an amendment to CEQA. The lead local agencies under CEQA are best equipped to tailor studies to site-specific circumstances (which can differ within each individual wind resource area).

6. We urge the Commission to remove the three options proposed in the Draft Report to simplify administration of the RPS program. None of these options actually address the barriers and problems that were correctly identified as the major obstacles to achieving RPS goals, and they would create problems of their own. Pursuing them would require legislation and more implementation, which would divert years of time and attention away from addressing issues that are worthy of attention.

7. Instead of highlighting these solutions, the final report should focus on other recommendations that are made which do usefully address the identified problems, such as: (a) simplifying and standardizing power purchase contracts; (b) improving the transparency and uniformity of utility procurement processes; and (c) involving the CAISO in planning for transmission to meet RPS goals.

In addition to the recommendations addressed above, there are several additional ways in which the Commission can and should advance the RPS goals, which are not included in the Draft Report, but should be reflected in the final one.

8. The Commission should engage the CAISO in its PIER Intermittency Analysis Project (IAP). We believe this important project is missing an important opportunity to engage

the CAISO at the highest levels to ensure that it supports the methods that will be employed in the effort. The Draft Report states that the CAISO should undertake a similar research initiative. Rather than encourage a duplication of efforts, the Commission should include the CAISO in its own efforts to ensure that it will be comfortable with the results and can immediately take further actions from there.

9. The Commission should produce system integration cost information for application to RPS bids (integration cost adders). The RPS statute requires that the utilities consider the system integration costs and capacity values associated with renewable resource bids. To date, the CPUC has relied upon information from the CEC's studies for this information, but we do not have this information for significant additional quantities of renewable resources, which the CPUC will need in approving renewables-related transmission upgrades. As far as we can determine, the Commission has no effort underway to produce this information, which is needed to advance the state's RPS goals. We strongly encourage the Commission to ensure that this gap is filled, either as part of the IAP, or from a separate effort.

10. The Commission should ensure that WREGIS tracks energy deliveries. The Draft Report mentions the importance of assuring that RPS energy is actually delivered into the state, but the Commission has not taken steps to achieve that through the WREGIS system.

11. The Commission should develop guidelines for issuing SEP payments so that there will be no delays should SEPs be required.

Finally, we believe that the Draft Report's criticisms of FERC on the Tehachapi "trunk line" decision are misguided, and should be replaced with a discussion of the tools that the state should be using to achieve California's RPS transmission goals.

12. We do not agree that FERC "removed the primary instrument the state could have used to address transmission constraints for renewables" and "effectively bar[red] the advanced planning and construction of transmission facilities." Once SCE characterized the trunk line as being devoid of network benefits, FERC had no legal option but to dismiss the notion of charging transmission customers for it.

13. FERC deserves significant credit for using its legal flexibility to grant SCE's request to enable it to build transmission facilities in advance of generator interconnection requests. FERC had no obligation to do this; it reached far beyond what it had ever done before, and should be commended for it.

14. Rather than lodge unfounded complaints against FERC, the Commission should place the focus on the other recommendations that the Draft Report makes related to this issue -- modifying the CAISO tariff to give the CAISO the ability to consider state policy goals (p. 86) and encouraging comprehensive transmission planning efforts by the Commission, the CPUC and the CAISO.

15. In addition, the Commission should highlight the need for the CPUC to use its statutory authority under PU Code Section 399.25 (a) to promote transmission upgrades that provide network benefits while tapping the state's major renewable resource areas (with costs therefore recoverable from all transmission customers), and (b) to ensure that those upgrades are financed by the transmission owner. Had the CPUC used this tool effectively in the SCE's "trunk line" case, the upgrade could have been approved the first time around without the need for any major changes in FERC's current approach to transmission cost recovery. To meet California's RPS goals, we need to learn from this mistake.

II. COMMENTS ON WIND-AVIAN ISSUES

A. The Commission Should Remove the Draft Report's Call for Development of Statewide Protocols for Studying Avian Mortality

The Draft Energy Report (p. 103) calls for "*developing* statewide protocols for studying avian mortality to address site-specific impacts in each individual wind resource area" (emphasis added). No explanation was provided. Staff documents supporting the Integrated Energy Policy Report (IEPR) process on this issue suggested that "[s]tatewide guidelines for wind energy projects may be an appropriate way to gain consistency statewide when developing and mitigating projects"[1] but did not suggest that existing protocols are inadequate. Staff cited protocols issued by the National Wind Coordinating Committee (NWCC) and the U.S. Fish & Wildlife Service (USFWS). Indeed, the lead author of the NWCC document was the Commission's own Richard Anderson, a wildlife ecologist and then-project manager for avian-wind studies.

CalWEA supports the NWCC protocols,[2] and would support a Commission recommendation that local siting authorities adopt those protocols for use when they deem studies to be necessary. For the protocols to carry greater weight than a recommendation would require an amendment to CEQA.

Regarding adapting the protocols for each wind resource area, as the NWCC protocols state:

> In jurisdictions requiring bird research, the information in this document can be used to develop standard operating procedures (SOPs) and/or study designs. However, many situations will require site-specific knowledge and expert recommendations as to which study design and methods are most appropriate.

The lead local agencies under CEQA are best equipped to tailor studies to site-specific circumstances (which can differ within each individual wind resource area). Staff documents

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1 California Energy Commission Staff Report, "Assessment of Avian Mortality from Collisions and Electrocutions" (CEC-700-2005-015). June 2005.

2 Indeed, had these protocols been followed by the authors of the 2004 PIER report discussed below, that study would not now be the subject of considerable controversy.

in support of the IEPR process did not study the local siting processes in California, let alone provide any evidence that they are not working. That modern wind facilities in California are sited with appropriate environmental review is evidenced by the absence of significant facility-related avian mortality outside the Altamont.

For example, in Solano County where avian impacts are a concern, the county has extensive pre-construction and post-construction monitoring procedures in place, which are specific to local topographic features and avian populations. The county has also imposed appropriate mitigation measures.[3] The developers in Solano County also engaged local USFWS officials in informal discussions concerning their proposed projects, and the Service had no objections. In the Altamont, the area of primary concern, the county's newly adopted program to identify effective mitigation measures will be informed by an independent Scientific Review Committee, including two members appointed by state and federal wildlife authorities, which will report to county officials.

The Commission should therefore delete the recommendation to develop statewide protocols, and should not endeavor to develop site-specific guidelines for the unlimited number of site-specific situations that may arise.

B. The Draft Energy Report Correctly Expresses Caution Regarding a CEC Consultant Report on Wind-Avian Issues

CalWEA strongly supports and appreciates the statement (p. 102) which appropriately casts doubt upon the scientific validity of the findings of the 2004 PIER report by Smallwood and Thelander. The Draft Report correctly identifies some of the serious flaws in the study ("[i]nadequate access to certain turbines, time lapses between surveys, length of survey period, and various extrapolation techniques") which call into question the mortality estimates made in the study as well as the validity of the proposed mitigation measures, which the Draft Report appropriately labels as "experimental."[4]

Unfortunately, the consultant report has already taken on a life of its own. Despite the flaws cited in the Draft Energy Report, the mitigation measures proposed in the 2004 PIER report will nevertheless be implemented without further testing in essentially all non-repowered wind projects in Alameda County (though they will be monitored closely for effectiveness by the Scientific Review Committee). More worrisome is that the untested measures – which were developed based on obsolete turbines in the Altamont terrain – have been raised by siting officials around the country as potentially appropriate in areas where

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[3] Commission Staff is apparently unaware of the mitigation measures adopted for Solano County projects. In its response to filed comments, staff states "We are unaware of any significant measures other then [sic] monitoring (which is not mitigation) occurring at other California wind farms to reduce avian collision." (CEC Staff Response to Public Comments, August 31, 2005, at PDF-page 129.)

[4] At the October 6 IEPR hearing, proponents of this study asserted that (even if the mortality estimates are wrong), the mortality associations with particular turbines (on which the proposed mitigation measures are based) are correct because they were based on actual carcasses found, not estimates. We disagree. The mortality associations suffer from many of the same flaws as the mortality estimates. (For more discussion, see Appendix 1, footnote 2.)

avian mortality is not remotely comparable to the unique problem at the Altamont. CalWEA is concerned that Commission staff, who also erroneously believe that the model is applicable outside the Altamont, will continue to promote its use more broadly.

Because of the traction that the 2004 PIER report has gained, CalWEA has requested that the Commission conduct an outside independent review of the scientific validity of the report's conclusions; Commission management has agreed to seek such an assessment and we look forward to the results. The wind operators in the Altamont Pass are committed, and now obligated, to finding ways to reduce avian mortality, but no one is served by widely implementing measures that may prove ineffective or counter-productive.

An independent review of the 2004 PIER report is especially warranted in view of the staff's inadequate response to industry criticisms of that report, as we explain in an attached appendix.

C. The Commission Should Not Cite the Flawed 2004 PIER Study as an Important Source of Knowledge

The Draft Energy Report states (p. 101), "California has an important opportunity to more carefully site new turbines based on knowledge of bird flight patterns, thereby reducing and avoiding bird deaths from wind turbines." In support of this statement, a 2005 staff document is cited which, in turn, is based on the behavioral observations from the 2004 PIER report. That reference should be removed, for several reasons.

First, in light of the Draft Energy Report's subsequent statement calling into question the scientific validity of the 2004 PIER report (discussed in section II.A.2, above), this report should not be referenced as an important source of knowledge regarding turbine siting.[5] Second, as we stated in the previous section, the 2004 PIER Report is specific to the Altamont terrain, and is therefore not applicable to the repowering of projects elsewhere in California. And, finally, when avian issues are a concern with proposed repowers outside of the Altamont, the industry conducts pre-construction avian studies and uses the results when turbine siting decisions are made.

III. COMMENTS ON WIND REPOWER ISSUES

A. The Draft Energy Report Appropriately Encourages the CPUC to Promote Repowers, and Could Be More Specific

CalWEA strongly supports the Draft Report's recommendation (p. 103) that the "CPUC quickly develop new Qualifying Facility contracts to overcome impediments to repowering and take advantage of the Federal Production Tax Credit" (PTC) to help achieve

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[5] As explained in an appendix to these comments, the underlying data used to identify "problem turbines" suffers from an absence of controls for background mortality, inconsistent search frequencies and search areas, inconsistent study durations, and a likelihood of carcass double-counting.

the goals of reducing avian fatalities in the Altamont Pass and to help meet the state's RPS goals.

The CPUC has not taken any specific actions to promote repowers, despite having identified repowering as an important goal. As CalWEA stated in recent comments to the CPUC,[6] there is one action that the CPUC could take to promote repowers in the short term (i.e., that would accelerate repowering beyond the schedule required by Alameda County): it could strongly encourage PG&E (and Edison) to offer contract amendments that allow project owners to retain the full value of their existing contracts for their historical (or contract-estimated) deliveries when they repower, and to pay short-run avoided costs for additional deliveries. The CPUC has already adopted contract amendments that provide for this, but the utilities have been unwilling to offer them broadly.

B. Suggested Corrections for Accuracy

There are a number of statements in the Draft Energy Report that could be more accurate if modified.

1. Repowering progress

The Draft IEPR states (p. 102), "To date, California has made only limited progress toward repowering wind facilities, with only 37 MW of repowered wind contracts submitted by SCE to the CPUC as of July 2005." In addition to those contracts (which have been approved), the CPUC has approved two repower contracts with PG&E totaling between 45.7 and 60.7 MW. (This includes the 17.7 MW Diablo Winds project, which was recently completed, and a contract for the repowering of the Buena Vista project, totaling between 28 and 43 MW, which is expected to be completed in mid-2006.) Thus, the statement could be more accurately restated as follows: "To date, California has made limited progress toward repowering wind facilities, with only 83-98 MW of repowered wind contracts submitted by SCE and PG&E to the CPUC as of August 2005."

2. Alameda County requirements

On p. 102, the Draft Energy Report states, "Currently, neither Alameda County nor the wind industry proposes to repower the entire Altamont Pass; both are focused instead on renewing existing permits, with a proposed condition that repowering would only occur over 13 years." This statement would be more accurately rephrased as follows: "Alameda County adopted a requirement in September 2005 that will require all existing wind projects in Alameda County to be repowered within 13 years."

On p. 92, the Draft Energy Report states, "planning officials in the Altamont area have placed a moratorium on permits for both new and repowered wind facilities until they are confident that steps have been taken to reduce bird deaths." This statement could more

[6] CPUC Docket R.04-04-026, "Reply Comments of the California Wind Energy Association on the Proposed Decision of ALJ Simon Regarding Long-Term RPS Plans" (October 3, 2005).

precisely read, "planning officials in Alameda County have placed a moratorium on permits in that county pending completion of an EIR that will consider repowering as well as new technologies and siting possibilities. At the same time, county officials imposed a permit condition that requires permit holders to repower 10% of their turbines in year four, 35% in year eight, 85% in year 10, and 100% in year 13."

3. U.S. tax code restrictions on repowers

The last sentence in the following statement (p. 102) is not entirely accurate:

> "[P]rovisions in the U.S. Tax Code (Section 45) prevent repowered wind facilities with existing standard offer contracts from qualifying for the production tax credit unless the contract is amended so that any wind generation in excess of historical production levels is either sold to the utility at its current avoided cost or sold to a third party.[footnote omitted] This provision discouraged wind operators from repowering because utility avoided costs are much lower than current contract prices.

The last sentence should be rephrased as follows: "This provision has discouraged wind operators from repowering because, in addition to limiting the price paid for additional deliveries resulting from the repower, the utilities have, with a few exceptions, been unwilling to allow developers to retain the full value of their existing contracts for their <u>current</u> delivery levels (or contract-estimated deliveries) and have required proposed repowers to engage in costly bidding processes rather than facilitate repowers through bilateral negotiations."

IV. COMMENTS ON RPS BARRIERS, PROBLEMS & SOLUTIONS

A. Some of the Barriers to Achieving RPS Goals Identified in the Draft Report are On Target; Others Should Be Modified

We share the Draft Energy Report's concern (p. 92) that renewable energy procurement under the Renewables Portfolio Standard (RPS) law is not proceeding as quickly as needed to reach the state's RPS goals by 2010. And we agree largely with the Draft Report's assessment (p. 89) of the barriers that must be overcome for the state to meet its RPS goals:

• **The lack of long-term purchase agreements for power**. We agree that this is a problem, and that it stems from other problems that the Draft Report identifies (p. 92) – namely, an overly complex procurement process for renewables (p. E-5) and unclear and non-transparent least-cost, best-fit policies employed by investor-owned utilities (IOUs).

• **The need for new and/or upgraded transmission to access renewable resources** (see subsections D and E, below, for more discussion on this issue), and

• **The impact of integrating large amounts of intermittent renewable resources into the electricity grid.** We urge the Commission to clarify, however, that presently the barrier is the *perception* of impacts, rather than actual ones. As the Draft Report notes elsewhere (p. 90-91, p. 100), the operational constraints posed by intermittent renewables in the near term are manageable and do not impose significant costs on the system, and the Commission's PIER program has a sophisticated research effort underway that will assess the impacts of integrating large amounts of intermittent renewable resources into California's system. Based on experience in other systems with much higher wind energy penetrations than we have here, the Commission should reserve judgment as to whether a large increase in wind energy on our system will be a significant barrier to achieving RPS goals.

We agree that the fourth barrier identified in the Draft Report **– the lack of repowering of aging wind facilities –** should be addressed to contribute toward RPS goals and to reduce the avian fatality levels unique to the Altamont. However, the quantity of additional generation associated with repowers is small in comparison to the overall RPS goals.[7] Therefore, a failure of the utilities to secure additional energy through repowers should not, by itself, be considered a major barrier to achieving RPS goals on a par with providing transmission access to major renewable resource areas or simplifying the procurement process.

B. We Agree With the RPS Implementation Problems Identified in the Draft Report, and Encourage the Commission to Add Others

The Draft Energy Report (p. 92) has identified three primary problems with the RPS program:

- The **lack of transparency** in the bidding, ranking, and contracting processes,
- The **administrative complexity** of the program, and
- The **uneven application of RPS targets** to all retail sellers in the state.

We agree that these are major problems that require remedies. We would also identify as primary problems the CPUC's implementation of the transmission planning and cost recovery provisions of the RPS statute, and the development of transmission cost adders, which we discuss further below in subsections D and E.

C. The Draft Report's Proposed Solutions to RPS Problems Do Not Always Address the Identified Barriers and Problems

Some of the Draft Energy Report's proposals to improve the RPS implementation process are on target; others do not address the barriers and problems identified in the Draft Report or experienced by CalWEA members.

1. The three options proposed to simplify administration of the RPS program do not address the identified problems

[7] If the entire fleet of approximately 1,000 MW second- and third-generation turbines were repowered, energy production from those facilities would increase by approximately one-third, adding the equivalent of a few hundred megawatts of new wind generation to the system.

The Draft Report (p. 93-94) identifies three options for simplifying the administration of the RPS program, none of which address the barriers and problems previously identified as major obstacles to achieving RPS goals, and all of which would be counter-productive. Moreover, these changes would require legislative changes, which would divert years of time and energy from solving the real problems. These options should therefore be eliminated from the final draft report.

(a) Option 1 - Eliminating the market price referent (MPR) and supplemental energy payment (SEP) processes in favor of a standard reasonableness review process. While this change would simplify the process, the Draft Report did not identify the MPR or SEP payment issues as a significant problem. Indeed, they are not: the MPRs are transparent figures; they were developed in a fairly efficient manner through a working group and without hearings; they are relatively non-controversial; and they are not involved in the resource selection process (the MPR serves only as a dividing line between contract payments and SEP payments). To date, no contracts have required SEP payments, so this cannot explain the lack of signed contracts. We would add that the MPR process should get easier as the CPUC gains experience and establishes precedents; in addition, the discussions this year on time-of-delivery MPRs are likely to reduce the number of MPRs to just one.

(b) Option 2 - Creating a single cut-off contract price below which contracts would be judged reasonable, with costs recoverable in utility rates. This methodology, employed in the pre-RPS "interim" procurements, is likewise aimed at the MPR/SEP issue, which is not the problem. In addition, taking this step could well create far more controversy and delay than the current MPR/SEP process. The "cut-off" contract price would be highly subjective and controversial – indeed, it would open up a fight that was settled (after long negotiations) with the MPR/SEP provisions in the RPS legislation: the utilities must sign contracts up to the MPR price and must sign them until the SEP funds are exhausted. Given current gas price forecasts, exhausting the funds ought not to be an issue well past 2010.

(c) Option 3 - Awarding public funds for RPS contracts through auctions for production incentives (with awards conditioned on receiving contracts through the RPS solicitation process). Once again, this solution targets a non-problem: the application of SEP payments, which no contract has so far required. Returning to the Commission's auction process for subsidy payments when subsidies are not required obviously fails to address any real problem.

We also note that a few other recommendations made in the Draft Report (p. 94 and 96) are already being addressed by the CPUC. Delivery flexibility provisions adopted in CPUC Decision 05-07-039 (July 21, 2005) approving utility compliance plans and RFOs will enable inter-utility trades of renewables and shaped products, and a recent alternate proposed decision will, if adopted, enable the use of tradable renewable energy credits (RECs).

Regarding the Draft Report's recommendation (p. 94) that shaped contracts should include the stored and shaped products offered by the Bonneville Power Administration which can delay deliveries by as much as a week, we urge the Commission to add a caution that such products should only be approved if it can be shown that they cause total in-state deliveries of power to increase over the status quo in amounts equivalent to the purchased power. Otherwise, California does not receive the in-state benefits of reduced in-state gas-fired generation.

2. The Draft Report should focus on the useful solutions that it identifies

While the Draft Energy Report highlights the above solutions, which we believe would not be helpful, it underplays other recommendations which do usefully address the identified problems and barriers. These recommendations should receive greater play in the final report.

(a) Standardized contracts would simplify the procurement process. We strongly support the Draft Report's recommendation (p. 94) that the CPUC should develop standard power purchase contracts. CalWEA has consistently advocated greater standardization of terms since the inception of RPS implementation. Unfortunately, our positions have been opposed by the utilities and not been adopted. We hope that this will change in view of the extensive delays associated with the recent renewable RFPs of all three utilities, which bear testament to the need to streamline the contract negotiation process. We continue to believe that the complicated Edison Electric Institute ("EEI") form contract--an unnecessarily complicated and often inapplicable set of contract terms and conditions--should not be used as the basis for RPS contracts. The utilities do deserve some credit, however, for taking steps on their own to reduce bidding hurdles; for example, SCE abandoned the EEI contract in its latest solicitation, and PG&E and SCE have lowered their bid deposit requirements. Much more could and should be done, however, to reduce the cost and time associated with bidding, which serves to reduce the number of participants and drive up costs.

(b) Greater transparency and uniformity of the bid evaluation process is necessary. We strongly support the Draft Report's call (p. E-3, 45) for more open and transparent utility procurement processes and (p. 92) for more consistent and transparent least-cost, best-fit methods used by IOUs to rank RPS bidders. Bidders' confidence in the process is undermined by the inability to determine whether IOUs are selecting truly least-cost, best-fit projects, or whether there is significant subjectivity in the process. Reduced confidence in the process reduces the number of participants in the process, which reduces competition and drives up costs. We believe that the renewables and non-renewables procurement processes should result in procurements that together meet RPS goals and overall energy needs at the least-cost. The utilities should not select higher-cost renewables in order to meet a particular system need if a combination of lower-cost renewables and non-renewables can meet those needs at a lower overall cost.

With a very transparent process, we would support the **elimination of the Procurement Review Group (PRG)**. In the absence of such a process, however, the PRG is necessary to provide some degree of oversight of the process. The PRG has become an excuse for secrecy, however, and it should be replaced with a transparent process.

(c) The CAISO should be involved in planning transmission to meet RPS goals. We agree with the Draft Report's recommendations (pp. 86, 99) that (a) the CPUC, the Commission and the CAISO should immediately investigate changes to the CA ISO tariff that would allow recognition of transmission needs not only for reliability and economic projects, but also to access renewable projects to meet RPS goals, and (b) the three agencies should cooperate to revise the transmission cost adder process for RPS procurement to more accurately reflect transmission costs and reduce existing disincentives for renewables.

In recent comments at the CPUC, CalWEA encouraged that commission to request that the CAISO consider the necessity of meeting the state's renewable energy goals in the planning efforts it has underway.[8] Specifically, the CAISO could integrate the work that it has already done for the Tehachapi Collaborative Study Group (TCSG), and any similar work for the Imperial Valley Study Group, into their larger effort. We also encouraged the CPUC to consider taking formal action at FERC to ensure that the CAISO's future planning efforts encompass state policy goals.

If the CAISO can proactively consider the transmission upgrades that would most efficiently connect the largest concentrations of least-cost renewable resources, it could help to solve the problems identified in the Draft Report (p. 99)—namely, the failure of the CPUC to consider the network benefits associated with transmission upgrades, and the inappropriate practice of some utilities in loading upgrade costs onto renewables bids. For example, a preliminary analysis by the CAISO of a Tehachapi-Midway connection recently prepared for the TCSG shows that the north-of-Path-26 congestion previously estimated by PG&E is virtually eliminated when the Tehachapi wind resource is effectively integrated into the overall network. The congestion estimated by PG&E has resulted in the application of significant transmission adders to the bids submitted to PG&E for Tehachapi wind resources. If the CAISO can estimate the costs and benefits associated with the network upgrades required to accommodate the state's largest renewable resource areas, it may reduce the importance of quantifying network benefits and congestion costs.

(d) The Draft Energy Report contains other useful recommendations. Finally, we support the Draft Report's recommendations that the CPUC should require IOUs to procure a prudent contract-risk margin to avoid under-procurement of renewable energy (p. 94); that the CPUC should expeditiously complete compliance rules for ESPs and CCAs (p. 90), and that the legislature should adopt consistent statewide RPS rules for publicly-owned utilities (p. 95).

3. The Commission should identify additional actions that it could take to accelerate the RPS process

In addition to the recommendations addressed above, there are several additional ways in which the Commission can and should advance the RPS goals, which should be reflected in the final report.

(a) The Commission should engage the CAISO in its Intermittency Analysis Project. The Draft Energy Report references (p. 100) the work that the PIER program will be conducting over the next year to better understand and address the impacts of integrating large amounts of intermittent renewable resources into California's system. We strongly support

[8] "Comments of the California Wind Energy Association on Preliminary Scoping Memo," CPUC Docket I.05-09-005 (September 30, 2005).

this effort. However, we are concerned that this effort – the Intermittency Analysis Project (IAP) – is missing an important opportunity to engage the CAISO at the highest levels to ensure that it supports the methods that will be employed in the IAP effort. The Draft Report states (at p. 101) that "the CA ISO should undertake a research initiative to address minimum load issues, including forecasting future minimum load problems, the number of annual events, and the depth of the problem" – but these issues will be studied in the IAP effort. Rather than encourage the CAISO to duplicate efforts, the Commission should include the CAISO in its efforts to ensure that it will be comfortable with the results and can immediately take further actions from there.

(b) The Commission should produce system integration cost information for application to RPS bids. The RPS statute requires that the utilities consider the system integration costs and capacity values associated with renewable resource bids. To date, the CPUC has relied upon information from the CEC's "California RPS Integration Cost Analysis – Phase I" study, which was an analysis of the costs associated with existing renewable resources on the system. The decisions that the CPUC must make on transmission expansions, as well as approvals of utility-selected competitive bids, will require integration cost information related to significant additional quantities of renewable resources. As far as we can determine, the Commission has no effort underway to produce this information, which is needed to advance the state's RPS goals. We strongly encourage the Commission to ensure that this information is produced either as part of the IAP, or from a separate effort. This need should be reflected in the final Energy Report.

(c) The Commission should ensure that WREGIS tracks energy deliveries. The draft report states (p. 97) that California should move toward full REC trading in the state and western region once WREGIS is in place and operational, and should, among other things, "assure energy is actually delivered." The Commission has not, however, taken steps to ensure that WREGIS will actually have the capability to track energy deliveries,[9] even though the New England tracking system has demonstrated that such tracking is possible. The Commission should immediately take steps to ensure that WREGIS will have this function. If California is to realize benefits from out-of-state generation, we must be sure that the power is delivered to the state.

(d) The Commission should develop guidelines for issuing SEP payments. The Commission has not yet developed rules for how it will apply supplemental energy payments (SEPs) to winning RPS bids that require them. Though we do not anticipate a great demand for SEP payments any time soon, the Commission can ensure that there will be no delays should SEPs be required. One of the more difficult issues to be resolved is how SEPs on a 20-year contract will be converted to a 10-year payment stream.

D. The Draft Report's Criticisms of FERC on its Tehachapi Trunk Line Decision are Misguided

[9] A Commission staff person informed us that the RFP soliciting bids to develop the WREGIS electronic tracking system is limited to tracking renewable attributes (i.e., RECs) and not energy.

The Draft Energy Report (at pp. E-8, 85, and 90) unfairly criticizes the FERC for having "removed the primary instrument the state could have used to address transmission constraints for renewables" and for "effectively bar[ring] the advanced planning and construction of transmission facilities."

First, the FERC was obligated to deny Southern California Edison's proposal for a new category of transmission facility (called a "renewable-resource trunk line") because SCE characterized it as being devoid of network benefits. For FERC to have charged the cost of such an upgrade to transmission customers as requested would have violated a long-standing and basic principal of the Federal Power Act: transmission customers cannot be required to pay for something that they do not benefit from.

Second, FERC deserves significant credit for using its legal flexibility to grant SCE's request to enable it to build transmission facilities in advance of generator interconnection requests without incurring penalties should the facilities be abandoned or cancelled. FERC had no obligation to do this; it reached far beyond what it had ever done before, and should be commended for it. In so doing, FERC did in fact enable advance planning and construction of transmission facilities by transmission owners.

These issues are explained in detail in a memo analyzing the FERC decision by CalWEA's transmission counsel, Scott Hempling, which we attach here as Appendix 2.

E. The Commission Should Focus on the Tools Available to the State to Achieve California's RPS Transmission Goals

Rather than unfairly criticizing FERC, the final Energy Report should focus on the other recommendations that the Draft Report makes related to this issue -- modifying the CAISO tariff to consider state policy goals (p. 86), and encouraging comprehensive transmission planning efforts by the Commission, the CPUC and the CAISO.

The final Energy Report should also expand its focus to two additional issues: the need for the CPUC to use its statutory authority under PU Code Section 399.25 to (a) promote transmission upgrades that provide network benefits while tapping the state's major renewable resource areas (with costs therefore recoverable from all transmission customers), and (b) ensure that those upgrades are financed by the transmission owner.

This statutory provision of the RPS legislation recognizes the discretion inherent in the FERC's criteria for "network" status, providing the CPUC with the ability to put before FERC arguments that a facility should be designated "network" when that facility has both network and non-network characteristics.

Had the CPUC made better use of this code section, it could have found that SCE's "trunk line" (Segment 3 of the Antelope project) has network characteristics as well as gen-tie characteristics[10] or, had the Commission not found such benefits, it could have ordered SCE to

[10] Evidence of Segment 3's network benefits was put forward at FERC by CalWEA.

reconfigure the proposed facility so that it provided network benefits. SCE is now studying just such a reconfiguration.[11] If taken effectively, these steps will result in the CPUC's ability to meet California's RPS goals without the need for major changes in FERC's current approach to transmission cost recovery.[12]

Respectfully submitted,

___________/s/____________

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October 10, 2005

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11 SCE's Gary Schoonyan stated at the September 12, 2005, Energy Action Plan meeting that SCE is studying a connection between Segment 3 and the Midway substation, which, he said, would provide the network benefits that FERC requires if transmission customers are to be charged for the facilities. CalWEA strongly supports this effort.

12 For further discussion of these issues, see Note 8, *supra* (CalWEA's comments in CPUC Docket I.05-09-005).

APPENDIX 1

Comments of the California Wind Energy Association
on
CEC Staff Response to Public Comments
on the staff report titled *Assessment of Avian Mortality from Collisions and Electrocutions*
written in support of the 2005 Environmental Performance Report and the 2005 Integrated Energy Policy Report
(Staff Response dated August 31, 2005 and posted September 14, 2005)

October 10, 2005

While we appreciate the staff's efforts to respond to the wind industry's comments, staff's response can be characterized as an attempt to obfuscate the issues to which they purport to respond, even resorting to an ad hominem attack.[1] While voluminous, the Staff Response does not address CalWEA's three major areas of concern:

1. The 2004 PIER study, which forms the basis for staff policy recommendations, sensationalized wind-facility-related avian mortality at the Altamont. The study was not designed to accurately calculate facility-related avian mortality. Such a study would need to control for background avian mortality, use consistent search areas, employ more frequent search intervals, and remove any carcasses found so as not to double- (or even triple-) count scavenged and moved carcasses. These issues are discussed in detail below. The underlying data used to identify "problem turbines" suffers from the same absence of controls for inconsistent search frequencies and search areas, inconsistent study durations, the likelihood of carcass double- (or triple-) counting, and potentially even background mortality.[2]

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[1] Rather than adequately address her specific, documented criticisms, the Staff Response questions (p. 6) the credentials of one of the authors of our remarks, Dr. Carol Weisskopf. Staff fails to mention that Weisskopf has been conducting interdisciplinary studies with wildlife biologists since 1985, including published works.

[2] At the October 6 IEPR hearing, proponents of this study asserted that (even if the mortality estimates are wrong), the mortality associations with particular turbines (on which the proposed mitigation measures are based) are correct because they were based on actual carcasses found, not estimates. We disagree. The mortality associations suffer from many of the same flaws as the mortality estimates.

Carcass counts were used to compare the relative hazard of a variety of factors (e.g., turbine type, landscape features, tower type, etc.). The accuracy of this comparison is compromised by the variability in numbers of searches, intervals between searches, number of years searches took place and the certainty that a mortality was attributable to a particular turbine. For instance, search intervals varied from 13 to 139 days, and more carcasses would be found at turbine or landscape features searched at more frequent intervals. It is likely that many features identified as more hazardous are an artifact of these variations. The study authors acknowledge that adjustments were made to correct for the difference in search effort, but it does not appear to us that the adjustments were made accurately enough to justify removing or relocating turbines. (The level of accuracy of the adjustments is a question that we would like the independent review to answer.)

One thing is clear: when a large data set is being used to determine relatively small differences in the statistics, it is imperative to minimize the variability in the things over which the researcher has control -- in this case, most importantly the search intervals, search diameter and the seasonal issue. As we have shown, there were large variances in each of these areas.

2. Staff ignores the difference between the turbine models operating in the Altamont and those used elsewhere. New wind parks are not constructed with obsolete turbines. A theoretical siting model, based on tiny turbines and faulty data, cannot, therefore, form the basis for either Altamont-specific or statewide siting guidelines or requirements.

3. Staff's recommendation that statewide guidelines should be adopted to guide the siting, operation and monitoring of new wind developments is a solution in search of a problem. There is no indication that CEC staff or consultants have studied local siting processes in California, let alone provided evidence that they are not working. Wind facility-related avian mortality in the Altamont is unique and isolated. And yet, staff has used the Altamont problem as a backdrop for recommendations for statewide avian guidelines and the development of mitigation measures outside of the Altamont. Staff has not studied siting processes outside of the Altamont, let alone supported statements such as "developing mitigation measures for implementation would allow for continued use of the wind resources in Solano County,"[3] which erroneously implies that continued use of the wind resource in Solano is not presently possible, and overlooks the fact that Solano County is already imposing mitigation measures for avian impacts.

The staff finds "puzzling" a request that its recommendation for statewide guidelines should benefit by a full and adequate review by the public before becoming Commission policy (PDF-page 11) despite the fact that staff did not indicate, in documents feeding into the IEPR, <u>which</u> set of existing guidelines ought to be adopted for statewide use, how they should be applied, or whether staff means to suggest that an entirely new set of guidelines should be developed.[4] Moreover, the only justification staff offer for such guidelines is that "Currently, siting wind developments at the local level is inconsistent." (PDF-page 11.) Inconsistency, however, is perfectly appropriate as it merely reflects completely different local circumstances requiring different siting policies.

Discussion of Item 1: The 2004 study was not designed to accurately calculate facility-related avian mortality

There are several indications in the Staff Response that the 2004 PIER study by Smallwood and Thelander was not designed to estimate Altamont Pass wind-facility-related avian mortality.[5] Yet, staff does not directly acknowledge this failing or propose to retract the estimates that the study gratuitously produced. The estimates are exaggerated and have been widely quoted in the media.

We would like to state once again that we do not deny that wind facility-related avian fatalities in the Altamont Pass are of great concern. Inflammatory estimates of those fatalities, however, do nothing to solve the problem.

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[3] California Energy Commission Staff Report, "2005 Environmental Performance Report of California's Electrical System" at p. 16 (CEC-700-2005-016). June 2005.

[4] In the Staff Response at PDF-page 149, it does finally become clear that staff intends to develop a wholly new set of guidelines, duplicating years of effort by the NWCC and the CEC's own staff.

[5] See, e.g., Staff Response PDF-page 110, wherein a memo from Linda Spiegel and Shawn Smallwood states, "we believe it is inappropriate to convert our fatality data to mortality estimates … We disagree with your stated intention to convert these data to mortality estimates at the turbine string or individual turbine level, including turbines where fatality searches were performed less than one year."

The next two subsections explain the inadequacy of the staff responses to CalWEA's documented errors on golden eagle mortality estimates and the use of excessive correction factors as exemplified by the cowbird mortality estimate; the third subsection explains why, contrary to staff's explanation, background mortality should have been assessed at the Altamont.

a. Golden eagle example

The most basic of exaggerations is found in the 2004 PIER study's estimates of golden eagle mortality. In an attachment to this appendix, Weisskopf explains why the Staff Response fails to answer our charge that the study inflated the number of golden eagle deaths at the Altamont by a factor of three.

In summary, Weisskopf had shown a significant discrepancy between two sets of data used in the 2004 study, one of which caused the overall golden eagle mortality rate to greatly exceed that produced by <u>all previous studies we have seen, including an NREL report by the same authors now in press</u>. The 2004 study explains that the higher mortality rates in that report as compared to an NREL report by the same authors that used some of the same data is due to a particular set of turbines that the authors claim substantially exceeds the mortality over most of the rest of the pass. But Weisskopf showed that this set of turbines <u>is not within the data set that produced the higher mortality rate</u>, and therefore cannot explain the higher rate. Instead of attempting to determine the source of the discrepancy between the two sets of data—which resulted in the factor-of-three error—the Staff Response instead accuses Weisskopf of transposing figures in her calculations. But in the attached response, Weisskopf explains that, first, there was no such transposition and, more importantly, the supposedly transposed figures are <u>irrelevant</u> because they should have been excluded from the calculation.

Moreover, staff continues to state that mortality estimates were derived from fatalities caused by collision with moving blades, and that carcasses "show injuries specific to this source such as severed body parts and torsos cut in half" (Staff Response, PDF-page 3). Staff goes on to stress that "fatalities that could not be attributed to turbine blade collision were omitted from the analysis" (Staff Response, PDF-page 3). This claim is astonishing given that, of the Set 2 turbine carcasses used to develop Altamont mortality estimates (staff protestations aside, the Set 1 data has not yet been made available to us), 43% were classified as feathers, 3% as old remains, 18% as complete carcasses, 2% as decapitated, 1% as dismembered and 12% as wings.

In the field comments, 48% described the carcass as having unknown injuries because the carcass was missing, 4% stated simply unknown injuries, 4% described the carcass as having unknown injuries due to scavenging, and 9% were described as having unknown injuries because part or most of the carcass was missing (e.g., "Unknown injuries. Only tail feathers found." "Unknown injuries. Only leg bones and few feathers present." "Unknown injuries. Part of carcass missing and decayed." "Unknown injuries. Only partial left wing, bones and feathers.").

The nature of the injury was listed for only 47 of 131 carcasses. Of these, 6 (13%) were listed as having no injury apparent. Only 41 (31%) had injuries that could be considered evidence of wind facility-related mortality.

b. Cowbird example

When CalWEA reviewed the 2004 PIER report, we questioned how 919 carcasses found during 4+ years of a study could lead to species-specific mortality estimates that added up to more than 10,900 birds per year. We documented cowbirds as an example of how the found carcasses were extrapolated into overall mortality estimates.[6] The cowbird was selected because the report presented a turbine mortality factor for cowbirds in the Set 2 data, providing a simple example as there was only one carcass in the Set 2 data, and the Set 2 data were the only data to which CalWEA was provided access. The absurdities of the distance of the carcass to the nearest turbine, the error in the turbine power rating and the magnitude of the final mortality estimate were products of the selection, not the reason for it.

Staff's focus on these issues distracts from their failure to convincingly address the main point of the example: that an excessive number of overly large correction factors was used for the Set 2 turbines. The 2004 PIER report was forced to employ an excessively large scavenger correction factor because the search intervals (i.e., number of days between searches) for the Set 2 turbines were three <u>months</u>, as compared to the two- to four-<u>week</u> intervals that are standard practice in modern avian mortality studies. Shorter search intervals avoid the need to use large scavenger correction factors. The NWCC Guidelines do not include recommended study intervals, but do recommend (on p. 22) that study methods be selected to minimize bias in the outcome of the study, and that bias can be tolerated only if it is relatively small, measurable, or consistent among study areas, which are not characteristics of the Set 2 data extrapolations.

Regarding some of the particulars:

- CalWEA continues to believe a carcass found 430 feet from the nearest turbine should *not* have been used in mortality calculations, and that doubling the mortality estimate is particularly unjustified given the distance between the carcass and the turbine.

- The Staff Response (PDF-page 160) states, "The mortality estimates for bird species, including the brown-headed cowbird, were made only for bird species with more than one turbine-caused fatality." This statement is at odds with the 2004 PIER report (p. 70), which provides a Set 2 turbine mortality factor for the single cowbird found in that set.

- The Staff Response adds (PDF-page 162), "It is not true that only one turbine string included a brown-headed cowbird, and it is not true that Smallwood and Thelander (2004) mistakenly identified a 65-kW turbine as a 150-kW turbine model." The CalWEA cowbird document nowhere states that only one string included a brown-headed cowbird, although the data and the 2004 report both indicate that only one cowbird carcass was found in the Set 2 turbines. The error in turbine MW value was also identified independently in "Reply Comments of California Wind Companies on the Committee Workshop of June 27-28, 2005" (p. 59).

In closing comments, the Staff Response (PDF-page 167) states, "Reporting the range of estimates as well as the actual number of fatalities gives the reviewer all the facts. Weisskopf could have made her argument using the lower range rather than the higher range, and not doing so was misleading." Although this statement is not relevant to the documentation of the cowbird fatality extrapolations, we agree with the comment. On the other hand, CalWEA's focus on the high-end mortality estimate is consistent with widespread reporting of the high-end mortality estimates of all birds and raptor deaths in the 2004 PIER report, which are repeated in CEC staff documents, presentations to planning commissioners, litigant filings and media reports. The general public does not hear, for example, about the 363 raptor carcasses found during more than four years of study; rather, they hear about the estimated 880 to 1,300 annual raptor deaths in the Altamont.

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[6] For example (looking at set 2 carcasses only), the cowbird turned into 300 cowbirds, each burrowing owl turned into 60, and each blackbird turned into 120.

c. Background mortality

Among the justifications for omitting assessment of background avian mortality, CEC staff refer (p. 162) to other studies, e.g., one at Buffalo Ridge in Minnesota, that discount background mortality. But circumstances at other areas do not justify the same practice at the Altamont. There are a number of differences, for example, between the avian situation at Buffalo Ridge and the Altamont.

Buffalo Ridge carcass counts were low at both reference and turbine sites, and there were no avian concerns at Buffalo Ridge even without adjustment for background mortality. There was no need for discussions of turbine dismantling or relocations, operational curtailment, contributions to mitigation funds or lawsuits. Since these options are under discussion in the Altamont, a closer investigation of the Buffalo Ridge data is warranted.

Of the 5,322 fatality searches at Buffalo Ridge, 46.6% took place at reference sites and 53.4% at turbine sites.[7] On reference sites, 31 carcasses were found (0.0125 carcasses/search) and 55 carcasses (0.0194 carcasses/search) were found at turbine sites. The three phases of the Buffalo Ridge project had different mortality estimates, with phase 1 having an annual mortality of 0.98 birds per turbine, phase 2 having 2.27 birds per turbine, and phase 3 with 4.45 birds per turbine. The reference site avian mortality estimate was 1.10 deaths per turbine-equivalent site per year, higher than that for the phase 1 turbines. Adjusting for background rates would have completely eliminated turbine-related avian mortality for the phase 1 turbines, reduced by half the mortality estimate for the phase 2 turbines, and reduced by one quarter the mortality estimate for the phase 3 turbines.

Because they were so low, Buffalo Ridge mortality estimates, unadjusted or not, were of little consequence, so eliminating the cost for reference site searches was an easy decision to make. If carcasses were found at reference sites in the Altamont equivalent to half or one quarter of the numbers found at turbine sites, the consequences would be no longer trivial, and the cost fully justified. Unlike the Buffalo Ridge case, however, the 2004 PIER study never investigated background mortality.

[Please see separate Attachment to this appendix.]

[7] Johnson G.D., W.P. Erickson, M.D. Strickland, M.F. Shepherd and D.A. Shepherd, Avian monitoring at the Buffalo Ridge, Minnesota wind resource area: Results of a 4-year study, September 2000, p. iv.

APPENDIX 2

MEMORANDUM

TO: Nancy Rader, CalWEA
FROM: Scott Hempling, Law Offices of Scott Hempling, P.C.
DATE: July 11, 2005
RE: Thoughts on FERC's Antelope Decision

This memorandum discussed the FERC's decision on SCE's request for favorable rate treatment of the Antelope Project upgrades.[1]

Part I provides an overview of the FERC decision.
Part II contains my comments on the decision.
Part III contains my comments on the concurrence of Commissioner Brownell.
Part IV offers suggestions for next steps.
An **Appendix** contains descriptions of the three upgrade segments at issue.

1) Overview of Decision

In this case, SCE asked FERC to "roll in" to its transmission rates the cost of the Antelope Project.[2] The Antelope Project consists of three upgrades to SCE's transmission system. SCE labels these upgrades Segment 1, Segment 2 and Segment 3.[3]

In addition to roll-in, SCE sought, for all three segments, FERC's commitments for full recovery of prudently-incurred costs, regardless of whether potential wind generation develops or SCE abandons or cancels one or more of the segments. SCE sought this commitment because FERC has a precedent requiring a utility to bear half the prudent cost of a project where the project is abandoned or canceled due to lack of demand. The intent of this policy is to assure that utilities manage their business risks carefully rather than view the ratepayer as the guarantor of all cost recovery.

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[1] *Southern California Edison Company*, "Order on Petition for Declaratory Order," Docket No. EL05-80-000, 112 FERC para. 61,014 (July 1, 2005).

[2] "Roll-in" is the term of art used to describe the inclusion of particular costs in the cost of service used to set a utility's rates. In the context of upgrades caused by interconnecting generators, the opposite of "roll-in" is "direct assignment." Direct assignment means the interconnecting generator pays for the upgrade; "roll-in" means that all transmission users (including the interconnecting generator or its customer) pay for the upgrade.

[3] These three segments are described in the Appendix to this memorandum.

a) Segments 1 and 2

FERC approved roll-in because the upgrades are integrated with, and operate in parallel with, the transmission network. FERC stated (para. 36, citing SCE's affidavit submitted by Jorge Chacon):

> "36. Segments 1 and 2 are upgrades to existing, high-voltage, network transmission facilities or upgrades that will operate in parallel with existing high-voltage, network transmission facilities and these two segments will be transmission facilities that can be fully integrated with the CAISO-Controlled Grid when constructed and placed under CAISO Operational Control."
>
> "37. Segment 1 includes a new 25.6 mile 500 kV transmission line between the existing Antelope and Pardee substations, single and double circuit towers that will be energized initially at 220 kV, and an expansion of the Antelope substation to accommodate the new 500 kV rating. Segment 2 includes a new 17.8 mile 500 kV transmission line between the existing Antelope and Vincent substations and upgrades such as transformers, circuit breakers, and disconnect switches necessary at both substations to terminate the new transmission line. These two segments are not radial in nature, and will be part of the looped transmission system where the energy would flow from their substations (from Antelope to Pardee substations for Segment 1 and from Antelope to Vincent substations for Segment 2), but can be reversed depending on the season and the generation on line. These new facilities will be integrated with the existing Big Creek 220 kV corridor and the available capacity of these facilities will be used for multiple purposes, e.g., serve load and increase transfer capacity for existing generation facilities."
>
> "38. According to SCE, Segments 1 and 2 will provide additional benefits to the transmission grid; for example, they will increase the transfer capability, eliminate or mitigate thermal and transient stability problems under certain conditions, and can be relied upon for CAISO scheduling purposes. No other party disputes this assertion. In addition, the CAISO will be able to provide service to Participating Transmission Owners as well as other transmission customers over the two segments. Segments 1 and 2 will provide capability and reliability benefits to the transmission grid and could be relied on for coordinated operation of the grid. Therefore, we find that Segments 1 and 2 are network upgrades, the costs of which are discussed further below, and may be recovered through SCE's TRR."

FERC promised that there will not be a prudence disallowance if there is cancellation or abandonment should sufficient wind generation not appear. Para. 58 ("We will, however, grant SCE's request and allow it to recover 100 percent of the prudent cost (as discussed above) of Segments 1 and 2 even if these facilities are abandoned or cancelled.").

FERC deferred ruling on whether the size of Segments 1 and 2 is prudent; SCE can re-ask for this ruling after it obtains a certificate of convenience and necessity from the California PUC. See para. 57:

> "... The CPUC has not completed its review for the certificate(s) of public convenience and necessity. Nor has the CAISO, as regional system operator, weighed in on all aspects of this project. Accordingly, we will defer on the issue of advance prudence with regard to the appropriate sizing of Segments 1 and 2 until after the CPUC has granted SCE the necessary certificate(s) of public convenience and necessity" (also noting, in n.43, that "SCE is not seeking an advance prudence call on the actual cost of the Antelope Project")."

b) Segment 3

FERC denied all of SCE's requests because the facility is a gen-tie which does not benefit the network. FERC expressly relied on SCE's own statements:

> *Given the information provided by SCE*, we find that Segment 3 is not a network upgrade and therefore, not eligible for rolled-in rate treatment. Further, as noted by various intervenors, these appear to be generation-tie facilities, and our precedent has been that it would be improper to shift the costs of such facilities from the interconnection customers to all users of the transmission grid. In addition, SCE has neither shown that all users of the CAISO-Controlled grid will receive the benefits of these facilities nor how Segment 3 will provide benefits to the grid. We also do not have a determination from CAISO on whether these facilities should be transferred to its Operational Control."

Para. 42 (emphasis added). The "information provided by SCE" included (as summarized by FERC):

> [para. 22] "SCE characterizes Segment 3 as a generation-tie line, the cost of which is ordinarily paid by interconnecting generators. However, it contends that such a policy is a barrier to entry for wind resources located in remote areas for several reasons: (1) the large capital outlays are not feasible and add unacceptable financial risk; (2) incremental transmission upgrades based on first-in-queue is ineffective for locations where renewable resources tend to locate; and (3) clustering of interconnection applications to have jointly-owned or jointly-funded transmission upgrades is unlikely."
>
> [para. 24] "SCE says that the lines and substations are high voltage (initially operated at 220 kV, with an actual rating of 500 kV), will reach approximately 35 miles from the last point on the existing 220 kV grid to the second new substation, and will extend the grid to a large concentration of potential renewable resources from the Tehachapi region that the CPUC has found necessary to meet the state's renewable procurement objectives."

> [para. 40] ... "[T]o take advantage of economies of scale, SCE has designed the Segment 3 facilities to serve the multiple interconnection customers that may develop generation projects in the Tehachapi area. And, although Segment 3 facilities are high voltage facilities, they do not operate in parallel with existing transmission facilities."

FERC then added, at n.33:

> "We note that SCE has stated that if the Commission does not allow recovery of the cost of the Antelope Project in general transmission rates, the CPUC is to allow SCE to recover the reasonable transmission costs in retail rates. Cal.Pub.Util.Code sec. 399.25(b)(2)."[23]

2) Comments on the Decision

a) Segments 1 and 2

FERC promised not to penalize SCE by disallowing costs in case of abandonment or cancellation. FERC here used its legal flexibility to help wind without committing legal error. FERC could have said "let's wait until cancellation or abandonment occurs and then see what the facts were." FERC had no obligation to grant SCE's request. FERC precedent in fact requires the utility to absorb half the cost of abandonment or cancellation. But FERC interpreted this precedent flexibly. The reason why FERC has historically held a utility 50% accountable for abandonment or cancellation is that these decisions are within the utility's control, and FERC wants utilities to exercise control carefully, sharing risks with its customers. Here, SCE correctly argued, and the FERC correctly agreed, that the reasons for cancellation or abandonment would be outside the utility's control. The reasons would include generators not appearing in sufficient number, or appearing and then disappearing.

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[23] This footnote is odd (separate from mis-citing the relevant provision, which is §399.25(b)(4)). It has no legal relevance. Whether the Federal Power Act allows recovery from transmission ratepayers is legally unaffected by state law. Under the FPA, transmission ratepayers pay for an upgrade if they receive benefits from it upgrade. FERC found there are no transmission ratepayer benefits from the upgrade; therefore they cannot be forced to pay for it. State law has nothing to do with it.

Since the events leading to a decision to abandon or cancel would be outside the utility's control, FERC granted SCE's request to be insulated from the traditional 50% cost disallowance.

Contrast FERC's reasoning with interest group arguments made by some intervenors. Had FERC said "we're granting SCE's request because we want to help renewables," FERC would have committed legal error. Outside of PURPA, FERC has no legal authority to single out a form of electric generation for special treatment.[24] Instead FERC stuck with its non-renewables precedent but used a legitimate opening.

The size of the facility gave FERC pause. See para. 57. FERC cannot award a blank check. The FPA does not allow FERC to make transmission ratepayers pay for a facility of any size, just because the state of California orders that size. FERC has an independent obligation to assure that transmission ratepayers are not paying for more facility than they need. It is one thing to say that an upgrade stimulated by an interconnecting generator will increase reliability and therefore benefit all transmission users; it's another thing to make transmission customers pay for more capacity than is needed by the full load. FERC therefore withheld full approval until the PUC issues a certificate of public convenience and necessity. Para. 57. This statement does not mean that FERC will necessarily approve all costs just because the PUC has granted the certificate; it means that FERC wants to see a full record supporting the size before acting. CalWEA should therefore consider participating in the CPCN proceeding to ensure that this record is provided.

b) Segment 3

On Segment 3, SCE left FERC unable to show flexibility.

To the extent FERC looked only at SCE's submission and forgot about CalWEA's, FERC's decision was correct, and easily predictable. There is no budging on the principle that transmission rates can reflect only those investments that benefit the transmission ratepayer. Once SCE characterized Segment 3 as performing only a gen-tie function, as a non-network facility not integrated with the grid, there was no way for FERC to avoid denying the request for roll-in. For the many opponents of SCE's filing, SCE's submission made defeating us on Segment 3 a simple matter of quoting SCE. It then took FERC exactly one paragraph to explain itself.

[24] It is true that FERC is trying to make transmission costs more reasonable for intermittent power: but FERC's legal technique for doing so -- the right technique -- is not "we like renewables" but "we are not going to allow transmission owners to impose penalties on intermittency which are excessive in relation to the effects of intermittency. In other words, FERC continues to focus on assigning costs fairly. The benefit to wind from FERC's intermittency decisions is that FERC stepped in rather than leave the matter to transmission providers who were less committed to resolving the problem.

FERC cannot lawfully assign to transmission customers any costs which do not produce benefits for those costs. This principle is not arguable or negotiable. FERC's powers are limited by statute. Transmission rates must be just and reasonable. Courts have found that rates are not just and reasonable if they include costs which are not associated with benefits to the ratepayer.

When we talk of benefits to the ratepayer, we are talking about the ratepayer buying the service at issue -- here, transmission service. It makes no difference to the transmission ratepayer -- in his role as transmission ratepayer -- that the state is attracting more generation or increasing the diversity of that generation. These concerns are not Federal Power Act concerns.

There is no lawful way to create a “third category,” as SCE sought to do. Under the Federal Power Act, there are only two categories of facility: the facility either benefits the network or it does not. The unmovable principle is that you cannot make transmission ratepayers pay for something unless it gives them benefits. Yes, there can be multiple ways to show network benefits. But there must be network benefits: otherwise, no roll-in. To say “there are no network benefits but there are plenty of other reasons to charge transmission ratepayers” is asking FERC to do the legally impossible.

The only way for a roll-in argument to have survived SCE's submission was for FERC to disregard it, in favor of an alternative submission. That was the purpose of CalWEA's submission of Whit Russell's affidavit, explaining the network benefits of Segment 3.

3) Comments on the Concurrence of Commissioner Brownell

Comm. Brownell's concurrence asserts that the proposal would have greater chance of success if the proposal comes from the CA ISO, using Order 2003's "independent entity" variation. If the CA ISO takes this route, the CA ISO should explain that Segment 3 will provide network benefits of the type typically required by FERC as a prerequisite for roll-in. Otherwise, we are likely to see a repeat of FERC’s initial rejection.

The majority rejected SCE's submittal not because SCE is a non-independent transmission provider, but because the submittal disclaimed any network benefits. The majority's brief explanation of its rejection said nothing about independent vs. non-independent status.

Comm. Brownell's concurrence does not address the network benefits problem. The concurrence states that these facilities were not envisioned by Order 2003, in that they are sized in advance to accommodate multiple generators. It describes this type of a facility as a "multiple-use on-ramp to the CAISO Grid, rather than as sole-use interconnection facilities." This description does not rescue the facility from the majority opinion, which rejects roll-in because the benefits of the line are not network benefits.

That more than one generator uses the line, and that the advance construction and financing of the line is "beyond the means of any one developer," does not respond to the majority's view (which itself is supported by decades of FERC and court opinions) that roll-in requires benefits to the transmission network, not to the interconnecting generators.

Recognizing the necessity of network benefits, the concurrence makes this attempt to save Segment 3:

> "Segment 3 facilities would provide benefits to all users of the CAISO Grid by creating the potential to interconnect significant new and diverse supplies of energy. Therefore, I believe that this proposal would have satisfied the independent entity variation standard in Order No. 2003, had it been made by the CAISO...."

This passage has two problems. First, it does not distinguish this facility from any non-integrated gen-tie. Any gen-tie interconnects new generation; but an interconnection role alone does not create network benefits. For network benefits to exist, the transmission ratepayer must benefit in his role as a transmission customer, not in his role as a power customer.

Second, the next sentence does not follow from the first. The second sentence implies that the interconnection of new generation somehow interacts with independent entity status to support roll-in. But as discussed above, the ability to roll-in depends on network benefits; roll-in has nothing to do with independent status. FERC created the independent entity variation option because independent entities have no incentive to discriminate. See Order 2003 at para. 822 ("RTO or ISO should be treated differently because an independent RTO or ISO does not raise the same level of concern regarding undue discrimination."). The discrimination of concern to FERC was discrimination by a generation-owning transmission provider against independent generators. Here, SCE is seeking to have its own ratepayers bear costs that generators might otherwise provide. SCE's proposal does not involve discrimination against generators. The independent entity standard has nothing to do with this matter (as evidenced by the absence of any mention of the issue in the majority's decision).

Conclusion: Since the independent-nonindependent distinction had no effect on the majority's decision (nor should it have, because roll-in depends on network benefits, not on who controls the line), it is necessary for the CA ISO, if it does make the refiling, to adjust the Segment 3 plan so that network benefits are clear. Moreover, the "independent entity variation" is not available to shift non-network costs from generators to transmission customers. The requirement that transmission customers bear costs only to the extent those costs benefit the network is rooted in the FPA's "just and reasonable" requirement. The flexibility granted by Order 2003 to independent entities cannot violate that standard.

IV. Possible Next Steps on Segment 3

There are three possible ways to pay for Segment 3: transmission ratepayers, retail ratepayers, and interconnecting generators.

a) Transmission ratepayers

Allocating Segment 3 costs to transmission ratepayers requires a FERC decision. FERC can make this decision only if it finds benefits to transmission ratepayers. FERC will make that finding only if it views Segment 3 as integrated with the transmission network. Having read only SCE's position on this point, FERC adopted SCE's view that Segment 3 is non-network.

CalWEA's submission possibly can solve this problem. Our filing included an affidavit from engineer Whit Russell. The affidavit sought to create a factual basis for a finding that Segment 3 would be integrated with the network. FERC appears to have misplaced CalWEA's filing. Although it listed CalWEA along with the other intervenors, it did not summarize our positions although it summarized the positions of others. FERC opinions always summarize the unique positions of each intervenor. We should seek rehearing for purposes of having the Commission take our affidavit into account. If we do seek rehearing, by statute we must do so no later than August 1, 2005.

It would be better, however, to have SCE (and its witness Jorge Chacon) (or the CA ISO) adopt some version of Whit's views. FERC will have difficulty accepting our position because it has already gone on record accepting SCE's position. Our opponents will argue in Court that FERC changed its mind arbitrarily. If it's SCE that modifies its position, we have a better shot. SCE's modification would take the form of a revised application. It could submit this revised application in two possible ways: (a) in the present proceeding, as a petition for rehearing (due 30 days after FERC's order); or (b) by initiating a new proceeding. If SCE chose (a), and if the modifications were substantial, FERC likely would issue a new public notice allowing new interventions and opportunities for comments.

My recommendation is to try to persuade SCE and Mr. Chacon that they are looking too narrowly at the FERC criteria for network treatment. It is not a black-white situation, i.e., gen-tie v. network. Although there is not clear precedent, I think we can fairly argue that a facility can have a gen-tie role but also play an integration role. But we need SCE (or the CA ISO) to agree to help, rather than offer arguments which FERC cannot legally accept, ever.

What we should not do is repeat arguments that are legally irrelevant. The following arguments, as paraphrased below by FERC, invite FERC to reject Segment 3 again, using language that will be unhelpful in the future. These arguments also expose, and emphasize, the absence of evidence from SCE that Segment 3 has network benefits.

> [para. 23] "... SCE suggests creating a new "narrow and specific category of transmission facilities," i.e., trunk facilities that would include projects like Segment 3. SCE argues that the costs of high-voltage (220 kV or higher) trunk facilities to interconnect and integrate large concentrations of potential renewable generation resources located in a limited geographic area, but a reasonable distance from the existing grid, should be eligible for rolled-in rate treatment. SCE suggests that this new policy should apply where it is consistent with a state's requirement to procure energy from renewable resources and where the state has determined, through its state regulatory authority or RTO/ISO, that the upgrades are necessary to meet its policy objectives."
>
> [para. 25] "[T]he Segment 3 trunk facility will not be unduly discriminatory because the new category of facilities is narrowly crafted to further federal and state policies that encourage the development of renewable energy and to remove a roadblock to the construction of needed transmission. SCE notes that other states have enacted renewable portfolio standards mandating goals for the purchase of renewable energy and providing tax incentives and siting assistance. SCE also claims that the Commission has recently approved exceptions to its existing policies for intermittent renewable resources to "increase diversity in the resource base, [and] thereby improv[e] system reliability as a whole." Moreover, it points to the Commission's recently initiated proceeding in Assessing the State of Wind Energy in Wholesale Electricity Markets, Docket No. AD04-13-000, to assess options to reform transmission access for intermittent renewable resources like wind. Additionally, SCE asserts that the Commission has previously held that similar exceptions are not unduly discriminatory."
>
> [para. 26] "SCE understands that the Commission's policy is designed to encourage efficient siting of generation resources, but renewable energy developers must locate at the site of the resource and do not have the same flexibility as other generators about location."

We need to discourage our allies from making these arguments. They have no footing in the Federal Power Act. We also need to discourage the PUC from attacking FERC for "insensitivity to the states' needs," or "insensitivity to renewable energy" or any similar argument that sometimes emanates from state commissions. FERC has no legal authority -- none -- to make transmission ratepayers pay for non-network costs in the name of "deference to states" or "support for renewables." It is possible that those making these arguments are viewing FERC as a political body that responds to interest groups. I cannot make the following statement more clear: Although FERC is not politically deaf, it is fundamentally a professional operation that aims to center its decisions on legal principles first. If we cannot argue network benefits, we will not have supporting legal principles. No amount of interest pressure or appeals to renewables-consciousness will fix that problem. Of that fact, the FERC decision is ample evidence.

b) Other possibilities

I am omitting, for purposes of this memorandum, the following other potential solutions, which require more thought:

i) Ask the PUC for a ruling that the Section 399.25(b)(4) backstop applies to Segment 3.

2. Ask the Legislature to modify Section 399.25. Such a modification could be broad (e.g., all facilities defined as "renewable trunk lines"), or narrow (Segment 3 only).

3. Ownership by a for-profit entity other than the utility.

4. California taxpayers.

5. Municipal ownership.

Reply to *'Staff Response to CalWEA August 9, 2005 Letter, Attachment 1: "Significant Calculation Errors Found in the August 2004 PIER Report", Carol Pilz Weisskopf, PhD.'*[1]

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Many of the critical public comments in the California Energy Commission (CEC) docket 04-IEP-1G involve matters of study design, selection of appropriate correction factors, statistical treatment of data and the level of certitude placed in various mortality reduction hypotheses in the Smallwood and Thelander August 2004 PIER report.[2] These are areas subject to difference of opinion and professional judgment, and are open to debate. However, the matter of carcass selection in the calculation of mortality is not debatable – it is a matter of math and of fact, of performing the calculation exactly as described, and the calculation is either correct or incorrect.

Our review of golden eagle, red-tailed hawk and great horned owl mortality calculations relied on two files received from CEC staff on 07 July 2005: 'CEC data_fatalities.sav' dated 03/23/05 and 'CEC data_search dates.xls' also dated 03/23/05. The pertinent sections of the fatalities file are included in Attachment 2 and those from the search dates in Attachment 3.

The first part of the staff response claims 'Weisskopf switched the number of golden eagle carcasses given an Estimated Time since Death of greater than 90 days (15 in Smallwood and Thelander, 6 by Weisskopf's analysis) with the number categorized as not having ETDs (6 in Smallwood and Thelander, 15 in Weisskopf analysis).[3]

First, the Smallwood and Thelander (2004) report gives neither the number of Set 2 carcasses with an ETD greater than 90 days nor the number with no ETDs. These must be determined from the data files. Second, in Attachment 2 (an accurate presentation of the data given to us by CEC staff) the carcasses given an ETD greater than 90 days are shown. It is no great trick to count to 6, since one does not even have to take off one's shoes to do it. Third, *neither* of these groups of carcasses was to have been used in calculation of the golden eagle mortality factor, since only those with an assigned ETD *less* than 90 days were to have been used; so the actual carcass number in either category is irrelevant to the calculation. Finally, if CEC staff looked at the data to determine how many carcasses were in each category, either the transposition error is theirs or the data file they gave to us is in error. The sole point of agreement between staff and us is that *only* 10 golden eagle carcasses were supposed to have been used to calculate the Set 2 turbine's mortality factor.

In reference to the actual mortality factor we calculated, CEC staff response to that is 'It was only a coincidence that Weisskopf's calculation using the wrong group of golden eagle carcasses nearly equaled the unadjusted estimate of Smallwood and Thelander (2004); however we cannot determine from her comment how she did this.'[4] The staff then goes on to give a one-sentence description of the calculation of the unadjusted mortality factor and a one-page description and justification for the correction factors applied to

[1] August 31, 2005 memorandum to CEC commissioners Geesman and Boyd with the subject 'Response to public comments on the staff report titled *Assessment of Avian Mortality from Collisions and Electrocutions* (CEC-700-2005-015) (Avian White Paper) written in support of the 2005 Environmental Performance Report and the 2005 Integrated Energy Policy Report', unpaginated section, 157 – 159 of the memorandum.
[2] Smallwood K.S. and C.G. Thelander, 'Developing Methods to Reduce Bird Mortality in the Altamont Pass Wind Resource Area', PIER Final Project Report 500-04-052, August 2004
[3] CEC staff memorandum, *op cit.* p. 157.
[4] *Ibid*, p. 157.

the unadjusted mortality factor. Although we have great concern about the appropriateness of the correction factors, the error we posit is in the calculation of the unadjusted mortality factor itself.

From the data in the files given to us by CEC staff, mortality factors were calculated for the golden eagle, red-tailed hawk, great horned owl, burrowing owl and ferruginous hawk carcasses in the Set 2 turbines (Attachment 1) according to the calculation procedure described in the 2004 PIER report.[5]

In Attachment 1, data in columns A, B, C and H are taken from the CEC fatality file, and columns D, I and J taken from the CEC search dates file for the turbine string associated with the carcass. Column E is our count of the number of individual towers in the string, column F is our assignment of the per-turbine MW, and column G is the number of towers (E) times the per-turbine MW value (F). Column K is the interval between the two searches in that string (I and J), and column L is the study duration (the search interval (K) + 90 days). Column M is the deaths/MW/year for the individual eagle carcass in that string, calculated by dividing 1 carcass by the string MW sum (G) and by the study duration (L). Column N is the sum of the individual string factors (M), and in column O the string factor sum (N) is divided by the number of turbine strings in Set 2 (280 strings) to give the unadjusted mortality factor (in deaths per MW per year) for the Set 2 turbines. Column P gives the unadjusted mortality factor as shown in Table 3-9 of the 2004 PIER report.[6]

For the golden eagles, the first pair of numbers in colums N and O yields the unadjusted mortality factor produced if *only* the 10 carcasses with an ETD less than 90 days are used. This factor is 34.8% of the factor given in the 2004 PIER report. The second pair yields the mortality factor if the 10 carcasses with an ETD less than 90 days *and* the 15 carcasses with no ETD are used. The second pair gives a mortality factor that is 1.4% higher than that shown in the report. The same holds true for red-tailed hawk carcasses – our calculated unadjusted mortality factor only closely matches that reported when *all* carcasses with no assigned ETD are used along with those with an ETD less than 90 days.

The burrowing owl and ferruginous hawk calculations shown in Attachment 1 were performed as a check on our calculation procedure, as none of those carcasses had an unassigned ETD. The factor we calculated for burrowing owls was 0.5% higher and for ferruginous hawks 1.7% lower than the factors reported. As an additional check, calculations were also performed (but not shown here) for one cowbird, one mallard, one raven and two bluebird carcasses from the Set 2 turbines, with our calculated factors matching those reported ± 2%. The differences in our calculated factors compared to those reported are probably due to rounding or some other minor factor, but serve to demonstrate the calculation was duplicated appropriately.

The only uncertainties in our calculation of the golden eagle unadjusted mortality factor was the individual turbine's MW rating and the study duration used by the authors for the golden eagle carcass found incidentally on 13-May-03 (Attachment 1) since it was found two months after searches of that string ceased. To produce a calculated golden eagle unadjusted mortality factor that matches that given in the 2004 PIER report using only the 10 carcasses with an assigned ETD less than 90 days, all the turbines need to average 0.035 MW and there are none in the Altamont that small. The authors did not address adjustment of study durations for incidental finds, so the original search dates appear in Attachment 1. However, the increase in that string's study duration to include the date the carcass was found produces a better match with the mortality factor in the 2004 PIER report, with ours higher by only 0.9% when the 10 eagle carcasses with an ETD less than 90 days *and* the 15 with no assigned ETD are all included.

There have been many estimates of Altamont golden eagle mortality (Howell and DiDonato 1991, Kerlinger and Curry 2003, Orloff and Flannery 1992 and 1996, Smallwood and Thelander in press)[7]. In addition, the

[5] Smallwood and Thelander (2004), *op cit.* p. 49.
[6] *Ibid*, p 70.
[7] Howell J.A and J.E. DiDonato, 'Assessment of avian use and mortality related to wind turbine operations, Altamont Pass, Alameda and Contra Costa Counties, California, September 1998 – August 1989', report to US Windpower, 1991;

2004 PIER report golden eagle mortality factors from the Set 1 turbines can be extrapolated to the entire APWRA, omitting the Set 2 turbine factor disputed here. *All* of these mortality estimates, including Smallwood and Thelander (in press) lie between 28 and 43 golden eagle deaths per year, substantially different than the 2004 PIER report's 76 – 116 eagle deaths per year.[8]

In the PIER report, the authors address differences in mortality estimates between that report and their NREL report (in press). They state 'Our new mortality estimates are much larger than those reported in Smallwood and Thelander (in review), but our report to the National Renewable Energy Lab did not include data collected over most of the APWRA where we had not yet been granted access, and it did not include data from the wind turbines because we had not yet completed a full year of fatality searches on these turbines and decided to exclude them from our estimates of mortality. In fact, we had noticed that the mortality estimates representing the SeaWest-owned turbines were much larger than observed elsewhere, but we guessed that these larger estimates might be due to time spans consisting of less than a year because the denominator in the mortality estimate would be a fraction and would therefore artificially inflate the mortality estimate, as described in Chapter 3. However, continued searches at these wind turbines proved that the greater mortality previously observed (and excluded from our report) was not the result of insufficient time spanning the searches. Mortality at the SeaWest-owned portion of the APWRA substantially exceeds mortality observed over most of the rest of the APWRA'.[9]

In the NREL report, annual golden eagle mortality Altamont-wide is 28 and 34 deaths/year for the search efficiency-corrected total and the searcher efficiency plus scavenging-corrected total, respectively. The SeaWest-owned turbines discussed, above, are in the Set 1 turbines. When the PIER report Set 1 turbines alone are used to calculate annual golden eagle mortality Altamont-wide, the total is *also* 28 and 34 deaths/year for the searcher efficiency-corrected total and the searcher efficiency and scavenging-corrected total, respectively. The SeaWest-owned turbines do not account for the substantial difference in golden eagle mortality estimates between the Smallwood and Thelander NREL report and the Smallwood and Thelander PIER report.

There is no evidence that CEC staff attempted to perform the same calculation exercise we demonstrate here – an effort to determine the source of the unexpected magnitude in the annual golden eagle mortality – despite the improbability of the numbers and our effort to point out the source of the discrepancy.

That our calculated golden eagle and red-tailed hawk mortality factors match by 'coincidence' only when we include carcasses without ETDs in the data files *given to us by CEC staff* beggars the imagination. If this is the level of critical thought CEC staff has given to an issue as crucial as this mistake in calculation, we have little reason to expect competent assessment of any other public criticism in the remainder of the staff response.

Kerlinger P. and R. Curry, 'The relationship of golden eagle (*Aquila chrysaetos*) and red-tailed hawk (*Buteo jamaicensis*) collision fatalities in the Altamont Pass wind resource area of California to ground squirrel management practices: 1989 – 2002', report to Altamont Infrastructure Company, 2003; Orloff S. and A. Flannery, 'Wind turbine effects on avian activity, habitat use, and mortality in Altamont Pass and Solano County wind resource areas', CEC report, 1992; Orloff S. and A. Flannery, 'A continued examination of avian mortality in the Altamont Pass wind resource area', CEC report 1996; Smallwood K.S. and C.G. Thelander, 'Bird mortality in the Altamont Pass wind resource area', NREL report NREL/SR-500-36973, in press.

[8] Smallwood and Thelander, *op cit.*, p. 73.

[9] *Ibid*, p.76.

A ETD	B String ID	C Tower ID	D Towers in string	E # Towers	F MW per turbine	G String MW	H Carcass Date	I Study Start	J Study End	K Duration (years)	L Duration + 90 d	M d/MW/year for the string	N d/MW/year sum for set 2	O d/MW/year calculated factor	P d/MW/year reported factor
Golden eagle															
5	361	4542	4536-4557	22	0.1	2.2	13-May-03	18-Nov-02	10-Mar-03	0.307	0.553	0.8213	13.569	0.0485	0.1391
7	335	41	36-63, 1561	29	0.1	2.9	4-Mar-03	12-Nov-02	5-Mar-03	0.310	0.556	0.6200	39.495	0.1411	0.1391
14	319	2910	2909-2915, 2954-2957	11	0.1	1.1	5-Mar-03	29-Oct-02	4-Feb-03	0.268	0.515	1.7650			
18	408	697	686-697, 1379-1380	14	0.1	1.4	17-Mar-03	16-Oct-02	29-Jan-03	0.288	0.534	1.3370			
21	340	104	97-110	14	0.1	1.4	3-Mar-03	14-Nov-02	4-Mar-03	0.301	0.548	1.3036			
24	312	2965	2871-2908, 2958-2972	53	0.1	5.3	27-Oct-02	28-Oct-02	4-Feb-03	0.271	0.518	0.3644			
33	363	964	954-964	11	0.1	1.1	14-Oct-02	15-Oct-02	28-Jan-03	0.288	0.534	1.7016			
45	328	4323	4314, 4322-4324	4	0.1	0.4	10-Mar-03	19-Nov-02	11-Mar-03	0.307	0.553	4.5173			
60	331	4418	4330-4349, 4410-4424	35	0.1	3.5	19-Nov-02	20-Nov-02	11-Mar-03	0.304	0.551	0.5188			
75	335	43	36-63, 1561	29	0.1	2.9	4-Mar-03	12-Nov-02	5-Mar-03	0.310	0.556	0.6200			
90	244	H04	H01-H04	4	0.065	0.26	26-Feb-03	11-Nov-02	27-Feb-03	0.296	0.542				
90	329	4325	4325-4329	5	0.1	0.5	18-Nov-02	19-Nov-02	11-Mar-03	0.307	0.553				
120	335	40	36-63, 1561	29	0.1	2.9	11-Nov-02	12-Nov-02	5-Mar-03	0.310	0.556				
135	341	4035	4034-4095	62	0.1	6.2	29-Oct-02	30-Oct-02	6-Feb-03	0.271	0.518				
180	335	39	36-63, 1561	29	0.1	2.9	11-Nov-02	12-Nov-02	5-Mar-03	0.310	0.556				
315	396	1395	1390-1395	6	0.1	0.6	1-Jan-03	2-Jan-03	1-Apr-03	0.244	0.490				
	213	S3003	S3001-S3010	10	0.33	3.3	20-Jan-03	21-Jan-03	10-Apr-03	0.216	0.463	0.6545			
	213	S3009	S3001-S3010	10	0.33	3.3	20-Jan-03	21-Jan-03	10-Apr-03	0.216	0.463	0.6545			
	251	6046	6046-6060	15	0.1	1.5	1-Dec-02	2-Dec-02	17-Mar-03	0.288	0.534	1.2479			
	271	4677	4677-4700	24	0.1	2.4	11-Mar-03	21-Nov-02	12-Mar-03	0.304	0.551	0.7566			
	279	2355	2347-2365	19	0.1	1.9	21-Jan-03	21-Oct-02	22-Jan-03	0.255	0.501	1.0498			
	289	2101	2094-2121	28	0.1	2.8	29-Jan-03	23-Oct-02	30-Jan-03	0.271	0.518	0.6897			
	306	2719	2690-2719	30	0.1	3	12-Nov-02	13-Nov-02	2-Mar-03	0.299	0.545	0.6114			
	307	2610	2565-2612	48	0.1	4.8	2-Feb-03	23-Oct-02	3-Feb-03	0.282	0.529	0.3940			
	333	5	1 to 32	32	0.1	3.2	5-Feb-03	29-Oct-02	6-Feb-03	0.274	0.521	0.6003			
	343	4102	4096-4102	7	0.1	0.7	10-Feb-03	30-Oct-02	11-Feb-03	0.285	0.532	2.6878			
	348	4384	4378-4390	13	0.1	1.3	18-Nov-02	18-Nov-02	10-Mar-03	0.307	0.553	1.3899			
	416	1508	1505-1508	4	0.1	0.4	5-Jan-03	6-Jan-03	26-Mar-03	0.216	0.463	5.3994			
	428	238	237-242	6	0.15	0.9	16-Feb-03	31-Oct-02	17-Feb-03	0.299	0.545	2.0380			
	462	58	58-59	2	0.15	0.3	6-Jan-03	7-Jan-03	7-Apr-03	0.247	0.493	6.7593			
	468	172	68-74, 168-174	14	0.15	2.1	7-Jan-03	13-Jan-03	8-Apr-03	0.233	0.479	0.9932			
Ferruginous hawk															
7	222	D13		7	0.065	0.455	5-Nov-02	6-Nov-02	25-Feb-03	0.304	0.551	3.9910	9.578	0.0342	0.0348
24	223	M5		5	0.065	0.325	5-Nov-02	6-Nov-02	25-Feb-03	0.304	0.551	5.5874			
Burrowing owl															
30	242	G02	G01-G02	2	0.065	0.13	26-Feb-03	11-Nov-02	27-Feb-03	0.296	0.542	14.1803	28.126	0.1005	0.1000
24	372	1331	1331-1334	4	0.1	0.4	14-Oct-02	15-Oct-02	28-Jan-03	0.288	0.534	4.6795			
75	240	F04	F03-F05	3	0.065	0.195	2-Mar-03	11-Nov-02	3-Mar-03	0.307	0.553	9.2663			

BRCNUMB	DATE	ETD	AOU$	GROUP	AGE	ID	TOWNAME$	TOWER	STRING2	DISTANCE	BEARING	FINDING
1247	14-Oct-02	24	BUOW	raptor	unknown	3296		1331	372	18	208	wings
1438	26-Feb-03	30	BUOW	raptor	unknown	1802	G02		242	39	180	old remains
1440	2-Mar-03	75	BUOW	raptor	unknown	1794	F04		240	37	262	wings
1484	23-Mar-03	90	BUOW	raptor	unknown	1938		4649	263	1		old remains
1278	5-Nov-02	7	FEHA	raptor	sub-adult	1664	D13		222	4	161	complete
1279	5-Nov-02	24	FEHA	raptor	unknown	1672	M5		223	34	22	feathers
1501	13-May-03	5	GOEA	raptor	sub-adult	3153		4542	361	21.9	12	wings
1444	4-Mar-03	7	GOEA	raptor	sub-adult	2761		41	335	22	194	complete
1450	5-Mar-03	14	GOEA	raptor	unknown	2595		2910	319	19	108	complete
1474	17-Mar-03	18	GOEA	raptor	sub-adult	3647		697	408	12	258	complete
1443	3-Mar-03	21	GOEA	raptor	unknown	2850		104	340	1		old remains
1258	27-Oct-02	24	GOEA	raptor	adult	2546		2965	312	44	216	complete
1244	14-Oct-02	33	GOEA	raptor	unknown	3192		964	363	16	228	prtl carcass
1459	10-Mar-03	45	GOEA	raptor	sub-adult	2670		4323	328	50	222	complete
1303	19-Nov-02	60	GOEA	raptor	unknown	2711		4418	331	15	196	prtl carcass
1445	4-Mar-03	75	GOEA	raptor	unknown	2763		43	335	27	82	old remains
1439	26-Feb-03	90	GOEA	raptor	adult	1806	H04		244	37	196	complete
1301	18-Nov-02	90	GOEA	raptor	unknown	2672		4325	329	28	206	wings
1282	11-Nov-02	120	GOEA	raptor	unknown	2760		40	335	41	197	complete
1266	29-Oct-02	135	GOEA	raptor	unknown	2858		4035	341	50	168	complete
1283	11-Nov-02	180	GOEA	raptor	unknown	2579		39	335	42	192	prtl carcass
1347	1-Jan-03	315	GOEA	raptor	unknown	3517		1395	396	40	286	prtl carcass
1380	20-Jan-03		GOEA	raptor	unknown	1604	S3003		213	26	170	prtl carcass
1382	20-Jan-03		GOEA	raptor	unknown	1607	S3009		213	49	188	prtl carcass
1316	1-Dec-02		GOEA	raptor	unknown	1857		6046	251	31	132	prtl carcass
1465	11-Mar-03		GOEA	raptor	unknown	1992		4677	271	0		old remains
1387	21-Jan-03		GOEA	raptor	unknown	2075		2355	279	50	192	wings
1400	29-Jan-03		GOEA	raptor	unknown	2218		2101	289	75	219	old remains
1288	12-Nov-02		GOEA	raptor	unknown	2399		2719	306	24	250	feathers
1401	2-Feb-03		GOEA	raptor	unknown	2445		2610	307	16	158	old remains
1409	5-Feb-03		GOEA	raptor	unknown	2730		5	333	3	268	prtl carcass
1426	10-Feb-03		GOEA	raptor	unknown	2957		4102	343	30	306	old remains
1300	18-Nov-02		GOEA	raptor	unknown	3042		4384	348	10	344	prtl carcass
1350	5-Jan-03		GOEA	raptor	unknown	3701		1508	416	20	184	prtl carcass
1431	16-Feb-03		GOEA	raptor	unknown	3762		238	428	49	46	old remains
1352	6-Jan-03		GOEA	raptor	unknown	3950		58	462	27	173	old remains
1356	7-Jan-03		GOEA	raptor	unknown	4013		172	468	35	98	old remains

BRCNUMB	DATE	ETD	AOU$	CAUSE	REPORT	SEX$	INJURY	COMMENT$
1247	14-Oct-02	24	BUOW	collision	1	Unknown		Unknown injuries. Carcass missing.
1438	26-Feb-03	30	BUOW	collision	1	Unknown	sevrd wing	Broken piece of ulna and radius attached to remaining Rt win
1440	2-Mar-03	75	BUOW	collision	1	Unknown		Unknown injuries. Carcass missing.
1484	23-Mar-03	90	BUOW	collision	1	Unknown		Unknown injuries. Only one leg found.
1278	5-Nov-02	7	FEHA	collision	1	Unknown	torso in half	Blade cut through spine below ribcage, cutting raptor into 2
1279	5-Nov-02	24	FEHA	collision	1	Unknown		Unknown injuries. Carcass missing.
1501	13-May-03	5	GOEA	collision	incidental	Unknown	sevrd wing	
1444	4-Mar-03	7	GOEA	collision	1	Unknown	torso cut/twist	Wound in upper torso from mid back to right side of abdomen.
1450	5-Mar-03	14	GOEA	collision	incidental	Unknown	dismembered	Severed right leg and tail. Right Wing broken. Left leg like
1474	17-Mar-03	18	GOEA	collision	1	Unknown	sevrd wing	Left wing severed at top of humerus bone. Tail chopped off b
1443	3-Mar-03	21	GOEA	collision	1	Unknown		Unknown injuries. Only bones and tissues from one leg found.
1258	27-Oct-02	24	GOEA	collision	1	Unknown	torso cut/twist	Partial Right Wing severed.
1244	14-Oct-02	33	GOEA	collision	1	Unknown	torso in half	Head and upper torso found 9/16/02 by Tara near turbine #960
1459	10-Mar-03	45	GOEA	collision	1	Unknown	none apparent	Unknown injuries.Bird dragged by scavenger 83m. Head tucke
1303	19-Nov-02	60	GOEA	collision	1	Unknown	torso in half	Only lower torso and tail present. Spine and ribcage expose
1445	4-Mar-03	75	GOEA	collision	1	Unknown		Unknown injuries. Part of carcass missing.
1439	26-Feb-03	90	GOEA	unknown	1	Unknown	none apparent	Lying on Belly. 'No obvious injuries. Rubber on end of trans
1301	18-Nov-02	90	GOEA	collision	1	Unknown	sevrd wing	Unknown injuries. Only Partial Right Wing. Break at humerus
1282	11-Nov-02	120	GOEA	collision	1	Unknown	sevrd wing	Possible severed wing but carcass old.
1266	29-Oct-02	135	GOEA	collision	1	Unknown		Unknown injuries. Too old.
1283	11-Nov-02	180	GOEA	collision	1	Unknown	torso in half	Possible torso separation into two parts found but carcass o
1347	1-Jan-03	315	GOEA	collision	1	Unknown		Unknown injuries. Too old. Head and bones of one wing missin
1380	20-Jan-03		GOEA	collision	1	Unknown		Unknown injuries. Too old.
1382	20-Jan-03		GOEA	collision	1	Unknown		Unknown injuries. Too old.
1316	1-Dec-02		GOEA	collision	1	Unknown		Unknown injuries. Too old.
1465	11-Mar-03		GOEA	collision	1	Unknown		Unknown injuries. Only found broken Ulna bone.
1387	21-Jan-03		GOEA	collision	1	Unknown		Unknown injuries. Most of carcass missing. Old.
1400	29-Jan-03		GOEA	unknown	1	Unknown		Unknown injuries.Too old.
1288	12-Nov-02		GOEA	collision	1	Unknown		Unknown injuries. Most of carcass missing. Old.
1401	2-Feb-03		GOEA	collision	1	Unknown		Unknown injuries. Most of carcass missing.
1409	5-Feb-03		GOEA	collision	1	Unknown		Unknown injuries. Carcass missing.
1426	10-Feb-03		GOEA	collision	1	Unknown		Unknown injuries. Too old.
1300	18-Nov-02		GOEA	collision	1	Unknown		Unknown injuries. Carcass too old.
1350	5-Jan-03		GOEA	collision	1	Unknown		Unknown injuries. Too old. Head and bones of one wing missin
1431	16-Feb-03		GOEA	collision	1	Unknown		Unknown injuries. Only partial pelvis and spine found.
1352	6-Jan-03		GOEA	collision	1	Unknown		Unknown injuries. Only found broken bones of one wing.
1356	7-Jan-03		GOEA	collision	1	Unknown		Unknown Injuries. Only leg bones found.

BRCNUMB	DATE	ETD	AOU$	COMMENT2$	REPEAT	SCAVENGE	INSECTS
1247	14-Oct-02	24	BUOW			extensive	
1438	26-Feb-03	30	BUOW	Left wingfound 6m away from Right Wing.		extensive	
1440	2-Mar-03	75	BUOW			extensive	
1484	23-Mar-03	90	BUOW			extensive	
1278	5-Nov-02	7	FEHA	Flies presenton lower half. Light morph.		arth. only	some
1279	5-Nov-02	24	FEHA	Light morph. Fox skull and spine bones nearby but seem of		extensive	
1501	13-May-03	5	GOEA				
1444	4-Mar-03	7	GOEA	Bird laying on its side with right wing meeting left.Newly		arth. only	some
1450	5-Mar-03	14	GOEA	Think tail and right leg moved by scavenger to 2nd localne.		extensive	some
1474	17-Mar-03	18	GOEA	Beetles & lots of maggots active on back& inside. 23 flags p		arth. only	abundent
1443	3-Mar-03	21	GOEA			extensive	
1258	27-Oct-02	24	GOEA	Radio transmitter and Avise Bird Band (629-41132) present.		arth. only	some
1244	14-Oct-02	33	GOEA	Feathers shafts broken, some chewed on. 10/15 feathers blown		extensive	
1459	10-Mar-03	45	GOEA	1st feathers found at 50m from turbine.Trail of feathers l		extensive	
1303	19-Nov-02	60	GOEA	Eurotrophication - flesh covered in white slime. Clean humer		extensive	
1445	4-Mar-03	75	GOEA	Keel of sternum chewed off.		extensive	
1439	26-Feb-03	90	GOEA	Radio Transmitter & Avise Bird Band 629-35736,Flies preseent.		arth. only	some
1301	18-Nov-02	90	GOEA			extensive	
1282	11-Nov-02	120	GOEA	Radio transmitter and Band (629-41129). Squirrel and bones b		extensive	
1266	29-Oct-02	135	GOEA	Looks as if it "melted" into the grass. 50 estimate. Slope		some	
1283	11-Nov-02	180	GOEA			some	
1347	1-Jan-03	315	GOEA	2-3 inches of grass grown above bones. Feather shafts are		some	
1380	20-Jan-03		GOEA	Bones found on surface and below few inches of dirt and gras		some	
1382	20-Jan-03		GOEA	Most bones found at or near the surface. Some bones scorched		some	
1316	1-Dec-02		GOEA	Bones partially buried and some broken.		some	
1465	11-Mar-03		GOEA			extensive	
1387	21-Jan-03		GOEA			extensive	
1400	29-Jan-03		GOEA	Bones found on surface or below grass and 2-3 inches of dirt		some	
1288	12-Nov-02		GOEA	Weathered bones and feather found partially submerged in dir		some	
1401	2-Feb-03		GOEA	Ulna had burn marks from fire in area. (Oct-02 Burn zone had		extensive	
1409	5-Feb-03		GOEA	Broken talon found on surface.		extensive	
1426	10-Feb-03		GOEA	Some small mammal bones found with GOEA bones. 20 degree slo		some	
1300	18-Nov-02		GOEA	Most bones buried and broken.		some	none
1350	5-Jan-03		GOEA	Small mammal bones found in same area - last meal? Most bone		some	
1431	16-Feb-03		GOEA			extensive	
1352	6-Jan-03		GOEA			extensive	
1356	7-Jan-03		GOEA			extensive	

String2	Turbine #	Fall 2002	Winter 2003	Spring 2003
213	S3001-S3010		1/21/2003	4/10/2003
222	D7-D13	11/6/2002	2/25/2003	
223	M1-M5 (M3 - M13)	11/6/2002	2/25/2003	
224	A3001-A3004	11/4/2002	2/25/2003	
240	F03-F05	11/11/2002		3/3/2003
242	G01-G02	11/11/2002	2/27/2003	
244	H01-H04	11/11/2002	2/27/2003	
251	6046-6060		12/2/2002	3/17/2003
271	4677-4700	11/21/2002		3/12/2003
279	2347-2365	10/21/2002	1/22/2003	
289	2094-2121	10/23/2002	1/30/2003	
306	2690-2719	11/13/2002		3/3/2003
307	2565-2612	10/23/2002	2/3/2003	
312	2871-2908, 2958-2972	10/28/2002	2/4/2003	
319	2909-2915, 2954-2957	10/29/2002	2/4/2003	
328	4314, 4322-4324	11/19/2002		3/11/2003
329	4325-4329	11/19/2002		3/11/2003
331	4330-4349, 4410-4424	11/20/2002		3/11/2003
333	1 to 32	10/29/2002	2/6/2003	
335	36-63, 1561	11/12/2002		3/5/2003
340	97-110	11/14/2002		3/4/2003
341	4034-4095	10/30/2002	2/6/2003	
343	4096-4102	10/30/2002	2/11/2003	
348	4378-4390	11/18/2002		3/10/2003
361	4536-4557	11/18/2002		3/10/2003
363	954-964	10/15/2002	1/28/2003	
372	1331-1334	10/15/2002	1/28/2003	
396	1390-1395		1/2/2003	4/1/2003
408	686-697, 1379-1380	10/16/2002	1/29/2003	
416	1505-1508		1/6/2003	3/26/2003
428	237-242	10/31/2002		2/17/2003
462	58-59		1/7/2003	4/7/2003
468	68-74, 168-174		1/13/2003	4/8/2003