



# Santa Barbara Audubon Society

*A Chapter of the National Audubon Society*

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Ms. Kathy Pfeifer  
Planner  
Santa Barbara County Planning and Development  
123 E. Anapamu Street  
Santa Barbara, CA 93101  
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RE: Strauss Wind Energy Project – Comments on Draft Supplemental Environmental Impact Report

Dear Ms. Pfeifer:

Santa Barbara Audubon Society (SBAS), and La Purisima Audubon Society (LPAS) are pleased to offer these comments on the County's April 2019 Draft Supplemental Environmental Impact Report (DSEIR) for the Strauss Wind Energy Project (SWEP). These comments are submitted jointly by SBAS and LPAS, who are hereafter referred to as "Audubon."

SBAS and LPAS work to connect people with birds and nature through education, science-based projects, and advocacy. Audubon has over 1100 members in Santa Barbara County. SBAS and LPAS have also consulted with the National Audubon Society on the Strauss project and have gained considerable benefit from NAS's extensive experience with wind projects around the country.

While Audubon supports renewable energy production, wind energy that is not properly planned, sited, and operated can have a devastating effect on birds. Poor siting would also set a bad precedent for future wind energy projects in Santa Barbara County. Audubon is ready and willing to help Santa Barbara County minimize the potential negative effects of the Strauss project on birds.

This letter will address the following topics:

1. Introduction
2. Low-Impact Project Design Needed
3. Design of SWEP is Fundamentally Flawed
4. County Alternatives are Inadequate
5. Impacts on Vegetation
6. Transmission Line and Met Tower Issues
7. Impacts on Public Access
8. Impacts on Recreation
9. Transport of Turbine Blades by Air
10. Improvements Needed on MM BIO-16
11. Inconsistency with Agency Guidelines and Policies
12. Other issues
13. Summary

In this letter the major topics are designated by the titles above. Each major topic has detailed comments on the DSEIR.

## **1. Introduction**

Audubon submitted extensive scoping comments on the SWEP to the County on August 1, 2018. Audubon submitted another letter to the County on December 18, 2018 that elaborated on some of the issues stated in our scoping letter. Since that time, we have

continued our research into the Strauss project and into the impact of wind energy on birds in general. Additionally, many of our members have made field observations of birds on the Strauss site. Audubon has reported many of those observations to the County via email.

Audubon has had discussions with the Strauss project applicant, BayWa, on three different occasions. We had a frank exchange of ideas during these discussions. Audubon benefited by gaining insight into BayWa's point of view.

We feel it is important that Audubon provide the County with information that will improve the design of the project and lower its environmental impact. We hope that these comments are helpful to the County as it prepares the Final Supplement to the Lompoc Wind Energy Project's (LWEP) Environmental Impact Report (FSEIR) for the SWEP. We intend our comments to be constructive and hope that they will result in project improvements that protect birds, other wildlife, and habitat while still allowing substantial production of renewable wind energy.

### **Santa Barbara County has done a commendable job of preparing the DSEIR, but . . .**

Audubon would like to commend the County on the preparation of the DSEIR. This large document represents a tremendous amount of work. We appreciate that it takes many bird considerations into account and that it has been updated to address numerous bird issues. The updated sections on the California Condor are worthy of note. We also appreciate the updated bird surveys and the acknowledgment that the Strauss Project site is an eBird hotspot.

Being such a large document, over 3000 pages, and being a supplement to the LWEP EIR does make the document quite difficult for the public to interpret in many areas.

Audubon has done a thorough review of the portions of the DSEIR that are relevant to our mission. We have found many topics that are incomplete, inconsistent, or otherwise inadequate. We discuss those below with the expectation that the County will be able to produce a FSEIR that meets all the necessary requirements.

We also note that Audubon believes that the SWEP design that the applicant has chosen to submit to the County is fundamentally flawed. We discuss this issue in detail below.

**Because the SWEP design is fundamentally flawed, Audubon cannot support the proposed project or any of the County's three alternatives. The reason is that the SWEP design, including alternatives, still results in unacceptable avian mortality and significant damage to habitat, especially mature oak trees. Instead, Audubon urges the County to develop a "Low-Impact Project Design" that would be more similar to the previous Lompoc Wind Energy Project (LWEP). We describe such a project design in Section 2 below.**

### **The SWEP site is important for birds**

The nearly 3000-acre proposed site for SWEP, the corridor proposed for the transmission line, and San Miguelito Road are very important to bird life in Santa Barbara County. The bird surveys conducted by biological consultants in preparation for the DSEIR noted a wide variety of common and rare bird species, both resident and migratory. The DSEIR states that "the project site probably serves as a migratory corridor" for birds (p. 4.5-9). The SWEP site is identified as a "hotspot" by eBird.<sup>1</sup> It is important that the SWEP project be designed in a way that minimizes its impact on the numerous birds that use the site.

## **2. Low-Impact Project Design Needed**

SWEP has serious deficiencies due to its negative effects on the environment, as mentioned in the next section. As a result, Audubon strongly urges the County to require an environmentally superior alternative, the "Low-Impact Project Design". This design would be much closer to the original LWEP project design and would result in much less environmental damage, while still allowing the project to meet its renewable energy goals. This project design is feasible and much superior to the design proposed by the applicant.

The following are the major characteristics of Audubon's vision for a Low-Impact Project Design:

- **More and smaller turbines to meet power goals.**

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<sup>1</sup> eBird is the world's largest biodiversity-related citizen science project, with more than 100 million bird sightings contributed each year by birdwatchers around the world. It is managed by the Cornell Lab of Ornithology. eBird data document bird distribution, abundance, habitat use, and trends through checklist data collected within a simple, scientific framework.

- 56 GE 1.79-MW WTGs, producing a total of 100.2 MW.<sup>2,3</sup> Blades of these turbines each weigh 21,000 pounds<sup>4</sup>.
- **WTGs sited to balance power output with bird mortality.**
  - WTGs would be sited roughly using the layout of LWEP as shown in Figure 2-2 of the DSEIR. Importantly, the exact siting of each WTG would be based on a scientific analysis of wind resources and bird use, doing a tradeoff between power output and bird mortality.
- **No need to widen San Miguelito Road, reducing environmental destruction**
  - Turbine blades would be flown into the site, eliminating the need for destruction of the environment (including 158 mature oak trees) caused by widening San Miguelito Road. Flying the blades to the site would be feasible since the blades for the 1.79-MW WTGs are light enough to be transported by a heavy-lift helicopter, for example the Erickson Aircrane<sup>5</sup>.
- **Incorporation of elements of the DSEIR's Modified Project Layout Alternative**
  - WTGs would not be sited at the location of currently proposed WTGs E-7 and E-8. This would save another 387 mature oak trees from destruction.
- **LWEP transmission line design**
  - Changing the design of the transmission line back to the LWEP design would save another 62 oaks.

The total number of oaks saved with the Low-Impact Project Design vs. the currently proposed SWEP design is 607. This would be a huge reduction in environmental destruction!

The Low-Impact Project Design described above satisfies the CEQA criteria for selection of alternatives:

It meets most or all of the Project objectives.

It is feasible.

It avoids and substantially lessens the significant detrimental effects of the proposed project.

The Low-Impact Project Design is clearly environmentally superior to any of the project designs described in the DSEIR, including the three alternatives. Under CEQA, the County is obligated to adopt the environmentally superior alternative.<sup>6</sup> The Low-Impact Project Design would result in significantly reduced avian mortality and a dramatic reduction in the destruction of mature oak trees.

**Audubon urges the County to adopt the Low-Impact Project Design for SWEP, to re-analyze the project impacts, and re-circulate the DSEIR.**

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<sup>2</sup> According to DSEIR BIO-10, "Although the SWEP would have fewer WTGs than the LWEP (30 compared with 65), the WTGs would be larger and taller (up to 492 feet tall compared with 397 feet tall), and therefore, may place the rotor-swept area into the flight paths of birds that would have flown over the LWEP. Therefore, the overall risk of the (SWEP) Project to birds and bats is considered similar to that presented by the LWEP." If this is true, then the LWEP risk would be no worse than SWEP. But Audubon's Low-Impact Project Design would precisely site the WTGs, considering the normal movement patterns of birds and avoiding sites that birds commonly use. This approach will result in much lower bird mortality.

<sup>3</sup> Please note that this design would be similar to the environmentally superior alternative on LWEP, the "82.5 Wind Energy Project", which proposed 55 1.5-MW WTGs. But Audubon's Low-Impact Project Design would use the 1.79-MW WTGs instead, enabling the applicant to substantially meet its energy production goal.

<sup>4</sup> The DSEIR, on p. 5-5, states only a range of weights for the turbine blades, "between 21,000 and 34,170 lbs". But since there are only two types of blades, it is evident that the smaller blades would weigh 21,000 lbs.

<sup>5</sup> This was confirmed in an email to Audubon from a GE representative, Mike Troutman, Renewable Energy Customer Support Specialist, June 7, 2019.

<sup>6</sup> Please note that CEQA's "substantive mandate" provides, generally, that if a proposed project has unmitigable environmental impacts (Class I), and there is a feasible alternative that substantially lessens those impacts, then the County may either a) approve the environmentally superior alternative, or b) reject the Project.

### 3. Design of SWEP is Fundamentally Flawed

#### The SWEP was not designed to reduce bird strikes, as required by State and Federal guidelines

The DSEIR is inadequate because it doesn't consider locations for Wind Turbine Generators (WTGs) that would reduce the number of bird strikes. The DSEIR shows no evidence whatsoever of having taken into account, much less given priority to, the avoidance or minimization of avian fatalities in WTG siting, as required by Federal<sup>7</sup> (hereafter, "USFWS Guidelines") and State<sup>8</sup> (hereafter, "CEC/CDFG Guidelines") wind energy project guidelines.<sup>9</sup> The siting only takes into account factors related to wind power optimization (Layout and Design section, pp. 2-16 to 2-17), while suggestions of potential siting that would reduce adverse avian impact have been rejected (section 5.4.5, p. 5-6).

More specifically, the USFWS Guidelines (p. 14) note the following:

"If the results of the site assessment indicate that one or more species of concern are present, a developer should consider applicable regulatory or other agency processes for addressing them. For instance, if migratory birds and bats are likely to experience significant adverse impacts by a wind project at the proposed site, a developer should identify and document possible actions that will avoid or compensate for those impacts. Such actions might include, but not be limited to, altering locations of turbines or turbine arrays, operational changes, or compensatory mitigation."

The DSEIR is inadequate because, although it acknowledges that "migratory birds and bats are likely to experience significant adverse impacts", nowhere does it "identify and document possible actions that will avoid or compensate for those impacts." **This is a serious flaw of the DSEIR that must be corrected.**

The CEC/CDFG Guidelines provide further guidance regarding WTG siting for wind farm development in California:

"While CEQA compliance will be the primary focus of the impact assessment for a wind energy project, focusing on CEQA significance alone may not address all of the species and issues that need evaluation and mitigation; **impacts prohibited by state and federal wildlife protection laws must be assessed and minimized throughout project construction and operation, whether or not such impacts rise to the level of CEQA significance.**" (CEC/CDFG Guidelines, p. 7; emphasis added)

[under "Impact Avoidance and Minimization"] "Consider the following elements in site selection and turbine layout and in developing infrastructure for the facility:

- Minimize fragmentation and habitat disturbance.
- **Establish buffer zones to minimize collision hazards (for example, avoiding placement of turbines within 100 meters of a riparian area).**
- **Reduce impacts with appropriate turbine design and layout.**
- Reduce artificial habitat for prey at turbine base areas." (CEC/CDFG Guidelines, p. 12; emphasis added)

"As discussed in previous chapters, **compliance with state and federal laws requires both avoidance and minimization of project impacts.** Avoidance is best applied during pre-permitting site selection (macrositing) and during site layout planning (micrositing). Good macrositing decisions are essential for choosing an acceptable site or portion of a site. Once a site is selected, micrositing efforts, such as appropriate placement of turbines, roads, power lines, and other infrastructure, can avoid or reduce potential impacts to birds, bats, and other biological resources. **However, micrositing may not help reduce fatalities if a wind farm is placed in a region with high levels of bird or bat use, such as an area used heavily by breeding and wintering raptors.**"<sup>10</sup> (CEC/CDFG Guidelines, pp. 62-63; emphasis added)

**"Pre-permitting studies must be sufficiently detailed to establish normal movement patterns of birds and bats to inform micrositing decisions about turbine configuration.** Turbine alignments that separate birds or bats from their daily roosting, feeding, or nesting sites or that are located in high bird use or bat use areas can pose a collision threat. **Assessing**

<sup>7</sup> U.S. Fish and Wildlife Service. 2012. *Land-Based Wind Energy Guidelines*. Arlington, VA.

<sup>8</sup> California Energy Commission and California Department of Fish and Game. 2007. *California Guidelines for Reducing Impacts to Birds and Bats from Wind Energy Development*. Commission Final Report. California Energy Commission, Renewables Committee, and Energy Facilities Siting Division, and California Department of Fish and Game, Resources Management and Policy Division. CEC-700-2007-008-CMF.

<sup>9</sup> The USFWS Guidelines are intended to "Mitigate, including avoid, minimize, and compensate for potential adverse effects on species of concern and their habitats" (p. 1). The CEC/CDFG Guidelines require projects to incorporate "adequate measures to avoid, minimize, and mitigate potential impacts to these [diverse bird and bat] populations" (p. 1).

<sup>10</sup> The bird surveys do indicate that the SWEP site is used by breeding and wintering raptors, including the Golden Eagle, Ferruginous Hawk, and Red-tailed Hawk.

**the impacts of turbine siting and determining appropriate turbine placement requires a thorough understanding of the distribution and abundance of birds and bats at a proposed site as well as site-specific knowledge of how wildlife interacts with landscape features at the site.** Orloff and Flannery (1992 and 1996), Smallwood and Thelander (2004 and 2005), and Smallwood and Neher (2004) all estimated associations between bird fatalities and attributes of wind turbine locations relative to topography and other factors.

They concluded that wind turbine siting contributes substantially to bird fatalities and that **careful siting of new wind turbines could substantially reduce fatalities**; these predicted associations, however, have not been field tested. Strickland et al. (2001) concluded that wind turbines located away from the edge of the ridge at Foote Creek Rim, Wyoming, would result in lower raptor fatality rates than turbines located immediately adjacent to the edge. Smallwood and Neher (2004) had similar findings in that they determined that raptors fly disproportionately more often on the prevailing windward aspects of slopes.” (CEC/CDFG Guidelines, p. 64; emphasis added)

The above quotes illustrate the importance placed by Federal and State wind energy guidelines on the need to prioritize the avoidance and/or minimization of avian fatalities in project planning, design, and execution. They clearly state the requirement that substantial resources and research be devoted to this, particularly in the project pre-permitting and planning stages. Again, the DSEIR is seriously inadequate because the Strauss design does not “minimize collision hazards” or “Reduce impacts with appropriate turbine design and layout”, In addition, there was no attempt by the applicant to develop a sufficiently “thorough understanding of the distribution and abundance of birds and bats at a proposed site as well as site-specific knowledge of how wildlife interacts with landscape features at the site.”

On three different occasions<sup>11</sup> Audubon discussed with BayWa the need for placing the WTGs on locations that would reduce bird strikes. BayWa refused to consider any locations other than ridgetops that produce the maximum wind energy output. Of course, those are also the locations that usually have the maximum negative effects on birds, i.e., maximum bird strikes. Based on these conversations, Audubon believes that BayWa will not voluntarily choose WTG sites that do not produce that maximum WTG output.

For this reason, **the County must rigorously supervise any analysis of all factors in the micrositing of WTGs and ensure that there is a careful balance of WTG output and predicted bird strikes.**

#### **Mitigation Measure BIO-15 is inadequate in its treatment of WTG siting**

MM BIO-15a, Siting, states, “The turbines shall be micro-sited so that each WTG and transmission tower is located at least 500 feet away from critical biological resources identified in preconstruction surveys, specifically: active raptor nest sites, open water which would attract birds or bats (including stock-ponds), thicker riparian habitat in Canada Honda and San Miguelito creeks, eucalyptus tree groves, or vernal pools, if present. Preconstruction surveys (described in MM Bio-11a) shall identify existing raptor nest sites and other sensitive resources.” This is good as far as it goes, but it does not address bird movement in and around the WTGs at all. This is inadequate. The WTG siting must be based on studies that are “sufficiently detailed to establish normal movement patterns of birds”, as stated above.

MM-BIO-15b(b), Appropriate WTG and Project-Element Design, states, “WTGs shall be microsited and designed to minimize collision potential, consistent with USFWS Land-Based Wind Energy Guidelines (2012).” This has not been done on SWEP. There has been no attempt to site the WTGs using any criterion other than the location that will produce the maximum energy output. This mitigation measure does not require the applicant to consider the normal movement patterns of birds, and is therefore inadequate.

#### **Other wind farms in the US have been designed from the start or modified to reduce bird strikes. Why not SWEP?**

Many wind energy projects across the United States have prioritized avian fatality avoidance or minimization in their WTG siting, some voluntarily, some as a result of legal or enforcement actions. For example (bold emphases added):

- In November 2015 Altamont Winds Inc. (AWI) shut down its 828-turbine wind farm as part of a settlement agreement stemming from a lawsuit brought by local Audubon and Sierra Club chapters. AWI’s turbines had been responsible for hundreds of raptor deaths. AWI stated that **“The reduction of avian impacts was a primary factor that influenced our decision to discontinue operating our Altamont wind farms.”**<sup>12</sup>

<sup>11</sup> October 20, 2018; December 7, 2018; and April 8, 2019.

<sup>12</sup> See <https://www.nationalgeographic.com/environment/great-energy-challenge/2013/notorious-altamont-wind-area-becomes-safer-for-birds/> and <https://goldengateaudubon.org/blog-posts/altamont-winds-inc-to-shut-down-its-bay-area-turbines/>

- At the urging of Montana Audubon, in 2012 **NaturEner**, the developer of Rim Rock Wind Farm in north central Montana, **voluntarily agreed to relocate 25 of the project’s 126 wind turbines so as to provide a buffer of approximately ½ mile from historic and active nests of 10 raptor species. This commitment was made after the project design was finalized, financing completed, and actual construction had begun.** The relocation came at great expense to Rim Rock and included acknowledgement from Montana Audubon that NaturEner’s actions in the matter were “unprecedented and extraordinary.” The action also reflected **the developer’s awareness that some of the area’s nesting raptors are Federally protected and that voluntary compliance with the U.S. Fish and Wildlife Service’s (USFWS) Land-Based Wind Energy Guidelines could mitigate potential future liability.**<sup>13</sup>
- In 2010 NextEra Energy Resources, the largest wind turbine operator in the Altamont Pass Wind Resource Area (APWRA) in Central California, reached an agreement with environmental groups and the State of California that required NextEra to upgrade all its older turbines to newer models that kill far fewer birds, as well as to place these new turbines in “environmentally friendly” locations. An earlier (2006) lawsuit by Audubon groups had resulted in a settlement that gave the wind companies until November 2009 to cut turbine-related bird deaths (conservatively estimated to be between 1,766 and 4,271 per year) by 50 percent. **The companies tried shutting down turbines during the winter months, which did lead to substantial reduction in bird mortality rates, but the 50 percent goal remained elusive.**

The later (2010) settlement required NextEra to upgrade all of its 2,400 turbines to newer models expected to further reduce bird deaths and, most significantly, **to employ newer research-driven methods of careful turbine micro-siting based on sophisticated collision hazard modeling** derived in part from large-sample telemetry data (see Attachment 1). **These methods** were also applied to two other projects in the APWRA—the Buena Vista Wind Energy Project and the Vasco Winds Energy Project, which subsequent before-after, control-impact (BACI) research **proved to reduce fatalities by an estimated 90% for golden eagles<sup>14</sup> and from 56% to 65% for all raptors combined.**<sup>15,16</sup>

Significant conclusions from these research efforts were that “Our basis for micro-siting to minimize collision impacts is not the same in 2019 as it was in 2005 (Buena Vista) or 2010 (Vasco Winds). Instead, it is vastly improved. Any project planned to begin operations in 2023 should not rely on ‘use’ data collected in 2009, especially without appropriately analyzing those data to predict collision hazards posed by the turbine layout....**The micro-siting strategy to which I refer is the shifting of wind turbine locations to avoid terrain or environmental conditions...that are heavily trafficked by flying birds and bats and that will contribute to disproportionately greater numbers of collision fatalities. This micro-siting strategy has been used at other wind projects. No other mitigation method has proven effective for minimizing or reducing bird collision impacts at wind projects**” (Smallwood, 2019, pp. 36-37).<sup>17</sup>

- In November 2013, Duke Energy pleaded guilty in federal court to violating the federal Migratory Bird Treaty Act (MBTA) in connection with the deaths of 14 golden eagles and 149 other migratory birds at two Wyoming wind farms.<sup>18</sup> This represented the first-ever criminal enforcement of the Migratory Bird Treaty Act for unpermitted avian takings at wind projects in the U.S. Duke agreed to pay \$1 million in fines, restitution, and community service and was placed on probation for five years. **As part of the settlement Duke also agreed to develop a plan, in cooperation with the USFWS, to prevent more bird deaths at its four Wyoming wind farms. That plan involved deployment of sophisticated IdentiFlight technology, which blends artificial intelligence with**

<sup>13</sup> See <https://www.nationalgeographic.com/environment/great-energy-challenge/2012/montana-wind-turbines-give-way-to-raptors/>)

<sup>14</sup> Brown, K., Smallwood, K.S., Szewczak, J., and Karas, B. 2016. *Final 2012-2015 Report Avian and Bat Monitoring Project Vasco Winds, LLC*. Prepared for NextEra Energy Resources, Livermore, California.

<sup>15</sup> Smallwood, K. S., and L. Neher. 2016. *Siting wind turbines to minimize raptor collisions at Summit Winds Repowering Project, Altamont Pass Wind Resource Area. Report to Salka, Inc.*, Washington, D.C.

<sup>16</sup> See <https://www.sfgate.com/business/article/Altamont-Pass-turbines-kill-fewer-birds-4230640.php#photo-4099594> and <http://earthtechling.com/2010/12/wind-turbine-deal-to-kill-less-birds/>.

<sup>17</sup> Smallwood, K. S. Summit Ridge Wind Farm – Request for Amendment 4. Public comment letter submitted to the Oregon Energy Facility Siting Council, February 21, 2019. (<https://www.oregon.gov/energy/facilities-safety/facilities/Council%20Meetings/2019-02-22%20SRWAMD4%20Agenda%20Item%20D%20Supplement%20DPO%20Comment%20Index%20and%20Comments%20as%20of%202019-02-22.pdf>)

<sup>18</sup> See <https://www.justice.gov/opa/pr/utility-company-sentenced-wyoming-killing-protected-birds-wind-projects> and <https://www.charlotteobserver.com/news/local/article196315179.html>.

precision optics to detect approaching raptors and shut down turbines,<sup>19</sup> and made Duke the first wind operator to commercially deploy such units.

- In 2014 Portland-based PacifiCorp Energy pleaded guilty to violating the federal Migratory Bird Treaty Act (MBTA) in connection with the deaths of protected birds, including golden eagles, at two of the company's wind projects in Wyoming. Under a plea agreement with the government, the company was sentenced to pay fines, restitution and community service totaling \$2.5 million and was placed on probation for five years, during which it was required to implement an environmental compliance plan aimed at preventing bird deaths at the company's four commercial wind projects in the state. The company was also required to apply for Eagle Take Permits that would provide a framework for minimizing and mitigating the deaths of golden eagles at the wind projects.<sup>20</sup> In documents presented in court, the government alleged that **PacifiCorp Energy failed to make all reasonable efforts to build the projects in a way that would avoid the risk of avian deaths by collision with turbine blades,<sup>21</sup> despite prior guidance from the U.S. Fish and Wildlife Service (FWS). However, the company cooperated with the FWS investigation and subsequently implemented measures aimed at minimizing avian deaths at the sites.<sup>22</sup>**

The above examples illustrate why it is not only important from an environmental standpoint, but highly advantageous from a compliance perspective, for wind energy project developers to prioritize avian mortality reduction when siting WTGs. Moreover, several of these cases provide strong evidence that research-based WTG siting has become both increasingly feasible and increasingly effective in terms of reducing avian fatalities. The DSEIR is inadequate because SWEP design makes no attempt whatsoever to site the WTGs in a way that would reduce bird and bat mortality.

**The County must ensure that the WTG locations for the SWEP project are designed to reduce bird strikes. Experts who can do such a design are available.**

The DSEIR's failure to take into account the goal of avian fatality avoidance or minimization in its project planning with regard to the siting of WTGs<sup>23</sup> points to the need for a different project design that accomplishes this. This requires careful analysis and design by experts. Smallwood's recent commentary<sup>24</sup> on the proposed Summit Ridge Wind Farm in Oregon provides many examples of the feasibility of such an approach (also see Attachments 1, 2, and 3), as well as the availability and effectiveness of experts who can carry it out:

“[bird flight] Behavior data are needed to inform micro-siting to minimize collision fatalities.... Behaviors need to be mapped at frequent intervals along a flight path. This type of data can be used to develop collision hazard models useful for micro-siting, or they can be used as empirical support for expert micro-siting decision-making. Ample evidence suggests that this general approach can minimize avian collision mortality” (pp. 25-26).

Nothing of the sort has been done for the Strauss project. **The DSEIR is seriously deficient and inadequate in its consideration of WTG siting and the effects of WTG siting on avian collision-related mortality.**

**Destruction of 607 mature oak trees is unacceptable.**

DSEIR section LU-1b states, “Tree Protection. The proposed Project is inconsistent with County Plans, Policies, and Development Standards concerning tree removal. This impact is new with the SWEP. The EIR for the LWEP did not identify significant impacts to trees or inconsistencies with County tree protection policies or ordinances. The reason SWEP would have significant impacts to trees, whereas the LWEP would not, is due to differences in design and layout of the two projects” (p. 4.13-8). The applicant chose to make these design changes for its own purposes.

Section LU-1b also states, “the proposed Project would be inconsistent with plans and policies of the Oak Tree Protection Supplement of the Conservation Element, the Land Use Element, the Coastal Land Use Plan, and the Coastal Zoning Ordinance. The rationale for finding the Project inconsistent with these policies and ordinances is that a feasible Project alternative exists that would

<sup>19</sup> See <https://www.audubon.org/magazine/spring-2018/how-new-technology-making-wind-farms-safer-birds> and [http://www.earthisland.org/journal/index.php/articles/entry/sensors-reduce-wind-turbine-risks-to-birds?fbclid=IwAR2cfGEX-E1\\_bIIhJv0Fzum2OeMXRIVw9SeMwr6-OMwQb81qwQYzpMLvHU0](http://www.earthisland.org/journal/index.php/articles/entry/sensors-reduce-wind-turbine-risks-to-birds?fbclid=IwAR2cfGEX-E1_bIIhJv0Fzum2OeMXRIVw9SeMwr6-OMwQb81qwQYzpMLvHU0).

<sup>20</sup> Note, however that the take of Golden Eagles is prohibited by California law and that California does not issue take permits.

<sup>21</sup> The SWEP applicant is following the same strategy, putting itself in legal jeopardy.

<sup>22</sup> See <https://www.justice.gov/opa/pr/utility-company-sentenced-wyoming-killing-protected-birds-wind-projects-0>

<sup>23</sup> See start of Section 3 above for a discussion of non-conformance of SWEP to State and Federal guidelines.

<sup>24</sup> K. S. Smallwood, 2/21/19, op. cit.

result in substantially fewer oak tree losses (see Section 5.5.2). Therefore, the Project as proposed would result in unnecessary<sup>25</sup> impacts to trees and woodlands, coast live oaks in particular, which is contrary to all these policies and ordinances. The impacts are considered significant and unavoidable (Class I).”

**The SWEP design has severe detrimental effects on the environment of Santa Barbara County, especially since it requires the removal of 607 mature oak trees and causes severe bird and bat mortality. This is not in the public interest. Given this, it is unacceptable for the County to move forward with the proposed project as designed.**

## **4. County Alternatives are Inadequate**

### **The SEIR’s analysis of project alternatives must be modified to include one or more alternatives (besides the No Project alternative) that avoid the impacts caused by widening San Miguelito Road**

As discussed above, three out of the eight Class I (significant and unavoidable) impacts of the project are due in whole or in part to the widening of San Miguelito Road. Because of that, the SEIR should explore in detail ways to avoid those impacts, including by examining alternatives (besides the No Project alternative) that do not require road widening.

As mentioned above, Audubon believes that the Low-Impact Project Design is clearly environmentally superior to any of the project designs described in the DSEIR, including the three alternatives. The Low-Impact Project Design alternative would result in significantly reduced avian mortality and a dramatic reduction in the destruction of mature oak trees.

### **The County needs to revisit and clarify the reasoning on why it rejected the 82.5-MW Wind Energy Project**

One of the alternatives that was initially considered was the “82.5-MW Wind Energy Project” alternative. This alternative is based on the environmentally superior alternative identified for the original LWEP EIR. That alternative did not require widening of San Miguelito Road.

Section 5.4.1 of the DSEIR (p. 5-4) discusses the decision-making process that led to that alternative being eliminated from consideration. That discussion is vague, however, leaving unclear what specific reason or reasons were the basis for eliminating the alternative from consideration. By treating the applicant’s stated goal of a 102-MW facility<sup>26</sup> as representing the “the fundamental underlying purpose of the Project” (DSEIR, p. 5-2), and eliminating all alternatives that would produce less power, the DSEIR falls short of adequately presenting a “range of reasonable alternatives... which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project” (State CEQA Guidelines §15126.6(a), as quoted in the DSEIR p. 5-1).

The DSEIR presents three possibilities for why the reduced-power alternative might have been eliminated from detailed analysis (infeasibility, failure to meet Project objectives, or adverse impacts that would not occur with the proposed Project), but does not explain how those possible reasons actually factored into the decision. Given the substantial adverse impacts that result from eliminating the 82.5-MW alternative, the SEIR should explain more clearly how this decision was made.

The DSEIR raises the possibility, but does not specifically state, that an 82.5-MW project would be infeasible today. This conclusion is questionable. An 82.5-MW project was considered feasible at the time the County certified the LWEP EIR in 2009. What changes during the past 10 years make such a project infeasible today? The SEIR should discuss this in detail.

The DSEIR also raises the possibility, but does not specifically state, that an 82.5-MW project would “not meet project objectives.” Under CEQA guidelines, though, an alternative does not need to meet all of a project’s objectives, but only most of them. An 82.5-MW version of the project would produce 81% of the power of the proposed 102-MW version. Why would an alternative that produces 81% of the power of the proposed project not be able to meet most of the project’s objectives? The SEIR should explain in detail.

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<sup>25</sup> Emphasis added.

<sup>26</sup> It should be noted that it was the applicant’s choice to have a goal of a 102-MW facility and the applicant’s choice to enter into a Power Purchase Agreement with PG&E. The DSEIR does not state how much power the applicant must deliver. But, in any case, it is not the County’s responsibility to ensure that the agreement between two private companies is satisfied. Because of the applicant’s choice for the power goal, the applicant designed a project with large WTGs with long blades that ultimately would need road modifications that would cause severe environmental damage in Santa Barbara County.

In addition, the DSEIR should include a discussion of the possibility of adding additional or larger WTGs to the 82.5-MW project in order that the project could come closer to the power goal that the applicant set for itself. Indeed, Audubon's Low-Impact Project Design, mentioned in Section 2 above, proposes using 56 of the same GE 1.79-MW WTGs that the applicant already proposes using on SWEP. This configuration would produce a total of 100.2 MW, substantially meeting the project's energy goals.

Finally, the DSEIR raises the possibility, but does not specifically state, that adverse impacts would be caused by the 82.5-MW alternative that would not be caused by the 102-MW project. What would those adverse impacts be? It seems likely that any such impacts would be outweighed by the avoidance of Class I impacts associated with road widening. The SEIR should explore this question in more detail.

### **Audubon could support the Modified Project Layout Alternative vs. the proposed project**

Below is a brief discussion of the County alternatives contained in the DSEIR. **Audubon does not support any of the County alternatives in the DSEIR.** The DSEIR is inadequate because it does not contain the environmentally superior alternative, the Low-Impact Project Design.

Audubon could support the Modified Project Layout Alternative (DSEIR Section 5.5.2), which eliminates WTGs E-7, WTG E-8, and associated access roads, but only because it is less environmentally damaging than the proposed project. We would support Audubon's Low-Impact Project Design over the Modified Project Layout Alternative.

Also, Audubon could support a combination of the three alternatives - Modified Project Layout, Alternative Switchyard Location, and Alternate Surface Transport Route - in preference to the proposed project. However, as stated above, Audubon strongly urges the County to instead implement another alternative, the Low-Impact Project Design, that is discussed above.

## **5. Impacts on Vegetation**

Numerous sensitive plant species will be impacted by the proposed project. CEQA requires avoidance of impact as the best option. With the additional Dudek Addenda of Vegetative resources and impacts, the impacts appear to be well identified. In general, Audubon urges that the SEIR requires that in final design, the presence of sensitive plant and wildlife taxa be taken into account to avoid sensitive resources wherever possible, given other site constraints.

### **Impact of Proposed SWEP on Vegetation is Significant**

Impact to native trees is Class I, significant and unavoidable. As currently designed, the project will destroy 607 mature oak trees including 355 Tanoak and 250 Coast Live Oak (CLO) trees. (Table 4.5-4). According to Impact LU-1b, widening of San Miguelito Road would result in a loss of 158 trees, of which 150 are coast live oaks. Construction of the transmission line would result in a loss of 62 trees, all of them coast live oaks. With the adoption of Audubon's Low-Impact Project Design, this environmental damage would not occur.

The Environmentally Superior Alternative in the DSEIR, the Modified Project Layout, would delete WTGs E7 and E-8 (substituting a new WGT and a larger turbine at another location). This alternative would significantly reduce the impact to tanoak and CLO trees, avoiding the removal 382 oak trees (327 tanoak and 63 CLOs). This will also avoid road-building impacts in the Coastal Zone (81 of the trees are in the Coastal Zone). The grading would also impact Critical Habitat for the Red-legged frog.

Audubon requests that the DSEIR be modified to add the Coastal Zone boundary on Figure 5-1, Elimination of WTGs E-7 and E-8. Given that avoiding impacts in the Coastal Zone is a central feature of this alternative, it would be helpful. The Coastal Zone is shown on other figures, such as Figure 2-3b, the Detailed Site Plan, but the changes proposed would be clearer and easier to evaluate.



**Mature oak beside San Miguelito Road – already marked for destruction  
(photo taken June 9, 2019)**

### **Oak Restoration Discussion is Inadequate**

The DSEIR is inadequate because it does not include an alternative that reduces the amount of tree removal to the level of LWEP. Please note that Audubon’s Low-Impact Project Design alternative would reduce the amount of tree removal to the level of LWEP.

The Applicant’s consultant has identified potential restoration sites for tanoak forest and coast live oak woodland within the Project area (Figure 5.3.s-1 [Potential Forest Restoration Sites] of Sapphos, 2018; see Appendix C-1).”

We didn’t find any discussion of these proposed sites - how they were deemed appropriate for forest restoration. From the Vegetation Map Figure 4.5-1a these are largely non-native grassland, but is there any history of these sites having been forested in the past? Is water available for establishment? What is the available size? A Conservation Easement would be required so that the mitigation sites would be protected from future disturbance.

While avoidance of native tree removal is the best option (e.g. Audubon’s Low-Impact Project Design or the Modified Project Layout Alternative in the DSEIR), mitigation plantings are needed for any tree removal and must be successful. As the DSEIR says, “Although mitigation, such as replacement tree plantings, would be required for impacts to oaks and other native trees, woodland and forest habitats can take decades or more to regain the lost habitat values.” Many of these trees are hundreds of years old. Most restorations of oaks are not successful. If the proposed project is approved, the mitigation requirements are quite stringent, although a bit confusing. 3:1 replacement ratio of woodland and forest habitat (Tree replacement plan, 3:1 all sensitive species impacts, 6:1

replacement (for individual trees?), and 10:1 (for mortality replacement of mitigation trees). The SEIR should clearly state the mitigation replacement values.

The DSEIR is inadequate because it does not enable the public to make a comparison of the effect on oak trees between LWEP and SWEP. This impact is huge and should not be obscured from the public. Audubon strongly recommends that the following parameters be added to Table 2-1, Comparison of Lompoc Wind Energy Project and SWEP:

<b>Project Characteristics</b>	<b>LWEP<sup>27</sup></b>	<b>SWEP</b>
Number of mature oak trees destroyed on WTG project site	0	387
Number of mature oak trees destroyed for Transmission Line	0	62
Number of mature oak trees destroyed for San Miguelito Road Modifications	0	158
Total number of mature oak trees destroyed	0	607

**If San Miguelito Road is widened, care should be taken to minimize damage**

Widening of San Miguelito Road would also require trimming and removal of a large number of native trees - oaks and Arroyo willow, to allow the large turbine blades to be delivered to the site. Section 2.6.3 states that 158 oak trees will be removed. With the adoption of our suggested Low-Impact Project Design, this damage would not occur.

Figure 5.1.5-1E shows that about 50 Coast Live Oaks are found on a “failing slope” that will be evaluated and the trees may need to be removed to stabilize the slope. Audubon urges that the SEIR should require a conservative approach to managing the slope, to preserve the trees while maintaining a safe roadway. Removal or trimming of trees at the base of this unstable slope could trigger slope failure. Thus, the evaluation should include shifting more of the clearing for road widening to the outside of the curve, as feasible, for access.

In many areas, San Miguelito Road is near the top of the bank, and clearing will impact the riparian buffer. As final plans are determined, preservation of riparian vegetation, even at the expense of more clearing on the upland side, should be evaluated. This concept is referred to as “micrositing” in the DSEIR.

**Consider Dangermond Preserve for Revegetation**

The Biological Resource Section of the DSEIR provides Mitigation Measures BIO-3 for a Site Restoration and Revegetation Plan, with replacement, *preferably on site (emphasis added)*. If adequate space is not available, or the likelihood of success on the project site is low, Audubon suggests contacting The Nature Conservancy regarding mitigation plantings on the Dangermond Preserve, which is near the Project site.

**Vegetation Plans Should Receive Public Comment**

Several plans will be required after project approval, before construction begins. These include the Site Restoration and Revegetation Plan (MM BIO-1a &-3), Native Grassland Restoration (MM BIO\_1a & -8) the Tree Protection Plan (MM BIO-4a), the Tree Replacement Plan (MM BIO-4b). They each have criteria of what needs to be included, and they must be approved by County staff before construction begins. Audubon requests that once prepared, these Plans be made available for public comment prior to staff’s final approval. A system should be established for public notification. Audubon would like to request that we be on the notification list, by contacting Conservation@SantaBarbaraAudubon.org. When draft restoration plans and others are part of a DEIR, they can be reviewed and commented on by public members. But when they are prepared after project approval, a mechanism should be in place to provide for public comment.

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<sup>27</sup> We could find no definitive numbers in the LWEP FEIR on the numbers of mature oak trees that would have been destroyed. However, it seems clear that the numbers on LWEP would have been much lower than the numbers proposed for SWEP. We urge the County to do an estimate on LWEP so that the public is informed about the relative impacts of the two projects.

### **Care should be taken in protecting and replanting certain plant species**

Regarding some of the sensitive herbaceous and grass species, we recommend that the guidelines below be followed: Residual impacts to Purple Needlegrass is unfortunate, but there is extensive experience in establishing this species. The County should note that the needle grass species can easily be overgrown by non-native grasses, but are tolerant of nutrient-poor soil where the non-native grasses do less well. Thus, these are good species to install on cut slopes where subsoil is exposed. This fact should be included in the SEIR.

For the two sensitive subspecies of *Horkelia*, the situation is very complicated in that the common and two rare subspecies are found in mixed populations, and intergrade. No mention is made in the DSEIR whether anyone has experience in growing this species. One strategy that should be evaluated - relocate the populations to be disturbed, if at an appropriate season, or contract a native plant nursery to maintain the plants in pots or flats until outplanting is feasible.

Gaviota Tarplant - This is the only Federally-listed and State-listed Endangered plant on the Project area. In addition, the entire 791-acre Sudden Peak Unit Critical Habitat is within the Project site. Thus, the DSEIR impacts, estimated to be on 19.23 acres out of 92 acres in the Project area, is disturbing. Again, maximum avoidance of impacts in the final design and construction is urged in the FSEIR. Two other comments: 1) this annual is stated to be a poor competitor with non-native grasses, which suggests that revegetation on graded areas may aid establishment - information may be available as apparently this was a species planted on the oil pipeline through Gaviota. 2) Seed collection would be very time-consuming, and the technique used by the Cheadle Center (CBER) at UCSB for propagating Southern Tarweed might be utilized: gather whole plants at end of the seed production, crush them in garbage cans, then compact. At the appropriate time for planting, spread the crushed plants including seeds.

Seacliff Buckwheat is the host plant for the El Segundo Blue Butterfly. Given that few butterflies are found on the SWEP site and adjacent Vandenberg AFB, maximum protection of the host plant is warranted. Seacliff Buckwheat has been easily propagated by Coal Oil Point Reserve, CCBER, and local native plant nurseries. Appendix C-2 (Dudek) states that 17.9 acres is present in the Project area.

### **Special attention should be paid to controlling Yellow star thistle**

Invasive weeds are mentioned in the DSEIR as occurring on site. Special care should be taken to prevent on-site weed species from establishing in disturbed or mitigation sites. Much appreciated is the Project site Plant Compendium, as Appendix B to the Dudek Addendum No 2. Yellow star thistle is listed. No mention was noted of prevalence on the Project site. However, especially if this is a fairly uncommon species on the property, control before it sets seed is crucial.

## **6. Transmission Line and Met Tower Issues**

### **DSEIR needs to clearly show the impact of the changed transmission line route on biological resources, SWEP vs. LWEP.**

The applicant has chosen to submit to the County a siting of the transmission line that has been changed from LWEP. There is no substantive description of the changes and no justification stated. The DSEIR is inadequate because the lack of information makes it impossible for the public to evaluate the effects of the changes. The impact to biological resources appears to be much greater with the new proposed alignment, but no justification is given in the DSEIR for the additional impacts. According to the LWEP FEIR Impact BIO-2, most impacts in the power line corridor would be to grazed annual grasslands, and the power line construction would occur "close to wooded areas...where it would run along the margins of oak woodland...(L)ines would be strung over dense oak stand in order to minimize impacts to trees ... However, some oak trees may need to be removed to allow power line installation." No numbers of tree removal estimates are provided. Again, this is inadequate to enable the public to determine the additional impact caused by SWEP. The SWEP DSEIR states in PL-14, Minimize habitat disturbance, "The power line design will minimize habitat disturbance by using existing access roads wherever possible and constructing new poles using helicopters if feasible where creation of new access roads would necessitate grading in steep terrain or removal of woodland vegetation." Table 4.5-4,<sup>28</sup> Impact to Trees, indicates that 62 Coast Live Oak trees would be removed for the Transmission line; the DSEIR does not demonstrate how this mitigation measure is adequately implemented in the design

**The DSEIR needs to be revised to clearly show the impacts of the changed transmission line route of SWEP vs. LWEP on vegetation and other biological resources.**

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<sup>28</sup> Table 4.5-4 should have subtotals for the Number of Trees removed for the Transmission Line and WTGs.

### **Description of transmission line poles and impacts is inadequate**

Section 2.5.4 states, "The transmission line would be constructed primarily of double, steel H-frame structures with some triple poles at angle points." However, Figure 4.2-13B shows a transmission line pole setup with wooden poles and at least eleven guy wires.

The DSEIR is inadequate because there is no description of the designs for the transmission line poles. There is nothing that mentions guy wires on the poles in the DSEIR. The design descriptions for every pole must be included in the SEIR. In addition, Audubon urges the County to consider the transmission line pole design and use the double, steel H-frame structures exclusively, including at "angle points". This would eliminate the guy wires which are a collision hazard for birds.

The DSEIR is also inadequate because it does not analyze the effect of transmission line pole guy wires as a collision hazard for birds. This effect should be included in the DSEIR and, even better, should be eliminated by removing the guyed poles. We recommend that MM BIO-15b be modified to say, "All permanent meteorological towers and transmission line poles shall be unguyed."

Regarding the two figures, Project transmission Line Route in section 2. According to these figures, there are 32 pole locations shown on Figure 2-4a and 23 shown on 2.4b for a total of 55 pole locations. In the text, it states that the Project design assumes that up to 44 new poles would be required, and that "no currently existing power poles would be used" (page 2-21). It appears that the intent is to have 44 poles. However, also in the text, the structures holding the lines are described as double, steel H-frame structures with some triple poles at angle points. That means that there would be at least 2 and maybe 3 poles at each of the 55 locations, which is far more than 44. The numbers do not add up. Please clarify.

Page 2-49 and 2-50. The text mentions an area of 100' diameter centered on each pole as temporary disturbance due to construction, and yet this number is not included in the table 2-10 Estimated Temporary and Permanent Land Disturbance. And, if there really are 2-3 poles at each of 55 locations instead of 1, this area would be greater, and needs to be included. Audubon requests that the County clarify this to ensure the public understands the precise nature and extent of the poles and the accompanying temporary and permanent land disturbance.

Also, on page 2-49, the text states, "Vegetation clearing would be kept to a minimum because the transmission line route could be shifted within the study corridor to avoid impacts to sensitive plant communities where feasible". It appears that the applicant plans to grade 0.91 miles of new access road. However, there is a sentence in this section that says the new transmission line corridor was planned to avoid grading new roads as much as possible. Audubon requests that the County clarify this inconsistency regarding grading new access roads

### **DSEIR must call out 83-inch transmission line spacing in all relevant sections**

Audubon commends the County for recognizing that the California Condor's range is expanding and that the condor is likely to visit the project site in the future (p. 4.5-22, -71, -73). Audubon also appreciates that MM BIO-14i has been required to provide some protection to the condor and that MM BIO-15b requires a transmission line spacing of at least 83 inches to accommodate the condor. However, the DSEIR is inadequate because the description of the Project Transmission Line in section 2.5.4 does not mention that the conductor spacing shall be a minimum of 83 inches. Also section 2.5.5, PG&E Electrical System, does not mention that when the reconductoring is done that the conductor spacing shall be a minimum of 83 inches. This is necessary since the design of the PG&E part of the system is peripheral and the conductor spacing requirement could be lost. Specifically, statements requiring 83-inch conductor spacing should be added to PL-5, page 2-25, PL-11, page 2-26, and "Step 3- Stringing the Conductors", page 2-50. The same statement should be added to section 2.5.7.

### **DSEIR must require markers on transmission lines in all relevant sections**

Collisions with power lines are a major threat to California Condors, eagles, Turkey Vultures, and other soaring birds. The Edison Electric Institute estimates that 174 million birds are killed in the USA every year by power lines. The SWEP includes over 10 miles of power lines, much of which is along public roads. The probability of road kill along those roads is high. Road kill would attract condors and other scavenging birds, including Golden Eagles and Turkey Vultures, to the area. There is certainly a possibility that these birds could collide with power lines while coming in to land near road kills. Many studies of lines with high collision rates indicate that collision risk can be lowered by 50% to 80% when these lines are marked.<sup>29</sup> Among other protections for the condor and other large soaring birds, marker devices must be used to make power lines more visible. Power line markers are an easy, inexpensive, and effective means of making power lines more visible to birds, especially if attached when the power lines are installed. The County required markers on the transmission lines associated with the Cuyama Solar Project and should also require them on the SWEP. An example of a power line marker is shown below.

<sup>29</sup> See Reducing Avian Collisions with Power Lines, Edison Electric Institute, 2012, page xiii.



**Power line marker. Reduces bird collisions dramatically. Inexpensive and easy to install.**

Audubon appreciates that the County included MM BIO-15b, which states, “All overhead collection lines and transmission lines shall be designed to minimize the potential for raptor electrocution and collision using the latest APLIC (2012) guidelines.” However, the DSEIR is inadequate because it does not specifically require markers on transmission lines in the project and because it does not state the type and spacing of markers that would be required. The requirement for transmission line markers should be stated in all relevant sections on transmission line design, including the sections on the PG&E Electrical System.

**Cumulative effects on avian collisions with power lines are understated.**

Section 4.5.5, Cumulative Effects Avian and Bat Collisions with Power Lines and Meteorological Towers, states “No other wind development or power line projects are proposed within the Lompoc Valley. Therefore, the Project would not have the potential to combine with other projects to result in cumulative impacts from bird and bat collisions with power lines and meteorological towers.” This begs the question, “What about power lines associated with other kinds of projects?” Table 3-1, Cumulative Projects Scenario, shows many in-process and proposed (not to mention already-built) projects that surely have power lines associated with them. The DSEIR should consider cumulative impacts of power line collisions with all projects, not just wind development or power line projects.

**Use of met tower vs. SODAR should be clarified.**

The DSEIR project description states that there will be “One meteorological towers and two SODAR devices”. During the preparation of this letter, Audubon asked the County, “Since these both do the same function, why couldn’t there be three SODAR devices and no meteorological towers? Eliminating the met tower would eliminate a potential collision hazard for birds.” The County’s answer was, in part, “. . . the California Independent System Operator (CAISO) requires for every wind project in CA or “Eligible Intermittent Resource” at least one meteorological station must be installed at the average hub height of the wind turbines (see California Independent System Operator Corporation Fifth Replacement Tariff, Appendix Q Eligible Intermittent Resources Protocol (EIRP), Section 3.1.1.2). . . . For the SWEP project, the applicant has informed us that . . . at least one permanent met tower is required per CAISO regulations.” If this is true, this should be clarified in the SEIR.

**The fact that the met tower will be unguyed should be clarified**

MM BIO-15b.c states, “All permanent meteorological towers shall be unguyed.” However, Section 2.5.8 states, “The meteorological tower would be a guy-wired lattice structure . . . “ This section should be corrected to state that the met tower will be unguyed.

In addition, on page 2-6 the DSEIR states, “Up to three permanent meteorological towers would be installed during construction to measure the performance of the WTGs post installation. The towers are proposed to be guy-wired lattice structures . . . “ This should be corrected to state that there will be only one permanent meteorological tower and that it would be unguyed.

## 7. Impacts on Public Access

### **The SEIR must definitively describe plans for restricting public access to San Miguelito Road beyond Sudden Road during the operational phase of the project.**

The discussion of the closure of San Miguelito Road to public travel beyond Sudden Road (pp. 2-34, 4.8-16) is vague, contradictory, and fails to adequately describe potential impacts to public access and recreation.

The section of road in question is roughly two miles long. It descends to the north and follows the floor of an agricultural valley, passing a large stand of mature eucalyptus trees and ending at the Vandenberg AFB boundary next to the Honda Creek riparian corridor. This stretch of road is regularly used by birdwatchers and sightseers. The road's quiet, isolated, rural character; its proximity to habitat used by sensitive species; and the way it dead-ends at the extensive undeveloped land of Vandenberg AFB (which tends to minimize other uses of the road), all combine to create a **significant recreational resource**.

The DSEIR is inadequate in that it does not definitively state whether or not this section of road would be closed. On page 2-34 it states, "During the construction, and possibly during the operational phase of the Project, the Project operator and landowners using San Miguelito Road and Sudden Road beyond their intersection may request the County to close these roads to public travel." However, on p. 4.16-3 the DSEIR states that "the physical use of the Project area would remain fully accessible to informal recreation (i.e., cycling, running, birding, sightseeing) during Project operation." These statements are contradictory. The SEIR needs to state definitively whether or not San Miguelito Road will be closed to the public beyond Sudden Road.

Other than the brief reference to "project safety and security", the DSEIR does not discuss the circumstances that might lead to this part of the road being closed to the public during the operational phase of the project or the process by which a decision on road closure would be made. According to the DSEIR, either the project operator or the local landowners may request the closure. There is no discussion of the closure's likelihood. Who would make the decision? The County? The operator? One local landowner? A majority of landowners? What about the implied easement? The public has been using this road for decades. If the road is to be closed, the SEIR must state how the decision would be made and how the implied easement would be dealt with.

**Audubon strongly recommends that no portion of San Miguelito Road be closed to the public during the operational phase of the project.**

## 8. Impacts on Recreation

### **The closure of San Miguelito Road beyond Sudden Road would be a Class I impact to recreation.**

The DSEIR is inadequate because it claims in the section on Open Space Element, p. 4.13-25, that "The Project would have minimal impacts on mineral or recreational resources." **Audubon objects strenuously to this assertion.** The closure of San Miguelito Road beyond Sudden Road would have a significant impact on recreation.

There is no discussion in the DSEIR of the adverse impact that such a road closure would have on recreation. The closure of San Miguelito Road beyond Sudden Road would "contribute to the long-term loss or degradation of a recreational use," thus reaching a stated impact significance threshold (DSEIR p. 4.16-1). This loss of public access concerns Audubon. This section of road harbors rare bird populations that the public, including birdwatchers, have had free access to for many years. That the project might cause that access to be lost is an adverse impact in the "Recreation" category. If the road is to be closed, it should be listed as an adverse impact, either as a Class I impact (significant and unavoidable), or as a Class II impact (if feasible mitigation measures can be identified to reduce the impact below the threshold of significance).

### **Mitigation measure REC-01 should be modified to require actual coordination with affected public groups, or at a minimum should be reworded to avoid the misleading impression that it requires such coordination.**

Disruptions to recreational use during project construction are acknowledged by the DSEIR (p. 4.16-1), with Mitigation Measure REC-01 having been included to reduce those impacts. REC-01 is worded confusingly, however. According to the DSEIR the

measure is intended “to avoid conflicts with recreation activities that often occur within the Project area” (p. 4.16-3). REC-01 says the applicant shall “coordinate” with several affected groups — the Lompoc Valley Distance Club (LVDC), Lompoc Valley Bicycling Club (LVBC), and Santa Barbara Audubon Society (SBAS) — as to the project construction schedule and activities. The list of affected groups to be coordinated with should be expanded to include not only the Santa Barbara Audubon Society but also the La Purisima Audubon Society.

The words “coordinate” and “coordination” are used several times in the mitigation measure. A careful reading, though, shows that the only substantive requirement is that the applicant post notices of the construction schedule at Miguelito Canyon Park, and communicate that schedule to the affected groups. Calling this “coordination” with the affected groups implies a degree of back-and-forth, with the affected groups having input into the schedule. In reality that isn’t the case; all the “coordination” is happening on the side of the outside groups, which would need to reschedule their activities to avoid conflicts with the applicant’s construction activities.

Mitigation measure REC-01 should be expanded to require actual coordination with the affected groups, in which the applicant meets with the groups to discuss ways in which the schedule might be adjusted to reduce recreation impacts. If that isn’t feasible, then at a minimum the mitigation measure should be reworded to avoid conveying the false impression that it requires such coordination. In that case the measure should simply say that the applicant will “communicate” the construction schedule to the affected groups, rather than saying it will “coordinate” with them.

**The Final SEIR must include the adverse recreational impacts caused by the altered character of the site during the operational phase of the project.**

A significant inadequacy in the DSEIR is the document’s failure to address recreation impacts during the project’s operational phase, after initial construction is complete. The DSEIR discusses those impacts in Section 4.16.4, “Environmental Impacts and Mitigation Measures,” pp. 4.16-2 and 4.16-3.

This treatment of post-construction recreational impacts is inadequate. The project would produce significant ongoing recreation impacts, impacts that are not adequately described by the DSEIR’s discussion of post-construction visual and biological impacts. Under CEQA, those recreation impacts must be included in the SEIR so that decision-makers have the information they need. The area near the intersection of San Miguelito Road and Sudden Road is a prime location for seeing birds of prey. The wide, grassy valley forms a natural amphitheater with a large population of ground squirrels, while the surrounding windy ridges are ideal for soaring. The quiet, rural character of the location, reached via a winding, one-lane country road with no outlet, means there is relatively little vehicle traffic. The site is one of the premier locations, arguably *the* premier location, in Santa Barbara County for seeing birds of prey that live in open country and avoid human presence, birds such as Golden Eagles, Prairie Falcons, and Ferruginous Hawks. One can also see many more common species there, including Red-tailed Hawks, American Kestrels, Turkey Vultures, and Common Ravens.

Besides birdwatching, the site is popular for sightseeing. When birdwatching near the intersection of San Miguelito Road and Sudden Road one often sees cars drive by to the south end of Sudden Road, where the occupants park to appreciate the quiet setting and the distant views of the ocean. On a weekend day in good weather a half dozen vehicles or more might visit the location over the course of an afternoon. While the number of visitors is low compared to the heavier use at Miguelito County Park, for those who seek solitude it’s a unique place. These recreational uses will be heavily impacted by the proposed project, with impacts occurring not only during construction but also during the operational phase of the project.

During the operational phase the site would be dramatically altered, with the quiet, one-lane road wandering through a scenic valley turned into the site of intensive, large-scale energy production and transmission, with wind turbine generators, pad-mount transformers, a substation control building, switchyard, O&M facility building, meteorological towers, and transmission line poles. It is true that these changes would involve significant, unavoidable impacts in the areas of visual aesthetics and biological resources, and that those visual and biological impacts would play a role in the recreation impacts. Nevertheless, those recreation impacts would be distinct from and should be addressed in the SEIR separately from those other impacts. The DSEIR states that “the physical use of the Project area would remain fully accessible to informal recreation (i.e., cycling, running, birding, sightseeing) during Project operation” (p. 4.16-3). This characterization is disingenuous. The unique characteristics of the site described above are inextricably linked to its recreational value. The fact that birdwatchers and sightseers would still be able to physically visit the site during its operational phase is irrelevant. The alterations to the site by the project would have created a dramatic adverse impact on the recreational use, and that impact would be significant according to County guidelines. Accordingly, the impact should be listed in the

SEIR in the “Recreation” category, either as a Class I impact (significant and unavoidable), or as a Class II impact (if feasible mitigation measures can be identified to reduce the impact below the threshold of significance).

## 9. Transport of Turbine Blades by Air

The widening of San Miguelito Road to accommodate delivery of wind turbine blades is a major source of adverse impacts in all the analyzed project alternatives (except the No Project alternative). Of eight identified Class I (significant and unavoidable) project impacts, the widening of San Miguelito Road is a significant factor (in one case, the sole factor) in three of them:

- VIS-7, “San Miguelito Road Landscape”
- BIO-2a, “Construction Impacts to Woodland and Forest”
- LU-1b, “Tree Protection”

Because of this, **any approach that avoids the need to widen San Miguelito Road would dramatically reduce the project’s adverse impacts.** Audubon’s Low-Impact Project Design is such an approach.

### Air transport of turbine blades must be more seriously considered.

A promising possibility is the use of a heavy-lift helicopter to transport the turbine blades. In response to a comment received during the scoping process, the DSEIR discusses this possibility in Section 5.4.3 (p. 5-5), but eliminates it from further evaluation.



**Transport of WTG blades by heavy-lift helicopter**

Given the dramatic benefits of avoiding truck delivery of turbine blades, this possibility deserves a much more careful and detailed analysis. The DSEIR discussion does not appear to reflect such an analysis, however. Instead, there are indications that the research conducted was rushed and inadequate. For example:

- The name of the company that operates the largest-capacity commercial heavy-lift helicopters in the U.S. has been misspelled. It should be “Erickson”, with a “c”, rather than “Erikson”.
- The name of the helicopter manufactured and operated by Erickson is “Aircrane”. The DSEIR refers to “Skycrane”, which is the name that was used for the helicopter’s predecessor, the Sikorsky S-64, the rights to which were purchased by Erickson in 1992.
- The DSEIR gives a reference of “(Erikson, 2019)” as the source of the information provided (p. 5-5). That reference is not expanded anywhere in the document. Does it refer to some personal communication? Especially given the errors in the DSEIR’s discussion, it is important that the Final SEIR provide detail about where the information was obtained.

Sourcing is especially important for the next part of this discussion, in which the DSEIR asserts that even though there is a possibility that the project’s blades would weigh as little as 21,000 lbs., which falls within the helicopter’s rated payload capacity, “the length and aerodynamic nature of the blades would reduce the available capacity of the Skycrane below the weight of the short blades, making this alternative infeasible” (p. 5-5). The DSEIR should provide more detail to support this assertion. The mistakes as to the company and helicopter name and the lack of sourcing information indicate a cursory approach, rather than the careful consideration the issue deserves. In addition, Audubon has found many examples around the world where helicopters have delivered blades to WTG sites (see photo in this section). This would challenge the assertion that the “aerodynamic nature of the blades” is an issue. It is important to note that the ability to transport the shorter, lighter turbine blades by air, combined with elimination of the need for the larger WTGs and their longer, heavier blades by using only the 1.79-MW WTGs, would enable the changeover to the Low-Impact Project Design mentioned above in Section 2. Audubon has been informed by GE that helicopter transport of the smaller blades would be feasible (see note in Section 2). This is a low altitude site and the transport distance would be short. These are both favorable factors for the payload capacity of the heavy-lift helicopter. Please note that **helicopter transport of the turbine blades would eliminate most of the severe environmental degradation that would be caused by the proposed SWEP design** and therefore should command the County’s attention.

Other questions the SEIR must do a better job of answering include:

- What would the actual payload capacity for a heavy-lift helicopter be in the case of this project?
- How close would the smaller turbine blade weight be to the actual payload capacity at this site for a heavy-lift helicopter?
- Are there other alternatives available (besides the Erickson Aircrane) that would have greater payload? For example, in 2017 Lockheed Martin announced that they had developed a heavy-lift “hybrid airship” that was ready for construction, and that would have a payload capacity of more than 40,000 lbs. while using 10% of the fuel required by helicopter transport. What is the latest status of that project? Does it represent a viable alternative? Might it do so at some point in the near future?



**Transport of WTG blades by heavy-lift airship will be feasible soon.**

**The Low-Impact Project Design might allow ground transport of shorter turbine blades.**

Audubon’s proposed Low-Impact Project Design would use the smaller 1.79-MW WTGs which would have relatively shorter turbine blades, 159.8 feet, vs. 224.7 feet for the blades proposed for the larger 3.8-MW WTGs. This is a difference of 65 feet in length, or 29%. Transporting the shorter blades up San Miguelito Road would be considerably easier due to the shorter length and the road modifications would undoubtedly cause less damage. This is an option the County should consider.

**10. Improvements Needed on MM BIO-16**

**MM BIO-16 County must maintain control of Monitoring and Adaptive Management Plan, etc.**

The section on Monitoring and Adaptive Management Plan / Bird and Bat Conservation Strategy is inadequate because it potentially allows the applicant to control the preparation of the Plan, which is a conflict of interest and not in the public interest. Please change “The Plan shall be prepared by a County-approved biologist and be subject to County approval” to read “The Plan shall be prepared by a County-approved biologist who is paid by the County with funding from the applicant. This provision applies to all subsections of MM BIO-16. The plan shall be subject to County approval.”

**MM BIO-16 Operation of SWEP must not commence until the Adaptive Management Plan is implemented.**

This section states, “A Monitoring and Adaptive Management Plan is required, due to the uncertainty of the Project’s operational impacts on protected and special-status bird and bat species. The Plan shall be developed and implemented in an effort to provide maximum feasible mitigation for those impacts.” Please add, “Operation of SWEP shall not commence until the Adaptive Management Plan is implemented.”

**MM BIO-16 Must acknowledge that take of Golden Eagles is prohibited under California law.**

This section states, “Additionally, the Owner/Applicant will obtain golden eagle take authorization from USFWS under the federal Bald and Golden Eagle Protection Act.” This section seems to imply that if the applicant gets a federal permit it is free to take Golden Eagles and ignores the fact that take of Golden Eagles is prohibited under California law. Please add a statement into this section acknowledging that take of Golden Eagles is prohibited under California law.

In addition, it should be acknowledged that the applicant has made no effort to locate the WTGs where avian mortality would be reduced. As a result, it is likely that the CDFW will impose severe sanctions on the operator if a Golden Eagle death occurs on the SWEP.

**MM BIO-16a Improvements must be made to the Before-After/Control-impact (BACI) Study.**

The BACI Study is inadequate due to insufficient control by the County. Please delete “insofar as feasible without causing delays to the Project construction schedule or start of operations.” This incentivizes the applicant to delay or ignore the preparation of the BACI study and is not in the public interest. The BACI Study will be done in parallel with construction activities by biologists not involved in the construction. The preparation of the BACI Study, if properly managed, will not delay the construction schedule or start of operations, providing the applicant has the incentive to fund and prepare it on time.

**MM BIO-16c Carrion must be removed from all WTG areas within the Project site.**

The SDEIR is inadequate because it does not propose to implement a carrion removal program that will be as effective as it could be. There are two problems. First the program proposes to “. . . remove carrion from livestock grazing areas in the Project site.” This seems to assume that only carrion due to livestock deaths will be found on the site. In fact, many wild species could die, and undoubtedly will die, near the wind turbines. These species could include coyotes, ground squirrels, badgers, etc. Carcasses of these animals will attract scavenging birds such as the Golden Eagle, Turkey Vulture, and California Condor where they will be in danger of striking the WTGs. The second problematic statement is, “The program shall begin during the construction phase and continue for the duration of Project operation while livestock grazing is occurring on site.” Again, this statement ignores the fact that wildlife deaths will occur indefinitely on the Project site.

Audubon strongly recommends that the statements mentioned above be changed to:

“. . . remove carrion from all areas in the Project site within a 500-foot radius of every WTG.”

“The program shall begin during the construction phase and continue for the duration of Project.”

**MM BIO-16d Active controls of WTGs are essential to reduce avian mortality**

Level 2 – Response Options, paragraph 5. Installation of active control technology. The DSEIR is inadequate because it leaves out key details of the use of active control technology and does not even evaluate in any detail the use of active control technology on SWEP. The DSEIR mentions Identiflight, a commercially-available active control system. Identiflight has been validated,<sup>30</sup> both at Duke Energy’s Top of the World Windpower Project where it was first tested and by American Wind & Wildlife Institute in 2016. As most of the development for the Identiflight system has been completed, the cost is expected to be reasonable. The DSEIR mentions that active control technology could be used as a “Level 2 response option” only. This would only be implemented after fatalities that triggered a Level 2 response and most likely after less expensive, but less effective, mitigation measures have been attempted.

Audubon asserts, and the DSEIR affirms, that SWEP constitutes a high risk of mortality to large soaring birds like the Golden Eagle and probably the California Condor in the near future. To reduce that risk, the use of active control technology should be implemented as part of the initial project design. Active control technology has been demonstrated to be feasible and therefore should be implemented as a feature of SWEP.



**IdentiFlight is proven and should be used on SWEP in the initial project design**

**MM BIO-16d Mortality monitoring must continue for the life of the project.**

The DSEIR is inadequate because it does not require sufficient mortality monitoring. On page 4.5-86 the DSEIR states that “Mortality monitoring shall conclude if fatalities remain below Level 2 thresholds for 2 consecutive years.” It is highly likely that there will be significant variation in mortality levels from day to day, month to month, and year to year. If mortality monitoring ceases there will be no way to know whether this was due to a fluctuation in statistics or due to an actual drop in mortality. Audubon strongly recommends that mortality monitoring be required for the life of the project.

**MM BIO-16d Language needs to be strengthened.**

The DSEIR is inadequate because it contains language that is not strong enough and therefore subject to interpretation. Audubon recommends the following changes:

On “The determination must be based on substantial evidence”, add “and made by a qualified biologist hired and paid by the County using funding from the operator.”

Change “The following Level 2 response options should be considered . . .” to “The following Level 2 response options shall be considered . . .”

Add to the same paragraph, “Any cost associated with implementing these measures shall be borne by the operator.”

<sup>30</sup> See <https://awwi.org/wp-content/uploads/2018/12/Identiflight-Result-Summary.pdf> .

### **MM BIO-16d Level 2 response options 3 and 4 should be eliminated.**

The DSEIR is inadequate because of weak Level 2 response options 3 (mitigation research) and 4 (contribution to recovery programs for special-status species). These two response options have several problems:

- They would have no direct effect on reducing avian (or bat) mortality, whereas the other response options have the potential to do so.
- They give the appearance of allowing the operator to buy its way out of having created serious environmental problems, i.e. excessive avian mortality.
- They dilute the effectiveness of the more substantive options 1, 2, 5, and 6. The operator could do option 3 and/or 4, then claim that it had met its responsibility, when in fact it had done nothing to reduce avian mortality at SWEP.

## **11. Inconsistency with Agency Guidelines and Policies**

### **The DSEIR does not correctly call out State and Federal guidelines for wind energy development in some DSEIR sections.**

The DSEIR is inadequate because it fails to fully and correctly call out the appropriate Federal (USFWS Guidelines) and State (CEC/CDFG Guidelines) wind energy project guidelines in all relevant report contexts, as listed below. It also fails to include the National Environmental Policy Act as a potentially project-relevant Federal authority (see 6<sup>th</sup> bullet below).

- In the 5th paragraph of section 2.5.4 (Project Transmission Line), both of these guidelines should be referenced in the context of the “recommended practices and procedures” and “avian protection measures” described on page 2-21.
- The CEC/CDFG Guidelines should be listed in the 2<sup>nd</sup> paragraph of the “Avian Migration” section on page 4.5-9 (along with the USFWS Guidelines, which is referenced) if the referenced surveys were in fact also consistent with these guidelines.
- Both of these guidelines should be listed in section 4.5.2.2 (New, Updated, and Revised Regulations). The USFWS Guidelines should be included in the list of project-relevant Federal regulation on page 4.5-32, and the CEC/CDFG Guidelines should be included in the list of project-relevant state regulations on pages 4.5-32 – 4.5-33. [We note that the latter were available at the time of the LWEP EIR but appear not to have been referenced in that document, according to the listing in section 4.5.2.1 (Regulatory Framework Identified in LWEP EIR).]
- The CEC/CDFG Guidelines should be referenced in the MM Bio-15b (b) section on page 4.5-83 (along with the USFWS Guidelines, which is referenced), just as both guidelines are cited in the MM Bio-16a section on page 4.5-84.
- The USFWS Guidelines should be referenced in the 2nd paragraph of the MM Bio-16b section on page 4.5-85 (along with the CEC/CDFG Guidelines, which are referenced), just as both guidelines are cited in the MM Bio-16a section on page 4.5-84.
- The National Environmental Policy Act should be included in the list of project-relevant Federal regulations on page 4.5-32 (in section 4.5.2.2, New, Updated, and Revised Regulations). We note that this (1970 law) was in effect at the time of the LWEP EIR but was not referenced in that document, according to the listing in section 4.5.2.1 (Regulatory Framework Identified in LWEP EIR).]

### **The SWEP is inconsistent with the County Conservation Element**

The DSEIR is inadequate because it claims that the project is consistent with the Santa Barbara County Comprehensive Plan Conservation Element. It is not. The analysis (p. 4.13-15) states, “Impacts to avian and bat species resulting from collisions with WTGs are expected to be significant and unavoidable, but the implementation of mitigation measures identified in Section 4.5.4.2 would reduce these impacts to the maximum extent feasible.” Audubon asserts that there are feasible alternatives to the proposed project design that would reduce the impacts below the proposed project with the proposed mitigation. Therefore, the mitigations proposed in the DSEIR would not reduce the project impacts to the “maximum extent feasible.” As mentioned above, designing the locations of the WTGs to avoid or reduce bird strikes would be a superior design and is feasible. Such a design for the locations of the WTGs is part of Audubon’s Low-Impact Project Design mentioned above.

Similarly, the claim in the DSEIR that “impacts to oak woodland and forest would be significant and unavoidable, but the impacts would be mitigated to the maximum extent feasible by implementation of several mitigation measures, including a Tree Protection

Plan and a Tree Replacement Plan” (p. 4.13-16) is not true. Reducing the impacts on oaks by implementing the Low-Impact Project Design stated by Audubon above is feasible and will reduce the impact more than what is proposed in the proposed project with mitigation measures. In addition, just reverting to the LWEP power transmission line design is feasible and will reduce the impact more than what is proposed in the proposed project with mitigation measures. Similarly, SWEP is inconsistent with Development Standard 1: Protection of all species of mature oak trees.

On page 4.13-17, Audubon agrees that the proposed project is inconsistent with Oak Tree Protection Policy 1 and states that the Modified Project Layout alternative is feasible and would substantially reduce impacts to oak trees. This is true. **But Audubon’s Low-Impact Project Design mentioned above is also feasible and will reduce the impact more than the Modified Project Layout.**

## 12. Other Issues

### DSEIR does not address mitigation measure required on LWEP

On February 9, 2009, the previous owner of LWEP, Pacific Renewable Energy Generation LLC (PREG), and the California Department of Fish and Game (now CDFW) entered into a Dispute Resolution Agreement. To reduce the level of collision-related impacts to birds and bats, PREG agreed to either acquire a conservation easement on real property approved by DFG with a value of up to \$400,000 or make a one-time payment of \$450,00 to the California Wildlife Foundation for off-site conservation, restoration and/or enhancement and/or management of raptor or bat habitat. This agreement represents an obligation of the project and should be carried forward to SWEP.

The DSEIR is inadequate because it doesn’t explain precisely how this previously agreed upon mitigation measure obligation is being handled in the SWEP.

## 13. Summary

Audubon believes that the SWEP design that the applicant has chosen to submit to the County is fundamentally flawed. The applicant has chosen to ignore State and Federal guidelines for wind energy development that specify the process that should be used to site WTGs to avoid avian mortality. The applicant has chosen a transmission line route that results in an unnecessary destruction of oak trees, contrary to County policy. The applicant has designed SWEP to place WTGs in a way that will destroy hundreds more mature oak trees.

Because the SWEP design is fundamentally flawed, Audubon cannot support the proposed project or any of the County’s three alternatives. The SWEP design, including alternatives, still results in unacceptable avian mortality and significant damage to habitat, especially mature oak trees. Instead, Audubon urges the County to develop a Low-Impact Project Design that would be similar to the previous Lompoc Wind Energy Project (LWEP). We have proposed in this letter such a design, which is feasible. We trust that the County will seriously consider it.

Sincerely,

*Dolores Pollock*

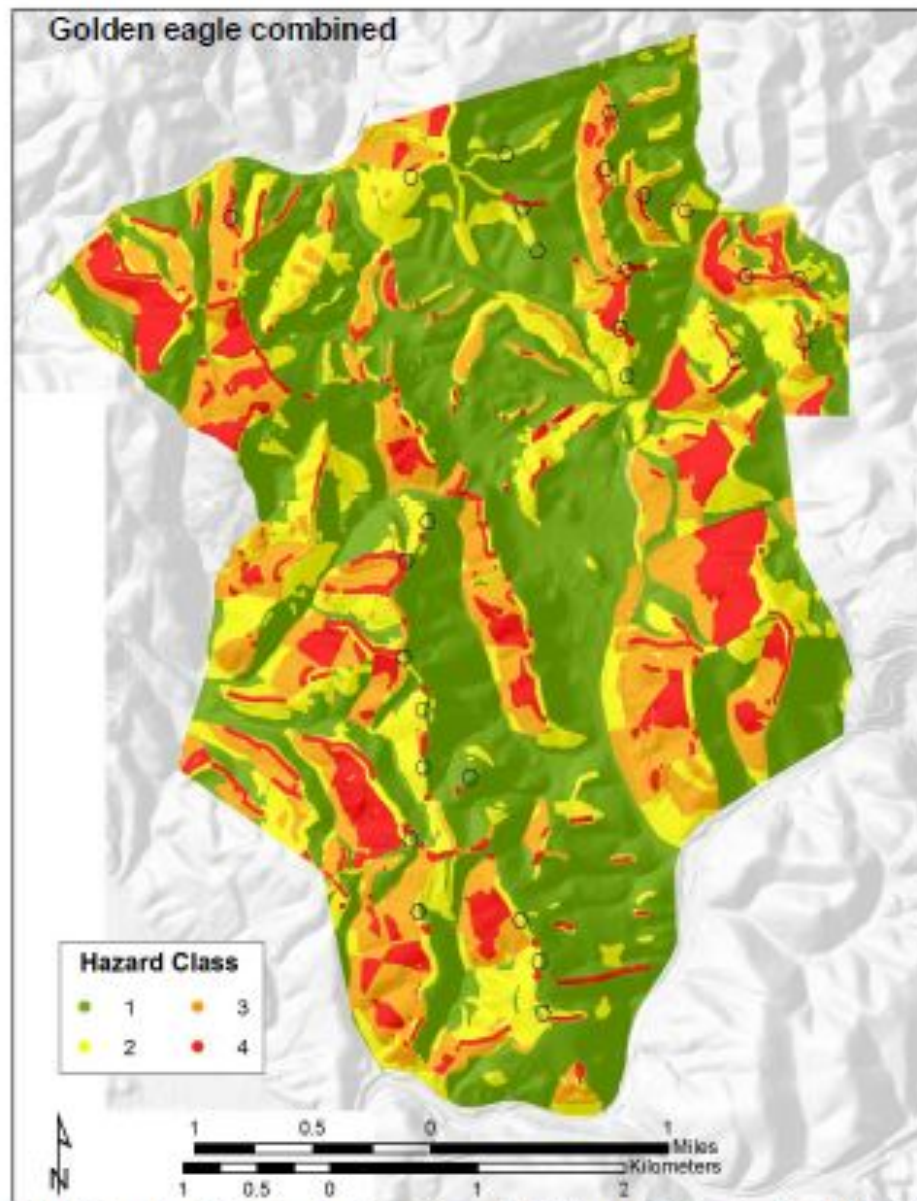
Dolores Pollock, President  
Santa Barbara Audubon Society

*Michael Taaffe*

Michael Taaffe, President  
La Purisima Audubon Society



The figure shows that detailed data can be taken on the flight behavior of vulnerable species, such as the Golden Eagle. This data can be used to place WTGs in locations that will reduce avian mortality.



*Figure 26. Fuzzy Logic likelihood surface classes of golden eagle telemetry, flight behavior & fatality locations across the Summit Winds project area, Altamont Pass Wind Resources Area, California, where red corresponds with the highest likelihood of golden eagle collision, orange corresponds with the second highest likelihood, yellow corresponds with the third highest likelihood, and dark green corresponds with the least likelihood.*

**Steps to identify saddles, notches, and benches.** Because a large amount of evidence links disproportionate numbers of raptor fatalities to wind turbines located on aspects of the landscape that are lower than immediately surrounding terrain or that represent sudden changes in elevation (Figure 12), a special effort was directed toward identifying ridge saddles, notches in ridges, and benches

<sup>31</sup> from Smallwood and Neher (2016); op. cit., p. 44

<sup>32</sup> from Smallwood and Neher (2016), op cit., pp. 21, 23

of slopes. Benches of slopes are where ridge features emerge from hill slopes that extend above the emerging ridge. These types of locations are where winds often compress by the landscape to create stronger force, and where raptors typically cross hilly terrain or spend more time to forage for prey. Compared to surrounding terrain, these types of features are often relatively flatter or shallower in slope and sometimes include lower elevations (e.g., saddles). Geoprocessing steps were used to provide some objectivity to the identification of these features, but judgment was also required because conditions varied widely in how such features were formed and situated (Figure 12).



*Figure 12. We delineated polygons where ridge saddles present opportunities for flying birds to conserve energy by flying through the relatively lower portions of ridge structures (yellow arrows denote popular flight routes).*

Attachment 3<sup>33</sup>

An emerging issue is the contribution of grading for turbine pad and access roads to subsequent wind turbine collision risk. Pads cut deeply into slopes can leave berms in the prevailing upwind aspect of turbine rotors, effectively reducing the space between the low-reach of the blades and the height above ground a bird needs to clear above the berm (Figure 14). This grading can also increase turbulence that birds or bats will experience as they fly from air above matrix slope conditions to air above a graded pad. Wind speeds over such pads can drop radically, and wind directions can change. In addition to micro-siting to minimize collision risk, micro-siting to minimize grading should be an objective.

<sup>33</sup> from Smallwood Summit Ridge Wind Farm comments letter, op. cit., p. 28



**Figure 14.** This view is toward the prevailing wind (see broad white arrow), so the prevailing upwind slope, the crest of which is only 30 m from the wind turbine, forces any bird or bat passing over it into a vertical gap of only 16 m between the hill crest and the low reach of the blade. The wind turbine's dimension of 29 m height above ground of the low reach of the rotor has lost its meaning due to the effects of grading of a pocket into the slope. I have seen this type of grading across the western USA.