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February 13, 2019

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**VIA E-MAIL AND OVERNIGHT MAIL: [Andrew.Young@acgov.org](mailto:Andrew.Young@acgov.org)**

**RE: *Comments on Notice of Preparation of Subsequent Environmental Impact Report:  
Sand Hill Wind, LLC, Conditional Use Permit Application, PLN2017-00201***

Dear Mr. Young:

We submit this letter on behalf of the Attorney General in his independent capacity on the County of Alameda's (County's) Notice of Preparation (NOP) of a Subsequent Environmental Impact Report (SEIR) for the proposed Sand Hill Wind Repowering Project, Conditional Use Permit Application, PLN2017-00201 ("Sand Hill Project"). As the County is aware, the Attorney General submitted a detailed comment letter on the Sand Hill Project on October 22, 2018, asserting that, in light of the substantial changes in the project and changed circumstances and significant new information, the County was required to prepare a project-specific SEIR analyzing the site-specific effects of this project in detail. The Attorney General appreciates the County's subsequent decision to prepare an SEIR for this project. The County circulated the NOP for this project, dated January 3, 2019, by mail and email to interested parties on or about January 8, 2019, providing an approximately 30-day public comment period to February 6, 2019. The Attorney General requested and also appreciates receiving from the County an extension of time to submit these comments to February 13, 2019.

As requested in the NOP, this letter provides the Attorney General's comments as to the topics to be covered in detail in the SEIR, within the scope of the Attorney General's authority. NOP at 1; *see also* 14 Cal. Code Regs. § 15082(b)(1). The Attorney General is the chief law enforcement officer of the State of California and has the authority to file civil actions in order to protect public rights and interests, including actions to protect the natural resources of the State. Cal. Const., art. V, § 13; Cal. Gov. Code §§ 12511, 12600-12612; *D'Amico v. Bd. of Medical Examiners*, 11 Cal.3d 1 (1974).

The proposed Sand Hill Project will consist of replacing an estimated 671 existing or previously existing old-generation turbine sites with up to 40 new, 2.3 to 4.0 megawatt (MW) turbines, for a total maximum operating capacity of 144.5 MW. NOP at 1. The project would be located on 15 contiguous parcels on 2,600 acres in the northeastern quadrant of the Alameda County side of the Altamont Pass Wind Resources Area (Altamont Pass). *Id.* The project applicant is Sand Hill Wind, LLC, a subsidiary of S-Power. Three “conceptual” alternate project layouts are proposed, each using up to 40 turbines, and which purportedly are “substantially similar.” *Id.* at 3.

This letter focuses on the Sand Hill Project’s potentially significant effects on avian and bat resources, and how these effects may differ in nature and extent from the impacts on these resources that were analyzed in the County’s November 2014 Program Environmental Impact Report for repowering wind turbines at Altamont Pass (PEIR). In particular, this comment letter discusses the changes in the project, changed circumstances and new information since certification of the PEIR that may affect the adequacy and accuracy of the PEIR’s previous determinations regarding: (1) the appropriate baseline for analysis; (2) the nature and extent of the impacts of modern wind turbines in general, and the Sand Hill Project in particular, on birds and bats; and (3) the specific alternatives to and mitigation measures for the project that should be considered in depth in the SEIR in light of these revised impact determinations.

This letter identifies and discusses the key studies and monitoring reports that have been completed since certification of the PEIR.<sup>1</sup> These new studies and reports indicate that the Sand Hill Project is very likely to exceed the PEIR’s projected impacts on key raptor species, particularly golden eagles and red-tailed hawks, and bats. As discussed in detail below, the SEIR must consider these additional impacts based on, among other things, recently improved turbine micro-siting models, as applied to the Sand Hill Project using site-specific topographic surveys and surveys of bird and bat use, behavior and distribution in the project area. As required by the PEIR, the SEIR also should include surveys of raptor and bat nesting, roosting and foraging habitat in the project area and vicinity. The SEIR should then develop feasible project alternatives and an updated and strengthened suite of mitigation measures designed to avoid and minimize these adverse impacts to the extent feasible, as required by CEQA.

The SEIR must incorporate the foregoing analyses in order to be legally adequate under CEQA, to provide adequate and accurate analysis and public disclosure of the project’s significant effects on avian and bat resources, and to enable the County to make the required CEQA findings prior to its final determination on the Sand Hill Project. *See* Pub. Res. Code § 21002 (“it is the policy of the state that public agencies should not approve projects as proposed if there are feasible alternatives or feasible mitigation measures available which would substantially lessen the significant environmental effects of such projects”) and 14 Cal. Code Regs. §§ 15002,

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<sup>1</sup> Concurrently with this letter, the Attorney General’s Office is submitting a CD to the County with copies of some of the key recent studies and reports cited herein and listed in Appendix A hereto. We request that these studies and reports be included in the administrative record for this project, and that the County consider them in preparing the SEIR.

15003 (describing fundamental purposes and policies of CEQA and EIRs); *see also* Pub. Res. Code § 21002.1(a)-(c).

## **I. BASELINE AND EXISTING CONDITIONS**

The California Environmental Quality Act (CEQA) Guidelines provides that “[g]enerally, the lead agency should describe physical environmental conditions as they exist at the time the notice of preparation is published . . . from both a local and regional perspective.” 14 Cal. Code Regs. § 15125(a)(1). “An existing conditions baseline shall not include hypothetical conditions, such as those that might be allowed, but have never actually occurred, under existing permits or plans, as the baseline.” *Id.* § 15125(a)(3). In addition, because site conditions on the Sand Hill Project site are not fluctuating over time, this is not a situation where a projected future baseline is appropriate. *Id.* § 15125(a)(1)-(2). An EIR’s assessment of project impacts should normally be limited “to changes in the existing physical conditions in the affected area as they exist at the time the notice of preparation is published.” *Id.* § 15126.2(a); *see also* *Communities for a Better Env’t. v. SCAQMD*, 48 Cal.4th 310, 320-21 (2010).

The NOP states that “[t]he Project will repower the 433 turbines or *turbine sites* that were approved in 2016 for repowering, as well as three parcels that *contained* 238 turbines or turbine sites, and four other parcels that *contained* an estimated 200 turbines *that were removed in the late 1990s.*” NOP at 3 (emphasis added). The NOP also notes that “[a] substantial degree of decommissioning has already taken place in the form of turbine generator and tower removals, partly as required by the prior [conditional use permits] CUPs.” *Id.* at 4.

The SEIR should include a complete description of the site conditions for each project parcel, as they exist today, as the primary project baseline. The old turbines were required to have been shut down and removed by the end of 2015, or at the latest by the end of 2018, under the County CUPs applicable to the old-generation turbines. Thus, the appropriate baseline for this project is the current conditions of the project site, and not the site conditions with fully operational old-generation turbines as under the PEIR. PEIR, Comments and Responses to Comments App. E, E-2.

The SEIR’s discussion of existing site conditions should address the following questions for each project parcel:

- 1) How many old generation turbines are still operating, if any, and where are each of these turbines located? What are the models, sizes and owners/operators of these old turbines? Will these operational turbines be shut down and removed as part of the Sand Hill Project? (If so, this aspect should be discussed in the SEIR’s impact analysis, discussed in Part III below.)

- 2) How many old turbines that were previously located on the project site have been shut down and removed, when were these shut down and removed, and where were these previous turbine sites located?
- 3) How many old turbines or turbine components have been shut down but *not* removed and where are these located? Do these old turbine towers provide perching or nesting opportunities or collision hazards for raptors and other birds and bats? Will these remaining turbines and components be removed as part of the Sand Hill Project? (If so, this aspect, once again, should be analyzed as part of the SEIR's impact analysis.)

With respect to the regional project baseline, the SEIR should discuss the status of wind projects that already have been approved and are operating on both the Alameda and Contra Costa County sides of Altamont Pass, and the total amount of ongoing annual avian and bat deaths that are currently known or estimated to be occurring in the entire Altamont Pass area based on past monitoring results and other available information. The *Sand Hill Wind Repowering Project Environmental Analysis*, ICF Intl., Sept. 2018 (EA) at Table 1-2 (page 1-5) indicates that the County of Alameda has approved four other repowering projects totaling 200.5 MW, two of which are currently operating (Next Era Energy's Golden Hills and Golden Hills North projects).<sup>2</sup> At least two other projects are operating on the Contra Costa County side, the 78 MW Next Era Vasco Winds Project and the 38 MW Buena Vista Project.

The SEIR should discuss the current status of the four focal raptor species (golden eagle, red-tailed hawk, burrowing owl and American kestrel), as well as other affected bird species of special concern, such as tri-colored blackbird, white-tailed kite and Swainson's Hawk, and all affected bat species. The SEIR should discuss the overall impacts to those populations in the Altamont Pass and broader Diablo region from current wind turbine operations and other causes, such as drought, climate change, habitat loss, rodenticides, electrocution, road kills, etc., based on the best available current information.

The PEIR states that the Altamont Pass and surrounding region "support some of the highest known densities of golden eagle nesting territories in the world." PEIR at 3.4.105; *see also id.* at E-36 (Altamont Pass supports "*the* highest known density of golden eagles in the world") (emphasis added). However, the Altamont Pass area "can be considered a population sink" for golden eagles "because the population demands a flow of recruits from outside the area to fill breeding vacancies as they occur." *Id.* at 3.4-106. Therefore, researchers have concluded "that

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<sup>2</sup> This table also indicates that, besides the 144.5 MW Sand Hill Project, the County has received or anticipates applications for two other projects (Mulqueeny Ranch and Rooney Ranch), totaling another 105.1 MW. *Id.* The effects of these other anticipated future projects, and projects that are approved but not yet operational, should be discussed in the SEIR's cumulative impact analysis, as discussed further in Part III.B.3 below. *See* 14 Cal. Code Regs. § 15130.

turbine-related mortality reduces the resilience of the local golden eagle population.” *Id.* The golden eagle is considered a fully-protected species under state law. Fish & Game Code § 3511(b)(7).

In commenting on the PEIR, the U.S. Fish and Wildlife Service (FWS) noted that it had “determined that the current take rate for the [Altamont Pass] golden eagle local-area population is approximately 12% annually,” and that “this level of ongoing take is having a negative effect on the local-area population of golden eagles and could affect the sustainability of this population.” PEIR at E-33. The FWS’s policy is that “take rates for a local-area [golden eagle] population ... should not exceed 5% annually, whether the impacts of a given project have been offset by compensatory mitigation or not, to ensure sustainable populations of golden eagles.” *Id.*

Based on its then-estimate of 47 eagle deaths per year for all wind turbines operating at Altamont Pass,<sup>3</sup> the FWS recommended that annual take of golden eagles for all projects on the Alameda County side of Altamont Pass be limited to less than 29 eagles. *Id.* at E-36. The County’s response that the total estimated number of golden eagle deaths would not exceed 18 eagles per year, based only on the first two years of monitoring results for the Vasco Winds Project, will need to be updated in light of the most recent monitoring data, as discussed in detail in Part III.B.3 below. *Id.* at E-6, E-40—41.

The PEIR also notes that “it is believed that the [Altamont Pass] may support the largest number of breeding [burrowing owl] pairs in the Bay Area,” and that these populations also may not currently be sustainable in some years due to ongoing impacts from wind turbine operations. *Id.* at 3.4-105; *see also id.* at E-37 (FWS comments re burrowing owl on PEIR). Numerous studies have been performed on the status of golden eagle and burrowing owl populations in and around Altamont Pass since the PEIR was certified in 2014, and so the SEIR will need to be updated to account for this information.<sup>4</sup>

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<sup>3</sup> To our knowledge, the FWS has not yet updated this estimate in light of the final monitoring results for the Vasco Winds Project and monitoring results for the first two years of operation of the Golden Hills Project and other more recent data, discussed in Part III.B.3 below.

<sup>4</sup> *See, e.g.,* Weins, D., *et al.*, 2018, *Spatial Patterns in Occupancy and Reproduction of Golden Eagles During Drought: Prospects for Conservation in Changing Environments*, Ornithological Applications, 120:106-124.

Kolar, P.S., Weins, D., 2017, *Distribution, Nesting Activities, and Age-Class of Territorial Pairs of Golden Eagles at the Altamont Pass Wind Resource Area, California*, 2014–16, United States Geological Survey, Open-File Report 2017–1035.

Weins, D., *et al.*, 2014, *Estimation of Occupancy, Breeding Success, and Abundance of Golden Eagles (*Aquila chrysaetos*) in the Diablo Range, California*, United States Geological Survey, Open File Report 2015-1039

## **II. PROJECT DESCRIPTION**

The CEQA Guidelines require the SEIR to include “[t]he precise location and boundaries of the proposed project [as] shown on a detailed map, preferably topographic. The location of the project shall also appear on a regional map.” 14 Cal. Code Regs. § 15124(a). The project description also must include “[a] general description of the project’s technical, economic, and environmental characteristics, considering the principal engineering proposals if any and supporting public service facilities.” *Id.* § 15124(c).

The SEIR project description should identify, for each of the three proposed Sand Hill Project layouts, the turbine model, size(s) and precise locations. Each proposed project layout also should be overlain with maps showing the locations of each of the current and previously operating old generation turbines and turbine sites, and for comparison purposes, a map of the proposed 12 turbine locations, models and sizes of the previous, 36 MW version, of the Sand Hill Wind Project the County approved in 2016.

## **III. PROJECT IMPACTS**

### **A. Changed Project and Circumstances and New Information Since the 2014 PEIR and Prior Sand Hill Project Approval in 2016**

As discussed in the Attorney General’s October 22, 2018 comment letter on the Sand Hill Project, and as the County now agrees (NOP at 5-6), there is substantial evidence that this Project will have one or more additional significant effects, or significant effects that are more severe, and that will require additional or different alternatives or mitigation measures, than were examined in the 2014 PEIR.

To summarize, first, the Project has been changed significantly since the County approved the previous version of the Sand Hill Project in 2016. The previous project was to replace 433 existing wind turbines or former turbine sites with up to 12 new 2.5 to 3.0 MW turbines, for up to 36 MW of total generating capacity. The current project is four times as large as the previously approved project and will cover about three times the area. EA at 1-2—1-3; *County Power Point Presentation, Sand Hill Wind Repowering Project, East County BZA*, Sept. 27, 2018. The current project will utilize 40 turbines up to 4.0 MW in size, but the PEIR only analyzed turbines up to 3 MW in size. NOP at 1; *see* PEIR at 2-3—2-4.

Turbine “blade lengths would be up to 15 feet longer (approximately 7%), rotor diameters up to 39 feet greater (approximately 9%), and rotor-swept area up to 2,482 [square] meters larger (approximately 20%)” than those analyzed in the PEIR. NOP at 4. The much larger turbines also will require significant additional upgrades to and widening of existing roads to 20-40 feet and approximately three acres of grading for each turbine pad, which likewise was not discussed

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Smallwood, K.S., *et al.*, *Nesting Burrowing Owl Density Abundance in the Altamont Pass Wind Resource Area, California*, 2013, *Wildlife Society Bulletin* 37(4):787-795.

in the PEIR. *Appendix B: Biological Resources Evaluation for The Sand Hill Wind Repowering Project*, ICF Intl., Sept. 2018 (BRA), 1-3—1-4; EA at 2-5—2-7. Additionally, approval of the Sand Hill Project is likely to cause the total Altamont-wide repowering program to exceed the 417 MW cap on repowering in PEIR Alternative 1, and possibly to slightly exceed the 450 MW cap for PEIR Alternative 2. EA at 1-4.

Second, several monitoring reports for other repowered wind turbine projects in the Altamont Pass have been published since the County certified the PEIR in November 2014. These monitoring reports include the final three-year report for the Vasco Winds repowering project on the Contra Costa County side of Altamont Pass, and the first two annual monitoring reports for the Golden Hills repowering project on the Alameda County side of Altamont Pass.<sup>5</sup> The first-year monitoring report for the 86 MW Golden Hills Project, which is about 60% of the size of the proposed 144.5 MW Sand Hill Project, is discussed in detail in the Attorney General’s October 22, 2018 comment letter. That report, dated February 2018, documented 10-12 golden eagle deaths, 70 red-tailed hawk deaths, and up to 229 documented bat fatalities in the first year of project operations. H.T. Harvey, Feb. 2018 at vii, 20 and 49-52.

In December 2018, the County circulated the draft second-year monitoring report for the Golden Hills Project, which documented fatalities of 14 golden eagles, 30 red-tailed hawks, 25 burrowing owls, and 11 American kestrels in the second year of project operations. H.T. Harvey, Dec. 2018 at iv-v, 24. The report also documented 124 bat fatalities, and extrapolated this number to a project-wide estimate of 500 bat deaths, including an estimated 277 Mexican free-tailed bats and 197 hoary bats, in one year. *Id.* at iv, vi, 22.

The PEIR specifically states that “[p]ostconstruction monitoring, once the turbines are in operation, will provide data to quantify the actual extent of change in avian fatalities from repowering and the extent of avian fatality for projects in the program area, and will contribute to the body of knowledge supporting future analyses.” PEIR 3.4-103. The PEIR considered the first-year monitoring results for the Vasco Winds Project for all birds and bats and the second-year Vasco Winds monitoring results only for golden eagles. *See id.* at 3.4-102—103, 3.4-161, E-6, 40, 47. The final three-year report for the Vasco Winds Project was published in 2016, and the two monitoring reports for the Golden Hills Project were published in 2018.

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<sup>5</sup> See Brown, K., K. S. Smallwood, J. Szweczak, and B. Karas, 2016, *Final 2012-2015 Report Avian and Bat Monitoring Project Vasco Winds, LLC*. Prepared for NextEra Energy Resources, Livermore, California.

H.T Harvey & Associates, 2018, *Golden Hills Wind Energy Center Post Construction Fatality Monitoring Report: Year 2*, Draft Report Dec. 2018, Project 3926-01. Prepared for Golden Hills Wind, LLC.

H.T Harvey & Associates, 2018, *Golden Hills Wind Energy Center Post Construction Fatality Monitoring Report: Year 1*, Final Report Feb. 2018, Project 3926-01. Prepared for Golden Hills Wind, LLC.

Third, numerous studies relevant to the impacts of and mitigation measures for repowered turbines at Altamont Pass have been published since the PEIR was certified. *See Appendix A* hereto for a partial list of these studies. Of particular relevance are the following reports:

- 1) Smallwood, K.S., L. Neher and D.A. Bell, *Mitigating Golden Eagle Impacts from Repowering Altamont Pass Wind Resource Area and Expanding Los Vaqueros Reservoir*, Final Report to the East Contra Costa County Habitat Conservancy and Contra Costa Water District, June 17, 2017 (Smallwood 2017).
- 2) Smallwood, K.S. and L. Neher, *Comparison of Wind Turbine Collision Hazard Model Performance Prepared for Repowering Projects in the Altamont Pass Wind Resources Area*, Jan. 7, 2017, updated Apr. 5, 2018 (Smallwood 2018).
- 3) Smallwood, K.S., *Addendum to Comparison of Wind Turbine Collision Hazard Model Performance: One-Year Post Construction Assessment of Golden Eagle Fatalities at Golden Hills*, Apr. 10, 2018 (Smallwood 2018 Addendum).

Finally, as noted in the Attorney General's October 22, 2018 comment letter, the California Fish and Game Commission listed the tri-colored blackbird as a threatened species under the California Endangered Species Act in April 2018, and this species and its habitat have been documented to exist in the Sand Hill Project area. *See* Fish and Game Comm. Notice of Findings, Aug. 23, 2018, available at: <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=161202%20&inline>; EA App. B, BRA at 2-12 and 3-6, 4-5.

## **B. Scope of Impact Analysis for Sand Hill Project SEIR**

The SEIR's impact analysis should comprehensively evaluate how the foregoing changed project/changed circumstances and new information affects the avian and bat impact analyses in the PEIR, including a precise evaluation of how the Sand Hill Project's effects on avian and bat resources may differ in both nature and extent than those evaluated in the PEIR.

### **1. Thresholds of significance**

For the same reasons stated in the County's responses to comments on the PEIR, the SEIR should use the same threshold of significance for avian species as in the PEIR of "any level of avian mortality above zero." PEIR 3.4-58, E-4. The SEIR also should examine the 1.679 fatalities/MW/year baseline estimate for impacts to bats in light of new information regarding the increased impacts of fourth-generation turbines on bats. *See id.* at 3.4-132, 136, 139. Any revised threshold of significance must account for the population status of, as well as cumulative effects on, the several bat species found to be killed at repowered turbines at Altamont Pass.

Note, however, that "[c]ompliance with the threshold does not relieve a lead agency of the obligation to consider substantial evidence indicating that the project's environmental effects



may still be significant.” 14 Cal. Code Regs. § 15064(b)(2). “The determination of whether a project may have a significant effect on the environment calls for careful judgment on the part of the public agency involved, based to the extent possible on scientific and factual data” and considering a project’s direct, indirect and cumulative effects. *Id.* § 15064(b)(1), (d), (h)(1).

2. General CEQA requirements for project impact analysis

CEQA Guidelines section 15126.2(a) provides that:

Direct and indirect significant effects of the project on the environment shall be clearly identified and described, giving due consideration to both the short-term and long-term effects. The discussion should include *relevant specifics of the area*, the resources involved, physical changes, alterations to ecological systems, and changes induced in ... other aspects of the resource base ...

14 Cal. Code. Regs. § 15126.2(a) (emphasis added). In *Sierra Club v. County of Fresno*, 6 Cal.5th 502, 241 Cal.Rptr.3d 508 (2018), the California Supreme Court interpreted this section, particularly the “relevant specifics” language, to require an EIR’s impact analysis to explain the precise nature *and* magnitude of the project’s anticipated effects if it is reasonably scientifically possible to do so, and if it is not scientifically possible, to explain why. *Id.* at 523-24 (note official reporter pin cites not yet available).

The Court held that the EIR also must attempt to explain the connection between a project’s raw impacts (e.g. anticipated % increase in emissions or similar projection) and the EIR’s ultimate conclusion regarding the significance of these effects on the environment. *Id.* at 524-25. As the Court explained: “[t]he EIR must provide an adequate analysis to inform the public how its bare numbers translate to create potential adverse impacts or it must adequately explain what the agency *does* know and why, given existing scientific constraints, it cannot translate potential ... impacts further.” *Id.* at 525 (emphasis in original).<sup>6</sup>

The *Sierra Club* Court further held that, generally speaking, the adequacy of an EIR’s impact analysis, e.g. “whether a description of an environmental impact is insufficient because it lacks analysis or omits the magnitude of the impact[,] is *not* a substantial evidence question.” *Id.* at 519 (emphasis added).<sup>7</sup> Rather, a court will analyze the adequacy of the impact analysis under the “failure to proceed in the manner required by law” standard, under which any error is

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<sup>6</sup> Although, given the facts of the case, the Court’s analysis was focused on human health impacts, the Court was interpreting the language of section 15126.2(a) more generally, and the Court’s reasoning—which was focused on an EIR’s overriding purpose as an informational document regarding project’s impacts on the environment—applies equally to an EIR’s analysis of other types of project impacts, such as impacts on biological resources. *See Sierra Club*, 241 Cal.Rptr.3d at 524-25.

<sup>7</sup> The Court did note that there are some instances “where the agency’s discussion of significant project impacts may implicate a factual question that makes substantial evidence review appropriate,” citing “a decision to use a particular methodology and reject another” as an example. *Id.* at 519; *see also id.* at 521.

presumed prejudicial. *Id.* at 519-20. In determining whether the lead agency failed to proceed as required by law, the court will determine whether the EIR includes “detail sufficient to enable those who did not participate in its preparation to understand and to consider meaningfully the issues raised by the proposed project.” *Id.* at 520, quoting *Bakersfield Citizens for Local Control v. City of Bakersfield*, 124 Cal.App.4th 1184, 1197 (2004).

3. Changes to PEIR’s estimates of annual avian and bat fatalities from repowered turbines

As indicated in the Attorney General’s October 22, 2018 comment letter, given the high levels of fatalities for the first two years of operation of the 86 MW Golden Hills Project, the 144.5 MW Sand Hill Project is very likely to cause the 2014 PEIR’s annual *Altamont-wide* fatality estimates for golden eagles, and also possibly for red-tailed hawks, to be exceeded. The H.T. Harvey first- and second-year monitoring reports documented up to 12 golden eagle deaths in the first year of operation of the Golden Hills Project, and 14 golden eagle deaths in the second year. The reports also documented 70 red-tailed hawk deaths in the first year of operation and 30 red-tailed hawks in the second year.<sup>8</sup> H.T. Harvey, Feb. 2018 at vii, 20 and 49-52; H.T. Harvey, Dec. 2018 at iv-v, 24. The PEIR, by contrast, estimated that annual golden eagle fatalities would be 5-18 golden eagles and 45 to 111 red-tailed hawks per year Altamont-wide for the 450 MW alternative, and “less than one” to 4 golden eagle deaths, and between 9 to 22 red-tailed hawk deaths, per year for the Golden Hills Project. PEIR 3.4-120, 3.4-123.

Additionally, the FWS commented on the PEIR that “[b]urrowing owl mortalities at the repowered Diablo Winds project [at Altamont Pass] continue to be high. If this mortality rate continues, the local population may be extirpated in the foreseeable future.” PEIR at E-37. The second-year monitoring report for Golden Hills documented an additional 25 burrowing owl deaths (although only 4 burrowing owl deaths were documented in the first year). H.T. Harvey, Dec. 2018 at iv; H.T. Harvey, Feb. 2018 at x. The Golden Hills first-year monitoring report and Vasco Winds three-year monitoring report also documented one fatality at each facility of the now state-listed tricolored blackbird. *See* Brown, *et al.*, 2016 at 45; H.T. Harvey, Feb. 2018 at vii, 20-21. Finally, the Golden Hills first- and second-year monitoring reports documented one white-tailed kite fatality each year, which, like golden eagle, is a California fully protected species. H.T. Harvey, Feb. 2018 at 20-21; H.T. Harvey, Dec. 2018 at iv, 24; Fish & Game Code § 3511(b)(12). Each of these three species has a high likelihood of occurring on the Sand Hill Project site, and suitable nesting and/or foraging habitat for all of these species exists on or near the site. *See* BRA at 2-12, 3-6, 4-5.

For bats, the H.T. Harvey report documented 229 bat fatalities for the first year of operation of the Golden Hills Project, and 124 documented fatalities and 500 estimated fatalities for the second year. H.T. Harvey, Feb. 2018 at vii, 19-21; H.T. Harvey, Dec. 2018 at iv, vi, 21-24. The PEIR estimated that repowering Altamont-wide for the 450 MW alternative would result in an

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<sup>8</sup> Note that the H.T. Harvey second-year monitoring results likely do not account for all of the bird and bat fatalities at the Golden Hills facility due to a reduced search effort approved by the Alameda County Technical Advisory Committee (TAC), at Next Era’s request, to limit monitoring costs.

estimated 756 to 1,764 annual fatalities *Altamont-wide*, and only 148 to 347 annual bat fatalities for the Golden Hills Project. PEIR 3.4-139-140. The PEIR estimated bat fatalities would range from 1.68 to 3.92 annual fatalities per MW, while the H.T. Harvey reports found actual bat fatality rates were 5.45 to 5.82 annual fatalities per MW (ranging between 3.70 to 9.75 fatalities/MW/year depending upon the methodology used). Cf. PEIR at 3.4-132 and H.T. Harvey, Dec. 2018 at 62.<sup>9</sup>

Because the Sand Hill Project is 60% larger than the Golden Hills Project in terms of MW, it is reasonable to assume, at least for purposes of a very preliminary, rough estimate, that the Sand Hill Project's impacts on birds and bats potentially could be 60% greater than the Golden Hills Project.<sup>10</sup> This would put annual fatalities of golden eagles for the Sand Hill Project *alone* well above the PEIR's Altamont-wide estimates, and the annual fatalities of red-tailed hawks for the Golden Hills and Sand Hill projects combined above the PEIR's Altamont-wide estimates.<sup>11</sup>

Moreover, the Golden Hills monitoring reports indicate that the PEIR substantially underestimated the amount of annual fatalities for golden eagles, red-tailed hawks and bats for the Golden Hills Project, and so the PEIR's approach to project-specific avian and bat impact analyses will need to be updated for the Sand Hill Project going forward. The SEIR must: (1) comprehensively evaluate the new monitoring data and all other studies relevant to avian and bat fatality estimates published since the PEIR, as identified in Appendix A; (2) update the PEIR's impact analyses for avian and bat fatalities in light of this information; and then (3) apply this updated analysis to determine the specific impacts of the Sand Hill Project.

In addition, the SEIR's cumulative impacts analysis must consider the cumulative impacts of the Sand Hill Project on birds and bats when added to the impacts of all operational, approved and anticipated future projects at Altamont Pass, and other cumulative effects on bird and bat species

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<sup>9</sup> Bat fatality rates for the Vasco Winds Project ranged from 3.09 to 3.35 fatalities/MW/year. Brown, *et al.*, 2016, Table ES-1 at 7.

<sup>10</sup> Of course, this rough estimate does not account for any differences between the Sand Hill and Golden Hills projects in the size, number or location of turbines, variations in the local topography, or differences in bird and bat utilization, behavior and distribution in the project area. Nor does it account for the confounding factors of interannual and seasonal variation in bird and bat use of various areas of Altamont Pass.

<sup>11</sup> The preliminary, rough estimates for the 144.5 MW Sand Hill Project can be derived and compared to the PEIR estimates as follows. First, the average number of annual golden eagle fatalities for the 86 MW Golden Hills Project is 13 (12 plus 14 divided by 2), multiplied by 1.68 (an approximately 60% increase), which equals 21.8 annual fatalities. The PEIR estimates 5-18 eagles will be taken annually by all 450 MW of repowered projects on the Alameda County side of Altamont Pass. PEIR 3.4-120.

Second, the average number of annual red-tailed hawk fatalities for Golden Hills is 50 (70 plus 30 divided by 2), multiplied by 1.6, which equals 80 annual fatalities. Adding this Sand Hill Project annual fatality estimate of 80 to the average annual fatality estimate for the Golden Hills Project of 50 equals 130 red-tailed hawk fatalities per year. The PEIR estimates 45-111 fatalities per year for the entire 450 MW program. *Id.*

from sources other than wind turbines, as described in Part I above. 14 Cal. Code Regs. § 15130(a)(1). In addition to the Golden Hills Project monitoring data, for example, the 78.2 MW Vasco Winds Project final three-year monitoring report documents that up to 6 golden eagles were killed annually by that project. Brown, *et al.*, 2016 at Table ES-1 at 7. The 38 MW Buena Vista Project monitoring, completed in 2011, documented up to three, and estimated up to eight, golden eagle deaths annually. Insignia, Inc., 2011, *Final Report for the Buena Vista Avian and Bat Monitoring Project*, prepared for Contra Costa County. The 40.8 MW Golden Hills North Project is also operational and has just begun the first year of monitoring. Two other County-approved repowering projects, the 54 MW Summit Wind Project and 19.8 MW Patterson Pass Project, are likely to commence construction soon. The SEIR's cumulative impact analysis will need to account for the current and estimated future impacts of these projects, and any other reasonably foreseeable projects, such as the 80 MW Mulqueeny Ranch and 25.1 MW Rooney Ranch projects. *See* Sand Hill EA at 1-5; *see* 14 Cal. Code Regs. § 15130(b)(1)(A).

The SEIR also must address the impacts on birds and bats of operating turbines for which turbine sizes are up to 1 MW larger, blade lengths are up to 15 feet longer, and the total rotor-swept area up to 2,482 square meters (20%) larger than analyzed in the PEIR. NOP at 4; EA at 1-3. Increases in rotor-swept area has been documented to result in increased impacts to golden eagles. *See* ICF Intl., *Altamont Pass Wind Resource Area Bird Fatality Study, Monitoring Years 2005–2013*, Final Report, Apr. 2016 at 3-22, 4-3.

The PEIR acknowledges that “[t]here is evidence to suggest that larger turbines similar to those used in the Vasco Winds project [2.3 MW] will result in additional increases in bat fatality rates,” and that “all available data suggest that repowering would result in substantial increases in bat fatalities.” PEIR 3.4-138—139 and *id.* at 3.4-132—133. “Taller turbines have been documented to kill more bats” because, among other reasons, the “increased height of fourth-generation turbines [such as those proposed for the Sand Hill Project] puts the rotor-swept area into bat flight paths.” *Id.* at 3.4-132, 139. The SEIR must evaluate and attempt to quantify the anticipated increased bat fatalities that are likely to be caused by operation of the Sand Hill Project, including cumulative effects and the effects on the populations of affected bat species, to the extent scientifically possible in light of the best available current information.

#### 4. Micro-siting analysis and effects of large-scale grading on such analysis

The PEIR accurately states that “[s]iting of turbines—using analyses of landscape features and location-specific bird use and behavior data to identify locations with reduced collision risk—may result in reduced fatalities (Smallwood et al. 2009).” PEIR 3.4-109. Accordingly, Mitigation Measure Bio-11b in the PEIR requires project proponents to prepare a micro-siting analysis “to select turbine locations to minimize potential impacts on bird and bat species.” *Id.* This analysis must utilize the best available scientific information as well as site-specific field analysis, including analysis of the local topography and pre-construction field studies of bird and bat use, behavior *and* distribution in the project site. *Id.*

The PEIR states that, in addition to existing studies, siting guidelines, monitoring reports and site-specific field analysis, “project proponents will use the results of previous [repowering project] siting efforts to inform the analysis and siting methods as appropriate such that the science of siting continues to be advanced.” *Id.* The PEIR contains similar micro-siting requirements for bats, although the science for bat micro-siting is still in its infancy. *Id.* at 3.4-133. The bat micro-siting analysis must incorporate site-specific bat use, habitat and roosting surveys of the project site in accordance with Mitigation Measure Bio-12a (discussed in Part III.B.5 below), as well as bat use and monitoring data from other projects at Altamont Pass. *See id.*

Previous micro-siting studies for repowered turbines at Altamont Pass that should be considered in the SEIR are listed in Appendix A.<sup>12</sup> As indicated in Smallwood 2018, these micro-siting studies have improved significantly since the PEIR was certified, due to incorporation of substantial additional sources of data obtained from studies conducted with mitigation funds from the December 2010 Next Era-Attorney General-Audubon settlement agreement, as amended in May 2012 (“Next Era Settlement”), and other sources. Smallwood 2018 at 3-5; *see also* Smallwood 2017 at 7-10, 77-94.

The micro-siting studies indicate that terrain features that pose the greatest risk to raptors generally include “ridge saddles, breaks in slope, steep slopes, and valley features such as canyons and ravines.” Smallwood 2018 at 3; *see also* Smallwood 2017 at 43-44, 81 (describing other terrain features more strongly associated with raptor-wind turbine collisions). Smallwood 2018 states that the latest version of the model, developed for the Summit Winds Project at Altamont Pass, appears to perform the best for three of the four focal raptor species (golden eagle, red-tailed hawk, and American kestrel), and could be improved, with a few minor modifications, also to perform well for the fourth focal raptor species (burrowing owl). Smallwood 2018 at 11.

As required by the PEIR, the SEIR should utilize the latest version of the micro-siting model incorporating the best available scientific information for its impact analysis, using field analysis of actual topographic conditions and bird and bat use, behavior and distribution surveys in the project area, as required by the PEIR. *See* Smallwood 2017 at 92 (“[m]ap-based collision hazard maps need to be interpreted carefully, meaning the hazards of specific terrain and wind situations—ridge saddles, apices of southwest and northwest-facing concave slopes, and breaks in slope—should always trump model predictions”) and *id.* at 94.<sup>13</sup>

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<sup>12</sup> The turbine micro-siting model for Altamont Pass is explained in detail in Smallwood, K. S., *Report of Altamont Pass Research as Vasco Winds Mitigation*, Report to NextEra Energy Resources, California Attorney General, Audubon Society, East Bay Regional Park District, July 15, 2016 (Smallwood 2016b): Part II: Smallwood, K.S and L. Neher, *Siting Wind Turbines to Minimize Raptor Collisions at Repowering Projects, Altamont Pass Wind Resource Area*, pp. 78-128.

<sup>13</sup> *See also*: Smallwood 2016b, Part I: Smallwood, K.S., *Nocturnal Behavior of Burrowing Owls, Other Birds and Bats* at 4-77;

Also, in light of the new information from the Golden Hills monitoring reports regarding the higher than anticipated impacts of large wind turbines on birds and bats, the initial micro-siting analysis should be included as an appendix to the draft SEIR and not deferred to after certification of the SEIR as with previous repowering projects at Altamont Pass. This is feasible and necessary to facilitate accurate analysis of, and to enable adequate public review and comment on, the “relevant specifics” of the Sand Hill Project. *See* 14 Cal. Code. Regs. § 15126.2(a).

The adequacy of the micro-siting process for the Sand Hill Project necessarily will affect the accuracy of the SEIR’s analysis of the extent of the project’s unavoidable site-specific impacts on avian resources requiring compensatory mitigation, monitoring and adaptive management, because micro-siting is currently the best-known measure for avoiding or reducing ongoing avian fatalities from operation of wind turbines, besides turbine shut down or curtailment. PEIR at E-35. The SEIR’s micro-siting analysis also should include a discussion of the “trade-off[s] of prioritizing wind turbine siting to maximize golden eagle protection,” since, according to Dr. Smallwood, “optimizing siting for eagles [using the micro-siting models] increases the likelihood of killing more birds of other species.” Smallwood 2018 at 11.

Finally, the SEIR’s micro-siting analysis must account for the substantial amount of grading for turbine pads and roads necessary to site large modern turbines, which affects the accuracy of the analysis due to the resulting significant changes in site topography. Dr. Smallwood notes that:

[a]n important caveat related to the model projections [for] repowered wind projects is that the models were not adjusted for changes to the landscape caused by grading for access roads and wind turbine pads.... The pads created for some of the Vasco Winds [2.3 MW] turbines cut deeply into hill slopes, sometimes creating new breaks in slope, depressions on the prevailing downwind aspects of ridge or hill structures, and enhanced ridge saddles. The depressions on the prevailing downwind aspects of ridge or hill structures forces birds traveling with or against the wind to fly higher off the ground to clear the remaining ridge or hill structure upwind of the turbine. This forcing effectively reduces the distance between the ground and the low reach of the turbine rotor, thereby increasing collision risk [citation omitted]. We did not anticipate these types of changes to the landscape when developing collision hazard models.

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Smallwood, K. S., and L. Neher, 2016, *Bird and Bat Impacts and Behaviors at Old Wind Turbines at Forebay, Altamont Pass Wind Resource Area*, Report CEC-500-2016-066, California Energy Commission (both documenting burrowing owl and bat use and behavior surveys at Altamont Pass) (Smallwood 2016a); and

Johnston, D.S., *et al.*, 2013, *Bird and Bat Movement Patterns and Mortality at the Montezuma Hills Wind Resource Area*, CEC-500- 2013- 015, Report to the California Energy Commission (documenting, *inter alia*, bat wind turbine passage rates at the Montezuma Hills Project in Solano County).

Smallwood 2017 at 66. The need to account for the effects of grading in the turbine micro-siting process is also discussed in detail in the Smallwood 2018 Addendum. The turbine micro-siting analysis also must be conducted using the most up-to-date engineering designs for the project.

5. Need for nesting and roosting surveys for golden eagles and other raptors, tri-colored blackbirds, and bats to inform impact and siting analyses

PEIR Mitigation Measure Bio-11b states that:

[p]roject proponents will also collect and utilize additional field data as necessary to inform the siting analysis for golden eagle. As required in Mitigation Measure Bio-8a, surveys will be conducted to locate golden eagle nests within 2 miles of proposed project areas. Siting of turbines within 2 miles of an active or alternative golden eagle nest or active golden eagle territory will be based on a site-specific analysis of risk based on the estimated eagle territories, conducted in consultation with USFWS.

PEIR 3.4-109. These surveys must be conducted during the golden eagle breeding season. *Id.* at 3.4-90.<sup>14</sup> Mitigation Measure Bio-8a also requires nesting surveys to be conducted within one mile of the project site for raptors other than golden eagles, and within 50 feet of proposed work areas for tree/shrub- and ground-nesting migratory birds such as the now-threatened tri-colored blackbird, and burrowing owl. *Id.*<sup>15</sup>

PEIR Mitigation Measure Bio-12a contains similar requirements for identification of bat roosting habitat in the project area, to be conducted over several days and at different times of the

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<sup>14</sup> For discussions of recent golden eagle nesting and other surveys at Altamont Pass and across the Diablo Range, *see*:

Weins, D., *et al.*, 2018, *Spatial Patterns in Occupancy and Reproduction of Golden Eagles During Drought: Prospects for Conservation in Changing Environments*, Ornithological Applications, 120:106-124;

Kolar, P.S., Weins, D., 2017, *Distribution, Nesting Activities, and Age-Class of Territorial Pairs of Golden Eagles at the Altamont Pass Wind Resource Area, California, 2014–16*, United States Geological Survey, Open-File Report 2017–1035; and

Weins, D., *et al.*, 2014, *Estimation of Occupancy, Breeding Success, and Abundance of Golden Eagles (*Aquila chrysaetos*) in the Diablo Range, California*, United States Geological Survey, Open File Report 2015-1039.

<sup>15</sup> For a published discussion of burrowing owl nesting colonies at Altamont Pass based on comprehensive field surveys in 2011, *see* Smallwood, K.S., *et al.*, 2013, *Nesting Burrowing Owl Density Abundance in the Altamont Pass Wind Resource Area, California*, Wildlife Society Bulletin 37(4):787-795.

day/night and year as necessary. PEIR 3.4-127—128.<sup>16</sup> PEIR Mitigation Measure Bio-14a similarly provides that “[t]o generate site-specific ‘best information’ to inform turbine siting and operation decisions, a bat habitat assessment and roost survey will be conducted in the project area to identify and map habitat of potential significance to bats, such as potential roost sites ... and water sources.” *Id.* at 3.4-133.

In order to provide a reasonable assessment of the nature and extent of the Sand Hill Project’s impacts on special status bird and bat species and their habitat, and to adequately inform turbine micro-siting, the SEIR should provide maps and discussion of the locations and quality of nesting, roosting and foraging habitat for all raptors, other special status bird species such as the newly-listed tri-colored blackbird, and bats. These maps should be based on protocol-level surveys. The maps should be overlain with the proposed wind turbine locations and accounted for in the bird and bat micro-siting analyses for this project. The SEIR should then analyze the extent to which construction and operation of the project, as appropriately micro-sited based on the best available science, will adversely affect nesting, roosting and foraging sites for each of the four focal raptor species, other raptors and special status bird species, and affected bat species.

#### **IV. PROJECT ALTERNATIVES**

CEQA Guidelines section 15126.6(a) provides that “[a]n EIR shall describe a range of reasonable alternatives to the project, or to the location of the project, 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, and evaluate the comparative merits of the alternatives.” 14 Cal. Code Regs. § 15126.6(a). The “reasonable range of potentially feasible alternatives” must be selected on the basis of “foster[ing] informed decision-making” and “meaningful public participation.” *Id.* § 15126.6(a), (f).

The EIR’s alternatives discussion must “focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives *would impede to some degree the attainment of the project objectives, or would be more costly.*” *Id.* § 15126.6(b) (emphasis added); *see also id.* § 15126.6(c), (f).<sup>17</sup> The EIR must “include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed project.” *Id.* § 15126.6(d). The EIR also must discuss the lead agency’s reasoning for selecting the alternatives to be discussed in detail, and the reasons for rejecting other alternatives as infeasible. *Id.* § 15126.6(a), (c).

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<sup>16</sup> Note that the bat roosting surveys conducted for the Sand Hill Project by ICF International in September 2018 are likely insufficient to meet these requirements, as it appears that the extent of the surveys included simply driving the project site and inspecting rock outcroppings and other areas over a two-day period. EA App. B, BRA at 2-2.

<sup>17</sup> Thus, the NOP’s statement that “[c]omments submitted should focus on mitigation measures or alternatives that may be less costly or have fewer environmental impacts while achieving similar... objectives” (NOP at 6) is not entirely accurate.



The range of alternatives discussed in an EIR also must include the “no project” alternative. *Id.* § 15126.6(e)(1). The purpose of such alternative “is to allow decisionmakers to compare the impacts of approving the proposed project with the impacts of not approving the proposed project.” *Id.* The “no project” analysis must discuss existing conditions at the time of publication of the NOP and:

what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans ... If the environmentally superior alternative is the “no project” alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives.

*Id.* § 15126.6(e)(2). For site-specific development projects, the “no project” discussion must “compare the environmental effects of the property remaining in its existing state against environmental effects which would occur if the project is approved.” *Id.* § 15126(e)(3)(B). If project disapproval “would result in predictable actions by others, such as the proposal of some other project,” the no project alternative should discuss this potential consequence. *Id.*

Here, the SEIR must meaningfully consider a reasonable range of alternatives that will avoid or reduce the otherwise unavoidable avian and bat fatalities of the project as proposed, including the no project alternative, reduced project size (number and size of turbines), various turbine micro-siting arrays to avoid and minimize impacts to all four focal raptor species and bats, and other reasonable and feasible alternatives.<sup>18</sup>

## V. PROJECT MITIGATION MEASURES

### A. General Requirements for CEQA Mitigation Measures

Finally, CEQA Guidelines section 15126.4(a)(1) sets forth the basic CEQA requirements for mitigation measures in an EIR. An EIR must “describe feasible measures which could minimize significant adverse impacts,” distinguishing between measures proposed by the project proponent versus other measures proposed by the lead agency and responsible or trustee agencies or other persons. 14 Cal. Code Regs. § 15126.4(a)(1) & (a)(1)(A). “Mitigation measures must be fully enforceable through permit conditions, agreements, or other legally-binding instruments.” *Id.* § 15126.4(a)(2). An EIR must include facts and analysis “to support the inference that the mitigation measures will have a quantifiable ‘substantial’ impact on reducing

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<sup>18</sup> We note that the County did not specifically approve either the 417 or 450 MW alternatives for repowering Altamont-wide when it certified the PEIR in 2014, and thus the County could feasibly determine to reduce the total allowable MW on the Alameda County side of Altamont Pass to 417 MW without reopening the PEIR. The FWS previously recommended that “the County approve an alternative that would limit the overall wind energy development in the [Altamont Pass] to ensure ongoing take of golden eagles does not exceed 5% of the local area golden eagle population.” PEIR at E-35–36. The FWS also recommended a moratorium on wind development on undisturbed prime grassland habitat “until such time that ongoing take can be substantially reduced to a more sustainable level.” *Id.* at E-36.

[a project's] adverse effects," although the measures need not necessarily reduce an impact to below the threshold of significance. *Sierra Club*, 241 Cal.Rptr.3d at 526.

In general, "mitigation measures shall not be deferred until some future time." 14 Cal. Code Regs. § 15126.4(a)(1)(B). The specific details of mitigation measures may only be deferred to after project approval in the following circumstances: (1) "it is impractical or infeasible" to include such details in the EIR, and the lead agency does all of the following: (2) "commits itself to the mitigation," (3) "adopts specific performance standards the mitigation will achieve," and (4) identifies the actions "that can feasibly achieve that performance standard and that will be considered, analyzed, and potentially incorporated in the mitigation measure." *Id.*

Compliance with another permit process, such as the FWS's federal golden eagle take permit process as currently provided in the PEIR (*see* PEIR 3.4-115), "may be identified as mitigation if compliance would result in implementation of measures that would be reasonably expected, based on substantial evidence in the record, to reduce the significant impact to the specified performance standards." 14 Cal. Code Regs. § 15126.4(a)(1)(B). This language requires an analysis of the extent to which the FWS program would satisfy the mitigation measures and any performance standards in the PEIR and SEIR.

## **B. Mitigation Measures to Be Evaluated in the SEIR**

Here, the SEIR must re-evaluate the suite of mitigation measures in the PEIR for the impacts of construction and operation of repowering projects on avian and bat resources and upgrade these mitigation measures in light of the changed project/changed circumstances and new information pertaining to the Sand Hill Project, and the SEIR's analysis of any changed or increased effects on such resources due to this project. The suite of mitigation measures should include, but is not necessarily limited to, the following.

### **1. Turbine micro-siting plans for birds and bats**

The SEIR should include more stringent turbine micro-siting requirements for the Sand Hill Project than are currently included in the PEIR (such as prohibiting turbines in zones identified as highly dangerous to birds and bats) and requiring a reduction in project size (area or number/size of turbines) if not possible to avoid these zones. *See* PEIR 3.4-109—110, 3.4-133. The SEIR also should require that as-built project designs not differ substantially from designs used for turbine micro-siting.

As previously noted, draft bird and bat turbine micro-siting plans should be included as an appendix to the draft SEIR for public review, as it is not "impractical or infeasible" to do so. 14 Cal. Code Regs. § 15126.4(a)(1)(B). However, the SEIR still should require Alameda County Technical Advisory Committee (TAC) review and County planning staff approval of the final Sand Hill Project bird and bat micro-siting plans prior to project operation, as required under the PEIR. PEIR 3.4-109, 3.4-133.

## 2. Compensatory mitigation plan

The compensatory mitigation program in the PEIR should be updated for the Sand Hill Project to reflect the best available scientific information regarding the nature and extent of unavoidable impacts of repowering projects on birds and bats. *See* PEIR 3.4.113—116. Compensatory mitigation should be designed to provide complete, quantified and effective compensation for all anticipated unavoidable impacts of the Sand Hill Project. The PEIR itself states that “[t]he County recognizes that the science of raptor conservation and the understanding of wind-wildlife impacts are continuing to evolve and that the suite of available compensation options may consequently change over the life of proposed projects.” *Id.* at 3.4-113.

The PEIR’s compensatory mitigation program is based on outdated fatality estimates using only the first year (or two, for golden eagles only) of monitoring for the Vasco Winds Project. *Id.* at 3.4-114; E-11—12. It is also based on outdated estimates of compensatory mitigation costs of \$580 per raptor killed (which in turn is based on undocumented average raptor rehabilitation costs at one facility), that are wholly insufficient to provide adequate compensatory mitigation. *Id.* at 3.4-115. PEIR Mitigation Measure Bio-14e also requires the project proponent to pay the full costs of rehabilitating injured bats by licensed wildlife care facilities. PEIR at 3.4-138. Thus, the SEIR likewise must include an updated analysis of these costs.

This updated analysis is very likely to necessitate a substantial increase in compensatory mitigation measures and fees than are currently provided in the PEIR. The type and amount of compensatory mitigation must be developed based on a quantifiable resource equivalency analysis or other formula, such as that provided in the Next Era Settlement, and specify the specific preferred measures to be implemented rather than just providing a range of possible future options as currently provided in the PEIR.<sup>19</sup> *Cf.* PEIR at 3.4-113—116.

Selected compensatory mitigation measures must provide meaningful mitigation for ongoing unavoidable bird deaths. Such measures could include protection of known raptor nesting and foraging habitat through land acquisition or conservation easements (similar to that provided in the Next Era Settlement and accompanying June 2012 memorandum of understanding between the settling parties and East Bay Regional Park District—both included on the CD submitted herewith), retirement of wind rights, and programs to eliminate rodenticide use and eliminate ground squirrel control, among other options. In addition, PEIR Mitigation Measure Bio-9

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<sup>19</sup> The 2010 Next Era Settlement provided for a \$10,500 per MW compensatory mitigation fee, to be divided equally between conservation measures for raptors and bats, and scientific research on the effects of wind turbines on birds and bats, in the Altamont Pass region. However, given that the agreement is now almost ten years old, this amount also must be updated, for purposes of the SEIR, to reflect the most current scientific information, inflation costs, and other considerations.

requires compensation for permanent loss of occupied burrowing owl habitat and loss of grassland foraging habitat for other special-status bird species. PEIR 3.4-94—95.

The draft compensatory mitigation plan also should be included in SEIR and not delayed to a later date following project approval, as currently provided in the PEIR. However, the SEIR still should require TAC and County staff review and approval of the final compensatory mitigation plan prior to the commercial operation date (COD) of the project, as required under the PEIR. *See* PEIR 3.4-114. Finally, the SEIR also should include measures to ensure payment of compensatory mitigation fees within 90 days of project operation, and sufficient TAC oversight of implementation of the compensatory mitigation program within one year of project operation, similar to those provided in the Next Era Settlement. *See id.*; Next Era Settlement and MOU.

### 3. Post-construction project monitoring program

The PEIR’s post-construction monitoring program for birds and bats (PEIR 3.4-111—113, 3.4-133—135) must be updated and improved for the Sand Hill Project in light of the most recent monitoring data for repowering projects, and new studies identifying improved monitoring methods and protocols, such as integrated detection trials. *See id.* at 3.4-112 (“[t]he estimation of detection probability is a rapidly advancing field”) and *id.* at 3.4-119 (post-construction monitoring results “will provide data to quantify the actual extent of ... avian fatality for projects in the program area and will contribute to the body of knowledge supporting future analyses”); Smallwood, K. S., *et al.*, *Estimating Wind Turbine Fatalities Using Integrated Detection Trials*, 2018, *Journal of Wildlife Management* 82:1169-1184.

Pertinent new information includes recommendations of the TAC, and the scientific studies and post-PEIR monitoring reports listed in Appendix A hereto (some of which are included on the accompanying CD). For example, the H.T. Harvey Golden Hills second-year monitoring report describes the significantly increased efficiency of skilled dog detection teams in identifying fatalities of small birds and bats, and also concludes that a 28-day versus a 7-day search interval appears to result in an underestimation of fatality rates for small birds and bats. H.T. Harvey, Dec. 2018, at iv-v, x-xi, 59-60; *see also* Smallwood, K. S., D.A. Bell, and S. Standish, 2018, *Skilled Dog Detections of Bat and Small Bird Carcasses in Wind Turbine Fatality Monitoring*, Report to East Bay Regional Park District.

Additional and more effective monitoring requirements could include, for example: (1) monitoring for more than three years; (2) monitoring of all turbines on a weekly basis; (3) monitoring of a biologically appropriate area for each turbine, and not just turbine pads, that will ensure detection of the vast majority of bird and bat fatalities; (4) use of integrated detection trials; (5) required use of skilled dog detection teams; and (6) use of monitoring methods that may be more effective based on the latest science, such as thermal imaging. Smallwood 2016a

discusses the advantages of thermal imaging for monitoring bats, particularly at night and during the fall migration season. *See* Smallwood 2016a at 167-68. The SEIR should include clear deadlines and time frames for all required monitoring actions, and should enforce the existing PEIR requirement for TAC meetings to be held every six months to review project monitoring data and other information. *Id.* at 3.4-112, 3.4-133.

The draft monitoring program also should be included in the SEIR and not delayed to a later date following project approval. However, as with the micro-siting and compensatory mitigation plans, the final monitoring plan still should be reviewed by the TAC and approved by County staff prior to project operation, as currently required under the PEIR. *See* PEIR 3.4-111—113, 3.4-134. In addition, as under the PEIR, monitoring should commence upon the project COD, annual monitoring reports and a final three-year report should be produced for TAC and public review, and raw monitoring data should be made publicly available. *Id.*

#### 4. Adaptive management program for project operations

The PEIR's adaptive management programs for birds and bats must be significantly strengthened for the Sand Hill Project to require more immediate, significant reductions in identified fatalities at offending turbines or, if necessary, project-wide curtailment of turbines during certain times of the day/night or year, if anticipated to significantly reduce unavoidable effects on birds and/or bats. PEIR 3.4-116—118, 3.4-135—137. Under the PEIR's adaptive management program, although it is not entirely clear, the project proponent arguably need not implement any adaptive management measures until after the initial three-year monitoring program has concluded. *Id.* at 3.4-111, 3.4-116.

Further, the PEIR provides an incremental, “stepped” approach to adaptive management, under which the least restrictive (and likely least effective) adaptive management measure(s) are implemented first and “the results are monitored for success or failure for a year, and additional adaptive measures are [then] added as necessary, followed by another year of monitoring, until ... the estimated fatalities are below the baseline.” *Id.* at 3.4-117. Seasonal or real-time turbine curtailment or shut down and changes in turbine cut-in speed, which currently are considered to be the most effective measures for avoiding or reducing fatalities once turbines are installed, are the last in line for consideration in this lengthy and fairly cumbersome process. *Id.* at 3.4-117—118.

In light of the new monitoring data showing significantly higher than estimated avian and bat fatalities from repowered projects, this adaptive management program is too protracted and lenient to result in timely and meaningful reductions in identified fatalities. The PEIR acknowledges the need to update adaptive management strategies in light of the best available scientific information. *See* PEIR at 3.4-116—117, 3.4-135. More stringent adaptive

management measures could include turbine curtailment or shut downs during specific times of the day/night or months of the year when raptors, special status bird species or bats are more likely to be present, real time turbine curtailment using the latest detection technology, implementing changes in turbine cut in speed upon specified and determinable triggers, and other effective and legally-enforceable measures after one year of project monitoring.<sup>20</sup> Adaptive management measures must be based on a scientific study design tied to biologically-based, and—to the extent scientifically possible—quantifiable, objectives and adaptive management triggers. See Sinclair, K. and E. DeGeorge, 2016, *Framework for Testing the Effectiveness of Bat and Eagle Impact-Reduction Strategies at Wind Energy Projects*, Technical Report NREL/TP-5000-65624, National Renewable Energy Laboratory.

The trigger for adaptive management measures should not be based on exceedance of an outdated and debatable pre-repowering baseline as under the PEIR (PEIR 3.4-111—112, E-5—6; see H.T. Harvey, Dec. 2018 at 64-65; PEIR at E-124), but rather based on whether actual project operations exceed projected project-specific annual fatality estimates for one or more focal raptor species, other birds of special concern, or affected bat species by a specified degree after one year of monitoring.<sup>21</sup> Adaptive management measures also should be triggered when it is determined, again after one year of monitoring, that one or more turbines are causing a “disproportionate impact.” The SEIR should specifically define “disproportionate impact” as a significantly higher fatality rate than other turbines in the same facility, e.g. X additional fatalities (as determined based on the biology and population status of the species), for one or more focal raptor species, other raptors or bird species of special concern, or affected bat species.

Smallwood 2017 contains a description of the bird behavioral surveys that were performed using mitigation funds from the Next Era Settlement, which contains at least some information as to the months of the year, times of day, wind speeds, etc. which corresponded with a greater number of wind turbine collisions for focal raptor species. See Smallwood 2017 at 40-42. In addition, several other reports contain information regarding recent bat (and bird) use and

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<sup>20</sup> Indeed, the SEIR should consider immediate, “real-time” turbine curtailment upon detection of nearby birds and bats, using the latest “detect and deter or curtail” technology as a primary mitigation measure, rather than a last resort for adaptive management as currently provided under the PEIR. See PEIR 3.4-118, 3.4-136—137 (Avian Adaptive Management Measure 7 and Bat Adaptive Management Measure 8). For the latest research on this emerging technology: see H.T. Harvey & Assoc., 2018, *Evaluating a Commercial-Ready Technology for Raptor Detection and Deterrence at a Wind Energy Facility in California*, American Wind and Wildlife Inst. Technical Report; McClure, C.J. et al., 2018, *Automated Monitoring for Birds in Flight: Proof of Concept with Eagles at a Wind Power Facility*, Biological Conservation 224 (2018) at 26–33.

<sup>21</sup> The PEIR’s current trigger for bat adaptive management measures (exceedance of 1.679 fatalities/MW/year) may be appropriate as it is designed to be conservative and therefore more protective of bats, but also should be evaluated in light of the most recent bat population, use and behavior studies and monitoring data. See PEIR at 3.4-136.

behavior surveys at repowered and non-repowered turbines. *See* Brown, *et al.* 2016 at 25-33, 103-04; Smallwood 2016a at 139-40, 166-68; Smallwood 2016b at 4-77 and Johnston 2013). These and other studies may be helpful in updating the PEIR adaptive management program for purposes of the SEIR. The SEIR also should re-examine the specified changes in turbine cut-in speeds in light of the most recent data on this topic. PEIR 3.4-118, 3.4-136.

Finally, the updated draft project-specific avian and bat adaptive management program must be included in the SEIR for public review and comment, and not delayed to a later date following project approval as under the PEIR. And as with the turbine micro-siting, compensatory mitigation and monitoring plans, the TAC and County staff still should review and approve and oversee implementation of the final avian and bat adaptive management programs, as currently provided in the PEIR. PEIR 3.4-116—117, 3.4-135—136. And like the project monitoring program, the SEIR should contain specific deadlines and time frames for preparation, approval, implementation and monitoring of the final project-specific adaptive management plan.

#### 5. Avian protection plan

As discussed, the SEIR must include a draft avian protection plan for the Sand Hill Project (which, under PEIR Mitigation Measure Bio-11a, must incorporate the avian micro-siting, compensatory mitigation and monitoring plans), instead of being deferred to after project approval, as currently provided in the PEIR. *See* PEIR 3.4.109—116. The draft bat micro-siting and monitoring plans required by PEIR Mitigation Measures Bio-14a and Bio-14b also should be included in the PEIR. *Id.* at 3.4-133—135. This is feasible and necessary to adequately inform the public and to enable an adequate and accurate evaluation of whether and to what extent the project's adverse effects on avian and bat resources have been avoided or minimized. This also is necessary to assist in quantifying the remaining unavoidable adverse effects to accurately determine the initial required amount of compensatory mitigation and an appropriate suite of adaptive management measures and triggers.

#### 6. Other measures

Finally, the PEIR's measures for mitigating impacts to ground nesting birds will need to be updated. The California Department of Fish and Wildlife's (CDFW's) October 25, 2018 comment letter on the Sand Hill Project states that "CDFW considers the PEIR's analysis and mitigation measures (measures Bio 8 and 9), which are based primarily on loss of habitat, as inadequate" in light of the recent listing of tri-colored blackbird. CDFW Oct. 25, 2018 ltr. at 3.

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February 13, 2019  
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**CONCLUSION**

We appreciate the opportunity to submit and the County's consideration of these scoping comments. If you have any questions concerning this letter, please do not hesitate to contact me.

Sincerely,

(ORIGINAL SIGNED BY)

TARA L. MUELLER  
Deputy Attorney General

For XAVIER BECCERA  
Attorney General



**APPENDIX A:  
PARTIAL LIST OF STUDIES AND MONITORING REPORTS RELEVANT TO  
IMPACTS OF AND MITIGATION MEASURES FOR REPOWERING PROJECTS AT ALTAMONT PASS**

**List of Studies and Monitoring Reports Relevant to Bird and Bat Fatalities at Altamont Pass**

Bell, D.A. 2017. GPS satellite tracking of golden eagles (*Aquila chrysaetos*) in the Altamont Pass Wind Resource Area (APWRA) and the Diablo Range: final report for phases 1 and 2 of the NextEra energy settlement agreement: main report—active birds. Report to NextEra Energy Resources, California Attorney General, Audubon Society, East Bay Regional Park District.

Bell, D.A. 2017. GPS satellite tracking of golden eagles (*Aquila chrysaetos*) in the Altamont Pass Wind Resource Area (APWRA) and the Diablo Range: final report for phases 1 and 2 of the NextEra energy settlement agreement: supplement—inactive birds. Report to NextEra Energy Resources, California Attorney General, Audubon Society, East Bay Regional Park District.

Bell, D. A., and K.S. Smallwood. 2010. Birds of prey remain at risk. *Science* 330:913.

Brown, K., K. S. Smallwood, J. Szewczak, and B. Karas. 2016. Final 2012-2015 report avian and bat monitoring project Vasco Winds, LLC. Prepared for NextEra Energy Resources, Livermore, California.

Brown, K., K. S. Smallwood, J. Szewczak, and B. Karas. 2014. Final 2013-2014 annual report avian and bat monitoring project Vasco Winds, LLC. Prepared for NextEra Energy Resources, Livermore, California.

Brown, K., K. S. Smallwood, and B. Karas. 2013. Final 2012-2013 annual report avian and bat monitoring project Vasco Winds, LLC. Prepared for NextEra Energy Resources, Livermore, California.

H.T. Harvey & Associates. 2018. Golden Hills Wind Energy Center post construction fatality monitoring report: Year 2, draft report Dec. 2018, Project 3926-01. Prepared for Golden Hills Wind, LLC, Livermore, California.

H.T. Harvey & Associates. 2018. Golden Hills Wind Energy center post construction fatality monitoring report: Year 1, final report Feb. 2018, Project 3926-01. Prepared for Golden Hills Wind, LLC, Livermore, California.

H.T. Harvey & Associates. 2018. Evaluating a commercial-ready technology for raptor detection and deterrence at a wind energy facility in California. American Wind and Wildlife Inst. Technical Report, Washington, D.C.

Hunt, W.G. *et al.* 2017. Quantifying the demographic cost of human-related mortality to a raptor population. *Plos One*, DOI:10.1371/journal.pone, 0172232

ICF International. 2016. *Altamont Pass Wind Resource Area Bird Fatality Study, Monitoring Years 2005–2013*, Final Report, Apr. 2016, prepared for Alameda County Community Development Agency.

Johnson, D. H., S. R. Loss, K. S. Smallwood, W. P. Erickson. 2016. Avian fatalities at wind energy facilities in North America: A comparison of recent approaches. *Human–Wildlife Interactions* 10(1):7-18.

Johnston, D.S., J. Howell, *et al.* 2013. Bird and bat movement patterns and mortality at the Montezuma Hills Wind Resource Area, CEC-500- 2013- 015 . Report for the California Energy Commission prepared by H.T. Harvey & Assoc., Los Gatos, CA.

Kolar, P.S., Weins, D. 2017. Distribution, nesting activities, and age-class of territorial pairs of golden eagles at the Altamont Pass Wind Resource Area, California, 2014–16. United States Geological Survey Open-File Report 2017–1035.

Köppel, J., Ed. 2017. Wind energy and wildlife impacts: proceedings from the CWW2015 Conference. Springer, Cham, Switzerland.

McClure, C.J. *et al.* 2018. Automated monitoring for birds in flight: proof of concept with eagles at a wind power facility. *Biological Conservation* 224 (2018) 26–33.

Mete, A., N. Stephenson, K. Rogers, M. G. Hawkins, M. Sadar, D. Guzman, D. A. Bell, J. Shipman, A. Wells, K. S. Smallwood, and J. Foley. 2014. Emergence of knemidocoptic mange in wild golden eagles (*Aquila chrysaetos*) in California. *Emerging Infectious Diseases* 20(10):1716-1718.

Milsap, B.A, E. R. Bjerre, *et al.* 2016. Bald and golden eagles: population demographics and estimation of sustainable take in the United States. Report prepared for U.S. Fish and Wildlife Service, Division of Migratory Bird Management.

Perrow, M., Ed., *Wildlife and Wind Farms - Conflicts and Solutions*, Volume 2. Pelagic Publishing, Exeter, United Kingdom. 2017. [www.bit.ly/2v3cR9Q](http://www.bit.ly/2v3cR9Q).

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Sinclair, K. and E. DeGeorge. 2016. Framework for testing the effectiveness of bat and eagle impact-reduction strategies at wind energy projects. Technical Report NREL/TP-5000-65624, National Renewable Energy Laboratory, Golden, Colorado.

Smallwood, K. S., D. A. Bell, E. L. Walther, E. Leyvas, S. Standish, J. Mount, B. Karas. 2018. Estimating wind turbine fatalities using integrated detection trials. *Journal of Wildlife Management* 82:1169-1184.

Smallwood, K. S., D.A. Bell, and S. Standish. 2018. Skilled dog detections of bat and small bird carcasses in wind turbine fatality monitoring. Report to East Bay Regional Park District, Oakland, California.

Smallwood, K. S., L. Neher, and D. A. Bell. 2017. Mitigating golden eagle impacts from repowering Altamont Pass Wind Resource Area and expanding Los Vaqueros Reservoir. Report to East Contra Costa County Habitat Conservation Plan Conservancy and Contra Costa Water District.

Smallwood, K. S. 2017. Long search intervals under-estimate bird and bat fatalities caused by wind turbines. *Wildlife Society Bulletin* 41:224-230.

Smallwood, K. S, L. Neher. 2016a. Bird and bat impacts and behaviors at old wind turbines at Forebay, Altamont Pass Wind Resource Area. Report CEC-500-2016-066, California Energy Commission Public Interest Energy Research Program, Sacramento, California.

Smallwood, K. S. 2016b. Report of Altamont Pass research as Vasco Winds mitigation. Report to NextEra Energy Resources, California Attorney General, Audubon Society, East Bay Regional Park District.

Smallwood, K. S. 2013. Comparing bird and bat fatality-rate estimates among North American wind-energy projects. *Wildlife Society Bulletin* 37:19-33 + Online Supplemental Material.

Smallwood, K. S., L. Neher, J. Mount, and R. C. E. Culver. 2013. Nesting burrowing owl abundance in the Altamont Pass Wind Resource Area, California. *Wildlife Society Bulletin*: 37:787-795.

Smallwood, K. S., D. A. Bell, B. Karas, and S. A. Snyder. 2013. Response to Huso and Erickson comments on novel scavenger removal trials. *Journal of Wildlife Management* 77: 216-225.

Smallwood, K. S., D. A. Bell, S. A. Snyder, and J. E. DiDonato. 2010. Novel scavenger removal trials increase estimates of wind turbine-caused avian fatality rates. *Journal of Wildlife Management* 74: 1089-1097 + Online Supplemental Material.

Smallwood, K. S., L. Ruge, and M. L. Morrison. 2009. Influence of behavior on bird mortality in wind energy developments: the Altamont Pass Wind Resource Area, California. *Journal of Wildlife Management* 73:1082-1098.

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Smallwood, K. S. 2008. Wind power company compliance with mitigation plans in the Altamont Pass Wind Resource Area. *Environmental & Energy Law Policy Journal* 2(2):229-285.

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Smallwood, K. S. and C. Thelander. 2005. Bird mortality in the Altamont Pass Wind Resource Area, March 1998 – September 2001 final report. National Renewable Energy Laboratory, NREL/SR-500-36973. Golden, Colorado.

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U.S. Fish and Wildlife Service. 2012. Land-Based Wind Energy Guidelines, OMB Control No, 1018-0148.

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### **List of Wind Turbine Micro-Siting Reports for Repowering Projects at Altamont Pass**

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Smallwood, K. S. 2018. Addendum to comparison of wind turbine collision hazard model performance: one-year post-construction assessment of golden eagle fatalities at Golden Hills. Report to NextEra Energy Resources, California Attorney General and Audubon Society.

Smallwood, K. S., and L. Neher. 2018. Siting wind turbines to minimize raptor collisions at Rooney Ranch and Sand Hill Repowering Project, Altamont Pass Wind Resource Area. Report to S-Power, Salt Lake City, Utah.

Smallwood, K. S., L. Neher, and D. A. Bell. 2017. Siting to minimize raptor collisions: an example from the repowering Altamont Pass Wind Resource Area. M. Perrow, Ed., *Wildlife and Wind Farms - Conflicts and Solutions*, Volume 2. Pelagic Publishing, Exeter, United Kingdom.

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Smallwood, K. S., and L. Neher. 2016. Siting wind turbines to minimize raptor collisions at Sand Hill Repowering Project, Altamont Pass Wind Resource Area. Report to Ogin, Inc., Waltham, Massachusetts.

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research as Vasco Winds mitigation. Report to NextEra Energy Resources, California Attorney General, Audubon Society, East Bay Regional Park District.

Smallwood, K. S., and L. Neher. 2015a. Siting wind turbines to minimize raptor collisions at Golden Hills Repowering Project, Altamont Pass Wind Resource Area. Report to NextEra Energy Resources, Livermore, California.

Smallwood, K. S., and L. Neher. 2015b. Siting wind turbines to minimize raptor collisions at Golden Hills North Repowering Project, Altamont Pass Wind Resource Area. Report to NextEra Energy Resources, Livermore, California.

Smallwood, K. S., and L. Neher. 2015c. Siting wind turbines to minimize raptor collisions at the Patterson Pass Repowering Project, Altamont Pass Wind Resource Area. Report to EDF Renewable Energy, Oakland, California.

Smallwood, K. S., and L. Neher. 2014. Early assessment of wind turbine layout in Summit Wind Project. Report to Altamont Winds LLC, Tracy, California.

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