Summit Wind Repower Project

Affected Environmental Analysis Update

Final

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Altamont Winds LLC

Prepared for

Alameda County Planning Department

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Acronyms and Abbreviations

APWRA	Altamont Pass Wind Resource Area
CEQA	California Environmental Quality Act
CUP	conditional use permit
PEIR	*Altamont Pass Wind Resource Area Repowering Final Program Environmental Impact Report*
GE	General Electric
I	Interstate
MMRP	Mitigation Monitoring and Reporting Program
MW	megawatt
Project	Summit Wind Repower Project
WRAP TAC	Wind Repowering/Avian Protection Technical Advisory Committee
WTG	wind turbine generator

1. Introduction and Project Overview

1.1 Introduction

This Project Description and Affected Environment Analysis Update (AEAU) has been prepared to support Alameda County's review of a modified Conditional Use Permit (CUP) (application PLN2020-00007), which would authorize proposed changes to the Summit Wind Repower Project (Project) as previously approved in 2016 (CUP PLN2014-00056). This review is intended to determine if the modification will result in new significant environmental effects or an increase in the severity of previously identified significant effects pursuant to Sections 15162, 15163 and 15164 of the California Environmental Quality Act (CEQA) Guidelines. The AEAU is proposed as an addendum to a previously certified EIR and adopted environmental checklist for the Project, pursuant to Section 15164.

Alameda County is the lead agency for the *Altamont Pass Wind Resource Area (APWRA) Repowering Final Program Environmental Impact Report* (PEIR) (certified November 2014). The PEIR provided a program-level analysis of the environmental impacts of repowering the APWRA in accordance with the requirements of CEQA for a program EIR (Section 15168 of the CEQA Guidelines). The *Summit Wind Repowering Project CEQA Implementation Checklist and Application Supporting Materials* (CEQA Implementation Checklist) (Power Engineers, 2015) was prepared and tiered from the PEIR to provide a project-level analysis of the Project as provided for by Section 15168 of the CEQA Guidelines. The CEQA Implementation Checklist analyzed the Project as a conditional use permit (CUP) application to allow up to 54 megawatts (MW) of electricity from up to 33 wind turbine generators (WTGs). Alameda County approved CUP PLN2014-00056 for the Project on January 14, 2016, for up to 54 MW of capacity using up to 27 WTGs. The installed capacity of the original wind energy facility was 56.9 MW comprised of 569 old generation WTGs (PLN2011-00102).

This document supports Alameda County's review of a Project modification to allow up to 57.5 MW from the currently planned use of 23 WTGs. **Appendix A** contains graphic figures that illustrate the proposed modified Project.

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1.2 Scope of Environmental Review

This AEAU document incorporates the PEIR, certified by Alameda County, and the CEQA Implementation Checklist for the Project, by reference, and demonstrates that the identified impacts described for the Project in those documents will not significantly change with implementation of the Project modification. More specifically, it shows that the Project modification will not result in new significant environmental effects or a substantial increase in the severity of previously identified significant effects over those analyzed in the PEIR and CEQA Implementation Checklist. **Section 2** provides a detailed description of the minor modification to the Project.

Because the PEIR and the previously adopted CEQA Implementation Checklist for the Project rely on MWs as a metric or basis of calculation for predicting or estimating avian and bat mortality due to their interaction with WTGs, the increase in aggregate nameplate generation capacity being proposed (from 54 to 57.5 MWs, an increase of slightly under 6.5 percent) is assumed to have a directly proportional impact of increasing the mortality of bats and birds (i.e., about 6.5 percent). Although this potential impact is one of the paramount concerns for repowering projects in the APWRA, the increase in nameplate capacity of individual turbines would not alter or increase the extent of any other layout feature, roadway, laydown area, grading, excavation, land disturbance, or other aspect for the currently authorized project (CUP PLN2014-00056). More importantly, the MW capacity of the Project was not used as the basis for the determination of significance of any impact other than bird and bat mortality. Therefore the analysis undertaken for this document of the consequences of the Project changes is limited to biological resources only and more specifically only the potential for adverse impacts on candidate, sensitive and special status avian wildlife species, or the effect quantified and characterized in the PEIR and CEQA Implementation Checklist as *Impact BIO-11 – Avian mortality resulting from interaction with wind energy facilities, and Impact BIO-14 – Turbine-related fatalities of special-status and other bats*.

The overall view is that although the increase in MW could proportionally increase mortality of birds and bats, it should also be recognized that a noticeable reduction in the rotor-swept area as compared to the currently authorized project would be achieved as a result of the Project modification (from about 261,280 gross square meters to a little over 243,060 square meters, or just under 7 percent). The County in this AEAU asserts that the actual effect of the increase in MW will be of little or no effect or statistically insignificant. Regardless, the AEAU does not deviate from the prior finding of the PEIR and CEQA Implementation Checklist analysis of the Summit Wind Project regarding Impacts BIO-11 and -14, that the Project will have significant and unavoidable adverse impacts on bird and bat populations.

Hence, the Project modification would not alter any applicable mitigation measure specified in the PEIR and the associated Mitigation Monitoring and Reporting Program (MMRP) adopted for the Project would be unchanged. The PEIR and CEQA Implementation Checklist analyses for all other resource and impact areas is accurate and applicable to the Project modification, and are incorporated herein by reference (Alameda County Community Development Agency 2014; Power Engineers 2015).

1.3 Entitlements Required

A CUP modification is required by the County of Alameda for approval of the Project modification in accordance with the County's Zoning Ordinance, Section 17.54.150 (Conditional uses – changes and renewals). An application for a modified CUP is being submitted concurrently with this Project Description and Affected Environment Analysis Update document.

There are no additional state or federal permits, approvals, or agency consultations required for approval of the Project modification.

2. Project Description

2.1 Background

The PEIR was certified by Alameda County in November 2014 and analyzed the effects of repowering the APWRA at a program level. The CEQA Implementation Checklist for the Summit Wind Repower Project provided a project-level analysis of the planned decommissioning of 569 obsolete WTGs and replacement with up to 33 newer, more efficient WTGs for an aggregate nameplate capacity of up to 54 MW. Alameda County approved CUP PLN2014-00056 for the Project on January 14, 2016, permitting up to 54 MW and up to 27 new WTGs (six turbine sites were eliminated by a combination of withdrawal and disapproval).

Subsequent to CUP issuance, in coordination with Alameda County the Project sponsor completed final micrositing and based on its results and market conditions, proposed a revised array of 26 WTG sites, including three alternate turbine locations. Although a grading permit for 26 WTG sites was initially approved by Alameda County (permit number G07-211038, September 5, 2018), the Project sponsor subsequently determined that the three alternate WTG sites were infeasible. A final array of 23 General Electric (GE) 2.5 MW turbines is now planned, thereby increasing the aggregate nameplate capacity by 3.5 MW to a new total of 57.5 MW. Construction of the Project began on July 10, 2019, and is anticipated to be complete by October 31, 2020.

2.2 Project Location

The Project site is within the boundaries of a pre-existing wind farm in northeastern Alameda County, California. The project is located within the APWRA, which is designated by the State of California and recognized by Alameda County as a Wind Resource Area because the area maintains winds at a level that supports economically viable wind energy projects. The Project site is generally east of the Brushy Peak Regional Preserve, south of the Alameda County-Contra Costa County border, west of Dyer Road, and north of Altamont Pass Road. **Figure 1** shows the regional setting of the Project.

Regional access to the site is via I-580, and local access is via Altamont Pass Road and Dyer Road. The Project boundary comprises approximately 3,302 acres encompassing all or portions of 15 land ownership parcels.

2.3 Project Modification

The minor modification to the Project described herein is a net increase of 3.5 MW over what was analyzed in the CEQA Implementation Checklist and approved in the Project's CUP PLN2014-00056. Due to cost and business decisions based on technological advances, the Project layout will involve higher output, fewer turbines and result in a smaller facility footprint than originally analyzed and currently authorized under CUP PLN2014-00056.

Table 1 compares the Project's permanent facility footprint as described in the CEQA Implementation Checklist to the layout subsequently authorized and the proposed Project modification layout. As calculated in the CEQA Implementation Checklist, the permanent facility footprint was originally anticipated to be 28.09 acres (Power Engineers, 2015). Based on the revised design that was approved in 2016 in the Project's CUP approval, the permanent facility footprint was increased to 30.11 acres. With the proposed Project Modification, which reduces the number of turbines and meteorological equipment towers (METs), the permanent facility footprint would be 24.16 acres. This is a 14 percent reduction in permanent facility footprint from the Project as analyzed in the CEQA Implementation Checklist and a 20 percent reduction from the Project as currently authorized by CUP PLN2014-00056.

Table 1. Project Characteristics

Project Feature	Permanent Facility Footprint (acres)		
	54 MW Project Analyzed in CEQA Implementation Checklist[a]	54 MW Project Currently Authorized by CUP PLN2014-000560[b]	57.5 MW Proposed Project Modification[c]
WTG Pads	0.122	3.105	2.645
Interior Access Roads	25.22	25.6	20.31
Substations	2.7	1	1
MET Pads	0.048	0.4	0.2
Total	**28.09**	**30.11**	**24.16**

[a] Facility footprint comprised of 33 wind turbine pads, 3 MET pads, 2 substations, and a permanent road width of no less than 16 feet (Power Engineers, 2015). According to Power Engineers (2015), the anticipated permanent road network was based on pre-design turbine layout and thus not engineered to meet the specifications of the turbine manufacturer.

[b] Facility footprint comprised of 27 wind turbine pads, 2 MET pads, 2 substations, and a permanent road width of 16 feet. The currently authorized road layout meets the design specifications of the turbine manufacturer.

[c] Facility footprint comprised of 23 wind turbine pads, 1 MET pad, 2 substations, and a permanent road width of 16 feet. The proposed Project modification road layout meets the specifications of the turbine manufacturer.

The configuration of the proposed Project Modification would increase MW output with a reduced number of turbines by using newer technology, and more efficient turbines than originally anticipated. The CEQA Implementation Checklist and CUP PLN2014-00056 anticipated the Project would utilize Suzlon's 2.1 WTG model. General Electric's (GE) 2.5 WTG model is now available with a larger MW output compared to the Suzlon 2.1 WTG model.

Table 2 compares the dimensions of the Suzlon 2.1 turbines described in the CEQA Implementation Checklist to the GE 2.5 turbines currently proposed. As shown below, the GE 2.5 WTG model would have an additional 0.4 MW in output, 8 feet in blade length (rotor radius), and 9 feet in maximum overall height than the Suzlon 2.1 WTG model.

Table 2. Wind Turbine Generator Dimensions for the Project

Turbine Feature	Suzlon 2.1		GE 2.5	
Output	2.1 MW		2.5 MW	
	Meters	Feet	Meters	Feet
Tower Hub Height	90	295	90	295
Rotor Radius	55.5	182	58	190
Rotor Diameter	111	364	116	381
Ground Clearance	34.5	113	32	105
Maximum Overall Height	145.5	477	148	486

Section 4.11 of the CEQA Implementation Checklist (Power Engineers, 2015) analyzed the Project's impacts on avian mortality (Impact BIO-11) based on annual fatalities per MW, and the methodology used in the PEIR (Power Engineers, 2015). Based on the Project modification that would result in 3.5 MW of gross nameplate generating capacity over what was analyzed and approved in January of 2016, potential avian and bat mortality impacts are re-analyzed or re-assessed by MW in **Section 3**.

3. Environmental Analysis

The CEQA Implementation Checklist analyzed the Project in relation to the impact categories identified in the PEIR, including Impacts BIO-11 and BIO-14. The CEQA Implementation Checklist disclosed the potential for the then-proposed Project to result in significant and unavoidable impacts to resident and migratory avian, raptor, and bat species known in the region in addition to movement of native resident or migratory wildlife species with established native resident or migratory wildlife corridors. Mitigation measures identified in the PEIR and subsequently included in the MMRP were required to reduce significant impacts to resident and migratory avian, raptor, and bat species as well as wildlife migration corridors to the maximum extent practicable. As discussed in the CEQA Implementation Checklist (Power Engineers, 2015), impacts to these wildlife species from the Project would remain significant and unavoidable after implementation of the aforementioned mitigation measures.

The aim of this analysis is to demonstrate the Project modification would not result in different or more severe bird and bat fatality impacts with respect to Impacts BIO-11 and BIO-14 as identified in the PEIR. The scope of this analysis is narrowed and limited to these two impacts because the Project modification is not reasonably expected to result in different or more severe impacts on any other aspect of the environment analyzed in the FPEIR and CEQA Implementation Checklist. The Project modification is considered proportionally minor in the context of its trade-off of fewer individual turbines and reduced overall blade-swept area for a modest increase in MWs. Furthermore, although the MW increase of slightly under 6.5 percent is assumed to have a directly proportional impact of increasing the mortality of bats and birds, the increase would not alter or increase the extent of any other layout feature, roadway, laydown area, grading, excavation, land disturbance, or other aspect presented in the Project description, on which the impact analysis is based. It is the County's view that the Project modification will therefore not result in new significant environmental effects, and cannot with certainty be expected to result in an increase in the severity of previously identified significant effects disclosed in the CEQA Implementation Checklist, particularly and exclusively with regard to avian mortality due to interaction with wind turbines (Impact BIO-11) and turbine-related fatalities of special-status and other bats (Impact BIO-14).

The Project will incorporate and implement all applicable mitigation measures specified in the PEIR as certified by Alameda County. Specific mitigation measures relevant to Impact BIO-11 and BIO-14 are cited in the same manner as in the PEIR and the associated MMRP adopted for the Project. Mitigation Measures BIO-11a through BIO-11i and BIO-14a-d remain as conditions of approval for the approved Project and for the proposed Project modification.

3.1 Impact BIO-11

Avian mortality resulting from interaction with wind energy facilities

The following analysis takes into consideration avian mortality data from monitoring reports for the three most recently completed repowering projects in the APWRA: Vasco Winds (Ventus Environmental Solutions, 2016), Golden Hills (H.T. Harvey & Associates, 2020), and Golden Hills North (Great Basin Bird Observatory & H.T. Harvey and Associates, 2020). The monitoring reports from these projects represent the most recent and perhaps best available information for the current Project. Although the latest available data (Years 2 and 3 for Golden Hills and Year 1 from Golden Hills North) are only in draft form and not yet formally reviewed by the Wind Repowering/Avian Protection Technical Advisory Committee (WRAP TAC) as required by the mitigation measures applicable to those projects, the information in these reports is useful for assessing the current proposal to increase nameplate capacity.

The avian mortality data varies as much as 533 percent between these three projects. Many factors influence fatality rates that may or may not be shared between the Project site and neighboring repowered wind energy facilities, including but not limited to turbine hub height, rotor swept area, number and spacing of turbines in the facility, presence of nonfunctional turbine towers that may be attractive as nesting substrate and hunting perches (e.g. ,near the Golden Hills project site), topography, surrounding vegetation

communities, and presence of natural nesting substrate. Differences in survey approach and estimation methodologies among the collection of available data further confounds the issue. According to HT Harvey and Associates (2018), the presence of old turbine arrays (off-site, on the Patterson Pass project site) might have contributed to the nearby raptor hots spots at the Golden Hills facility. The Project's old generation turbines that preceded the Summit Project were removed from 2016 to 2018.

The Project, as approved in 2016, was determined to have significant and unavoidable impacts in relation to avian mortality resulting from interaction with the proposed wind energy facilities on special-status avian species that cannot be reduced to below the level of significance through the incorporation of mitigation measures.

Updated estimated avian mortality for the Project under non-repowered turbine conditions (referred to as pre-Project conditions in the CEQA Implementation Checklist) and the currently authorized 54 MW Project and proposed Project modification under the current 57.5 MW layout are shown in **Table 3** and **Table 4**, respectively. The tables are similar to Table 3.4-13 of the PEIR (for a specific project, Golden Hills), but use both a range and overall average of fatalities rates combined from Vasco Winds (3-year average), Golden Hills (3-year average), and Golden Hills North (Year 1).

Table 3. Estimated Annual Fatality Rates for Non-Repowered and Currently Authorized 54 MW Repowered Turbines at Summit Wind Repower Project

Species/Group	Adjusted Fatality Rates[a]		Estimated Summit Wind Fatalities[b]		Change from Non Repowered to Repowered Based on Average
	Non-Repowered[c]	Repowered Vasco Winds / Golden Hills / Golden Hills North[d]	Non Repowered 56.9 MW	Repowered 54 MW using Vasco Winds / Golden Hills / Golden Hills North Rate and [Average]	
American Kestrel	0.56	0.28 / 0.10 / 0.11	31.86	15.12 / 5.40 / 5.94 [8.82]	72% decrease
Burrowing Owl	0.67	0.06 / 0.19 / 0.03	38.12	3.24 / 10.26 / 1.62 [5.04]	87% decrease
Golden Eagle	0.09	0.05 / 0.16 / 0.08	5.12	2.70 / 8.64 / 4.32 [5.22]	2% increase
Red-tailed Hawk	0.40	0.21 / 0.57 / 0.29	22.76	11.34 / 30.78 / 15.66 [19.26]	15% decrease
All Raptors	2.43	0.64 / 1.15 / 0.64	138.27	34.56 / 62.10 / 34.56 [43.74]	68% decrease

[a] Annual fatalities per MW of nameplate capacity.
[b] Estimated total number of Project-wide fatalities. Calculated by multiplying adjusted fatality rate by MW.
[c] Average of 2005-2013 bird years for entire APWRA (ICF, 2016)
[d] Vasco Winds 3 year average (Ventus Environmental Solutions, 2016) / Golden Hills 3 year average (HT Harvey & Associates, 2020) / Golden Hills North Year 1 (Great Basin Observatory & HT Harvey and Associates, 2020) with the average across the three projects provided in brackets [ ].

The adjusted fatality rates for non-repowered turbines come from APWRA-wide data for 2011-2013 bird years (ICF, 2016). The adjusted fatality rates for repowered turbines were provided by the nearby repowering projects in the order presented in the tables: Vasco Winds (Ventus Environmental Solutions, 2016), Golden Hills (HT Harvey & Associates, 2020), and Golden Hills North (Great Basin Observatory & HT Harvey and Associates, 2020) – seven years of monitoring in total. Only one year of a minimum three-year monitoring program has been completed for the Golden Hills North project. The estimated total number of predicted fatalities resulting from the pre-Project non-repowered turbines is calculated by multiplying the non-repowered adjusted fatality rate by the nameplate capacity of the installed capacity of

the original wind energy facility (56.9 MWs as documented in PLN2011-00102). The estimated total number of predicted fatalities resulting from the currently authorized Project (**Table 3**) and proposed Project modification (**Table 4**) is calculated by multiplying the repowered adjusted fatality rate (as ordered in the tables) by the nameplate capacity of 54 MWs and 57.5 MWs, respectively. The expected change in annual fatalities from non-repowered to the 54 MW authorized Project (**Table 3**) and the 57.5 MW Project modification (**Table 4**) is calculated by subtracting the average annual fatalities for each focal species (shown in brackets [ ]) from the non-repowered fatalities and dividing by non-repowered fatalities.

Table 4. Estimated Annual Fatality Rates for Non-Repowered and 57.5 MW Project Modification at Summit Wind Repower Project

Species/Group	Adjusted Fatality Rates[a]		Estimated Summit Wind Fatalities[b]		
	Non-Repowered[c]	Vasco Winds / Golden Hills / Golden Hills North[d]	Non Repowered 56.9 MW	Repowered 57.5 MW using Vasco Winds / Golden Hills / Golden Hills North Rate and [Average]	Change from Non Repowered to Repowered Based on Average
American Kestrel	0.56	0.28 / 0.10 / 0.11	31.86	16.10 / 5.75 / 6.33 [9.39]	71% decrease
Burrowing Owl	0.67	0.06 / 0.19 / 0.03	38.12	3.45 / 10.93 / 1.73 [5.37]	86% decrease
Golden Eagle	0.09	0.05 / 0.16 / 0.08	5.12	2.88 / 9.20 / 4.60 [5.56]	9% increase
Red-tailed Hawk	0.40	0.21 / 0.57 / 0.29	22.76	12.08 / 32.78 / 16.68 [20.51]	10% decrease
All Raptors	2.43	0.64 / 1.15 / 0.64	138.27	36.80 / 66.13 / 36.80 [46.58]	66% decrease

[a] Annual fatalities per MW of nameplate capacity.
[b] Estimated total number of Project-wide fatalities. Calculated by multiplying adjusted fatality rate by MW.
[c] Average of 2005-2013 bird years for entire APWRA (ICF, 2016)
[d] Vasco Winds 3 year average (Ventus Environmental Solutions, 2016) / Golden Hills 3 year average (HT Harvey & Associates, 2020) / Golden Hills North Year 1 (Great Basin Observatory & HT Harvey and Associates, 2020) with the average across the three projects provided in brackets [ ].

As shown in **Table 3** and **Table 4**, the 57.5 MW Project modification is expected to result in avian fatality comparable to the currently authorized 54 MW Project. In summary, there would be essentially no change in the anticipated significant post repowering reduction in annual fatalities on American kestrel (72 versus 71 percent reduction), burrowing owl (87 versus 86 percent reduction), and all raptors combined (68 versus 66 percent reduction) for the Project modification. Similarly, the anticipated post repowering, modified Project decrease in annual fatalities on red-tailed hawk (10 percent decrease) would be slightly less than the currently authorized 54 MW Project (15 percent decrease). For golden eagle the anticipated annual fatalities for the Project modification would be slightly more than the currently authorized 54 MW Project (9 percent increase versus 2 percent increase).

As previously mentioned, there is a large variance in adjusted fatality rates between Vasco Winds, Golden Hills, and Golden Hills North. For three of the four focal species (burrowing owl, golden eagle, red-tailed hawk) and all raptors combined, Golden Hills' fatality data is notably higher than the other two projects. Additional years of study on the Golden Hills North project will help determine whether the high fatality rates at Golden Hills reflects an unusual event (post drought 2013-2014), unique site conditions, or a new standard pattern for the area (HT Harvey and Associates, 2018). As further explained in the Year 1 report for Golden Hills North, the monitoring results were less concerning for the four focal raptor species,

compared to both the Golden Hills project results and other pre- and post-repowering studies (Great Basin Bird Observatory & H.T. Harvey and Associates. 2020). If the Golden Hills site indeed represents a unique situation, the estimated repowered avian fatality shown in **Tables 3 and 4** for the Summit Wind Project would be an overestimate. For example, the Project modification would be expected to reduce golden eagle fatalities by 10 to 40 percent (instead of 9 percent increase) based on the Vasco Winds and Golden Hills North data which may be more representative of the area. The Summit Wind project is contiguous with Vasco Winds to the north and with Golden Hills North to the east, whereas the Golden Hills site is set apart from all three projects by I-580.

Furthermore, the Project modification will result in a smaller total rotor swept area as compared to the turbine layout described in the CEQA Implementation Checklist. As calculated by the turbine dimensions provided in **Table 2**, **Table 5** compares the rotor swept area for the layout described in the CEQA Implementation Checklist using 33 Suzlon 2.1 WTGs to the current layout which uses 23 GE 2.5 WTGs. While the rotor swept area for the GE 2.5 MW turbine model is 891 square meters larger than the Suzlon 2.1 model, the reduction in the number of turbines results in a smaller rotor swept area for the Project as a whole (76,273 square meters smaller than the 33 WTG layout and 18,215 square meter smaller than the 27 WTG layout).

Table 5. Rotor Swept Area Comparison for the Project

	33 WTG Project included in CEQA Implementation Checklist (Suzlon 2.1)	27 WTG Project Currently Authorized by CUP PLN2014-000560 (Suzlon 2.1)	23 WTG Proposed Project Modification (GE 2.5)
Rotor Swept Area per Turbine (m^2)	9,677	9,677	10,568
Rotor Swept Area for whole project (m^2)	319,337 (33 WTGs)	261,279 (27 WTGs)	243,064 (23 WTGs)

Although uncertainty surrounding the accuracy of the estimated fatality rates and the types of species potentially affected remains, fatalities will still be expected to result from the operation of the repowered turbines. The County has required implementation of Mitigation Measures BIO-11a through BIO-11i and BIO-14a through BIO-14d (for bats) to reduce this impact, but the impact is not expected to be reduced to a less-than-significant-level. Accordingly, the determination of significant and unavoidable impacts remains unchanged with implementation of the Project modification.

As required by BIO-11g, a site-specific post-construction avian fatality monitoring program will be developed by the Project sponsor for review and approval by the WRAP TAC. The fatality monitoring program will include adaptive management procedures for implementation in the event that the actual fatality rates measured onsite exceed those predicted for the Project today. In addition, as listed below, the Project modification would continue to adhere to Mitigation Measures BIO-11a through BIO-11i:

- BIO-11a: Prepare a project-specific avian protection plan
- BIO-11b: Site turbines to minimize potential mortality of birds
- BIO-11c: Use turbine designs that reduce avian impacts
- BIO-11d: Incorporate avian-safe practices into design of turbine-related infrastructure
- BIO-11e: Retrofit existing infrastructure to minimize risk to raptors
- BIO-11f: Discourage prey for raptors
- BIO-11g: Implement post-construction avian fatality monitoring for all repowering projects
- BIO-11h: Compensate for the loss of raptors and other avian species by contributing to conservation efforts
- BIO-11i: Implement an avian adaptive management program, as presented in the PEIR.

3.2 Impact BIO-14

Turbine-related fatalities of special-status and other bats

In its analysis of potential adverse impacts on resident and migratory bats flying in and through the Project area, the PEIR found evidence that they may be killed by collisions with wind turbine blades or towers. The repowered turbines represented by the Project, including the modified Project may thus introduce increased fatality risk unique to migratory bats.

As discussed in the most recent assessment of impacts of wind energy repowering on bat fatalities, for the Sand Hill Wind Repowering Project (2020), existing fatality data and trends observed at other wind energy facilities where fourth-generation turbines have been in operation for a few years, have improved understanding of repowering effects. From analysis of the data and trends it appears that fatalities would: 1) primarily be associated with wind speeds of less than 5-6 m/s; 2) occur with more frequency in the late summer to mid-fall migration period and more sporadically at other times of year; 3) consist mostly of migratory bats, particularly Mexican free-tailed bat and hoary bat; and 4) occur in smaller numbers among one or more other bat species. The impact identified in the 2014 PEIR and the 2016 CEQA Implementation Checklist for the Summit Wind Project regarding bat mortality was that the impact would be significant and unavoidable.

However, additional research and monitoring of the more recently installed wind turbine projects has furthered the understanding of how bats interact with and may be killed or injured by 4th-generation wind turbines, especially with the use of trained dogs in monitoring surveys (as at Golden Hills). The PEIR recognized that repowering old generation turbines with current generation turbines has typically resulted in higher numbers of reported bat fatalities for a number of reasons and hypotheses, but that new peer-reviewed scientific research, emerging technology and analytical methods could improve understanding and help inform effective mitigation strategies and avoidance and minimization measures. The final PEIR, while incorporating a metric of bat deaths per MW per year (expanded on the basis of public comment on the draft PEIR), noted that the common metric can disguise the absence of consistency in the manner of data collection (i.e., the limited ability to research or emphasize bat mortality studies under prior technological regimes vs. more recent research methods and more modern turbine technology). For this reason, use of the mortality/MW/year metric as an indicator of bat mortality prediction for wind turbine operations is not considered useful or reliable for concluding that a seven percent increase in MW, in the context of a concurrent reduction in blade swept area, would result in more severe impacts on bat species.

The Project modifications to increase MWs while reducing the total blade swept area and the individual number of turbines therefore cannot confidently be found to indicate that more severe impacts or greater number of bat fatalities will result. The Project sponsor will be required by the County to undertake the following Mitigation Measures BIO-14a through BIO-14d regardless. The impact on bats will remain significant and unavoidable, but will be reduced to the greatest extent possible by adoption and effective implementation of these measures.

- BIO-14a: Site and select turbines to minimize potential mortality of bats.
- BIO-14b: Implement post-construction bat fatality monitoring program for all repowering projects.
- BIO-14c: Prepare and publish annual monitoring on the finding of bat use of the project area and fatality monitoring results.
- BIO-14d: Develop and implement a bat adaptive management plan.

4. List of Preparers

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5. References

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Appendix A. Figures