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STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

NOV 27 2018

MEMORANDUM

TO: Scott Glenn, Director
Office of Environmental Quality Control
Department of Health

FROM: Suzanne D. Case, Chairperson *WDC*
Department of Land and Natural Resources

SUBJECT: Request for publication of *Draft Habitat Conservation Plan Amendment, Auwahi Wind Farm* and the associated *Draft Supplemental Environmental Impact Statement* in the December 8, 2018 Environmental Notice

We respectfully request publication of the subject documents in the December 8 Environmental Notice. Enclosed are hard copies and MS Word files of the OEQC publication forms and hard copies and pdf files of the draft Habitat Conservation Plan Amendment and draft Supplemental Environmental Impact Statement.

If there are any questions please contact Glenn Metzler, Division of Forestry and Wildlife, Habitat Conservation Planning Associate at glenn.m.metzler@hawaii.gov or 587-4149.

OFFICE OF ENVIRONMENTAL
QUALITY CONTROL

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APPLICANT PUBLICATION FORM

Project Name:	Draft Supplemental EIS for Auwahi Wind Farm (for Draft Amendment to Habitat Conservation Plan and Incidental Take License)
Project Short Name:	Auwahi Wind Farm Supplemental EIS
HRS §343-5 Trigger(s):	Use of State and County lands; Use of land within Conservation District (note these were triggers for the original EIS; HCP Amendment is not a trigger, but SEIS requested by DLNR)
Island(s):	Maui
Judicial District(s):	Hana
TMK(s):	(2)1-9-001:006 (por.)
Permit(s)/Approval(s):	Major Amendment to Habitat Conservation Plan, Incidental Take License and Federal Incidental Take Permit
Approving Agency:	Department of Land and Natural Resources
<i>Contact Name, Email, Telephone, Address</i>	Glenn Metzler, Division of Forestry and Wildlife 1151 Punchbowl Street, Room 325, Honolulu, HI 96813 Glenn.M.Metzler@hawaii.gov
Applicant:	Auwahi Wind Energy, LLC
<i>Contact Name, Email, Telephone, Address</i>	Marie VanZandt 488 8 th Avenue, San Diego, California 92101 mvanzandt@SempraGlobal.com
Consultant:	Tetra Tech, Inc.
<i>Contact Name, Email, Telephone, Address</i>	Alicia Oller 1750 SW Harbor Way, Suite 400, Portland, OR 97201 alicia.oller@tetrattech.com

Status (select one) DEA-AFNSI**Submittal Requirements**

Submit 1) the approving agency notice of determination/transmittal letter on agency letterhead, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the DEA, and 4) a searchable PDF of the DEA; a 30-day comment period follows from the date of publication in the Notice.

 FEA-FONSI

Submit 1) the approving agency notice of determination/transmittal letter on agency letterhead, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the FEA, and 4) a searchable PDF of the FEA; no comment period follows from publication in the Notice.

 FEA-EISPN

Submit 1) the approving agency notice of determination/transmittal letter on agency letterhead, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the FEA, and 4) a searchable PDF of the FEA; a 30-day comment period follows from the date of publication in the Notice.

 Act 172-12 EISPN
("Direct to EIS")

Submit 1) the approving agency notice of determination letter on agency letterhead and 2) this completed OEQC publication form as a Word file; no EA is required and a 30-day comment period follows from the date of publication in the Notice.

 DEIS
(Supplemental)

Submit 1) a transmittal letter to the OEQC and to the approving agency, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the DEIS, 4) a searchable PDF of the DEIS, and 5) a searchable PDF of the distribution list; a 45-day comment period follows from the date of publication in the Notice.

 FEIS

Submit 1) a transmittal letter to the OEQC and to the approving agency, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the FEIS, 4) a searchable PDF of the FEIS, and 5) a searchable PDF of the distribution list; no comment period follows from publication in the Notice.

 FEIS Acceptance
Determination

The approving agency simultaneously transmits to both the OEQC and the applicant a letter of its determination of acceptance or nonacceptance (pursuant to Section 11-200-23, HAR) of the FEIS; no comment period ensues upon publication in the Notice.

 FEIS Statutory
Acceptance

The approving agency simultaneously transmits to both the OEQC and the applicant a notice that it did not make a timely determination on the acceptance or nonacceptance of the applicant's FEIS

under Section 343-5(c), HRS, and therefore the applicant's FEIS is deemed accepted as a matter of law.

- Supplemental EIS Determination The approving agency simultaneously transmits its notice to both the applicant and the OEQC that it has reviewed (pursuant to Section 11-200-27, HAR) the previously accepted FEIS and determines that a supplemental EIS is or is not required; no EA is required and no comment period ensues upon publication in the Notice.
- Withdrawal Identify the specific document(s) to withdraw and explain in the project summary section.
- Other Contact the OEQC if your action is not one of the above items.

Project Summary

The Project consists of eight 3-megawatt (MW) wind turbines augmented by an 11-MW battery storage system located on 'Ulupalakua Ranch, on the eastern side of the island of Maui. An EIS for the Project was accepted by the County of Maui Planning Commission in August 2011. The Project was constructed in 2012 and has been in operation since that time. The Project operates under an approved Habitat Conservation Plan (HCP) and Incidental Take License (ITL) issued by the Department of Land and Natural Resources. The HCP and ITL provide coverage for incidental take of four listed wildlife species, including the endangered Hawaiian Hoary Bat (*Lasiurus cinereus semotus*). Post-construction mortality monitoring data indicate that the wind turbines are causing a greater number of Hawaiian Hoary Bat fatalities than anticipated in the approved HCP and authorized under the ITL. Accordingly, Auwahi Wind Energy, LLC is seeking approval of a major amendment to the HCP as part of the request to increase the amount of incidental Hawaiian Hoary Bat take authorized under the ITL. Given the increase in take of the Hawaiian Hoary Bat that is requested, an SEIS is being prepared for the HCP Amendment and ITL as required by Hawai'i Revised Statutes, Chapter 343 and implementing rules.

DRAFT Supplemental Environmental Impact Statement

**Auwahi Wind Farm Project
'Ulupalakua Ranch, Maui, Hawai'i**

Prepared for

Auwahi Wind
Auwahi Wind Energy, LLC

Prepared by



Tetra Tech, Inc.

November 2018

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DRAFT Supplemental Environmental Impact Statement

**Auwahi Wind Farm Project
'Ulupalakua Ranch
Maui, Hawai'i**

This Draft Supplemental Environmental Impact Statement and all ancillary documents were prepared under my direction or supervision and the information submitted, to the best of my knowledge, fully addresses document content requirements as set forth in Sections 11-200-17, Hawai'i Administrative Rules.

AUWAHI WIND ENERGY LLC

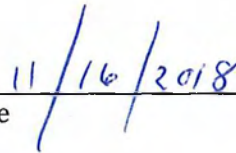
By its sole member

AUWAHI HOLDINGS, LLC



Glen A. Donovan, President

AUWAHI HOLDINGS, LLC



Date

Prepared for:

State of Hawai'i
Department of Land and Natural Resources, Division of Forestry and Wildlife

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PROJECT SUMMARY

Project Name	Auwahi Wind Farm Project
Applicant and Project Owner	Auwahi Wind Energy, LLC (Auwahi Wind)
Summary of Proposed Activity	<p>The Auwahi Wind Farm Project (Project) consists of eight 3-megawatt (MW) wind turbines augmented by an 11-MW battery storage system located on ‘Ulupalakua Ranch, on the eastern side of the island of Maui. Pursuant to Hawai‘i Revised Statutes (HRS) Chapter 343, an Environmental Impact Statement (EIS) was accepted by the County of Maui Planning Commission in August 2011. The Project was constructed in 2012 and has been in operation since that time. Post-construction mortality monitoring data indicate that the wind turbines are causing a greater number of endangered Hawaiian hoary bat fatalities than anticipated in the approved Habitat Conservation Plan (HCP) and authorized under the Incidental Take Permit (ITP) and Incidental Take License (ITL). Auwahi Wind is pursuing a major amendment to the HCP as part of the request to increase the amount of incidental Hawaiian hoary bat take authorized under the ITP/ITL. Except for the need for a major amendment to the HCP and ITP/ITL to allow for additional bat take, there have been no substantive changes to the Project; the size, scope, intensity, type of use and location of the wind farm facilities are consistent with the description provided in the 2011 EIS. However, given the increase in estimated take of the Hawaiian hoary bat, DOFAW requested that a Supplemental EIS (SEIS) be prepared to support its’ decision making for the HCP Amendment and ITL.</p>
Project Location	‘Ulupalakua Ranch; Districts of Hāna, Kula, and Kihei; Maui, Hawai‘i
Project Size	<p>Wind Farm Site (footprint of permanent facilities) - approximately 68 acres</p> <p>Generator-tie Line - approximately 9 miles long</p> <p>Pāpaka Road - approximately 4.6 miles long</p>
Land Ownership	<p>Wind Farm Site - ‘Ulupalakua Ranch</p> <p>Generator-Tie Line - ‘Ulupalakua Ranch; County of Maui (Pi‘ilani Highway); State of Hawai‘i (Kula Highway)</p> <p>Pāpaka Road - ‘Ulupalakua Ranch; ATC Mākena Holdings, LLC; Private (Piltz); County of Maui; State of Hawai‘i</p>

<p>Tax Map Keys (TMK)</p>	<p>Wind Farm Site - (2)1-9-001:006 (por.) Generator-tie Line - (2)1-9-001:006 (por.), (2)2-1-009:001 (por.), (2)2-1-009:999 (por.), (2)2-1-008:001 (por.) Pāpaka Road - (2)2-1-002:001 (por.), (2)2-1-002:002 (por.), (2)2-1-003-050 (por.), (2)2-1-003-054 (por.), (2)2-1-003-999 (por.), (2)2-1-004:006 (por.), (2)2-1-004:049 (por.), (2)2-1-004:106 (por.), (2)2-1-004:999 (por.), (2)2-1-005:023 (por.), (2)2-1-005:045 (por.), (2)2-1-005:055 (por.), (2)2-1-005:077 (por.), (2)2-1-005:108 (por.), (2)2-1-004:071 (por.), (2)2-1-004:017 (por.), (2)2-1-004:018 (por.), (2)2-1-005:030 (por.), (2)2-1-005:100 (por.), (2)2-1-005:095 (por.), (2)2-1-005:057 (por.), (2)2-1-008:999 (por.), (2)2-1-004:016 (por.), (2)2-1-008:131 (por.)</p>
<p>Required Approvals</p>	<p>Major amendment to HCP and ITP/ITL¹</p>
<p>HRS Chapter 343 Trigger</p>	<p>As stated in the 2011 EIS, the Project involves the use of state and county lands, as well as land classified as conservation district. Although an HCP and ITL is not a trigger for compliance with HRS Chapter 343, DOFAW requested that an SEIS be prepared to support its' decision making regarding the HCP amendment and ITL for the requested increase in authorized take of the Hawaiian hoary bat.</p>
<p>Approving Agency</p>	<p>State of Hawai'i Department of Land and Natural Resources Division of Forestry and Wildlife (DOFAW)²</p>
<p>Contact Information</p>	<p>Auwahi Wind 101 Ash St, HQ 14, San Diego, California 92101 Contact: Marie VanZandt mvanzandt@SempraGlobal.com Tetra Tech, Inc. 737 Bishop Street, Suite 2340, Honolulu, Hawai'i 96813 Contact: Lisa Kettley lisa.kettley@tetrattech.com</p>
<p>1. A complete list of the approvals that were required for construction of the Project is provided in the 2011 EIS. Amendment of the HCP and ITP/ITL to increase the amount of authorized Hawaiian hoary bat take (and the associated NEPA and HRS Chapter 343 environmental review) are the only approvals currently requested. 2. The County of Maui Planning Commission was the approving agency for the 2011 EIS. Based on DOFAW's request for an SEIS, Auwahi Wind consulted with the County Department of Planning with respect to the Planning Commission's responsibility as the approving agency. Based on feedback received from the Planning Director, it was determined that DOFAW would serve as the approving agency for the SEIS.</p>	

EXECUTIVE SUMMARY

The Auwahi Wind Farm Project (Project) consists of eight, 3-megawatt (MW) wind turbines augmented by an 11-MW battery storage system located on ‘Ulupalakua Ranch, on the eastern side of Maui. It is owned by Auwahi Wind Energy, LLC (Auwahi Wind), a joint venture between Sempra Renewables, LLC (Sempra) and BP Wind Energy North America Inc. The Project is operated by Sempra Renewables, an indirect subsidiary of Sempra Energy. Pursuant to Hawaii Revised Statutes (HRS) Chapter 343, an Environmental Impact Statement (EIS) was prepared for the Project and was accepted by the County of Maui Planning Commission in August 2011. The required permits and approvals were subsequently obtained, and the Project was constructed; commercial operation of the wind farm commenced on December 28, 2012. The facility is expected to be in operation through 2032 (approximately 20 years).

Similar to other wind energy facilities that are currently operating in Hawai‘i, post-construction mortality monitoring for the Project indicates that the wind turbines are causing a greater number of Hawaiian hoary bat (*Lasiurus cinereus semotus*) fatalities than was anticipated in the approved Habitat Conservation Plan (HCP; Tetra Tech 2012) and currently authorized by the U.S. Fish and Wildlife Service (USFWS) incidental take permit (ITP) and the Hawaii Department of Land and Natural Resources (DLNR) Division of Forestry and Wildlife (DOFAW) incidental take license (ITL) for the Project. Therefore, Auwahi Wind is pursuing a major amendment to the HCP (HCP Amendment) and ITP/ITL to increase the amount of authorized take¹ of the Hawaiian hoary bat.

Except for the need for a major amendment to the HCP and ITP/ITL, there have been no substantive changes to the Project; the size, scope, intensity, type of use and location of the wind farm facilities, as constructed, are consistent with the description provided in the 2011 EIS. However, given the increase in estimated take of the Hawaiian hoary bat, DOFAW requested that a Supplemental EIS (SEIS) be prepared to support its’ decision making for the HCP Amendment and ITL. As such, this Draft SEIS has been prepared to disclose the additional effects of the Project, specifically as related to the increase in estimated take of the Hawaiian hoary bat.

The need for the Project continues to be based on Hawaii’s Renewable Portfolio Standard (RPS; HRS Chapter 269-92), the Hawaii Clean Energy Initiative and other applicable regulations and initiatives, which collectively demonstrate an overwhelming need for renewable energy projects throughout Hawai‘i. Similarly, as described in the 2011 EIS, the purpose of the Project remains to provide clean, renewable wind energy for the island of Maui. Accordingly, this Draft SEIS carries forward the Project as the action being evaluated for potential environmental impacts. Given that the Project was constructed and has been in operation since 2012, with no substantive changes in the facilities as compared to the description provided in the 2011 EIS, the SEIS evaluation is based on the same Project description as the 2011 EIS but with a focus on the wind farm’s impacts on the Hawaiian hoary bat.

¹ Under Section 3 of the ESA, the term “take” means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct (16 U.S.C. 1532(19)).

In response to the estimated increase in take of Hawaiian hoary bats, Auwahi Wind began implementing voluntary year-round low wind speed curtailment (LWSC) in 2015. This avoidance and minimization measure involves restricting turbine operation by feathering the turbine blades during periods of low wind speed in certain nighttime hours, as these conditions are associated with increased bat activity. It is an operational protocol and does not involve physical modification of any facilities or other changes to the Project description presented in the 2011 EIS; further detail regarding LWSC is provided as part of the discussion of avoidance and minimization measures for impacts to Hawaiian hoary bats in Section 3.7.

The HCP Amendment identifies several alternatives to the requested increase in authorized incidental take of the Hawaiian hoary bat; these alternatives involve further modification of Project operational protocols. These alternative approaches from the HCP Amendment, as well as a “no HCP Amendment” alternative (i.e. a “no action” alternative), were eliminated from further consideration as they would not meet the purpose and need for the Project or the Project objectives, as further discussed in Section 2.2.

Beneficial and Adverse Impacts

Except for the increase in estimated take of the Hawaiian hoary bat, impacts associated with the Project are commensurate with the assessment provided in the 2011 EIS. There are no substantive changes to the impact evaluations for other resources based on the increased bat take levels. Therefore, the discussion contained in the 2011 EIS is incorporated by reference for the following resource categories: climate, geology and topography, soils, natural hazards, hydrology and water resources, vegetation, archeological and cultural resources, transportation and traffic, hazardous and regulated materials, noise, air quality, visual resources, surrounding land use and agriculture, public construction and safety, socioeconomic characteristics, and public infrastructure and services.

The only Project-related impact that is known to substantively differ from the information presented in the 2011 EIS relates to the Hawaiian hoary bat. This species is federally listed as endangered and is protected under the ESA and is also listed as endangered by the State of Hawaii and is protected under HRS Chapter 195D. The approved HCP and ITP/ITL authorized a take limit of 21 bats for the Project. As of December 31, 2017, a total of 18 Hawaiian hoary bat fatalities have been documented. Modeling estimates (which account for both observed and unobserved take) indicate that the Project has exceeded the currently authorized take limit, even with the implementation of additional voluntary avoidance and minimization measures.² The voluntary measures that have been implemented represent the maximum practicable levels of curtailment, and include: (1) LWSC with a cut-in speed of 5.0 meters per second (m/s), from 30 minutes before sunset to 30 minutes after sunrise, for the months of November through July; and (2) increased nighttime LWSC with a 6.9 m/s cut-in speed, from 30 minutes before sunset to 30 minutes after

² The USFWS and DOFAW require that compliance with ITP/ITL take limits be assessed based on the 80 percent credibility level, which means there is an 80 percent probability that actual mortality is equal to or less than the predicted mortality.

sunrise, for the months of August to October. This LWSC protocol is proposed to continue under the HCP Amendment.

As part of the HCP amendment process, direct and indirect effects to the Hawaiian hoary bat were evaluated and the results were used to develop a revised take estimate. This updated analysis of direct and indirect effects is based on field data and the most current software and guidance available, including:

- Data from Project operations (2012 – 2017);
- Results from post-construction mortality monitoring surveys (2013 – 2017);
- Acoustic bat monitoring surveys using Wildlife Acoustics monitors (July 2013 – December 2015);
- Evidence of Absence (EoA) fatality modeling software (2.0 or current, Dalthorp et al. 2017); and
- The Endangered Species Recovery Committee (ESRC) Hawaiian Hoary Bat Guidance Document (ESRC Bat Guidance; DOFAW 2015) and subsequent verbal and written guidance and recommendations provided by USFWS and DOFAW.

Based on the EoA modeling results, and accounting for implementation of LWSC to avoid and minimize collision risk, the total Project-related direct take through 2032 is estimated to be up to 129 bats. Based on parameters recommended in USFWS and DOFAW guidance (USFWS 2016a), indirect take is predicted to be 11 adult-equivalent bats over the 20-year period. Together, the amended take estimate is a total of 140 bats (129 direct and 11 indirect). This take amount includes the 21 adult bats currently authorized under the existing ITP/ITL; thus, the additional requested bat take under the HCP Amendment is 119 bats.

The HCP Amendment includes a comprehensive mitigation approach to protect, restore, and manage habitat that is suitable for bat foraging and roosting, as further discussed below. These efforts will build on the ongoing mitigation that is successfully being implemented under the approved HCP. Collectively, the mitigation actions will ensure that the benefit to the Hawaiian hoary bat exceeds the mitigation offset required and provides a net benefit to the species. The detailed analysis supporting these conclusions is presented in Chapters 3 and 4, with further information provided in the Draft HCP Amendment.

Overall, based on current data regarding the species occurrence and biology, the Project is not anticipated to have a significant impact on the population of Hawaiian hoary bats on the island of Maui or statewide. As the bat populations of individual islands are generally considered distinct and movement of bats between islands is anticipated to be rare, the incidental take on Maui is not likely to impact the population on other islands. In addition to the Hawaiian hoary bat take authorized under the approved HCP, the only other authorized take of the Hawaiian hoary bat on Maui is from two other utility-scale wind farms operating with approved HCPs (Kaheawa Wind Phase I Project and Kaheawa Wind Phase II Project). Based on the species occurrence on Maui, the cumulative impact of all current Maui wind projects is not expected to have a significant impact on the population of Hawaiian hoary bats on the island. As current and pending actions with HCPs are

expected to fully mitigate for their take and provide a net benefit to the species, as required by law, implementation of the HCP Amendment is not expected to contribute to significant, adverse, cumulative impacts to the Hawaiian hoary bat.

Proposed Avoidance, Minimization, and Mitigation Measures

In all cases where adverse impacts were identified in the 2011 EIS, Auwahi Wind developed best management practices (BMPs) and mitigation measures to avoid and minimize the potential impacts to sensitive environmental resources to the extent possible. These BMPs and mitigation measures have been and continue to be implemented for the Project, as applicable.

In addition to these avoidance and minimization measures, and consistent with the biological goals of the HCP Amendment, Auwahi Wind has been and will continue implementing compensatory mitigation for impacts to the Hawaiian hoary bat. Pursuant to the requirements of HRS Chapter 195D, the mitigation is intended to fully offset the take and provide a net benefit to the species. Mitigation has been developed according to the different tiers of take, with planning and implementation occurring as each tier is triggered. Mitigation for the existing tiers of take (Tiers 1-3, per the approved HCP) is being successfully implemented, in coordination with USFWS and DOFAW. The proposed mitigation for the additional tiers of take (Tiers 4 – 6), developed as part of the HCP amendment process, is based on the recovery priorities described in the Hawaiian Hoary Bat Recovery Plan (USFWS 1998) and supplemented by the April 2015 ESRC workshop and resulting ESRC Bat Guidance (DOFAW 2015) and subsequent verbal and written guidance and recommendations provided by USFWS and DOFAW.

The Tier 4 mitigation consists of habitat enhancement, management, and protection on approximately 1,752 acres of 'Ulupalakua Ranch lands on leeward Haleakalā. Specific mitigation actions include creating forested linear landscape features (i.e., hedgerows) that can be used as foraging and night roosting substrate and travel corridors, and providing suitable, consistent water resources for the Hawaiian hoary bat. In addition to creating these two types of habitat features, other mitigation actions will include fire management and legal protection through a permanent conservation easement. These actions will not only protect existing bat habitat but will also improve habitat quality through the addition of resource features and substrates important for bat roosting and foraging, as well as augment the connectivity between nearby State Forest Reserves and other conservation areas that currently provide bat habitat. These actions are expected to result in a substantial increase in the number of bats utilizing this area. Long-term monitoring will be conducted to assess bat activity and determine the effectiveness of the mitigation, with the results used to determine if adaptive management is needed to ensure minimization and mitigation goals and objectives are being met.

Similarly, mitigation for the Tiers 5 and 6 take levels would focus on restoration and management of lands with bat foraging, roosting, and/or breeding habitat. Based on expectations of the effectiveness of LWSC and the uncertainty about the potential for reoccurrence of a relatively large number of fatality events in a single year, it is likely that Tiers 5 and 6 may not be reached until much later in the permit term, if at all. Due to the likely time horizon, specific mitigation plans for Tiers 5 and 6 would be developed at the time these triggers are reached, which will allow them to

be based on the best available science and state of knowledge on the Hawaiian hoary bat at that time. A discussion of the prioritization and selection criteria that would be used to evaluate land-based mitigation actions for the Tier 5 and Tier 6 mitigation is provided in the HCP Amendment. As with Tiers 1-4, any future mitigation plans would be reviewed and approved by the USFWS and DOFAW prior to implementation.

Consistency With Land Use Policies and Plans

The extent to which Project implementation complies with the full range of applicable federal, state and county regulations and policies was evaluated as part of the 2011 EIS. Further evaluation was conducted in light of the revised analysis of Project-related impacts to the Hawaiian hoary bat. Accounting for recent plan and policy updates, the Project is still consistent with the applicable plans and policies, including the Hawaii State Plan and the various components of the Maui General Plan (that is, the Countywide Policy Plan, Maui Island Plan, and relevant Community Plans). An updated discussion of consistency with these plans and policies is provided in Section 5.

As described above, Auwahi Wind is seeking a major amendment to the HCP and ITP/ITL, in compliance with ESA Section 10 and HRS Chapter 195D. Other discretionary approvals that were previously obtained for Project implementation, including a County Special Use Permit, Special Management Area (SMA) Permit, and Conservation District Use Permit, are not expected to be affected by the increase in estimated take of the Hawaiian hoary bat. An updated list of the required permits and approvals required for the Project is provided in Section 5.4.

Other HRS Chapter 343 Topics

HRS Chapter 343 and HAR 11-200 requires a description of the relationship and trade-offs between local short-term uses and long-term productivity of the environment, as well as all irreversible and irretrievable commitments of resources. The 2011 EIS includes a detailed analysis of these topics and discusses the extent to which the Project allows for dual use of the property for renewable energy and agricultural uses and does not foreclose future options on the Auwahi parcel. The analysis also addresses irreversible and irretrievable commitment of resources, particularly with respect to the use of non-renewable resources and the potential for environmental accidents. As described in Chapter 6, there are no substantive changes to the discussion of these topics from the 2011 EIS.

Consistent with the information provided in the 2011 EIS, extensive consultation with USFWS and DOFAW has been conducted and measures are being implemented to avoid and minimize impacts to the Hawaiian hoary bat to the extent practicable. A major amendment to the HCP and ITP/ITL is being pursued to address the increase in estimated take of this species; the HCP Amendment presents a comprehensive approach to avoid, minimize and mitigate the potential impacts, such that implementation of the HCP Amendment is expected to provide a net benefit to the species.

Rationale for Proceeding

As detailed in the 2011 EIS, wind-generated energy serves to diversify Maui's power supply and contribute to the state's energy independence and security, as well as helps to meet the state's established regulatory requirements and initiatives. Based on this rationale and the previous

analysis of environmental impacts, the Project successfully obtained the required permits and approvals and was constructed in 2012.

There are no substantive changes to this discussion based on the modified analysis of impacts to the Hawaiian hoary bat. The Project continues to be an important source of renewable energy for Maui and is contributing to achievement of the state's clean energy goals. Although the Project is resulting in greater impacts to the Hawaiian hoary bat than originally anticipated, the HCP Amendment incorporates specific measures that would be implemented to avoid, minimize and mitigate those impacts, and ultimately is expected to provide a net benefit to the species.

Parties Consulted

As described in the 2011 EIS, coordination and consultation with 'Ulupalakua Ranch, neighboring communities and governmental agencies began in 2007, when the Project was first proposed by Shell Wind Energy. After Auwahi Wind Energy, LLC acquired the Project in October 2009, it continued the coordination and consultation effort.

In February 2015, prior to the bat take limit being exceeded, Auwahi Wind initiated consultation with the relevant agencies and extensive consultation has been conducted since that time. A detailed list of consultation through the HCP amendment process is provided in Section 7.1. In addition, an SEIS Preparation Notice was published in December 2017 for a 30-day public review. Distribution of the SEIS Preparation Notice and public comments that were received are summarized in Sections 7.2 and 7.3, respectively. These comments have been considered in the preparation of this Draft SEIS. Pursuant to the requirements of HRS Chapter 343 and HAR 11-200, this Draft SEIS has been published for a 60-day public review; comments that are received will be considered as the document is finalized.

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1.0 Introduction

The Auwahi Wind Farm Project (Project) consists of eight, 3-megawatt (MW) wind turbines³ augmented by an 11-MW battery storage system located on ‘Ulupalakua Ranch, on the eastern side of Maui. It is owned by Auwahi Wind Energy, LLC (Auwahi Wind), a joint venture between Sempra Renewables, LLC (Sempra) and BP Wind Energy North America Inc. The Project is operated by Sempra Renewables, an indirect subsidiary of Sempra Energy.

Pursuant to Hawaii Revised Statutes (HRS) Chapter 343, an Environmental Impact Statement (EIS) was prepared for the Project and was accepted by the County of Maui Planning Commission in August 2011. The purpose of an EIS is to disclose the effects of a proposed action and alternative actions to ensure that environmental concerns are given appropriate consideration in decision making. The required permits and approvals were subsequently obtained, and the Project was constructed; commercial operation of the wind farm commenced on December 28, 2012. The Project is expected to be in operation through 2032 (a lifespan of approximately 20 years).

As part of the permitting process, Auwahi Wind was issued an incidental take permit (ITP) from the U.S. Fish and Wildlife Service (USFWS), and an incidental take license (ITL) from the Hawai‘i Department of Land and Natural Resources (DLNR) Division of Forestry and Wildlife (DOFAW), pursuant to Section 10 of the federal Endangered Species Act (ESA) and the State of Hawai‘i endangered species law (HRS Chapter 195D), respectively. The ITP/ITL and associated Habitat Conservation Plan (HCP; Tetra Tech 2012) provide coverage and identify mitigation for incidental take⁴ of four federal and state-listed endangered species that could potentially be impacted by the Project. These species include the ʻōpeʻapeʻa or Hawaiian hoary bat (*Lasiurus cinereus semotus*), the ‘ua‘u or Hawaiian petrel (*Pterodroma sandwichensis*), the nēnē or Hawaiian goose (*Branta sandvicensis*), and the Blackburn’s sphinx moth (*Manduca blackburni*).

Similar to other wind energy facilities that are currently operating in Hawai‘i, post-construction mortality monitoring for the Project indicates that the wind turbines are causing a greater number of Hawaiian hoary bat fatalities than was anticipated in the approved HCP and authorized by the ITP/ITL. Therefore, Auwahi Wind is pursuing a major amendment to the HCP (HCP Amendment) and ITP/ITL to increase the amount of authorized take of the Hawaiian hoary bat.

Except for the need for a major amendment to the HCP and ITP/ITL to allow for additional bat take, there have been no substantive changes to the Project, such that the size, scope, intensity, type of use, and location of the wind farm facilities, as constructed, are commensurate with the description

³ The 2011 EIS stated that the Project would have a net generating capacity of 21 MW and was expected to be curtailed at night on a regular basis based on expected MECO demands. Subsequently, MECO implemented a dispatch process that optimizes use of renewable energy generators, such that the Project is routinely operated at night. Each of the eight wind turbine generators is capable of generating up to 3 MW. However, even if the Project generated the full 24 MW, there is no increased risk to bats because the rotations per minute (RPMs) of the turbine blades are the same at 3 MW as at 2.6 MW.

⁴ Under Section 3 of the ESA, the term “take” means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct (16 U.S.C. 1532(19)).

provided in the 2011 EIS. However, given the increase in estimated take of the Hawaiian hoary bat, DOFAW requested that a Supplemental EIS (SEIS) be prepared to support its decision-making for the HCP Amendment and ITL. This requirement is based on direction provided in the implementing rules for HRS Chapter 343; specifically, Hawaii Administrative Rules (HAR) 11-200-27 states that “*a supplemental statement shall be warranted when the scope of an action has been substantially increased, when the intensity of environmental impacts will be increased, when the mitigating measures originally planned are not to be implemented, or where new circumstances or evidence have brought to light different or likely increased environmental impacts not previously dealt with.*” As such, this Draft SEIS has been prepared to disclose the additional effects of the Project, specifically as related to the increase in estimated take of the Hawaiian hoary bat, in accordance with the procedures set forth in HRS Chapter 343 and HAR 11-200.

1.1 Background and History

The 2011 EIS provides a detailed discussion of the background and history relating to initial efforts by the Hawai'i Wind Working Group and Shell Wind Energy, Inc., which led to identification of the Auwahi parcel of 'Ulupalakua Ranch as a suitable site for wind development and execution of a 25-year property lease agreement for construction and operation of a wind farm project. Additional discussion is provided regarding the subsequent selection of the Project by Maui Electric Company, Inc. (MECO) for negotiation of a Power Purchase Agreement (PPA), Sempra's acquisition of the Project, and PPA approval in June 2011. These discussions from the 2011 EIS are incorporated by reference. The following information regarding the Project location and land ownership is provided from the 2011 EIS for convenience. Additional background and history, particularly as it relates to issuance of the ITP/ITL and the HCP amendment process, is provided below.

1.1.1 Location of Proposed Project

The Project is located almost entirely on 'Ulupalakua Ranch, approximately 10 miles south of Kula, in the Hāna, Kula, and Kihei Districts of Maui. It consists of three major components: the wind farm site, a generator-tie line corridor and interconnection substation, and a construction access route. The location of each of these components is shown on Figure 1-1.

The wind farm site (approximately 1,466 acres) is on the Auwahi parcel of 'Ulupalakua Ranch, which is bordered by the Pacific Ocean to the south and Upcountry Pi'ilani Highway to north; state-owned undeveloped lands are adjacent to the west and east of the site. As shown in Figure 1-2, the wind farm site is located within the southern portion of the parcel, with the northern edge of the site defined by Upcountry Pi'ilani Highway and the southern edge located more than 1,000 feet from the shoreline. The primary access route used for construction of the wind farm consists primarily of existing state and county roadways, Pi'ilani Highway and Kula Highway, as well as approximately 4.6 miles of pastoral roads between Mākena Alanui Road and Upcountry Pi'ilani Highway. These pastoral roads are collectively referred to as Pāpaka Road and are located on 'Ulupalakua Ranch and several other private and publicly owned parcels.

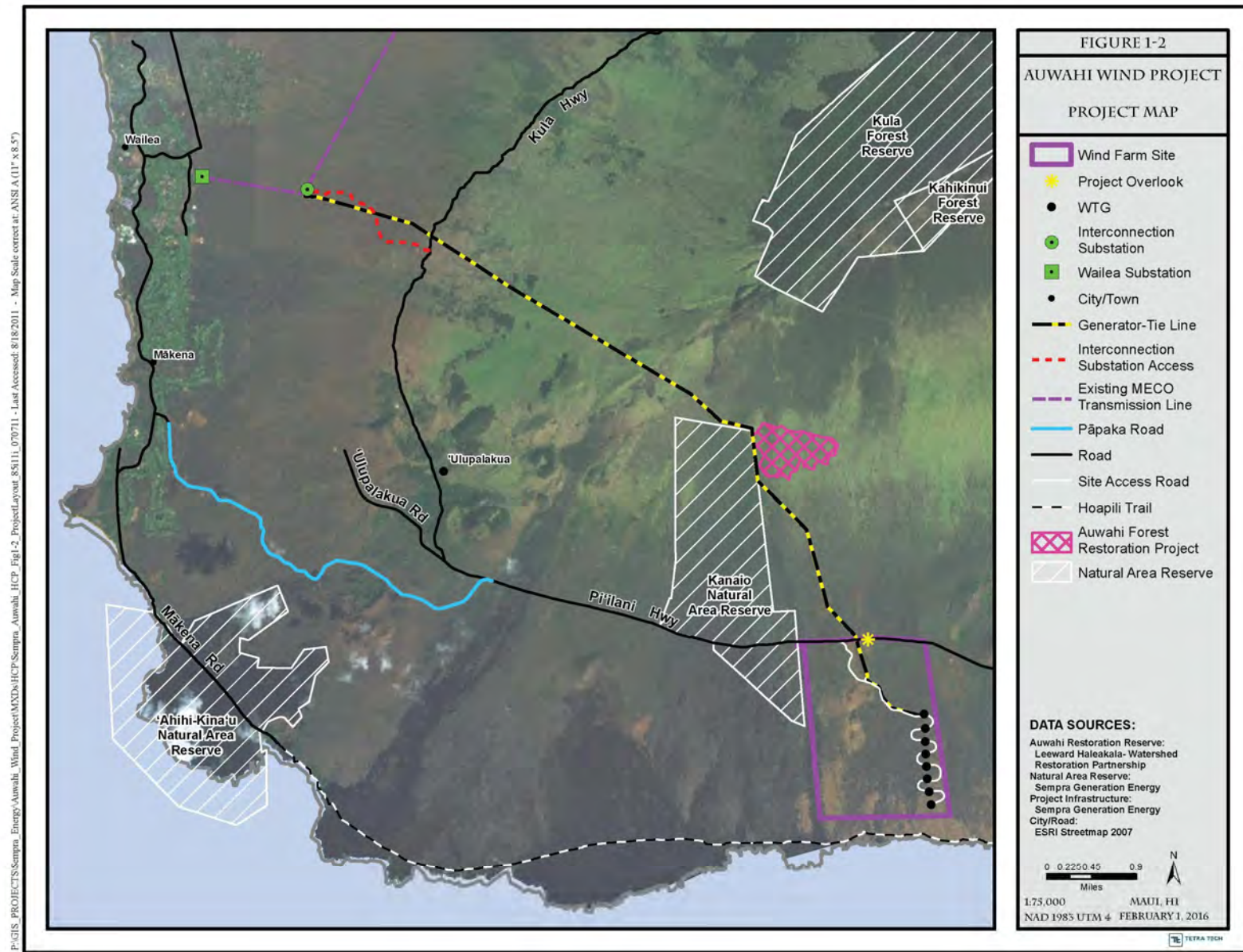


Figure 1-2. Project Map

The electrical power generated by the wind farm is transmitted to MECO’s existing electrical grid through a 34.5-kilovolt (kV) generator-tie line. The generator-tie line originates within the wind farm site and extends approximately 9 miles north and west on ‘Ulupalakua Ranch property, crossing both Upcountry Pi‘ilani Highway and Kula Highway. The generator-tie line connects to the MECO Wailea-Kealahou 69-kV transmission line at the point of interconnection (POI), located approximately 1 mile east of MECO’s Wailea substation. Facilities located at the POI include an interconnection substation, as well as a battery energy storage system and microwave communication tower (Figure 1-2).

1.1.2 Land Ownership

The wind farm site is located entirely on land owned by ‘Ulupalakua Ranch and leased to Auwahi Wind. The generator-tie line is also on ‘Ulupalakua Ranch property, although it spans Upcountry Pi‘ilani Highway, which is in a county easement, and Kula Highway, which is owned by the state. The Pāpaka Road portion of the construction access route crosses 19 parcels, which are owned by ‘Ulupalakua Ranch, as well as the State of Hawai‘i, the County of Maui, and two private entities (see Table 1-1).

Table 1-1. Parcel Information for the Auwahi Wind Farm Project

Project Component	Tax Map Key (TMK)	Landowner(s)
Wind Farm Site	(2) 1-9-001:006 (por.)	‘Ulupalakua Ranch, leased by Auwahi Wind
Generator-tie Line Corridor, Interconnect Substation	(2) 1-9-001:006 (por.)	‘Ulupalakua Ranch
	(2) 2-1-009:001 (por.)	‘Ulupalakua Ranch
	(2) 2-1-009:999 (por.)	State of Hawai‘i/County of Maui
	(2) 2-1-008:001 (por.)	‘Ulupalakua Ranch
Pāpaka Road/Construction Access Route	(2) 2-1-002:001 (por.)	State of Hawai‘i
	(2) 2-1-002:002 (por.)	State of Hawai‘i
	(2) 2-1-003-050 (por.)	State of Hawai‘i
	(2) 2-1-003-054 (por.)	State of Hawai‘i
	(2) 2-1-003-999 (por.)	County of Maui
	(2) 2-1-004:006 (por.)	‘Ulupalakua Ranch
	(2) 2-1-004:016 (por.)	‘Ulupalakua Ranch
	(2) 2-1-004:017 (por.)	‘Ulupalakua Ranch
	(2) 2-1-004:018 (por.)	‘Ulupalakua Ranch
	(2) 2-1-004:049 (por.)	State of Hawai‘i; leased by ‘Ulupalakua Ranch
	(2) 2-1-004:071 (por.)	‘Ulupalakua Ranch
	(2) 2-1-004:106 (por.)	‘Ulupalakua Ranch
	(2) 2-1-004:999 (por.)	County of Maui
	(2) 2-1-005:023 (por.)	‘Ulupalakua Ranch; Private Party (Piltz)
	(2) 2-1-005:030 (por.)	‘Ulupalakua Ranch
(2) 2-1-005:045 (por.)	‘Ulupalakua Ranch	
(2) 2-1-005:055 (por.)	State of Hawai‘i; leased by ‘Ulupalakua Ranch	

Project Component	Tax Map Key (TMK)	Landowner(s)
	(2) 2-1-005:057 (por.)	'Ulupalakua Ranch
	(2) 2-1-005:077 (por.)	State of Hawai'i; leased by 'Ulupalakua Ranch
	(2) 2-1-005:095 (por.)	'Ulupalakua Ranch
	(2) 2-1-005:100 (por.)	'Ulupalakua Ranch
	(2) 2-1-005:108 (por.)	ATC Mākena Holdings, LLC
	(2) 2-1-008:131 (por.)	County of Maui
	(2) 2-1-008:999 (por.)	State of Hawai'i/County of Maui
(por.) = only a portion of the TMK is crossed by the proposed Project.		

1.1.3 HRS Chapter 343 Compliance

As detailed in the 2011 EIS, the Project involves the use of both state and county lands, as well as land classified as conservation district, all of which are actions that require compliance with HRS Chapter 343. The major discretionary approvals for the Project included a County Special Use Permit and a Special Management Area (SMA) Use Permit, both of which are approved by the County of Maui Planning Commission. Therefore, based on an agreement between the various agencies, the County Planning Commission was identified as the approving agency for the HRS Chapter 343 process. An EIS was prepared pursuant to the requirements of HRS Chapter 343 and HAR 11-200; the Final EIS was accepted by the County Planning Commission on August 9, 2011 and was published by the Office of Environmental Quality Control (OEQC) in the *Environmental Notice* on August 23, 2011. A copy of the 2011 EIS acceptance documentation is provided in Appendix A.

Although an ITL is not a trigger for compliance with HRS Chapter 343, DOFAW requested that an SEIS be prepared to support its decision-making for the HCP Amendment and ITL relative to the increase in estimated take of the Hawaiian hoary bat. As previously noted, the request for an SEIS is based on HAR 11-200-27, which states that *“a supplemental statement shall be warranted when the scope of an action has been substantially increased, when the intensity of environmental impacts will be increased, when the mitigating measures originally planned are not to be implemented, or where new circumstances or evidence have brought to light different or likely increased environmental impacts not previously dealt with.”*

Following DOFAW’s request for an SEIS, Auwahi Wind consulted with the County Department of Planning with respect to the Planning Commission’s responsibility as the approving agency for the 2011 EIS. In a letter dated August 24, 2017, the Planning Director responded that it is unlikely that the HCP Amendment would substantially affect the permits issued by the Planning Commission, or the Planning Commission’s or County Department of Planning’s land use permitting responsibilities and deferred to DOFAW regarding the need for an SEIS. Based on this feedback, it was determined that DOFAW would serve as the approving agency for the SEIS. On December 8, 2017, DOFAW published their determination regarding the SEIS, in parallel with publication of an SEIS Preparation Notice (SEISPN) for the Project. A copy of the correspondence from the County Department of Planning is provided in Appendix B.

1.1.4 HCP and ITP/ITL

As noted above and further detailed in the 2011 EIS, it was determined that implementation of the Project could result in incidental take of the following species, which are listed as endangered under both the federal ESA and the State of Hawai'i endangered species law (HRS 195D): the Hawaiian hoary bat, Hawaiian petrel, Hawaiian goose, and Blackburn's sphinx moth. To address the potential for incidental take of these species, Auwahi Wind sought an ITP from USFWS pursuant to ESA Section 10(1)(1)(B) and an ITL from DOFAW pursuant to HRS Chapter 195D. Both of these permits require development and approval of an HCP prior to authorization.

The purpose of an HCP is to describe the anticipated effects of a proposed taking, the measures that would be implemented to avoid, minimize and mitigate the effects, and the funding for those measures. Overall, implementation of an HCP is intended to provide a conservation benefit to the listed species and contribute to their recovery. An HCP was prepared for the four endangered species referenced above (collectively referred to as "covered species"), as needed to meet both the federal and state requirements. The HCP for the Project was approved, and the ITP and ITL were subsequently issued by USFWS and DOFAW on February 24 and February 9, 2012, respectively. The take limits that were authorized by the ITP/ITL for the covered species are summarized in Table 1-2.

Table 1-2. Levels of Incidental Take Authorized by ITP/ITL

Species	Requested Take For the 25-year Permit Period
Hawaiian hoary bat (<i>ōpe'ape'a</i> ; <i>Lasiurus cinereus semotus</i>)	21 adults ¹
Hawaiian petrel ('ua'u; <i>Pterodroma sandwichensis</i>)	64 adults and 23 chicks
Hawaiian goose (nēnē, <i>Branta sandvicensis</i>)	5 adults and fledglings
Blackburn's sphinx moth (<i>Manduca blackburni</i>)	28 acres of permanently disturbed habitat
1. The approved HCP requested take of 19 adults and 8 young. Per an agreement with USFWS and DOFAW and biological assumptions presented in the approved HCP, this was converted to 21 bats based on an assumed survival rate of juveniles to adulthood of 0.3 (email correspondence with USFWS on April 28, 2015).	

The approved HCP includes a Post-Construction Monitoring Plan (PCMP), which is designed to detect and document impacts to the covered species as a result of Project operations, and to ensure compliance with the authorized provisions and take limits of the HCP and the associated ITP/ITL. Post-construction mortality monitoring was initiated in 2012 and is ongoing in accordance with the PCMP.

Based on the post-construction mortality monitoring data from the first 5 years of Project operations, Hawaiian hoary bat take has been higher than anticipated, and modeled estimations of take indicate that the Project has exceeded the authorized take limit, even with the implementation

of additional voluntary avoidance and minimization measures.^{5,6} When the HCP was approved, post-construction mortality monitoring data from Hawai'i wind farms were limited, and estimates of take were based on the best available surrogate information, such as preliminary mortality monitoring data from one operating wind farm in Hawai'i and general comparisons of bat acoustic activity between sites, which now are understood to have underestimated the collision risk for bats. Advancements in acoustic monitoring and thermography have shown that prior population estimates under-reported the abundance of the Hawaiian hoary bat (Gorresen et al. 2017).

In February 2015, prior to the bat take limit being exceeded, Auwahi Wind initiated consultation with USFWS and DOFAW regarding a major amendment to the HCP as part of a request for authorization of additional incidental take of Hawaiian hoary bats. The amendment process has been underway since that time; as detailed in Section 7.0, extensive agency consultation has been conducted to support development of the HCP Amendment. The HCP Amendment provides a detailed approach that is intended to ensure the continued existence of, and aid in the recovery of, the Hawaiian hoary bat while allowing for incidental take of the species during Project operation. It specifically identifies appropriate avoidance and minimization measures, mitigation actions, adaptive management strategies, and monitoring requirements associated with the requested additional bat take.

Additional detail regarding public review of the Draft HCP Amendment and the subsequent federal and state approval processes is provided in Sections 5.2 and 5.4, respectively.

1.2 Purpose and Need

The 2011 EIS provides a detailed statement of the purpose and need for the Project. Specifically, the need for the Project is based on Hawai'i's Renewable Portfolio Standard (RPS; HRS Chapter 269-92), the Hawai'i Clean Energy Initiative, and other similar regulations and initiatives, which collectively demonstrate an overwhelming need for renewable energy projects throughout Hawai'i. The purpose of the Project is to provide clean, renewable wind energy for the island of Maui.

The purpose and need for the Project are still as described in the 2011 EIS, and no changes are needed based on the impacts related to the request for increased take of the Hawaiian hoary bat in the HCP Amendment. The detailed statements of purpose and need, as presented in Section 1.2 of the 2011 EIS are incorporated by reference.

⁵ The USFWS and DOFAW require that compliance with ITP/ITL take limits be assessed based on the 80 percent credibility level, which means there is an 80 percent probability that actual mortality is equal to or less than the predicted mortality.

⁶ Although not required by the HCP and ITP/ITL, Auwahi Wind began implementing voluntary year-round low wind speed curtailment (LWSC) with a cut-in speed of 5.0 meters/second (m/s) in February 2015. LWSC involves restricting turbine operation until the wind reaches a pre-determined speed (greater than the manufacturer's recommended cut-in speed). Nighttime LWSC has been associated with reduction in risk to bats (Arnett et al. 2011) because bat activity is typically associated with periods when wind speeds are lower. As wind speeds increase, the likelihood of bat activity decreases, and collision risk correspondingly decreases. Additional discussion of LWSC and other avoidance and minimization measures is provided in Section 3.7.2.4.

1.3 Project Objectives

As detailed in the 2011 EIS, Project objectives were established based on the documented need for renewable energy and the purpose of providing renewable wind energy for Maui, in combination with the known environmental and infrastructure (electrical grid) constraints on Maui. The Project was constructed in 2012, consistent with the description provided in the 2011 EIS. The original Project objectives are still applicable and no changes are needed based on the impacts related to the request for increased take of the Hawaiian hoary bat in the HCP Amendment. They are replicated below for reference purposes.

- Construct and operate a wind farm on Maui in an area with adequate wind resources to provide dependable, efficient, and economically feasible renewable energy;
- Increase Hawai'i's energy independence through the development of an additional source of renewable energy;
- Provide a renewable energy source to assist the people of Hawai'i in meeting or exceeding their RPS, established in HRS § 269-92;
- Implement a project that allows 'Ulupalakua Ranch to maintain its ongoing ranching operation and commitment to preserve the natural environment;
- Generate as much wind-derived energy as can be integrated into MECO's existing grid as determined by MECO;
- Locate the project in an area where the wind farm would be compatible with existing land use and would have a minimal visual and sound impacts; and
- Minimize the biological and cultural impacts of the project by designing the infrastructure around known resources.

As detailed in the 2011 EIS, these objectives were used to develop the suite of Project alternatives that were considered, evaluate and eliminate those alternatives that were not practicable, and identify and refine the Project.

1.4 Scope and Organization of the Document

As indicated above, the Project has been constructed and there are no substantive changes in the size, scope, intensity, type of use and location of the wind farm facilities relative to the description provided in the 2011 EIS. However, it has been determined that Project operations are resulting in a greater number of Hawaiian hoary bat fatalities than previously anticipated. As such, the scope of this SEIS is focused specifically on the effects of the existing Project on the Hawaiian hoary bat.

For ease of use, this document follows the same general organization as the 2011 EIS. Updated information is provided for individual sections of the document, as appropriate based on the estimated increase in take of the Hawaiian hoary bat. For sections that do not require updated information relative to the increased take, a statement is included to this effect (with information from the 2011 EIS incorporated by reference).

2.0 Project and Alternatives

As previously noted, an HCP and ITL is not a trigger for compliance with HRS Chapter 343; however, DOFAW requested that an SEIS be prepared to support its' decision making regarding the HCP amendment and ITL for the requested increase in authorized incidental take of the Hawaiian hoary bat. Because this is an SEIS, it carries forward the Project as the action that is evaluated for potential environmental impacts from the 2011 EIS.

Per the discussion below, the Project was constructed and has been in operation since 2012, with no substantive changes from the description provided in the 2011 EIS. Therefore, the evaluation in this SEIS is based on the same Project description as the 2011 EIS, with a focus on the impacts of the Project's continued operation on the Hawaiian hoary bat.

Operational protocols have been implemented to reduce impacts to the Hawaiian hoary bat; this avoidance and minimization measure is noted below and is further discussed in Section 3.7.2.4. Based on the HCP amendment process, alternative operational protocols are addressed in Section 2.2.2, as well as a new "no action" alternative developed for purposes of this SEIS called the "No HCP Amendment" alternative.

2.1 Existing Wind Project

As described in the 2011 EIS, the Project consists of eight 3-MW wind turbines⁷ augmented by an 11-MW battery storage system on the Auwahi parcel of 'Ulupalakua Ranch. The major components of the Project are summarized below and are shown in Figure 1-2. A detailed description of each of these components is provided in the 2011 EIS.

- **Wind Farm Site:** Facilities within the wind farm site include eight Siemens 3-MW wind turbines (and associated turbine pads), internal access roads, an underground electrical collection system, an operations and maintenance building, and one permanent meteorological tower. A detailed map showing these facilities is provided in Figure 2-1.
- **Generator-tie Line Corridor:** The generator-tie line corridor connects the wind farm to MECO's existing grid system at the POI, which is located on the Wailea-Kealahou 69-kV transmission line, approximately 1 mile east of the Wailea substation. Facilities within this corridor include an approximately 9-mile 34.5-kV above-ground generator-tie line, an interconnection substation and 11-MW battery energy storage system, and a microwave communication tower.

⁷ The 2011 EIS includes statements that Project had a net generating capacity of 21 MW and was expected to be curtailed at night on a regular basis based on expected MECO demands. Subsequently, MECO implemented a dispatch process that optimizes use of renewable energy generators, and the Project is routinely operated at night. However, even if the Project generated 24 MW, there is no increased risk to bats or increases with respect to any other impact areas because the rotations per minute (RPMs) of the turbine blades are the same at 3 MW as at 2.6 MW.

- **Access Route:** The primary access route used for construction of the wind farm site consists of a combination of existing state and county roadways (Pi'ilani Highway and Kula Highway), as well as approximately 4.6 miles of pastoral roads between Mākena Alanui Road and Upcountry Pi'ilani Highway (collectively referred to as Pāpaka Road). A variety of road improvements were identified as needed to accommodate the transport of oversized and heavy equipment, including construction of several new segments along Pāpaka Road. In addition to providing access during the construction phase, these roads also provide continued access for oversized and heavy equipment if needed for major maintenance activities.

Construction of the Project was completed in 2012, according to the schedule provided in the 2011 EIS. Construction activities, including implementation of best management practices (BMPs) and other mitigation commitments, were conducted as anticipated. The Project facilities were installed as designed, with no substantial deviations from the description provided in the 2011 EIS, and no changes in the Project facilities are proposed as part of the HCP Amendment. An aerial view of the constructed Project is shown in Figure 2-2.

Commercial operation began on December 28, 2012 and the wind farm has been operating on a continual basis since that date. The Project is expected to be in operation for a total of 20 years (through 2032).⁸ At the end of the operational period, decommissioning and site restoration will be implemented, in accordance with the description provided in the 2011 EIS.

As noted in Section 1.1.4, Auwahi Wind voluntarily initiated LWSC in 2015 to reduce risk to Hawaiian hoary bats. This operational protocol involves restricting turbine operation by feathering the turbine blades during periods of low wind speed from at least 30 minutes before sunset to at least 30 minutes after sunrise, as these conditions are associated with increased bat activity. This avoidance and minimization measure does not involve modification of any facilities or other aspects of the Project description presented in the 2011 EIS. Additional information regarding avoidance and minimization measures, including LWSC, is provided in Section 3.7.2.4.

Based on this information, and within the context of the requirements for HRS Chapter 343, the action has not changed substantively in terms of size, scope, intensity, type of use, location, or timing, such that the detailed Project description provided in the 2011 EIS is still applicable and is incorporated by reference.

⁸ As noted in the Draft HCP Amendment, the term of the ITP/ITL is 25 years (through 2037), which includes 5 years during which Auwahi Wind may consider extending the operational life of the Project through a new or revised PPA. Assuming the authorized take limits have not been reached, legal coverage under the ITP/ITL would remain in effect during this period.

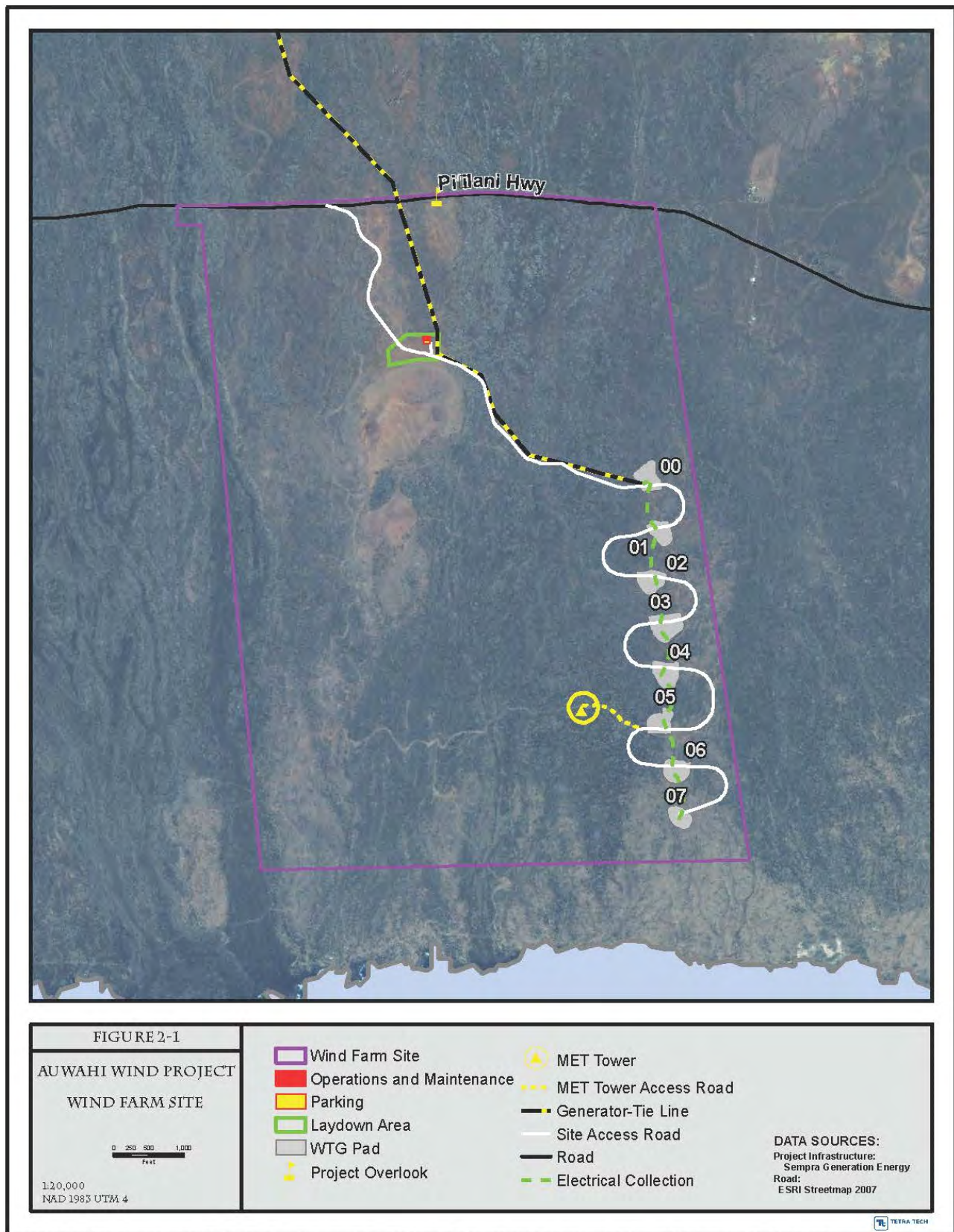
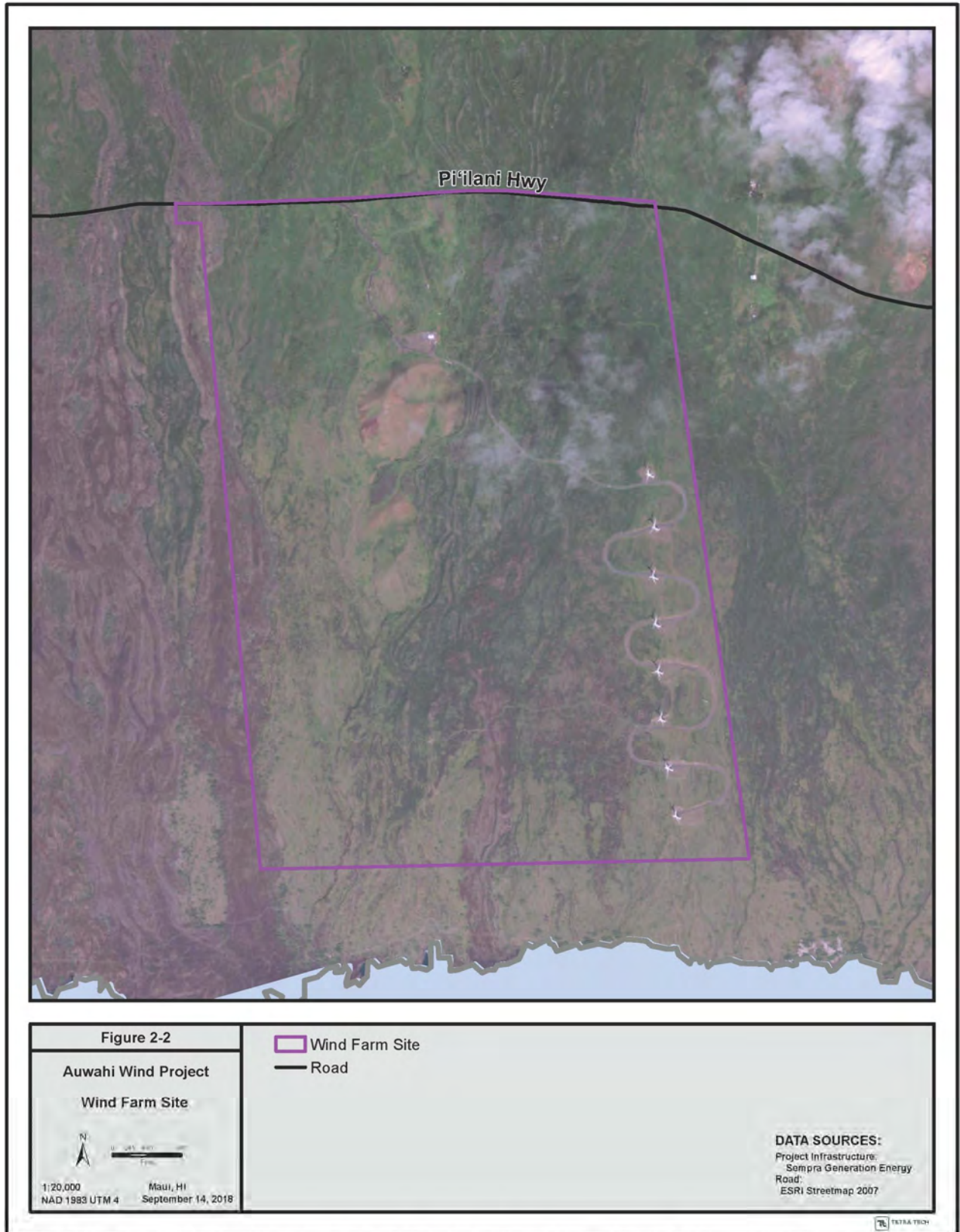


Figure 2-1. Wind Farm Site



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Figure 2-2. Aerial View of Constructed Project

2.2 Alternatives

The 2011 EIS describes the Project alternatives that were evaluated, including a No Action Alternative wherein the wind farm would not be constructed, and several Project Component Alternatives that were considered but subsequently eliminated from further evaluation. Because the Project has since been constructed according to the description provided in the 2011 EIS and no changes are proposed to the Project, the original discussion of Project alternatives in the 2011 EIS needs no revision based on the requested increase in authorized bat take in the HCP Amendment; this discussion is incorporated by reference.

As required, the HCP Amendment identifies several alternatives to the requested increase in authorized incidental take of the Hawaiian hoary bat. These alternative approaches from the HCP Amendment, as well as a “No HCP Amendment” alternative (i.e., a “no action” alternative) are summarized below.

2.2.1 HCP Amendment Alternatives

2.2.1.1 Full Nighttime Shutdown

This alternative would consist of ceasing nighttime operations by feathering turbine blades year-round from 1 hour before sunset to 1 hour after sunrise at all Project turbines to avoid additional Hawaiian hoary bat take. While this alternative would prevent future take, the 80 percent upper credible limit of take still exceeds the level authorized in the approved HCP; therefore, this alternative would still require an HCP Amendment. The approved HCP, which identifies existing avoidance and minimization measures, authorized take, mitigation measures, and monitoring commitments for the covered species, would be modified to include take authorization up to the current 80 percent upper credible limit value.

This alternative was not carried forward for further consideration because ceasing operations at night year-round would trigger a clause in the PPA that would modify Auwahi Wind’s priority for providing power to MECO. This action is irreversible and would result in the Project being heavily curtailed for the remainder of the permit term, to the point that the Project could no longer continue operating due to the financial impact.

2.2.1.2 Year-Round Curtailment at 6.9 m/s

This alternative would consist of curtailing the turbines at wind speeds of 6.9 m/s (that is, feathering the turbine blades below a cut-in speed of 6.9 m/s) on a year-round basis. The evaluation conducted as part of the HCP Amendment process addressed the potential benefit to bats associated with the additional months of curtailment. As detailed in the Draft HCP Amendment, from the start of operation through December 2017, no bat fatalities were observed in the months of February through May, nor were they observed in December. One fatality was found in each of the months of January, June, July, and November. This alternative was not carried forward for further consideration because it ignores the seasonal differences in risk to Hawaiian hoary bats identified in 5 years of Project-specific monitoring. Adding curtailment nights to periods where bats

are not present or where the risk is not significant would not have an appreciable benefit to the Hawaiian hoary bat but would significantly impair the ability of the Project to meet its energy output obligations, operate in an economically reasonable manner, and would lessen generation of nighttime clean energy on Maui, which is principally derived from wind energy.

2.2.1.3 Full Nighttime Shutdown from August to October

This alternative consists of shutting down the Project at night from August through October. The benefit of LWSC with cut-in speeds of 6.9 m/s, as proposed in the Draft HCP Amendment, equates to an estimated 76 percent reduction in bat fatalities. For cut-in speeds above 6.9 m/s, insignificant gains are predicted as the period of highest risk for bat fatalities at wind energy facilities tends to occur during relatively low-wind conditions (Arnett et al. 2008). Additionally, as cut-in speeds are increased, the amount of potential power loss increases. The Draft HCP Amendment provides a representative power curve for a Siemens SWT-3.0, which shows that power generation typically increases significantly beyond wind speeds of 5.0 m/s. Adding curtailment to periods when bat risk is minimal would not be expected to provide a significant benefit to bats, but would significantly impair the ability of the Project to meet its energy output obligations and operate in an economically reasonable manner. Additionally, nighttime clean energy generation on Maui is principally derived from wind energy, which would be impaired in this alternative. Given that risk to bats is significantly reduced at greater wind speeds and the power losses are exponential, full nighttime shutdown at Auwahi Wind for the months of August to October was not carried forward for consideration.

2.2.1.4 Reduced Permit Term

This alternative would consist of amending the HCP to increase authorized bat take to provide incidental take authorization for a reduced permit term of 10 years, assuming the development and deployment of a 100-percent effective, economical, and commercially-viable bat deterrent by 2022 (which would prevent any additional incidental take and thus preclude the need for additional take authorization). Based on approximately 5 years of Project operation, the 80 percent upper credible limit of Hawaiian hoary bat take exceeds the authorized take limit. Therefore, even with the implementation of avoidance and minimization measures such as LWSC, Auwahi Wind would need to amend the HCP to increase authorized bat take (Auwahi Wind 2017). Reducing the permit term has the potential to create a legal liability or the need for a future major amendment associated with non-compliance with the ESA and HRS Chapter 195D, should such a deterrent system not become available and incidental take exceed the take levels authorized in the ITP/ITL. Although initial research from North America has suggested bat deterrent technology may be an effective minimization measure for reducing take of migratory tree-roosting bats (Szewczak and Arnett 2007, Arnett et al. 2013, Hein and Schirmacher 2013), whether or not future advancements in the technology will be sufficient to ensure complete avoidance of take for the resident Hawaiian hoary bat by 2022 is highly uncertain. For these reasons, this alternative was not carried forward for further consideration.

2.2.1.5 No HCP Amendment

Under this alternative, an HCP Amendment would not be approved, but the Project would continue to exist. If the Project continued to operate under this alternative, the Project would need to be fully curtailed during nighttime hours to avoid additional Hawaiian hoary bat take. Consistent with the full nighttime shutdown alternative discussed above, this alternative was not carried forward for further consideration because ceasing operations at night year-round would trigger a clause in the PPA that would modify Auwahi Wind's priority for providing power to MECO. This action is irreversible and would result in the Project being heavily curtailed for the remainder of the permit term, to the point that the Project could no longer continue operating due to the financial impact. In addition, this alternative was not carried forward because the 80 percent upper credible limit of take already exceeds the level authorized in the approved HCP, meaning that the Project is at risk of enforcement action without an amendment to the HCP and ITL.

3.0 Existing Environment, Potential Impacts, and Mitigation Measures

The Project has been constructed and the extent of impacts to date are commensurate with those described in the 2011 EIS, with the exception of the increase in estimated take of the Hawaiian hoary bat. For those resource categories for which impacts do not substantially differ from those described in the 2011 EIS (and for which future impacts are not expected) due to the requested increase in bat take associated with the HCP Amendment, no further information is provided; the discussion contained in the 2011 EIS is incorporated by reference. Specific to the Hawaiian hoary bat, an updated discussion of the existing conditions, potential impacts, and proposed avoidance, minimization, and mitigation measures are provided based on the information developed for the HCP Amendment. Information on the potential impacts associated with implementation of compensatory mitigation for the Hawaiian hoary bat is provided in Section 3.7.

3.1 Climate

The 2011 EIS provides a definition of climate as a resource, discusses the existing conditions, and assesses the potential impacts that could result from construction, operations and maintenance of the Project (as well as the no action alternative). Climate-related impacts resulting from Project implementation are commensurate with the assessment provided in the 2011 EIS, and there are no substantive changes to this discussion related to the increase in estimated take levels of the Hawaiian hoary bat.

3.2 Geology and Topography

The 2011 EIS provides a definition of geology and topography as a resource, discusses the existing conditions, assesses the potential impacts to geology and topography that could result from construction, operations and maintenance of the Project (as well as the no action alternative), and identifies relevant avoidance and minimization measures. Impacts to geology and topography resulting from Project implementation are commensurate with the assessment provided in the 2011 EIS, and there are no substantive changes to this discussion relative to the increase in estimated take levels of the Hawaiian hoary bat.

3.3 Soils

The 2011 EIS provides a definition of soils as a resource, discusses the existing conditions, assesses the potential impacts to geology and topography that could result from construction, operations and maintenance of the Project (as well as the no action alternative), and identifies relevant avoidance and minimization measures. Soil-related impacts resulting from Project implementation are commensurate with the assessment provided in the 2011 EIS, and there are no substantive changes to this discussion relative to the increase in estimated take levels of the Hawaiian hoary bat.

3.4 Natural Hazards

The 2011 EIS provides a definition of natural hazards, discusses the existing conditions, assesses the potential impacts relative to natural hazards that could result from construction, operations and maintenance of the Project (as well as the no action alternative), and identifies relevant avoidance and minimization measures. Impacts related to natural hazards resulting from Project implementation are commensurate with the assessment provided in the 2011 EIS, and there are no substantive changes to this discussion related to the increase in estimated take levels of the Hawaiian hoary bat.

3.5 Hydrology and Water Resources

The 2011 EIS provides a definition of hydrology and water resources, discusses the existing conditions, assesses the potential impacts relative to hydrology and water resources that could result from construction, operations and maintenance of the Project (as well as the no action alternative), and identifies relevant avoidance and minimization measures. Impacts related to hydrology and water resources resulting from Project implementation are commensurate with the assessment provided in the 2011 EIS, and there are no substantive changes to this discussion related to the increase in estimated take levels of the Hawaiian hoary bat.

3.6 Vegetation

The 2011 EIS provides a definition of vegetation resources, discusses the existing conditions, assesses the potential impacts relative to vegetation resources that could result from construction, operations and maintenance of the Project (as well as the no action alternative), and identifies relevant avoidance, minimization and mitigation measures. Vegetation-related impacts resulting from Project implementation are commensurate with the assessment provided in the 2011 EIS, and there are no substantive changes to this discussion related to the increase in estimated take levels of the Hawaiian hoary bat.

3.7 Wildlife

The 2011 EIS identifies the various wildlife resources within the Project Area (including common wildlife species, rare species and migratory bird species, and threatened and endangered species), describes the existing conditions, and presents the analysis of potential impacts to wildlife that could result from implementation of the Project (as well as the no action alternative). It also describes the avoidance, minimization and mitigation measures that would serve to reduce Project-related impacts. As specified, the region of influence for the impact assessment includes the wind farm site, generator-tie line corridor and Pāpaka Road (including a 0.25-mile buffer on either side of the generator-tie line and Pāpaka Road centerlines). This area is expected to encompass all potential effects to wildlife and habitats including habitat loss or alteration, noise disturbance, and direct mortality within the footprint of the Project (area of disturbance associated with Project structures), as well as areas extending beyond where wildlife could be exposed to disturbance.

Except as related to the Hawaiian hoary bat, which is further discussed below, wildlife impacts are consistent with the assessment provided in the 2011 EIS, which is incorporated by reference.

As emphasized throughout this document, the only Project-related impact that is known to substantively differ from the information presented in the 2011 EIS relates to the Hawaiian hoary bat. This species is federally listed as endangered and is protected under the ESA, and is also listed as endangered by the State of Hawai'i and is protected under HRS Chapter 195D. As previously described in Section 1.1.4, prior to construction of the Project, Auwahi Wind prepared an HCP and obtained an ITP/ITL authorizing incidental take of listed species, including the Hawaiian hoary bat. However, post-construction mortality monitoring data from the first 5 years of Project operation indicate that estimated take of the Hawaiian hoary bat exceeds the anticipated take level; as such, Auwahi Wind is pursuing an amendment to the HCP and ITP/ITL.

This section presents updated information regarding the Hawaiian hoary bat, including the species' distribution, population estimates and ecology, as well as current threats and occurrence within the Project Area. A detailed discussion of the direct and indirect effects and estimated take levels is also provided, followed by a summary of the proposed avoidance, minimization and mitigation measures. The information presented is based on the analysis conducted as part of the HCP amendment process, as presented in the Draft HCP Amendment. The following resources were used to support the analysis and prepare the Draft HCP Amendment:

- Data from Project operations (2012 – 2017);
- Results from post-construction mortality monitoring surveys (2013 – 2017);
- Acoustic bat monitoring surveys using Wildlife Acoustics monitors (July 2013 – December 2015);
- Evidence of Absence (EoA) fatality modeling software (2.0 or current, Dalthorp et al. 2017); and
- The Endangered Species Recovery Committee (ESRC) Hawaiian Hoary Bat Guidance Document (ESRC Bat Guidance; DOFAW 2015) and subsequent verbal and written guidance and recommendations provided by USFWS and DOFAW.

Additional detail beyond the information summarized below is presented in the Draft HCP Amendment.

3.7.1 Existing Environment

Construction of the Project resulted in temporary and permanent disturbance within the Project area, as described in the 2011 EIS. Beyond the Project footprint, the environmental conditions are still generally consistent with the characterization provided in the 2011 EIS, and there are no substantive changes in the vegetation communities or habitat types, which are summarized below.

The 2011 EIS describes the Project Area as consisting of grassland and dry shrubland communities that have been degraded by ongoing cattle ranching. These communities contain scattered remnant

patches of native dryland forest and shrubland including several groves of native wiliwili (*Erythrina sandwicensis*). These patches of native species coincide with geologically diverse areas that are not accessible for grazing. Most of the wiliwili groves have a degraded understory primarily consisting of non-native shrubs or a mixture of grasses and shrubs. Starting at the north boundary of the wind farm site, the generator-tie line corridor crosses through mixed dryland shrubs and pasture, and at its highest point on the southwest rift ridgeline, crosses a treeless high elevation pasture before returning to pasture near the Wailea substation. Pāpaka Road is surrounded by pastureland. There are no wetlands or waterbodies within the Project Area.

3.7.1.1 *Non-listed Wildlife Species*

The 2011 EIS describes the non-listed wildlife species that are likely to be found within the proposed Project Area, including a range of mammals, avian species and invertebrates. There are no substantive changes to this information, particularly as related to the increase in estimated take levels of the Hawaiian hoary bat. The discussion contained in the 2011 EIS is incorporated by reference.

3.7.1.2 *Hawai'i State Species of Concern*

Two state species of concern that may occur within the Project Area, the Hawaiian short-eared owl or pueo (*Asio flammeus sandwichensis*) and Pacific golden plover (*Pluvialis fulva*), are discussed in the 2011 EIS. There are no substantive changes to this information, particularly as related to the increase in estimated take levels of the Hawaiian hoary bat. The discussion contained in the 2011 EIS is incorporated by reference.

3.7.1.3 *MBTA-protected Species*

Migratory birds, as well as some non-migratory birds that are endemic to the Hawaiian Islands, are afforded protection under the federal Migratory Bird Treaty Act (MBTA). Numerous species intentionally introduced to the Hawaiian Islands from the continental United States are now protected under the MBTA, even though they are non-native (e.g., cattle egret, mourning dove, and barn owl). The MBTA has no provision for excluding a species from protection in designated parts of its range, so a species protected by the MBTA is protected anywhere that it might occur nationwide, even in localities where they are non-native and introduced by humans.

The 2011 EIS references ten avian species that are protected by the MBTA and were documented during avian surveys in the Project Area. There are no substantive changes to this information, particularly as related to the increase in estimated take levels of the Hawaiian hoary bat. The discussion contained in the 2011 EIS is incorporated by reference.

3.7.1.4 *ESA-listed Species*

As detailed in the 2011 EIS, five state and federally listed wildlife species are known to occur (or could potentially occur) in the vicinity of the proposed Project; these include the Hawaiian hoary

bat, Hawaiian petrel, Newell's shearwater (*Puffinus auricularis newelli*)⁹, Hawaiian goose, and Blackburn's sphinx moth.

An updated discussion is provided for the Hawaiian hoary bat, based on new and relevant information regarding this species. This includes the biology, current threats, and potential occurrence of this species. The discussion provided in the 2011 EIS relative to the Hawaiian petrel, Newell's shearwater, Hawaiian goose, and Blackburn's sphinx moth are still applicable, and are incorporated by reference.

Hawaiian Hoary Bat

The following information reflects the most current understanding of this species, based on available scientific literature and Project-specific data (as referenced in the resource list, above). This information was compiled as part of the HCP amendment process and has been extracted from the Draft HCP Amendment.

Distribution, Population Estimates, and Ecology

The Hawaiian hoary bat is the only fully terrestrial, native mammal in the Hawaiian Islands. Recent studies and ongoing research have shown that bats have a wide distribution across the islands (Gorresen et al. 2013) and breeding populations are known to occur on all of the main Hawaiian Islands except Ni'ihau and Kaho'olawe (Bonaccorso et al. 2015); however, no historic or current population estimates exist. Recent research indicates that Hawaiian hoary bats on Maui may consist of two distinct lineages because of multiple colonization events (Baird et al. 2015, Russell et al. 2015). Currently only one bat species is recognized as present in Hawai'i, and it is listed as endangered; it is possible that federal and state regulatory agencies may make a revised listing determination in the future, considering new taxonomic information on the two potential lineages (DOFAW 2015). Potential impacts to the Hawaiian hoary bat are not expected to differ by lineage; therefore, the analysis of impacts should remain valid in the event of agency recognition of subpopulations.

Numerous research studies have been conducted on the Hawaiian hoary bat in the last decade; nonetheless, data regarding its population status remain limited. Occupancy models and genetic studies have been, and continue to be, conducted to attempt to determine population indices and effective population sizes; effective population does not necessarily equate to actual population size (Gorresen et al. 2008, Gorresen et al. 2013). The most current studies of the Hawaiian hoary bat population come from occupancy modeling on Hawai'i Island from 2007 – 2011, which show the population of the Hawaiian hoary bat is "stable to increasing" (Gorresen et al. 2013). However, additional data on the status of bats on Hawai'i Island and other islands are needed (Gorresen et al.

⁹ As detailed in the approved HCP for the Project, Newell's shearwaters were not confirmed during radar surveys and are not expected to fly over the Project area (Duvall pers. comm. 2010). Incidental take of this species is not expected to occur as a result of the Project, and therefore Newell's shearwater is not included as a covered species under the HCP, following recommendations of the USFWS and DOFAW.

2015; USFWS 2011). The USFWS is conducting its 5-year review of the Hawaiian hoary bat which may provide new information.

The Hawaiian hoary bat recovery plan (USFWS 1998) and the ESRC Bat Guidance (DOFAW 2015) acknowledge the paucity of data pertaining to Hawaiian hoary bat conservation and that measurements of the biological metrics that are used to understand limiting factors of bats and estimate Hawaiian hoary bat populations are largely unknown. The USFWS, DOFAW, and ESRC approved several research projects that are being conducted on Maui, O'ahu, and Hawai'i Island to better understand some of the key limiting factors for the Hawaiian hoary bat. These studies should provide critical insight into the life history, population, and habitat needs of the Hawaiian hoary bat that could inform future minimization and mitigation measures to help reduce the impacts to Hawaiian hoary bats. The research projects are anticipated to conclude between 2020 and 2022.

The Hawaiian hoary bat has been observed in a variety of habitats, including open pastures and more heavily forested areas, and in both native and non-native habitats (DLNR 2015, Gorresen et al. 2013). In addition to utilizing undeveloped areas, this species has been documented foraging and roosting in a variety of developed areas (golf courses, urban, suburban, rural, and military/industrial) on O'ahu, Maui, Kaua'i, and Hawai'i Island (Kawailoa Wind Power 2014, Jacobs 1994, USFWS 1998). Typically, this species feeds over streams, bays, along the coast, over lava flows, or at forest edges. Hawaiian hoary bats have also been documented using forest gaps and clearings, forest edges, along roads, and along hedgerows for foraging (Bonaccorso et. al. 2015).

Hawaiian hoary bats are known to have solitary day roosts in tree foliage, and have only rarely been seen exiting lava tubes, leaving cracks in rock walls, or hanging from human-made structures. Foliage roosting has been documented in hala (*Pandanus tectorus*), coconut palms (*Cocos nucifera*), kukui (*Aleurites moluccana*), pūkiawe (*Styphelia tameiameia*), Java plum (*Syzygium cumini*), kiawe, avocado (*Persea americana*), shower trees (*Cassia javanica*), 'ōhi'a trees (*Metrosideros polymorpha*), fern clumps, ironwood (*Casuarina equisetifolia*), macadamia (*Macadamia* spp.), and mature eucalyptus (*Eucalyptus* spp.) plantations; they are also suspected to roost in Sugi pine (*Cyrtomeria japonica*) stands (USFWS 1998; DLNR 2005, Gorresen et al. 2013, Kawailoa Wind Power 2013). Hawaiian hoary bats have also been noted to use night roosts to rest after foraging or seek shelter from rain (Todd 2012). The night roosts serve several potential functions for bats: energy conservation, digestion, predator avoidance, information transfer, and social interactions (Kunz 1982). The selection criteria for night roosts is not well documented, but proximity to foraging grounds is suggested to be an important criterion for bats generally (Knight 2009).

Gorresen et al. (2013) found that Hawaiian hoary bats concentrated in the lowlands during the breeding season on Hawai'i Island, and migrated to interior highlands during the non-breeding season. Limited data suggest breeding may primarily occur at lower elevations, at 3,300 feet above sea level (asl) or lower; however, a pregnant female was captured in June 2017 above 5,000 feet asl (DOFAW 2015; Corinna Pinzari, USGS, personal communication).

Hawaiian hoary bats are found in both wet and dry areas from sea level to 13,000 feet asl, with most observations occurring below 7,500 feet. Although the Hawaiian hoary bat may migrate among islands and within topographical gradients on the islands, long-distance migration like that

of the mainland hoary bat is not documented (USFWS 1998). Seasonal and altitudinal differences in bat activity have been suggested (Menard 2001). Hawaiian hoary bats can range among habitats and elevations within a single night to target optimal local foraging opportunities (Gorresen et al. 2013, 2015).

Breeding activity takes place between April and August, with pregnancy and the birth of two young (occasionally one) occurring from April to June (Bogan 1972). Based on the limited data available, USFWS estimates the Hawaiian hoary bat reproductive rate to be 0.54 offspring per female surviving to adulthood (USFWS 2016a). Until weaning at 3 months of age, the young are completely dependent on the female for survival. Lactating females have been documented from June to August, and post-lactating females have been documented from September to December (Menard 2001). USFWS and DOFAW have interpreted this as female Hawaiian hoary bats potentially having dependent young from April 1 through September 15 (USFWS and DOFAW 2016). The lifespan of the Hawaiian hoary bat has been estimated to be a minimum of 4 years (Bonaccorso 2016) and up to 10 years (DOFAW 2015).

The Hawaiian hoary bat is an insectivore, and prey items include a variety of native and non-native night-flying insects including moths, beetles, crickets, mosquitoes, and termites (Whitaker and Tomich 1983). Fecal pellet analysis and insect sampling have shown that 99 percent of the Hawaiian hoary bat diet consists of moth and beetle prey (Todd 2012). Above 2,000 feet (600 meters), Hawaiian hoary bats selectively ate beetles (43 percent of diet) relative to their abundance at study sites (<4 percent of insects sampled), although species such as moths and beetles may be overestimated in fecal pellet analysis due to sampling bias. Additionally, bat activity is correlated with insect activity (Todd 2012). Bats are documented to travel up to 7 miles (11.3 km) per night to reach foraging grounds (Bonaccorso et al. 2015).

Water provides an essential habitat component for foraging, reproductive, and basic physiological requirements for bat species. All bats, with the exception of a few frugivorous or nectivorous bats, drink water (van Helverson and Reyer 1984). Water sources have been shown to increase Hawaiian hoary bat activity relative to surrounding habitats (SWCA 2011). Mainland and Hawaiian hoary bats have been documented at artificial water sources such as reservoirs (Jackrel and Matlack 2010, Vindigni et al. 2009, Uyehara and Wiles 2009). Hawaiian hoary bats have been captured foraging for moths over open water (Todd 2012, USFWS 1998). Additionally, bat use of water sources as foraging substrates is well documented on the mainland and in Europe (Brooks and Ford 2005, Heim et al. 2018, Vindigni et al. 2009), specifically drinking from water troughs in arid regions of the mainland United States (Jackrel and Matlack 2010, Tuttle et al. 2006, Vindigni et al. 2009).

The Hawaiian hoary bat feeds primarily in edge and open habitats, which is supported by call structure, wing shape, and behavioral observations. Based on wing structure and echolocation characteristics, suggests that mainland hoary bats (*L. cinereus*) would be open area foragers (Fenton 1990); however, Hawaiian hoary bats weigh about 45 percent less than mainland hoary bats, and this smaller body mass leads to lower wing loading and an increased aptitude for flying in both open and more cluttered environments (Jacobs 1996), such as edge habitats. Hawaiian hoary

bats also use high-intensity echolocation calls with a mix of narrow and broadband components, which is consistent with forest edge habitat foraging behavior. Edge habitats in general provide efficient foraging habitat that minimizes commuting energy costs and maximizes foraging opportunities (Grindal and Brigham 1999). Edge habitats also provide benefits to some insect species (Langhans and Tockner 2014), as well as providing shelter where insects congregate and where bat foraging activity increases (Grindal and Brigham 1999). Additional information regarding the use of edge habitat by mainland hoary bats is provided in the Draft HCP Amendment.

A Hawaiian hoary bat's foraging range contains the area used by an individual bat foraging for food, and also includes movements to and from day roosts and night roosts. The Hawaiian hoary bat foraging range on Hawai'i Island in late spring, summer, and fall was moderately large (mean of 570.1 ± 178.7 acres [230.7 ± 72.3 hectares]), but foraging activity within this range was concentrated within small "core use areas" ("CUA"; 11.1 percent of mean foraging range) that exhibited limited individual overlap (Bonaccorso et al. 2015). The CUA is defined as areas within the foraging range that have very intensive use. Thus, individual male Hawaiian hoary bats may have overlapping foraging ranges but appear to have almost no overlap in CUA. This lack of overlap is supported by behavioral studies in which antagonistic interactions have been documented between individuals (Belwood and Fullard 1984). The median CUA of 20.3 acres is reported by DOFAW (DOFAW 2015). Variation in CUA size may depend on age, habitat suitability, and foraging efficiency (Bonaccorso et al. 2015, Pinzari 2014). Pinzari (2014) states that "young bats are inefficient hunters of insect prey and presumably remain active for longer periods than adult bats." Data from Bonaccorso et al. (2015) suggests that although there is variability in the size of CUAs, subadults tend to use larger core use areas than adults.

Current Threats

Overview of Primary Threats to the Species

Little is known overall about specific threats to the Hawaiian hoary bat due to a lack of data, although the data that do exist indicate that there are three major observed threats, as well as several unquantified threats that have yet to be properly evaluated. The three greatest threats causing additive mortality to Hawaiian hoary bats, based on observed fatalities and as identified in the ESRC Bat Guidance (DOFAW 2015) are wind turbines, removal of trees during the bat pupping season, and barbed wire. These threats have the potential to cause a localized reduction in bat numbers.

Wind turbines are responsible for the highest number of observed fatalities of Hawaiian hoary bats statewide, but wind facility operation is also the only activity with data from intense, long-term monitoring. The risk of bat collision with wind turbines can be minimized through LWSC, as has been documented in several mainland studies (Arnett et al. 2010, Arnett et al. 2013, Martin et al. 2017). LWSC is defined as restricting turbine operation to periods when the wind speed reaches a pre-determined speed (greater than the manufacturer's recommended cut-in speed) and feathering turbine blades into the wind below that set wind speed. "Feathering" means that the wind turbine blades are pitched parallel to the wind, resulting in very slow movement of the rotor (on the order of 1 to 3 rotations per minute, depending on blade length). Nighttime LWSC has been associated

with reduction in risk to bats (Arnett et al. 2011) because bat activity is typically associated with periods when wind speeds are lower. As wind speeds increase, the likelihood of bat activity decreases, and collision risk correspondingly decreases. Despite the benefit of LWSC, the risk to bats posed by wind turbines cannot be eliminated without full nighttime shutdown. Complete, dusk to dawn, year-round shutdown is typically not feasible, as it could reduce power output to levels below that necessary to maintain economic feasibility and compliance with the applicable PPA requirements for a project.¹⁰

In 2010, barbed wire fences were the greatest known source of Hawaiian hoary bat fatalities (Zimpfer and Bonaccorso 2010). Annual mortality estimates range from zero to 0.8 Hawaiian hoary bats per 62 miles of barbed wire. It is believed Hawaiian hoary bats are more vulnerable to barbed wire fences that occur in open and forest edge areas than in heavily cluttered forested areas. Tree removal has the potential to impact juvenile bats because they may be unable to fly away from a tree when it is cut or disturbed; however, it is not known how much bat take occurs as a result of tree trimming and harvesting (DOFAW 2015). To address the threats posed by tree removal and barbed wire, several minimization measures are recommended by USFWS and DOFAW. Impacts to pups in roosting trees can be avoided or minimized by not removing trees during the pupping season. Avoiding the use of barbed wire where possible when installing fencing or other such structures can reduce this source of mortality; USFWS recommends using smooth wire when replacing barbed wire fencing.

The greatest unquantified threats to Hawaiian hoary bats are from habitat loss, fire, pesticides, reduction in prey, and predation (USFWS 1998, USFWS 2011). These threats may be widespread across the state, and can result in direct and indirect mortality, reduced reproductive success, and reduced distribution of the Hawaiian hoary bat. In addition, records from the mainland indicate that bats are susceptible to being trapped and drowned in troughs, tanks, and pools with steep sides (Boyle 2014, Taylor 2007, Taylor and Tuttle 2007).

Overview of Impacts Associated with Wind Energy in Hawai'i

Across the continental United States, the hoary bat is one of the bat species most frequently killed by wind turbines, primarily during fall migration (Kunz et al. 2007, Arnett et al. 2008). Hawaiian hoary bats do not have long-distance migration movements which are characteristic of mainland hoary bats. As a result, Hawaiian hoary bats may be less susceptible to fatality at wind turbines on a per-encounter basis than mainland hoary bats, because Hawaiian hoary bats tend to approach wind turbines less frequently than their more migratory mainland conspecifics (Gorresen et al. 2015).

For the wind farms in Hawai'i with approved HCPs, post-construction mortality monitoring data from January 2006 through December 2017 indicate that 32 of 70 (45.7 percent) observed fatalities of Hawaiian hoary bats occurred in August and September, and at least one fatality occurred during each other month of the year (DOFAW 2018). However, the seasonal patterns in the fatalities are at least partially a result of the disproportionate number of observed Hawaiian hoary bat fatalities that have occurred at the Project on Maui and the Kawailoa Wind Farm on O'ahu. Overall, these data

¹⁰ Full nighttime shutdown is evaluated as an alternative; see Section 2.2.

suggest the Hawaiian hoary bat is vulnerable to collision with wind turbines throughout the year, and that the temporal distribution of fatalities is likely dependent on multiple site-specific factors (e.g., the island where the project is located, habitat, elevation), and potentially the influx of newly volant young that may occur in August and September. Therefore, project-specific post-construction mortality monitoring data are the best predictor of seasonal patterns of future take, and the most informative when developing avoidance and minimization measures.

Occurrence within the Project Area

Acoustic monitoring was conducted using two ground-level acoustic monitors (Wildlife Acoustics SM2Bat+) placed at Turbine 1 and Turbine 6 from 2013 through 2015.¹¹ This monitoring documented low bat activity levels throughout most of the year, with increased activity from August through October, as shown in Figure 3-1.¹² A total of 371 bat passes were recorded in 1632 detector nights (0.23 bat passes per night), with detections on 31% of nights over the monitoring period. The number of bat passes peaked 3 hours after sunset, with over 90% of detections occurring in the first 6 hours after dark as shown in Figure 3-2 (Auwahi Wind HCP Annual Report 2015).

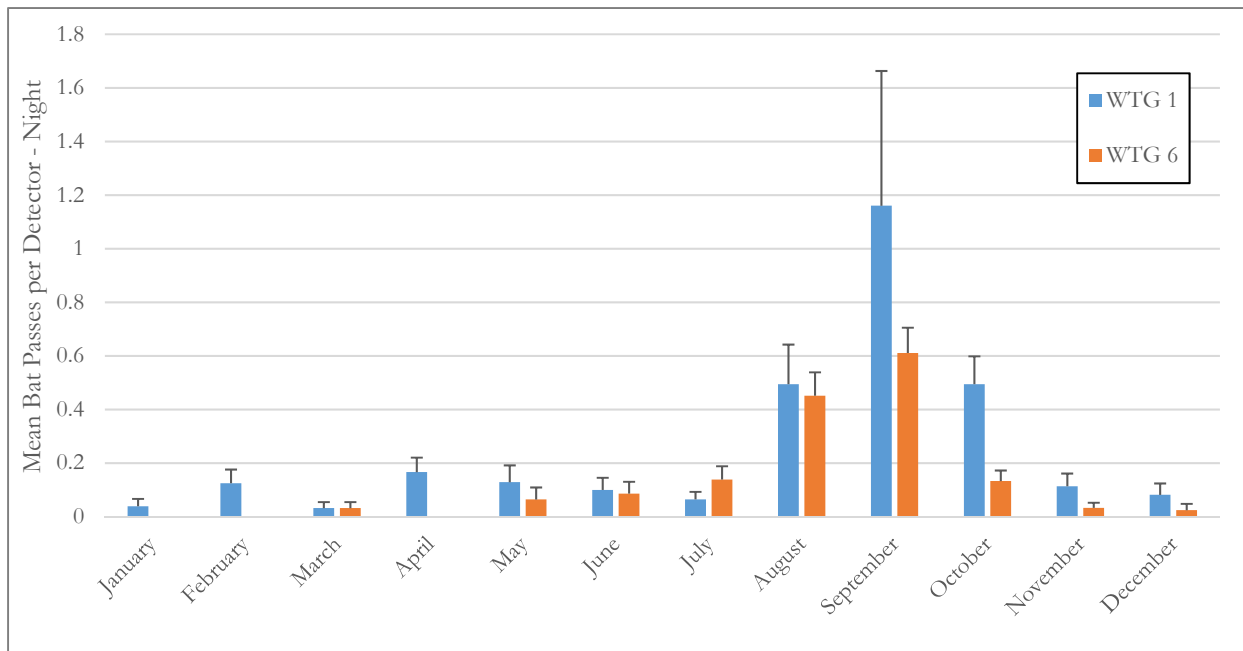


Figure 3-1. Acoustic Data from Ground Detectors (By Month), 2013-2016

¹¹ Four nacelle-level acoustic meters were placed at Turbines 2, 4, 5 and 7 in 2018 to record bat activity for one year; these data are expected to be available in late 2019.

¹² The ground-based acoustic monitoring was not used as a proxy for risk at nacelle height as detections at nacelle height have been shown to be significantly different from ground-based detectors (Collins and Jones 2009).

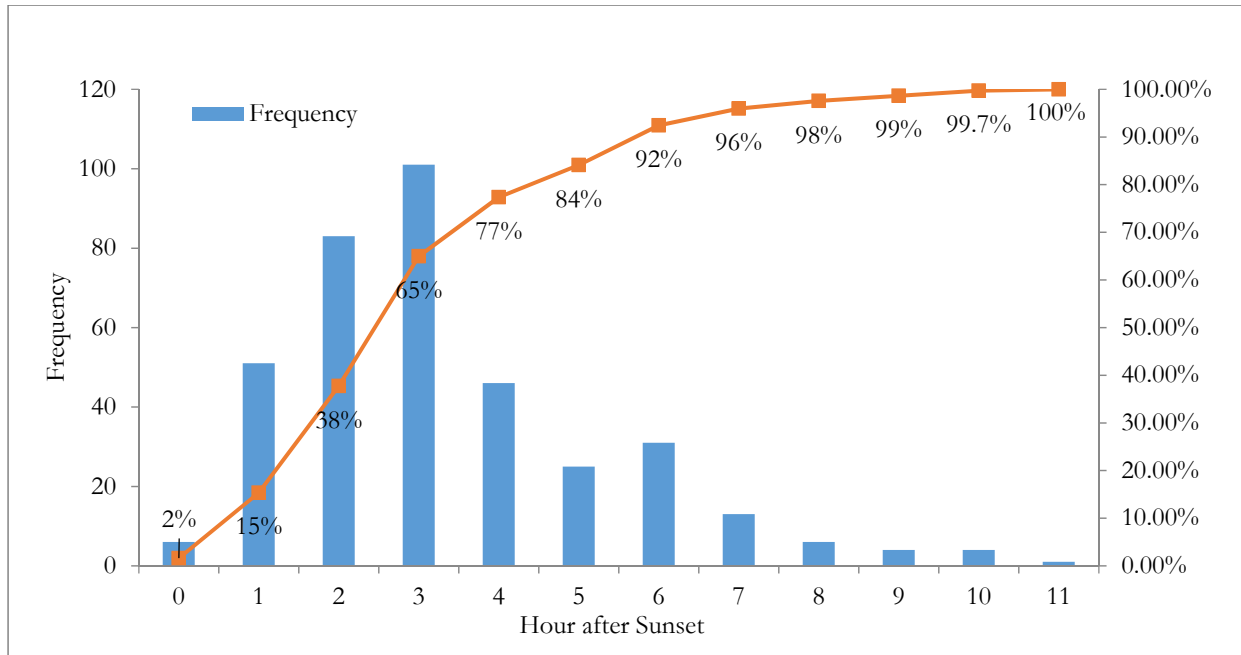


Figure 3-2. Acoustic Detections by Hour After Sunset (Binned by Hour), 2013-2016

Post-construction mortality monitoring results suggest a similar seasonal pattern in bat fatalities (Auwahi Wind 2013, 2014, 2015, 2016, 2017), as shown in Figure 3-3. As of December 31, 2017, 18 Hawaiian hoary bat fatalities have been documented; 16 of these fatalities were observed during post-construction mortality monitoring, and 2 were observed incidentally (outside search plot or regular search interval). Fourteen of the 18 observed fatalities (78 percent) occurred between August and October. Genetic determination of gender has been conducted by the USGS for 12 of the observed fatalities; their results indicate that 50% of the fatalities were male and 50% were female.

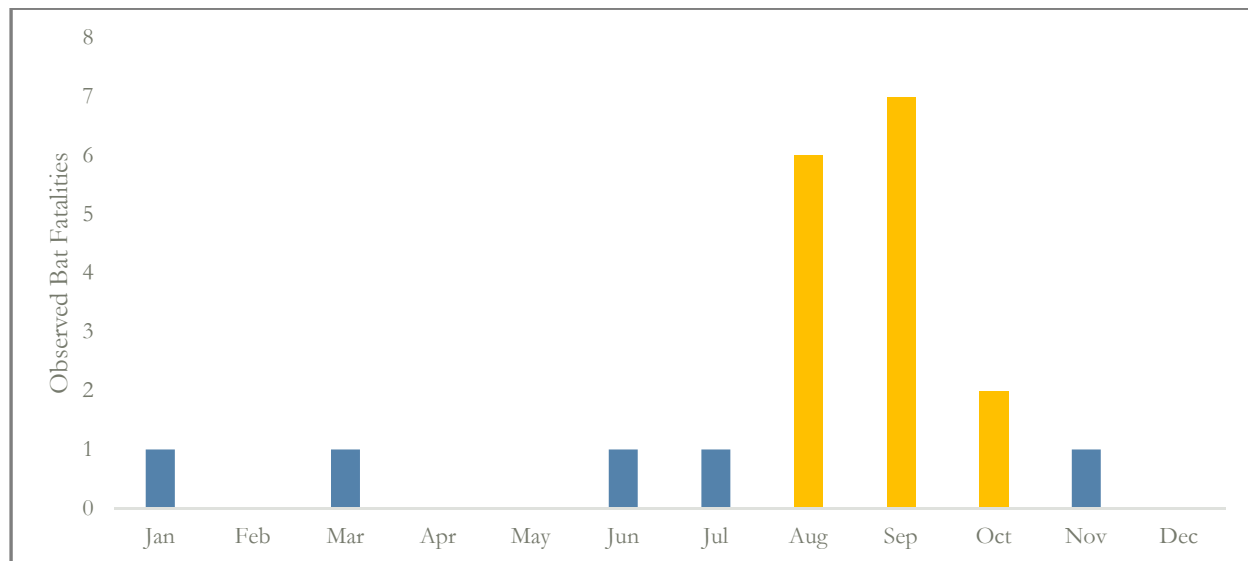


Figure 3-3. Observed Bat Fatalities, 2013-2017
 (Note: The yellow bars represent 78% of fatalities, occurring from August through October.)

The variable timing of bat fatalities among the operational wind projects suggests that project-specific factors (e.g., topography or vegetation) influence bat fatality patterns. However, sample sizes are small, and no definitive conclusions can be drawn at the present time. The Project is in a relatively lowland location, generally at elevations between 900 and 3,800 feet. Research from Hawai'i Island suggests that bats normally occupy higher elevations during the non-breeding season. Observation of fatalities during the non-breeding season suggest that there may also be island-specific factors that influence temporal trends in bat fatalities.

Based on observed fatalities at the Project, there may be inter-annual variability in Project take. During the first 3 years of monitoring (2013 – 2015), the number of observed bat fatalities per year was one, four, and one, respectively. In 2016, seven bat fatalities were observed during systematic monitoring, despite the implementation of year-round LWSC (with a cut-in speed of 5.0 m/s). In 2017, three fatalities were observed during systematic monitoring. Overall detection probability estimated by EoA increased from 0.28 in year 1 to between 0.45 and 0.66 for all remaining years due to increases in search intensity and implementation of predator control. Average detection probability for all years of monitoring (2013-2017) is 0.5, with a standard deviation of 0.11, indicating that the number observed of fatalities per year is comparable among years. The Draft HCP Amendment contains more detailed information on the detection probability and estimation process. The causes of any inter-annual variability are unknown. Anecdotal data from 2016 suggest that causes of inter-annual variability may include anomalous weather patterns, drought cycles, or other phenomenon. The average number of observed fatalities over the 5 years of monitoring is 3.2 observed fatalities per year. Therefore, 2017 represents a return to the average value.

Average monthly wind speeds recorded at the Project from dusk to dawn between 2014 and 2018 ranged from 6.25 to 9.18 meters per second, as shown in Figure 3-4. No correlation was found between fatalities and the wind regime at the site; average wind conditions during the 3 months of highest bat fatalities (August through October) were not lower than other months of the year. The lowest average wind speeds occurred in the months of January and February. For months with few observed fatalities, the risk to Hawaiian hoary bats is minimal, suggesting that additional wind turbine curtailment in these periods would have not significantly reduce collisions.

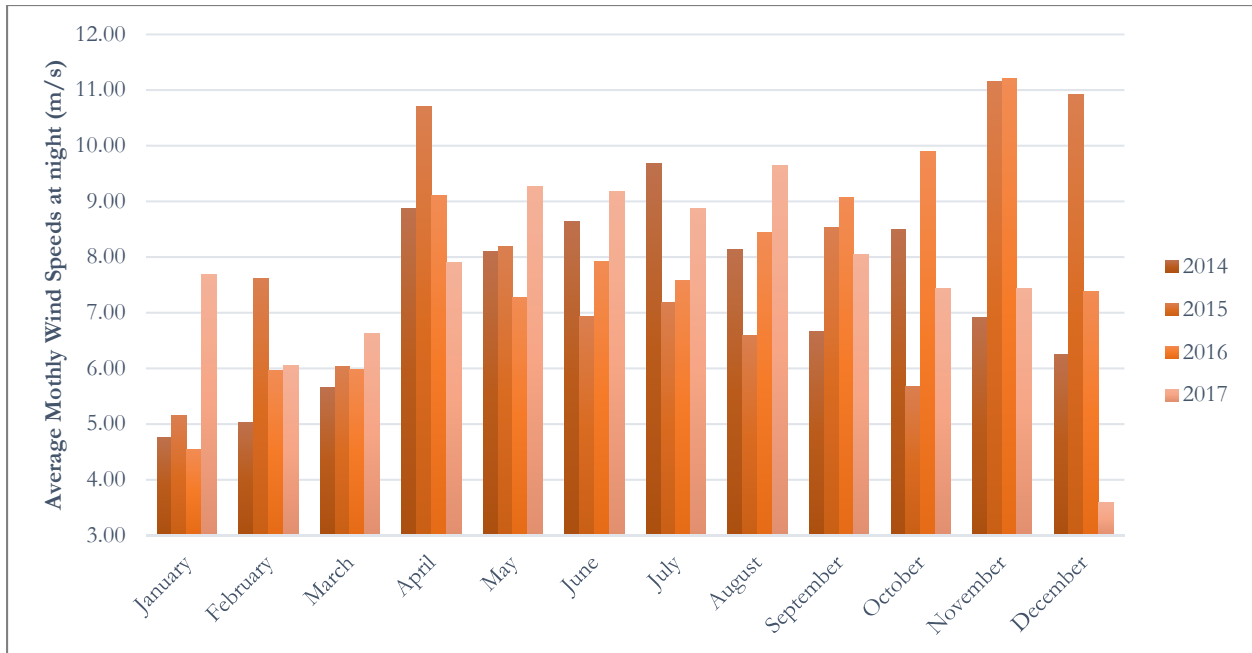


Figure 3-4. Average Monthly Wind Speeds (Dusk to Dawn), 2014-2017

Another factor analyzed to help assess any potential patterns of observed bat fatalities was whether cattle were grazing in the Project area around the time of the reported bat fatalities. As illustrated in Figure 3-5, approximately 28% of observed fatalities have coincided with grazing or a 30-day post grazing period (which accounts for insect abundance associated with cattle dung persisting after the cattle have been removed).

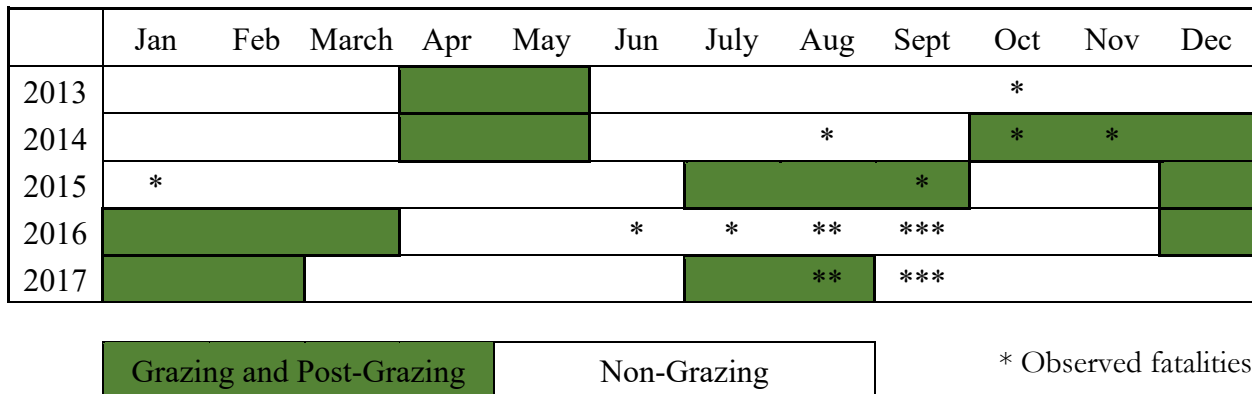


Figure 3-5. Cattle Grazing at Project Site, 2013-2017

Other factors associated with observed bat fatalities are analyzed on an ongoing basis. These factors include the distance and direction from the turbines, wind speed, wind direction, rotor rotation speed, moon phase, weather patterns, and other potentially relevant factors. One of the primary challenges in analysis of such factors is the inability to know the exact timing of a fatality. The timing of a fatality is typically estimated to within 7 days, meaning a large number of prior conditions must be evaluated, which makes correlation with any factor (or factors) difficult. The only pattern which has emerged is that more fatalities have been observed at Turbines 1-4 than at

Turbines 5-8, after correcting for searched area; this pattern has been considered and is included in provisions for adaptive management. As part of adaptive management, Auwahi Wind is also conducting studies to further identify the factors associated with risk to Hawaiian hoary bats (see Section 7.4.1.2 in the Draft HCP Amendment for details on these studies).

3.7.2 Potential Impacts and Mitigation Measures

3.7.2.1 Impact Analysis Methodology and Factors Considered for Impact Analysis

The 2011 EIS includes a complete analysis of the Project-related impacts on wildlife and wildlife habitat. As noted below, actual Project-related impacts are commensurate with the results of this analysis and are not further addressed in this SEIS, with the exception of estimated take of the Hawaiian hoary bat. An updated discussion of impacts specific to the Hawaiian hoary bat, including a description of the calculation of direct and indirect take estimates is provided in Section 3.7.2.4, based on the analyses conducted as part of the HCP amendment process. Additional detail is provided in the Draft HCP Amendment.

Consistent with the analysis in the 2011 EIS, a significant impact on endangered or threatened species or their critical habitats would result if the Project were to:

- Jeopardize the continued existence of a federally listed species;
- Result in the loss of individuals of a population of species that would result in a change in species status; or
- Adversely modify critical habitat to the degree it would no longer support the species for which it was designated.

3.7.2.2 Construction Impacts – Non-listed Wildlife Species, Hawai'i State Species of Concern, and MBTA-protected Species

The 2011 EIS provides a detailed discussion of construction impacts to non-listed wildlife species, state species of concern, and MBTA-protected species. Construction impacts to these species have already occurred consistent with the assessment provided in the 2011 EIS, and there are no substantive changes to this discussion based on the increase in estimated take levels of the Hawaiian hoary bat. The discussion contained in the 2011 EIS is incorporated by reference.

3.7.2.3 Operations and Maintenance Impacts – Non-listed Wildlife Species, Hawai'i State Species of Concern, and MBTA-protected Species

The 2011 EIS provides a detailed discussion of operations and maintenance impacts to non-listed wildlife species, state species of concern, and MBTA-protected species. Impacts to these species as a result of Project operations and maintenance are commensurate with the assessment provided in the 2011 EIS, and there are no substantive changes to this discussion based on the increase in estimated take levels of the Hawaiian hoary bat. The discussion contained in the 2011 EIS is incorporated by reference.

3.7.2.4 Impacts to ESA-listed Species

As detailed in the 2011 EIS, federal and state-listed wildlife species that have the potential to be affected by construction or operation of the Project include Hawaiian hoary bat, Hawaiian petrel, Hawaiian goose, and Blackburn's sphinx moth. Prior to construction of the Project in 2012, Auwahi Wind prepared an HCP to address potential impacts to these four species and obtained an ITP and ITL from USFWS and DOFAW, respectively. However, as previously described, post-construction mortality monitoring data from the first five years of Project operations indicate that impacts to Hawaiian hoary bat have exceeded the levels anticipated in the HCP and currently authorized under the ITP/ITL. Therefore, Auwahi Wind is preparing an HCP Amendment in support of a request for an increased level of Hawaiian hoary bat take authorized by the ITP/ITL. The approved HCP and the HCP Amendment both respond to the need for authorization of incidental take of listed species, and the need for measures to minimize and mitigate these impacts, pursuant to the ESA and HRS Chapter 195D. Authorization of the ITP/ITL requires an HCP that ensures the continued existence of and aids in the recovery of the Hawaiian hoary bat while allowing for incidental take of the species as a result of the Project.

Based on the information presented in the Draft HCP Amendment, an updated discussion of the potential impacts to Hawaiian hoary bats is provided below. Project-related impacts to the other federally and state listed species (Hawaiian petrel, Hawaiian goose and Blackburn's sphinx moth) have not substantively deviated from what was presented in the 2011 EIS and are not implicated as part of the HCP amendment process. The discussion related to these species as presented in the 2011 EIS is incorporated by reference.

Hawaiian Hoary Bat

Direct and Indirect Effects

As previously described, hoary bats account for the majority of wind farm fatalities across the United States. This species forages for insects in open areas such as grasslands and shrublands, habitats which exist in the proposed Project Area. Given this, there is the potential for Hawaiian hoary bats to collide with the wind turbines or succumb to barotrauma while foraging. There is also the possibility that bats may be attracted to the wind turbines. Some studies suggest bats may mistake wind turbines for all trees and may be attracted to the turbines as they seek shelter and/or mating opportunities. Collision risk has been verified through the results of post-construction mortality monitoring programs at the five Hawai'i wind farms that are operating under approved HCPs, including the Project¹³. As detailed in Section 3.7.1.4, a total of 18 Hawaiian hoary bat fatalities have been documented at the Project as of December 31, 2017.

¹³ Despite the implementation of avoidance and minimization measures such as LWSC, the data show that the initially authorized ITP/ITL take limits have been exceeded at Kaheawa Wind Power II, Kawailoa Wind, and the Project. As a result, each of these wind farms are in the process of amending their HCPs to provide ITP/ITL coverage for additional bat take. Kaheawa Wind Power I and Kahuku wind farms are implementing their HCPs without requesting amendments.

Other potential effects to the Hawaiian hoary bat are associated with clearing of trees that could be used as roosting habitat. As described in Section 3.7.1.4, Hawaiian hoary bats roost in exotic and native woody vegetation at heights greater than 15 feet. If trees suitable for bat roosting are cleared during the bat breeding season (April to August), there is a risk that breeding bats could inadvertently be harmed or killed. Young bats, which are incapable of flight, are particularly vulnerable during the bat birthing and pup rearing season (May 15 through August 15). The portion of the Project Area with the most suitable roosting habitat is the area where the generator-tie line runs between the Kanaio Natural Area Reserve and Auwahi Forest Restoration Project (see Figure 1-2). Consistent with the approach identified in the 2011 EIS, this potential risk has been and will continue to be addressed by prohibiting the removal or trimming of woody vegetation greater than 15 feet in height, as needed for maintenance of the Project structures, between May 15 and August 15.

Operational Changes to Minimize Collision Risk

Based on the current literature from the mainland and recommendations in the ESRC Bat Guidance (DOFAW 2015), LWSC is currently considered the best approach to minimize impacts to bats while taking into consideration site-specific wind conditions and Project-specific energy generation or PPA requirements. LWSC, as noted in Section 3.7.1.4, has been demonstrated to result in a statistically significant reduction in bat fatalities.

In response to the Project post-construction mortality monitoring results, Auwahi Wind began experimenting with LWSC regimes as an adaptive management minimization measure to reduce impacts to the Hawaiian hoary bat, starting in late 2014. Between November 2014 and January 2015, Auwahi Wind voluntarily implemented an operational protocol under which turbine blades were feathered below the manufacturer's recommended cut-in wind speed of 3.5 m/s, from at least 1 hour before sunset to at least 1 hour after sunrise. Beginning in February 2015, Auwahi Wind initiated voluntary year-round curtailment by feathering turbine blades at wind speeds below 5.0 m/s, from at least 30 minutes before sunset to at least 30 minutes after sunrise.

In 2017, when bat take was projected to exceed the ITP/ITL authorized take limit, Auwahi Wind reviewed and updated the analysis of the best available information from the mainland to identify alternative LWSC regimes that could further reduce risk to bats. The primary means of increasing the effectiveness of LWSC relative to potential impacts to bats is to increase the wind speed at which turbines return to service. Analysis of the current literature indicates a cut-in speed of 6.9 m/s, in effect from 30 minutes before sunset to 30 minutes after sunrise, should reduce the risk of bats fatalities by approximately 76 percent. Similarly, a Technical Assistance Letter from the USFWS in response to the Draft Headwaters HCP, and Pioneer Trail Bird and Bat Conservation Strategy suggests that a LWSC cut-in speed of 6.9 m/s is sufficient avoidance that take of Indiana bats (*Myotis sodalis*) would not be expected (Headwaters Wind Farm 2018, Stantec 2015). Increases beyond this cut-in speed are not anticipated to have a significant impact on further reducing the risk to bats. Studies looking at the impacts of LWSC have used 6.9 m/s as the maximum cut-in speed; at this time there are no publicly available studies looking at higher cut-in speeds.

Observations of bat fatalities at the Project vary seasonally and post-construction mortality monitoring data indicate that 78 percent (14 of 18) of observed fatalities at the Project have occurred in the months of August to October. Therefore, this timeframe (August 1 through October 31) was selected as the period of highest risk at the Project, and the period to prioritize for maximum risk reduction effort (i.e., most aggressive LWSC regime). Seasonal adjustment of cut-in-speeds has been used at wind facilities on the mainland to minimize impacts to listed bat species such as Indiana bats (*Myotis sodalis*) and northern long-eared bats (*Myotis septentrionalis*). Based on this information, and balancing operational practicality, Auwahi Wind determined that it could implement a LWSC regime of 6.9 m/s during the 3 months (August through October) of highest bat fatalities at the Project based on the 5 years of post-construction mortality monitoring and apply a LWSC regime of 5.0 m/s the remainder of months (November through July) when risk is lower.

Auwahi Wind implemented these baseline minimization measures starting in 2018 and will continue implementation for the duration of the permit (unless specific adaptive management triggers are reached that would initiate an adaptive management action, as further discussed in Section 7.4 of the Draft HCP Amendment). These minimization measures are summarized below:

- Implement LWSC with a 5.0 m/s cut-in speed, from 30 minutes before sunset to 30 minutes after sunrise, for the months of November through July; and
- Implement increased nighttime LWSC with a 6.9 m/s cut-in speed, from 30 minutes before sunset to 30 minutes after sunrise, for the months of August to October.

Estimates of Take and Requested Total Take Limit

The HCP development process involves quantifying the number of individuals (or the amount of habitat) that could be to be directly or indirectly impacted over a defined period of time; these estimates of direct and indirect take collectively inform the total amount of incidental take requested for authorization. In the case of this Project, the take estimates are for the assumed 20-year operational period of the Project (December 2012 – 2032), consistent with the current PPA.¹⁴ The amount of Hawaiian hoary bat take currently authorized is 21 bats¹⁵, an estimate that was based on the best available information at the time. For the purpose of the HCP Amendment, Project-specific monitoring data have been used to develop revised take estimates, as needed to support the request for an increased amount of take authorized under the ITP/ITL. The following section summarizes the revised direct and indirect take estimates and the total amount of take requested for ITP/ITL authorization, as presented in the Draft HCP Amendment.

¹⁴ The term of the ITP/ITL issued for the Project is 25 years (through 2037), which includes 5 years during which Auwahi Wind may consider extending the operational life of the Project through a new or revised PPA and new take authorization application. In the event that the authorized take limits have not been reached, legal coverage under the ITP/ITL would remain in effect during this period.

¹⁵ The approved HCP requested take of 19 adults and 8 young. Per an agreement with USFWS and DOFAW and biological assumptions presented in the approved HCP, this was converted to 21 bats based on an assumed survival rate of juveniles to adulthood of 0.3 (email correspondence with USFWS on April 28, 2015).

Estimate of Direct Take

As discussed in the 2011 EIS, there are four potential sources of direct bat mortality within the proposed Project. The first is collisions with vehicles. This source of mortality is considered negligible given the limited nighttime traffic associated with the proposed Project and low posted speed limits on Project roads. The second is collisions with stationary (e.g., meteorological towers, generator-tie lines) and near-stationary (e.g., crane booms) objects. These sources of mortality are also considered negligible given the general ability of bats to avoid colliding with stationary objects. The third is associated with Project-related clearing or trimming of woody vegetation taller than 15 feet during the bat breeding season. Potential mortality is negligible because such vegetation only occurs along a short segment of the generator tie-line corridor, and Auwahi Wind has committed to not remove or trim such vegetation during the breeding season. The fourth, and most likely, potential source of direct bat mortality is collisions or other negative interactions with operational wind turbines. This source of bat mortality is the basis for quantifying direct take.

The revised estimate of direct take, which was developed as part of the HCP amendment process, is based on the number of observed fatalities and monitoring detection bias (detection probability) from five complete years (2013 – 2017) of Project-specific post-construction mortality monitoring. Detection probability (influenced by factors including search interval, searched area, carcass persistence, and searcher efficiency) is used to adjust the number of observed fatalities to account for unobserved take. The projection of future take therefore accounts for uncertainty in the detection of carcasses, and the projection provides an estimate of take over the remaining years of the permit term. This information was incorporated into the multi-year analysis module in the current EoA software (Dalthorp et al. 2017), which was used to calculate the estimated direct take over the 20-year operating life of the Project. The EoA software is the state-of-the-art analysis tool employed by USFWS and DOFAW to evaluate compliance with the ITP/ITL, and therefore is currently the most appropriate tool for predicting direct take.

Based on the modeling results using the EoA software, and accounting for implementation of LWSC to reduce the collision risk, the total Project-related direct take through 2032 is estimated to be no more than 129 bats. A detailed discussion of the input parameters, underlying assumptions and other considerations related to the calculation of direct take are provided in Section 5.1.1 of the Draft HCP Amendment.

Indirect Take

The direct take of an adult female bat during the time when young are dependent on her may result in the indirect loss or take of dependent offspring. Based on parameters recommended in USFWS and DOFAW guidance (USFWS 2016a), the resulting prediction of indirect take is 11 adult-equivalent bats over the 20-year period. Because current mitigation frameworks only provide guidance relative to adult bats, indirect take was adjusted to bats by multiplying the predicted number of indirectly taken juveniles by the probability those juveniles would survive to become adults. Additional detail regarding the specific variables and the rationale and values applied to each variable are provided in Section 5.1.2 of the Draft HCP Amendment.

Total Requested Take

Based on the estimates of direct and indirect take, as outlined above, the take authorization request presented in the Draft HCP Amendment is for a total of 140 bats (129 direct and 11 indirect). This take amount includes the 21 adult bats currently authorized under the existing ITP/ITL¹⁶.

Therefore, Auwahi Wind is requesting that the ITP/ITL be amended to authorize an additional 119 bats, for a total maximum take amount of 140 bats. As detailed in the Draft HCP Amendment, this requested take is based on several conservative assumptions, such as the effectiveness of minimization measures, and the actual take may be lower than the proposed amended take limit. A detailed discussion of the uncertainties and associated assumptions is provided in Section 5.1.3 of the Draft HCP Amendment.

To address the uncertainty related to estimating take over the long term and the anticipated benefits of mitigation, the approved HCP developed a tiered approach for structuring the requested take and associated mitigation (Tiers 1 – 3). Under the Draft HCP Amendment, three additional tiers of take (Tiers 4 – 6) have been added to the three approved tiers to account for the increased take request, with Tier 6 equaling the total amended take request. The three proposed tiers of take are based on the range of potential effectiveness of LWSC in reducing the future take of Hawaiian hoary bat, as follows:

- Tier 4 represents a 70 percent reduction of future take (relative to the current take rate).
- Tier 5 represents a 50 percent reduction of future take (relative to the current take rate).
- Tier 6 represents a 30 percent reduction of future take (relative to the current take rate).

A summary of the existing and proposed tiers is provided in Table 3-2. This tier framework helps address the variation in uncertainty associated with the take estimate and also allows for new information to be incorporated into the mitigation for future tiers. A detailed discussion of the tier development process, and the biological justification for each tier is provided in Section 5.1.4 of the Draft HCP Amendment.

Table 3-1. Tiers of Take for the Hawaiian Hoary Bat

Tier	Take Included in Tier	Cumulative Amount of Take	Basis for Take within Designated Tier¹
1	5	5	Existing tier; estimate developed in approved HCP
2	6	11	Existing tier; estimate developed in approved HCP
3	10	21	Existing tier; estimate developed in approved HCP
4 (New)	60	81	Subset of amended take request, based on a high level of LWSC effectiveness; equates to a 70% reduction in take rate for years 2018-2032 (relative to current take rate)

¹⁶ Per an agreement with USFWS and DOFAW and biological assumptions presented in the approved HCP, 19 adults and 8 young permitted under the approved HCP were converted to 21 bats based on an assumed survival rate of juveniles to adulthood of 0.3 (email correspondence with USFWS on April 28, 2015).

Tier	Take Included in Tier	Cumulative Amount of Take	Basis for Take within Designated Tier ¹
5 (New)	34	115	Subset of amended take request, based on a moderate level of LWSC effectiveness; equates to a 50% reduction in take rate for years 2018-2032 (relative to current take rate)
6 (New)	25	140	Baseline condition for amended take request, based on a conservative estimate of LSWC effectiveness; equates to a 30% reduction in take rate for years 2018-2032 (relative to current take rate)
1. These scenarios are representative of the conditions that could result in take being limited to each specific tier. Many factors may affect estimates, and none of these can be known in advance. All scenarios utilize EoA analysis utilizing data through December 31, 2017, and overall detection probability derived from canine searching.			

Population-level Impacts

Since the Hawaiian hoary bat was listed as endangered in 1970 under the ESA, the population has persisted with no direct action taken to promote the survival of the species. While there are no population studies for Maui, as mentioned above, there are studies from the island of Hawai’i, the most current of which shows the population of the Hawaiian hoary bat on Hawai’i Island as “stable to increasing” (Gorresen et al. 2013). The greatest overall numbers of this species are thought to occur on Hawai’i Island and Kaua’i (Menard 2001). Prior estimates of the statewide bat population were low and based on incomplete information or limited monitoring (USFWS 1998, Tomich 1986). Documented occurrences of the Hawaiian hoary bat through monitoring at wind farms and associated mitigation sites, as well as research, show that the bat is more widespread and abundant than the estimate provided in the 1998 USFWS Hawaiian hoary bat recovery plan (Auwahi Wind 2017, Kaheawa Wind Power I 2017, Kaheawa Wind Power II 2017, Gorresen et al. 2013, Bonaccorso et al. 2015).

The detection of bats at wind farms through thermal imaging, acoustic monitoring, and as fatalities is an indication that the species has a significant population on Maui that continues to persist despite the existence of threats discussed in Section 3.7.1.4, including wind energy projects. Bat detections at the Project (0.31 detectability, Auwahi Wind 2015), Nakula NAR (0.31 detectability) and Pu’u Makua (0.38 detectability, Auwahi Wind 2017) indicate similar bat abundance across monitored areas. In comparison, the detectability of bats from 2007-2012 was measured at 0.38 across all sites from Hawai’i Island (Gorresen et al 2013). Because detection rates are associated with bat abundance (Frick 2013), there are likely similarities between the occurrence on Hawai’i Island and Maui. In the event that fatality rates were found to be declining without explanation, this could be an indication that the local population is in decline. Specific factors that could also account for such a decline could include a reduction in risk achieved through LWSC, a bat deterrent or other technology, reduction in search area, or other such measures. However, in 5 years of operation, the fatality rate at the Project and other wind energy projects has not had an unexplained decline. Bats continue to be detected in ongoing research projects (H.T. Harvey 2016, Kaheawa Wind Power I 2017, Kaheawa Wind Power II 2017, Auwahi Wind 2017), and no preliminary data, public

information or published literature to date suggest that the bat population is in decline, either on Maui, or Statewide.

In considering potential population-level impacts, what is known about the biology of the bat species in relation to the projected take for the Project must be considered. The estimated Project take equates to 6.45 bats per year over the life of the Project. Each female is estimated to produce 0.54 offspring per year, based on the USFWS 2016 guidance. The lifespan of the Hawaiian hoary bat has been estimated to be between 4 years and 10 years (Bonaccorso 2016, DOFAW 2015). A population model based on these demographic parameters, coupled with a starting population estimate based on available forested acreage, suggest an increasing population on Maui.

Given the median core use area of 20.3 acres as calculated by DOFAW (DOFAW 2015, Bonaccorso et al. 2015) and assuming approximately 150,000 acres of forest on Maui (based on the estimate of 32.2 percent of forested habitat across the island [NOAA 2018]), this translates to an estimated population of approximately 7,300 bats. This should be considered a rough estimate because bats have been documented to have seasonal variation in use, and also have been documented using non-forested habitat (Auwahi Wind 2017, Todd 2016). Given the reproductive estimates of bats provided in the USFWS guidance for calculation of indirect take, the estimated offspring from this population would range from 1,000 to 2,000 new adults each year. Therefore, based on a core use area of 20.3 acres per bat, the take of 6.45 bats per year by the Project pursuant to the amended take request would not be anticipated to have a significant impact on the population of Hawaiian hoary bats on the island of Maui, or cause the loss of genetic representation of the Hawaiian hoary bat population on Maui. This expected level of impact is not expected to jeopardize the continued existence of the Hawaiian hoary bat as defined by the ESA and HRS Chapter 195D, i.e. the likelihood of the survival or recovery of the bat in the wild will not directly or indirectly be reduced.

Recent genetic evidence suggests there have been significant inter-island dispersal events (Russell et al. 2015) but no conclusion was reached. The populations of individual islands are generally considered distinct. If the population of Hawaiian hoary bats on Maui is distinct, this suggests that impacts on Maui are unlikely to impact the population of other islands.

Auwahi Wind's current Tier 1 mitigation at Pu'u Makua (which is described in Section 3.7.2.6) has achieved its interim success criteria and should continue to provide a benefit to the Hawaiian hoary bat (Auwahi Wind 2017). Additional mitigation for future tiers will be implemented on Maui (see Section 3.7.2.6) and these efforts are expected to contribute to the species' recovery. In addition, biological research currently being conducted for the Tiers 2-3 mitigation will contribute to filling in knowledge gaps that will lead to effective on-the-ground management activities for the species. The best available information indicates that the Maui bat population is significant. There is no published or reported information which suggests that either the Maui or statewide population is decreasing. Based on the best scientific data currently available, as discussed above, the Project is unlikely to cause adverse impacts to the species' overall population or recovery potential.

Post-Construction Monitoring and Reporting

As part of the approved HCP, a PCMP was developed and implemented to document impacts to the covered species as a result of operation of the Project, and to ensure compliance with the authorized provisions and take limitations of the HCP and the associated ITP/ITL. A long-term PCMP has been developed as part of the HCP amendment process and is included as Appendix E of the Draft HCP Amendment. This protocol supplements the original PCMP and incorporates changes approved by and developed in consultation with USFWS and DOFAW, and the latest science with respect to wind farm post-construction mortality monitoring protocols and analysis methods.

Under the HCP Amendment and as described in the long-term PCMP, systematic monitoring will be conducted weekly throughout the year on roads and pads at operating wind turbines throughout the permit term. Searcher efficiency and carcass persistence trials will also be conducted. Post-construction mortality monitoring data will provide the information necessary to assess compliance with authorized levels of incidental take and determine if and when additional mitigation tiers are triggered.

As specified in the approved HCP, a Wildlife Education and Incidental Reporting program is ongoing and will continue to be executed for contractors, Project staff members, and 'Ulupalakua Ranch staff who are on-site on a regular basis.

The protocol for recovery, handling, and reporting of downed wildlife has been developed in cooperation with the USFWS and DOFAW. Project staff will be trained in this protocol during the wildlife education briefings and will be responsible for documenting observed fatalities or injury to wildlife. The USFWS and DOFAW will be notified promptly upon discovery of an injured or dead state- or federal-listed species. The current Downed Wildlife Protocol is included in the PCMP and includes procedures to follow upon the discovery of a downed seabird or bat, and guidelines for handling injured wildlife or carcasses (if permitted).

Federal- or state-listed species found injured or dead will be treated as directed in the Downed Wildlife Protocol guidance provided by USFWS and DOFAW. Non-listed species may be collected by staff members included on the USFWS Special Purpose Permit and the DOFAW Protected Wildlife Permit issued for the Project, which grant permission and include provisions for handling native wildlife.

Auwahi Wind will prepare and submit semi-annual and annual reports to the agencies, consistent with requirements in the approved HCP and Draft HCP Amendment. In addition, an annual presentation on status and results of any mitigation-funded research projects will be made to the ESRC or subcommittee during the research project's period of performance, and a final research report and associated data for any mitigation-funded research projects will be prepared.

3.7.2.5 No Action Alternative

The no action alternative, wherein the wind farm would not be constructed, was analyzed in the 2011 EIS; this information is incorporated by reference.

3.7.2.6 Avoidance, Minimization, and Mitigation Measures

The 2011 EIS includes a detailed list of measures to avoid and minimize impacts to wildlife, including those related to general project development, timing considerations, pre-construction survey requirements, and facility siting considerations. These measures have been and will continue to be implemented in accordance with the 2011 EIS to the extent they are still applicable and are incorporated by reference. Furthermore, as detailed in Section 3.7.2.4, Auwahi Wind began implementing operational changes involving LWSC as minimization measures to reduce impacts to the Hawaiian hoary bat, starting in late 2014.

In addition to these avoidance and minimization measures, and consistent with the biological goals of the Draft HCP Amendment, Auwahi Wind has been and will continue implementing compensatory mitigation for impacts to the Hawaiian hoary bat. Pursuant to the requirements of HRS Chapter 195D, the mitigation is intended to fully offset the take and provide a net benefit to the species. Mitigation has been developed according to the different tiers of take, with planning and implementation occurring as each tier is triggered. Mitigation for the existing tiers of take (Tiers 1-3) has already been implemented and is ongoing, in coordination with USFWS and DOFAW. The proposed mitigation for the new tiers of take (Tiers 4 – 6) was developed as part of the HCP amendment process, based on the recovery priorities described in the Hawaiian Hoary Bat Recovery Plan (USFWS 1998) and supplemented by the April 2015 ESRC workshop and resulting ESRC Bat Guidance (DOFAW 2015). In addition, the proposed mitigation for Tiers 4 – 6 responds to current feedback from USFWS and DOFAW (USFWS and DOFAW meetings held May 1, 2018) that land-based mitigation projects are preferred, and research is considered to be a lower priority until the results of current research projects are known. Land-based mitigation efforts should have clear biological goals and objectives, and thus, measures of success that tie directly (or by proxy) to increases in reproductive success or increases in rates of use by the Hawaiian hoary bat.

A summary of the existing mitigation for Tiers 1-3 and proposed mitigation for Tiers 4-6 is provided below. Additional detail regarding the scientific basis and justification for the proposed mitigation is provided in Section 6.2 of the Draft HCP Amendment. Mitigation for impacts to other species (including Hawaiian petrel, Hawaiian goose, and Blackburn's sphinx moth) is ongoing consistent with the description provided in the 2011 EIS; this information is incorporated by reference.

Existing Mitigation (Tiers 1 -3)

Tier 1 Mitigation

Tier 1 mitigation, which consists of habitat restoration and on-site acoustic monitoring for the Hawaiian hoary bat is ongoing and has achieved the interim success criteria established in the approved HCP. Tier 1 mitigation is being implemented at the Pu'u Makua parcel of the Waihou Mitigation Area, which was placed into a conservation easement held by the Hawaiian Islands Land Trust (HILT) on December 18, 2012. Restoration measures have been implemented for approximately 130 acres of pastureland within the parcel. In September 2013, an ungulate-proof fence was installed around the parcel, and all ungulates were removed from the enclosed area by

January 2014. Following initial baseline vegetation monitoring in March 2014, biannual sweeps to remove primary invasive plant species were initiated. A second baseline survey was conducted in February 2015, and native tree out-planting began in spring 2015. Thirty-nine acres of native trees were out-planted in 2015 (Figure 3-6). Native reforestation, vegetation monitoring, and invasive species removal efforts are ongoing. In addition, acoustic monitoring of bats was conducted from July 2013 through December 2015 using two ground-based acoustic monitoring units.



Figure 3-6. Tier 1 Mitigation Site, Pu‘u Makua Parcel of Waihou Mitigation Area (June 2018)

Auwahi Wind has exceeded the interim success criteria established for Year 3 (FY 2018). The target established for non-native plant cover (excluding kikuyu grass, *Pennisetum clandestinum*) for Year 3 was a maximum of 75 percent; non-native cover in FY 2018 was 4.5 percent. The target established for native species plantings survival for Year 3 was 75 percent of plants being alive; there was 87 percent survival across plots for Year 2. Furthermore, ongoing out-plantings to replace lost plants (May 2017–June 2018) ensures that the interim and long-term mitigation targets are reached.

Tier 2 and Tier 3 Mitigation

Tier 2 and Tier 3 mitigation has also been successfully implemented and is ongoing. It includes funding of Hawaiian hoary bat research to contribute to knowledge of the species on Maui. Beginning in 2013, Tetra Tech and Dr. Frank Bonaccorso (of USGS) worked together to develop a phased research plan to use acoustic monitoring and radio telemetry methods to evaluate (1) home range size and habitat composition; (2) seasonal patterns of bat activity at the Waihou Mitigation Area; and (3) prey abundance and diet composition by bats in the Waihou Mitigation Area.

The Tier 2 research plan was approved by USFWS and DOFAW in February 2014. Acoustic monitoring efforts were initiated at the Waihou Mitigation Area in March 2015. Subsequently, the

Tier 3 research plan expanded the sampling and scope of the approved Tier 2 research plan. The final Tier 2 – 3 research plan was approved by USFWS and DOFAW in May 2016. This research plan includes acoustic monitoring (2015 – 2018), seasonal radio telemetry (2016 – 2017) with two additional phases of radio-telemetry to be completed and timed based on results from ongoing acoustic monitoring efforts, an insect prey base study (2016), and a food habit assessment (2016 – 2017).¹⁷

These efforts are ongoing, with results reported as part of the HCP annual reports. While there are no capture rates recorded prior to mitigation and as such no baseline is available for comparison, the initial results of this work indicate a higher use rate than predicted by mitigation targets for Tier 1. The USGS tagged 11 Hawaiian hoary bats in the Waihou Area while conducting monitoring for Auwahi Wind under Tier 2-3 mitigation.

Proposed Mitigation (Tiers 4-6)

The proposed mitigation for Tiers 4 – 6 is designed to offset the proposed amended bat take for each of the corresponding tiers (see Table 3-2). To ensure that the implementation of mitigation precedes or occurs concurrently with take, the initiation of mitigation planning for the next higher tier would be triggered when 75 percent of the allowed take in the current tier (direct and indirect) is reached (USFWS 2016b). The Draft HCP Amendment provides a detailed timeline for mitigation planning and implementation under the tiered structure.

The detailed approach and scientific basis for Tiers 4 – 6, including an explanation of how these measures will benefit the Hawaiian hoary bat population is provided in Section 6 of the Draft HCP Amendment. The following provides a summary of mitigation actions, monitoring, and adaptive management proposed for Tiers 4 – 6.

Tier 4 Mitigation

The objective of the Tier 4 mitigation is to protect, manage, and enhance habitat that is suitable for bat foraging and roosting through the addition of features necessary for those stages of the Hawaiian hoary bat life cycle. Auwahi Wind has leveraged the results of the research and restoration conducted for Tiers 1 – 3 mitigation, data from other applicable studies, and USFWS and DOFAW mitigation guidance, for development of the Tier 4 mitigation. The proposed Tier 4 mitigation includes actions to protect existing bat habitat, as well as enhance bat habitat through the addition of resource features to increase bat foraging and roosting in the near and long term, and augment connectivity between nearby State Forest Reserves and other conservation areas that currently provide bat habitat. In addition, monitoring will be conducted, with adaptive management implemented as needed. It is anticipated that the mitigation will more than fully offset the incidental take of 60 Hawaiian hoary bats (see Table 3-2) and provide a net benefit as further described below.

¹⁷ The radio-telemetry component of the plan was replaced with additional monitoring through adaptive management in consultation with USFWS and DOFAW due to broadcast tower interference with radio-telemetry signals. The specific adaptive management measures are detailed in the Draft HCP Amendment.

Overview of Mitigation Area

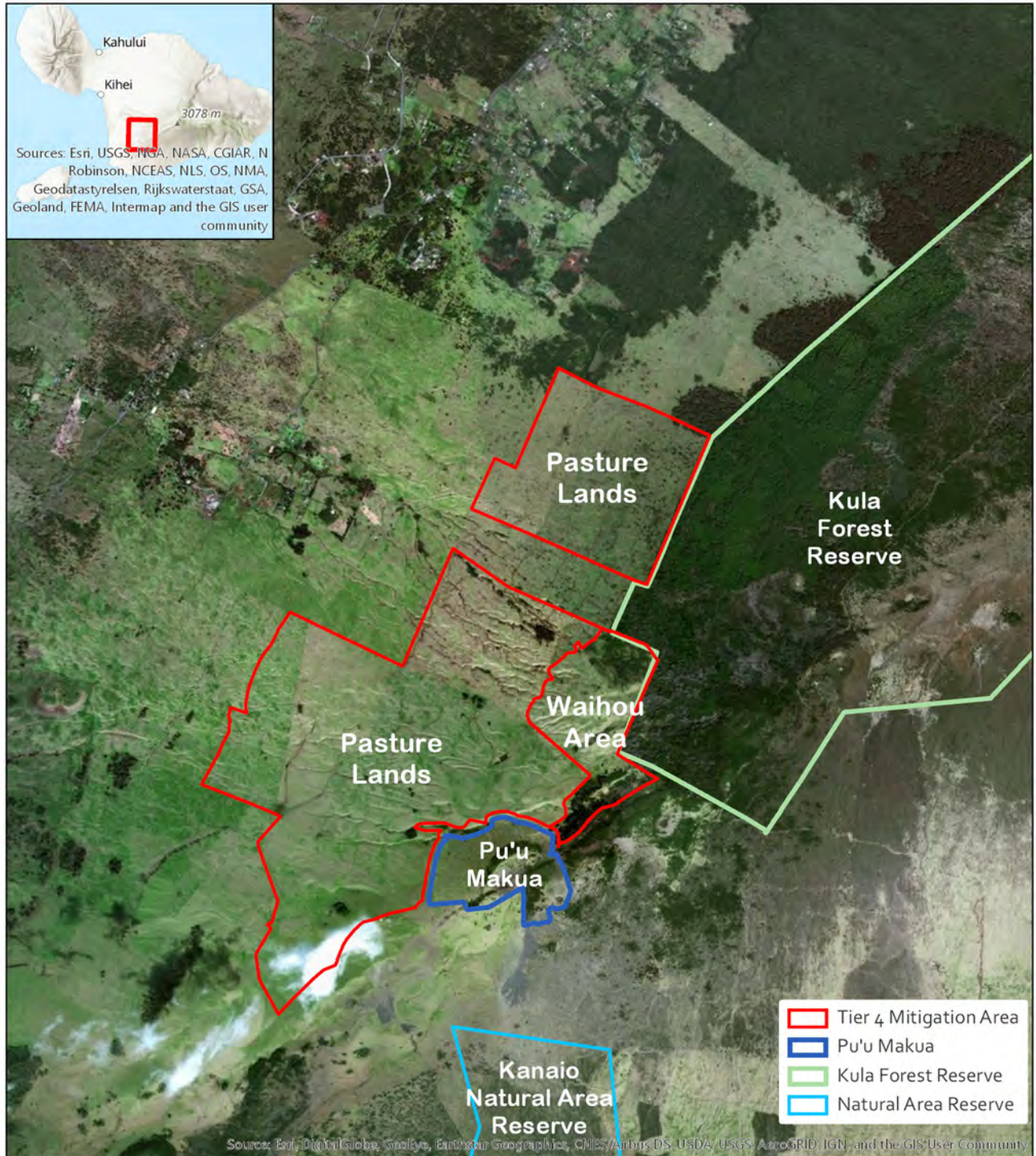
The Tier 4 Mitigation Area comprises approximately 1,752 acres of land owned by ‘Ulupalakua Ranch on Leeward Haleakalā (see Figure 3-7).¹⁸ This area ranges in elevation between 3,500 and 5,500 feet asl and consists primarily of sloping open grasslands, interspersed with gulches, a few forested patches and hedgerows. For purposes of mitigation, two separate units have been defined for the proposed management activities: the Pasture lands and the Waihou Area. The Pasture lands are predominantly comprised of grasslands.¹⁹ The Waihou Area includes approximately 20 percent forest cover and 80 percent grasslands. The grasslands are dominated by kikuyu grass as well as a mix of other non-native species.

Water is a scarce resource in Leeward Haleakala; water resources within the Tier 4 Mitigation Area consist of five ponds, approximately 15 seasonally active water troughs, and a few dry or perennial small stream gulches (USGS, 2013). The ponds are man-made, consisting of excavated depressions up to 10 feet deep and ranging in size from 40 by 50 feet up to 60 by 120 feet. Hawaiian hoary bats have been documented to use the ponds, which are located in the Duck Ponds parcel within the Waihou Area (Auwahi Wind 2017). These ponds are the only consistent sources of open water in the vicinity. The streams are normally dry and only fill when major flooding occurs. Other water sources such as cattle troughs are only active seasonally, specific to cattle use. The composition of ranch water troughs varies widely and includes cement, wood, metal, or other repurposed materials such as tires. Currently, the troughs contain water only when grazing cattle are utilizing the pasture, approximately 2 to 4 months per year.

The existing open habitats are expected to provide little benefit to bats except foraging near hedgerows or limited use by bats transiting the area. Although bats have been documented to traverse open areas, their foraging is associated with insect abundance (Belwood and Fullard 1984). The distance to the nearest forest edge has been found to be inversely correlated with bat activity (Downs and Sanderson, 2010). The stream gulches, which are generally limited to an approximately 150-acre area, have been noted by USGS to provide structure that would likely be utilized by bats. Bats may also use the scattered clusters of trees that occur throughout the habitat and several sections of forest which connect to the Kula Forest Reserve (Auwahi Wind 2017). Documentation of Hawaiian hoary bats within and adjacent to the Mitigation Area are based on USGS mist netting, which resulted in the tagging of 11 individual bats at the Duck Ponds, as well as documented use of the forest patches within the Waihou Area (Auwahi Wind 2017). Additionally, USGS researchers have recorded bat calls at the nearby Tier 1 Pu‘u Makua Mitigation Site (Auwahi Wind 2017). Results from USGS research indicate that bats are present year-round at Pu‘u Makua.

¹⁸ The Tier 4 Mitigation Area includes parcels that were identified in the approved HCP as potential mitigation areas but have not yet been used for mitigation purposes. These include the Duck Ponds, Cornwell Spring, and Kaumea Loko parcels within the Waihou Area.

¹⁹ As shown in Figure 3-7, there is gap between the two sections of Pasture lands, as this area is not owned by ‘Ulupalakua Ranch.



AUWAHI WIND TIER 4 MITIGATION AREA

Management locations displayed represent the mitigation strategy. Exact locations are subject to change based on evaluation of the site conditions, Tier 4 management plan, and land owner approval.

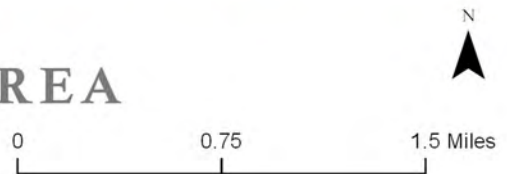


Figure 3-7. Proposed Location of Tier 4 Mitigation Area

This area is currently used for commercial cattle ranching and is part of a larger area within an agricultural conservation easement that 'Ulupalakua Ranch has granted to Maui Coastal Land Trust; the intent of the agricultural easement is to preserve, protect and maintain the agricultural conservation values of the property. Under the Tier 4 mitigation plan, the existing pastures will continue to be used for seasonal grazing, with new management actions implemented to protect and enhance bat foraging and roosting habitat, as described below. The land will be protected and managed through a conservation easement to restrict any future incompatible uses, which will ensure long-term benefit to the bat and enhance connectivity to the nearby Kula State Forest Reserve and the 120-acre Pu'u Makua Tier 1 mitigation site, which provide protected bat roosting habitat (Lance DeSilva, DOFAW, personal communication 10 August 2018, Auwahi Wind 2017).

Overall, the Tier 4 Mitigation Area has been identified as a priority for the following reasons:

- Resource availability at high elevation sites is suggested to be an important limiting factor for bat populations.
- The Mitigation Area is located adjacent to existing bat roosting habitat in the Kula Forest Reserve and the Pu'u Makua Mitigation site.
- The Wind Farm is distant from the Mitigation Area (approximately 5 miles) while positively impacting the population that is impacted by wind farm operation.
- Bat occurrence has been documented in the Mitigation Area.
- The Mitigation Area currently consists of low quality habitat, which will be improved through management actions, to increase bat use.
- The Mitigation Area currently has minimal legal protections, which will be enhanced for the Hawaiian hoary bat, with a permanent conservation easement.
- The land owner is a USFWS conservation partner and supportive of the easement and management actions proposed.

Mitigation Actions

To achieve the mitigation objective of protecting and enhancing bat foraging and roosting habitat in the Tier 4 Mitigation Area, Auwahi Wind will (1) create forested linear landscape features (i.e., hedgerows) that can be used as foraging and night roosting substrate and travel corridors, and (2) provide suitable, consistent water resources for the Hawaiian hoary bat. These added features will increase the amount of available foraging and roosting resources for Hawaiian hoary bats on Maui. Furthermore, the location of the added resources will reduce the energetic costs associated with foraging and drinking by providing suitable foraging grounds and water sources in proximity to day roosting habitat, where none previously existed. In addition to the creation of these two feature types, fire management and legal protection will also be implemented for the Mitigation Area. The combination of these actions is expected to provide immediate, near-term, and long-term benefits to bats.

Specific mitigation actions to be implemented are described below. These actions draw heavily upon existing literature, guidance derived from Bat Conservation International (BCI) for the management of water features (Taylor and Tuttle 2007), and recommendations from the Joint Nature Conservation Committee (a statutory advisory committee for the government of the United Kingdom which provides guidance for rangeland managers to promote bat use on rangelands (Entwistle et al. 2001).²⁰ Additional detail regarding the mitigation actions and the scientific basis is provided in the Draft HCP Amendment.

- **Reforestation of Hedgerows:** Fence line hedgerows will be reforested within approximately 1,556 acres of the Pasture lands unit of the Tier 4 Mitigation Area. This area will be reforested to a minimum density of approximately 20 percent (for a total of approximately 311 acres of forest cover). Within the hedgerows, trees will be planted to a density of approximately 200 trees per acre or 15-foot spacing. The hedgerows will be at least 80 feet wide (i.e., 6 trees across) to provide linear landscape features, wind breaks, and foraging substrates for the Hawaiian hoary bat. The hedgerows will be planted with fast growing native or non-native (non-invasive) trees and understory species, with a preference for fast-growing native species. The selection of tree species will be subject to availability and based on the suitability for Hawaiian hoary bats. The preferred species is koa (*Acacia koa*) (with a'ali'i [*Dodonaea viscosa*] as the understory species) as it is expected to provide available insect biomass, available night roost locations, and is fast growing. No species known to be a threat to native ecosystems will be used, as determined by Hawai'i Weed Risk Assessment (Daehler et al. 2004). To prevent ungulates from damaging the out-planted trees and to maintain long-term habitat suitability, fencing will be installed around the reforested areas, utilizing existing fences where available. The reforestation of hedgerows, with continued grazing of the pastures between hedgerows, will provide the Hawaiian hoary bat with a patchwork of open foraging areas, edge habitat, and closed canopy which provide shelter from strong winds, night roost habitat and available prey for foraging.
- **Water Trough Replacement/Retrofit:** The availability of water in the Mitigation Area is limited; therefore, retrofitting or replacing cattle water troughs is expected to enhance bat foraging habitat and serve basic physiological requirements. Trough shape and size, and proximity to vertical structure (fence, vegetation, etc.) can impact the usability of troughs by bats (Tuttle et al. 2006, Taylor and Tuttle 2007). Existing water troughs within the Tier 4 Mitigation Area widely vary in terms of composition, size and shape, and contain water only when grazing cattle are utilizing the pasture (approximately 2 to 4 months per year). Additionally, structures (e.g., fences, vegetation) surrounding the water troughs may be unsuitable for utilization by bats. Following recommendations from BCI for bats in general (Taylor and Tuttle 2007), 15 existing troughs will be retrofitted or replaced. The updated troughs will have a minimum surface area of 10 feet by 2.5 feet and an approximate depth of 1 to 2 feet. Nearby vegetation and fencing will be removed (or fence lines will be

²⁰ The recommendations of BCI and the Joint Nature Conservation Committee are not species-specific.

rerouted, if appropriate) if necessary to ensure bat flight paths to the troughs are not obstructed. The long axis of the water troughs will be parallel to the prevailing wind direction to facilitate in-flight drinking. Where possible, the troughs will be placed in the lee of windbreaks. The troughs will also be fitted with wildlife egress points to ensure that any bats or other wildlife which fall into the troughs are able to escape and avoid drowning. The water troughs will be kept at least 80 percent full (using water from a nearby spring) and will be metered using a float valve (or other appropriate mechanism). To reduce the likelihood of mosquito establishment, the troughs will be rotated with 12 active troughs and 3 drained troughs at any given time.

- Pond Installation:** In addition to the water trough modifications, two new ponds will be installed. The ponds will have a minimum diameter of 20 feet and a minimum volume of 50,000 gallons; the exact size and shape of the ponds will depend on the site conditions and requirements for use by aerial firefighting operations (see below). The pond design will incorporate varying water depths as needed to attract insect species that serve as prey for bats. A conceptual design is provided in Figure 3-8. The ponds will be fenced to exclude cattle, with the fencing sufficiently far from the pond so as not to pose a collision hazard for bats. The existing ponds are naturally replenished by rainfall, which can be up to 60 inches per year (Ulupalakua Ranch, personal communication, 23 October 2018). As such, it is expected that the newly installed ponds would also naturally replenish by rainfall; should rainfall be insufficient, management of the water supply will be modified through adaptive management.

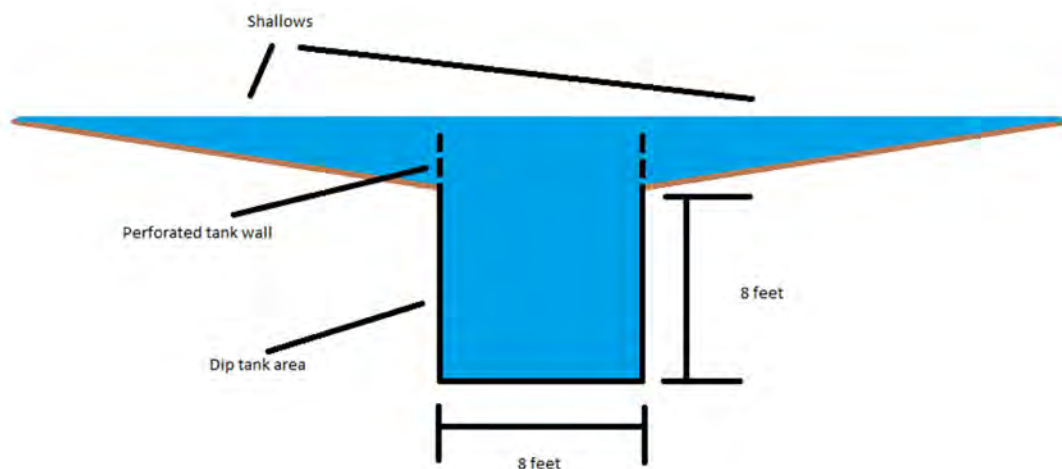


Figure 3-8. Conceptual Pond Design (with Dip Tanks for Fire Prevention)

- Dip Tanks for Fire Prevention:** Fires are a constant threat in Hawai'i, having increased fourfold in recent decades (Trauernicht and Pickett 2016). In Leeward Haleakala, fires are recorded between 'Ulupalakua and Kaupo gap regularly (Lance DeSilva personal communication August 10, 2018). Fires threaten to destroy essential bat roosting habitat in the Kula State Forest Reserve, Kanaio Natural Area Reserve, Waihou Area, and other available habitat. Additionally, fires can destroy the vegetation and insects which support

Hawaiian hoary bat foraging. DLNR Division of Forestry has been seeking additional water sources for wildland firefighting in this area but has been unable to secure funding and landowner support (Lance DeSilva personal communication August 10, 2018). Therefore, fire prevention actions will be implemented to provide additional protection of bat foraging and roosting habitat. The two ponds described above will be designed to facilitate aerial firefighting efforts by serving as dip tanks (see Figure 3-8). The addition of these ponds will allow for helicopters to fight fires to protect not only the Mitigation Area, but also adjacent lands including Kula State Forest Reserve, Kanaio Natural Area Reserve, and the Puu Makua Tier 1 mitigation area.

- **Legal Protection:** A permanent conservation easement over the Tier 4 Mitigation Area will be conveyed to HILT.²¹ Certain covenants and restrictions will be placed on the protected Mitigation Area and will be funded by Auwahi Wind. As the easement grantee, HILT will ensure compliance with the covenants, terms, conditions and restrictions contained in the easement. The additional protections or restrictions which will be imposed through the conservation easement relate to prohibiting tree removal during the bat pupping season, protecting the hedgerows from removal, maintaining ponds and troughs (including year-round water), prohibiting the use of insecticides, prohibiting artificial stocking of the ponds with fish known to reduce insect populations, and prohibiting the use of barbed wire. The legal protection of the parcel will ensure that future management actions are consistent with conditions that are favorable to bats, as provided by the management actions above.

Monitoring and Reporting

Monitoring will be conducted within the Tier 4 Mitigation Area, with the primary goal of discerning increased bat activity at the site. Secondary goals include determining the impacts of management actions and verifying consistency with the mitigation plan. Acoustic monitoring will be the primary means of assessing bat utilization in the Mitigation Area. Acoustic detectors will be placed at various sampling locations in the sub-habitats (open grassland, forest edges and water features) across the Mitigation Area, as well as at baseline locations outside of the Mitigation Area. The detectors will be checked quarterly to download data and ensure they are working properly. Data will be analyzed according to an established schedule and will be used to determine the impacts of each management action and overall bat abundance and detectability at the site. In addition to acoustic monitoring, other monitoring components will include GIS analysis of forest cover, thermal videography to assess bat behavior at the water troughs, insect monitoring across the various substrates, and water level monitoring. The results of the monitoring and the performance of the mitigation relative to established success criteria (which are detailed in the Draft HCP Amendment) will be presented in annual monitoring reports.

²¹ This easement will not supersede the existing agricultural easement that is in place for this parcel but will impose additional servitudes which are necessary and appropriate for carrying out the bat-focused conservation measures as part of the Tier 4 mitigation plan.

Adaptive Management

Because of the uncertainty of the limiting factors on the Hawaiian hoary bat population, adaptive management will be an essential component of the Tier 4 mitigation. The initial mitigation actions will be evaluated using the monitoring results against established success criteria at specific milestone dates, with each evaluation providing an opportunity for adaptive management to be triggered.

Adaptive management actions will be determined based on a detailed analysis of the monitoring response. Management actions that may be implemented for adaptive management include further hedgerow reforestation (including alteration of species and/or planting density), additional water features, adjustments to water availability and/or supplemental plantings to improve insect composition. If it is determined that neither reforestation of hedgerows or the addition of water features are appropriate for adaptive management, Auwahi Wind will work with USFWS and DOFAW to identify appropriate alternative actions based on the monitoring data. Additional detail regarding the specific adaptive management actions that could be implemented is provided in Section 6.2.4.6 of the Draft HCP Amendment.

Timeline

Implementation of the mitigation actions will begin upon issuance of the amended ITP/ITL. It is anticipated that the infrastructure improvements will take approximately 1 year to complete, including the retrofit of water troughs, installation of ponds, fence installation, and other requirements. Baseline monitoring will be conducted while these infrastructure improvements are completed, following which initial hedgerow reforestation efforts will commence. A detailed timeline of actions is provided in Table 6-3 of the Draft HCP Amendment.

Net Benefit

The proposed Tier 4 mitigation will protect, manage and improve the suitability of habitat within the Mitigation Area for the Hawaiian hoary bat. In addition to permanently protecting 1,752 acres adjacent to existing preserved bat habitat, the prescriptive management actions will enhance foraging and roosting habitat. As currently utilized, the 1,752 acres of the Mitigation Area is of only marginal quality as bat habitat, and without a bat-focused management plan, its suitability for bats will likely decrease over time. The combination of location, permanent legal protection, enhancement, and management will fully offset the take of 60 Hawaiian hoary bats and provide a net benefit to the species, as summarized below and further detailed in the Draft HCP Amendment.

Because little is known about the limiting factors for the bat, USFWS and DOFAW consider protection or enhancement of habitat within a bat's core use area to be a benefit to the species. As detailed in the Draft HCP Amendment, the proposed Tier 4 mitigation actions will sufficiently improve the existing bat habitat to offset the take of 86.3 bats (1,752 acres ÷ median core use area of 20.3 acres per bat = 86.3 bats). The existing benefit to bats will significantly increase as a result of the increased connectivity provided by virtue of the Mitigation Area's location, the addition of hedgerows, restored and new water features, and the new year-round availability of water. Additionally, the fire prevention benefits provided by the new water ponds will extend well beyond

the term of the incidental take authorizations and accrue to multiple generations of bats. Cumulatively, these mitigation actions will lead to substantial increases in the use of the Mitigation Area by Hawaiian hoary bats, foraging and roosting opportunities, and the population, resulting in an overall significant net benefit to the species.

The uncertainty associated with the actual number of bats benefiting from the Tier 4 Mitigation is associated with the limitations of available monitoring methods. To provide reasonable certainty that there will be a net benefit to the Hawaiian hoary bat, Auwahi Wind has built in several factors for which no mitigation credit is requested, which ensure that more bats will benefit from the parcel than are taken by the Project. As described above, the acreage of habitat protected by the conservation easement and improved by the mitigation actions is estimated to benefit approximately 86 bats, which exceeds the acreage needed to offset 60 bats.

Furthermore, it is important to consider time when evaluating the impact of mitigation actions. The conservation easement is recorded in perpetuity, outlasting the permit term, and imposing additional servitudes on the Mitigation Area. This conservation easement on the land provides a mandate for year-round water availability for bats, at multiple additional locations, in perpetuity. The conservation easement will protect the out-planted koa (or other native tree species) which will likely last more than 50 years (although regeneration of trees in the hedgerows will likely extend beyond this timeframe) and thus will continue to provide new habitat benefits for 5 or more generations of bats. Should the benefit of these features be realized by five generations, 300 or more bats could benefit from the mitigation actions.

An additional overall benefit from the Tier 4 Mitigation is the use of the ponds as dip tanks to prevent fires within and adjacent to the Mitigation Area. Reducing the risk of large habitat-destroying fires, both in the Mitigation Area and on adjacent protected bat habitat, by creating and providing helicopter access to new large water sources will provide a substantial benefit. These new year-round water sources will increase the chances of preventing devastating fires such as the destructive 2,300-acre fire that occurred in the adjacent Kula Forest Reserve in 2007. The mitigation includes a detailed monitoring regimen including thermal video for behavioral studies, insect assessment, and an extensive acoustic monitoring protocol which will create a data set that exceeds the information gathered from similar research projects and can provide valuable insight into the life history, habitat needs, and responses to management actions. The DOFAW Bat Guidance states "... the ESRC suggests that an appropriate estimated cost for mitigating take of one bat is \$50,000" (DOFAW 2015), which is consistent with estimated costs for Tier 4 mitigation. Finally, the management actions provide a novel concept for Hawaii, supported by literature to benefit bats, and a means for integrating the Hawaiian hoary bat into the contemporary landscape. The management actions provide tools for land managers of the 750,000 acres of pasture lands in Hawaii to greatly expand the benefit to the Hawaiian hoary bat. These mitigation actions ensure that the benefits to the Hawaiian hoary bat exceed the mitigation offset required and provide a net benefit to the Hawaiian hoary bat.

In addition to the benefit provided by the mitigation actions, it is important to recognize that the take estimate is conservative. This is because take is estimated using the 80% credible limit and

estimates of mortality are increased relative to estimates at the 50% credible limit. Additionally, take estimates assume all females taken between April 1 and September 15 have dependent young, and that all young lost because of Project operations would have survived to adulthood. These assumptions overestimate impacts to the bat. Thus, assurances against uncertainty are provided in both the take estimation and mitigation, the result of which is a reasonable certainty that benefits to the species will exceed impacts. As such, Auwahi Wind anticipates that there will be a net benefit provided to the Hawaiian hoary bat as required by HRS Chapter 195D and fully offset take as required by the ESA.

Tier 5 and 6 Mitigation

The Tier 5 and 6 take levels require mitigation for 34 and 25 bats, respectively (see Table 3-2). Based on expectations of the effectiveness of LWSC and the uncertainty about the potential for reoccurrence of a relatively large number of fatality events in one year (such as occurred in 2016), it is likely that Tiers 5 and 6 may not be reached until much later in the permit term, if at all. The triggers and timing for initiating mitigation under Tiers 5 and 6 are discussed in the Draft HCP Amendment. Should Tier 5 or Tier 6 be reached, Auwahi Wind will provide a net benefit by implementing a land-based mitigation program supported as critical to the recovery of the Hawaiian hoary bat by the available literature and agency guidance. Prior to implementation, the proposed mitigation will be reviewed and approved by USFWS and DOFAW.

Based on the best available science and agency guidance, mitigation for Tiers 5 and 6 will prioritize land-based mitigation, with a focus on restoration and management of lands with bat foraging, roosting, and/or breeding habitat. As restoration/management of 20.3 to 40 acres is anticipated to offset the take of one bat based on the evaluation of core use area and agency guidance (Bonaccorso et al 2015, DOFAW 2015), a minimum of 690.2 acres will be restored for Tier 5, and a minimum of 487.2 acres will be restored for Tier 6. Based on current knowledge, the land-based mitigation will prioritize building on the Tier 4 Mitigation and may include improvements to available foraging habitat, which includes a variety of landscapes that have suitable insect prey or roosting habitat (native and non-invasive trees that have suitable physical characteristics). These efforts will be responsive to recovery goals identified in the Hawaiian hoary bat recovery plan (USFWS 1998) and will consider the best available science and current state of knowledge on the Hawaiian hoary bat; any new information will be addressed through adaptive management. The adaptive management provisions of the HCP provide a mechanism for the USFWS, DOFAW, and Auwahi Wind to adjust the conservation strategy to incorporate new scientific information as it becomes available.

In evaluating land-based mitigation actions for Tier 5 and Tier 6 mitigation, Auwahi Wind will prioritize building upon the mitigation measures implemented as part of the Tier 4 Mitigation on 'Ulupalakua Ranch and adjacent parcels, which focus on land protection and land management. Land will be preferred if it has existing protection through a conservation easement or other instrument, but the habitat suitability for the Hawaiian hoary bat is lacking in one or more essential component. The restoration mitigation work will be additive and will be distinct from existing work that is planned to occur under the approved HCP or Tier 4 Mitigation. The site-specific implementation plan that will be submitted to the agencies will include information on how Auwahi

Wind will address the deficiencies of the parcel(s) and increase its suitability for bats, thus increasing the parcel's carrying capacity for the Hawaiian hoary bat to provide a net benefit for the species and fully offset the take for the tier.

Additional detail regarding Tier 5 and 6 mitigation and how these efforts will provide a net benefit for the Hawaiian hoary bat is provided in Section 6.2.5.1 of the Draft HCP Amendment.

Funding Assurance

Section 10(a)(2)(B)(iii) of the ESA and HRS Section 195D-4(g) require that adequate funding be made available to implement the HCP including the proposed monitoring and mitigation plans.

The total funding assurance for Tier 4 will be for \$4.01 million; this includes the cost of implementing the mitigation, adaptive management, funding for DLNR technical assistance and compliance monitoring, as well as a 5% contingency fund. Funding assurances will be in the form of a bond, letter of credit, or similar instrument naming the USFWS and DLNR as beneficiaries. The letter of credit or similar financial instrument will be in place within 60 days of issuance of the ITP and ITL.

The cost of mitigation for Tiers 5 and 6 will depend on the mitigation action selected for each tier. Funding assurances for Tiers 5 and 6, should they be triggered, are currently based on estimates of the cost of Tier 4 mitigation and are estimated to be approximately \$2.27 million and \$1.67 million (including contingency funds). A detailed discussion of the funding assurances is provided in Section 9.4 and Appendix I of the Draft HCP Amendment.

Impacts of HCP Mitigation

This section evaluates the potential impacts of the mitigation developed for the Hawaiian hoary bat as part of the Draft HCP Amendment, including the specific actions proposed for the Tier 4 Mitigation Area. The potential mitigation sites for Tiers 5 and 6 have not yet been selected, nor have the specific actions been determined, other than a focus on restoration and management of habitat for bat roosting, foraging and/or breeding. Therefore, this analysis assumes that the scope of potential impacts associated with Tiers 5 and 6 would be similar to those described for the Tier 4 mitigation. If it appears that the Tiers 5 and 6 mitigation will be needed and a plan is developed, a review will be conducted at that time to determine whether additional analysis is warranted.

Consideration is given in the following subsections to those resources with the potential for impacts resulting from implementation of the mitigation. Resources that are not expected to be affected by the Hawaiian hoary bat mitigation include: climate, natural hazards, hazardous and regulated materials and wastes, public and construction safety, socioeconomic conditions, and public infrastructure and services. These topics are not addressed further.

For the resources discussed below, information related to the existing conditions is summarized and the impacts are evaluated consistent with the framework established for each resource category, as defined in the 2011 EIS.

Impact Analysis

Geology and Topography

The Mitigation Area ranges in elevation between 3,500 and 5,500 feet asl and consists primarily of sloping grasslands, interspersed with gulches. There are no areas of geologic importance or mineral resources with economic value that will be affected by the proposed mitigation activities.

Excavation within the Mitigation Area will primarily be associated with creation of the two proposed pond features. As described above, each pond will have a minimum diameter of 20 feet and minimum volume of 50,000 gallons, with a design that incorporates varying water depths. To allow for the ponds to be used for firefighting purposes, excavation depths will be up to approximately 8 to 12 feet for a portion of each pond (see Figure 3-8). Excavated soil will be repurposed around the Mitigation Area and will not be concentrated in any given location. Based on the conceptual design, installation of these pond features is not expected to significantly impact topography within the Mitigation Area.

None of the other mitigation activities are expected to involve large-scale excavation, filling or levelling. Reforestation efforts will involve out-planting of small trees, with localized excavation as needed to accommodate the root ball of each tree. The mitigation activities will be performed using the existing unpaved road network within the Mitigation Area. If needed, standard road maintenance and improvement will be conducted, consistent with current ranch practices. No new roads will be constructed, no impervious surfaces will be created, and the grade of existing roads will not be substantially changed. As such, none of the proposed mitigation activities are expected to affect geology and topography within the Mitigation Area.

Soils

Soils in the Waihou Area consist of Kaipoioi loam and Uma loamy coarse sand (NRCS 2011). In the Pasture lands, soils consist primarily of Kaipoioi very rocky loam, Kaipoioi loam, and 'Ulupalakua silt loam (NRCS 2017). The majority of soils in the Mitigation Area have been subjected to long-term cattle grazing and ranching activities.

Implementation of the proposed mitigation will result in soil disturbance, including excavation and grading for the two new pond features; as described above, excavated soil will be repurposed for use around the Mitigation Area. Reforestation will also result in soil disturbance, varying in extent depending on the method used for tree planting. Much of the planting may be accomplished by hand, but it is possible heavy equipment, such as a bulldozer, could be used in some areas to facilitate efficient planting of hedgerows. Approximately 150,000 feet of ungrate fence will be constructed around the reforested areas, with some degree of soil disturbance from installation of the fence posts. Road improvements, if needed, will be consistent with current ranching operations and are not expected to require excavation or extensive grading. Little to no ground disturbance is expected for the replacement or retrofitting of water troughs, or the extension of the existing water line network to feed the troughs and ponds. The water line network consists of above-ground PVC pipe; therefore, no excavation is needed for extensions or repairs.

In the context of the overall Mitigation Area, the extent of disturbance associated with these activities will be relatively limited; however, minor soil-related impacts could occur as a result of erosion or stormwater runoff. Potential impacts will be temporary in nature and will be minimized through implementation of standard BMPs to control erosion and stormwater runoff, consistent with the measures described in the 2011 EIS. None of the activities are expected to result in mass soil movement, loss of soil productivity or other significant soil-related impacts. Over the long term, reforestation is expected to stabilize soils and improve habitat quality for native species, as well as reduce the potential for water- or wind-related soil erosion. Similarly, removal of ungulates from within the fence lines will prevent soil damage and increase soil stability.

Hydrology and Water Resources

The Tier 4 Mitigation Area is located in the Wailea watershed. There are several drainage features located within or near the Mitigation Area; these features are non-perennial and only contain water on an intermittent basis. Five small ponds, which are used by grazing cattle, occur in the Waihou Area (ranging in size from 40 by 50 feet up to 60 by 120 feet). Other water sources such as cattle troughs are only active seasonally (approximately 2 to 4 months per year). There are no wetlands or other perennial surface water features in the Mitigation Area. The majority of the Mitigation Area is located in the Kamaole aquifer subunit of the Central groundwater hydrologic unit, which has a sustainable yield of 11 million gallons per day (MGD). A portion of the Waihou Area is in the Lualailua aquifer subunit of the Kahikinui unit, which also has a sustainable yield of 11 MGD (CWRM 2008).

Replacement or retrofitting of water troughs and installation of new ponds will create additional water features in the Mitigation Area. As described, these features will be maintained with water year-round and are intended to benefit bat foraging, as well as supply emergency water for aerial firefighting. Neither the water troughs or pond features will change hydrologic patterns, nor will they substantially impact groundwater within the Mitigation Area. Two existing groundwater springs will provide a sufficient water supply. One spring is located east of the Mitigation Area in the Kula Forest Reserve, with an existing water line to the Pasture lands, and another in the Waihou Area that feeds the existing ponds and troughs. The water withdrawal for the mitigation water features represents a negligible volume from the aquifers and falls within the currently permitted water use by 'Ulupalakua Ranch.

Reforestation will require watering of initial plantings; however, long-term irrigation is not expected to be needed. Water for reforestation will also be obtained from the existing water sources used by 'Ulupalakua Ranch and will not be expected to substantially affect groundwater. No other mitigation activities are expected to involve water use.

As described above, standard BMPs will be implemented to control erosion and stormwater runoff in areas with soil disturbance, thereby minimizing the potential for sediment to impact surface water quality near the Mitigation Area. Over the long-term, reforestation efforts are expected to contribute to accelerated fog drip and reduced erosion (DOFAW 2004). This can positively affect the watershed by increasing soil moisture, slowing runoff, and increasing infiltration. These processes enhance aquifer recharge and improve water quality. Installation of fencing and removal

of ungulates will prevent damage to soil and vegetation, and new forested area will reduce potential for erosion by wind and water, thereby also reducing the potential for sediment to reach surface waters near the Mitigation Area. As such, the proposed mitigation is not expected to adversely affect water quality or hydrologic resources and could potentially provide some degree of long-term benefit.

Vegetation

Vegetation in the Mitigation Area consists primarily of open grasslands, with some patches of forested habitat. The Pasture lands are comprised almost entirely of grasslands, which are dominated by kikuyu grass and a mix of other non-native species. The Waihou Area is also predominantly grasslands, but also includes approximately 20 percent forest cover. Dominant species within the forested areas include koa, Pacific ash (*Fraxinus uhdei*), and Monterey pine (*Pinus radiata*). No threatened or endangered vegetation species, or critical habitat occurs within the Mitigation Area. The adjacent Kula Forest Reserve includes critical habitat for several listed plant species: Hawai'i silversword (*Argyroxiphium sandwicense* ssp. *macroceph*), ko'oko'olau (*Bidens menziesii*), 'oha wai (*Clermontia lindseyana*), Asplenium-leaf diellia (*Diellia erecta*), and crane's bill (*Geranium arboretum*) (USFWS 2010).

The proposed mitigation activities will involve some disturbance and clearing of grassland habitat for installation of the water features, as well as reforestation and ungulate fencing. Impacts to vegetation from the other mitigation activities (including road improvements and water line extensions) are expected to be minimal, and consistent with ongoing cattle ranching operations in this area. The total amount of grassland vegetation that will be temporarily or permanently impacted represents a small fraction of the overall Mitigation Area and surrounding habitat. The species that will be affected are primarily non-native species associated with the degraded grassland habitat; no forest vegetation will be removed as part of these activities. Standard BMPs for invasive plant management will be implemented to minimize adverse impacts to vegetation communities across the Mitigation Area. Gear-cleaning procedures for equipment and vehicles will be enforced to reduce the potential for introduction of invasive plant seeds and propagules, as well as arthropods such as exotic ants. Targeted use of herbicides will be carried out as needed to control certain invasive species, if needed.

There will be a long-term benefit to vegetation in the Mitigation Area through reforestation of hedgerows with fast-growing tree species. It is possible non-native (non-invasive) trees and understory species could be included in the reforestation effort; however native species suitable for Hawaiian hoary bats will be used to the extent practicable. Ungulate fencing will also provide benefits by reducing grazing, browsing, and trampling of native vegetation by ungulates, thus promoting the long-term success of the reforested areas. The legal protection applied to the Mitigation Area will also provide benefits by prohibiting reduction in forest cover below 20 percent within the Pasture lands. Furthermore, installation of dip tanks as part of the pond features will help to provide protection for vegetation in future cases of wildfire. Through natural and assisted regeneration and ongoing legal protection, benefits to vegetation associated with the mitigation measures are anticipated beyond the permit term of the HCP.

Wildlife

Wildlife species potentially occurring in the Mitigation Area include the various non-listed wildlife species, Hawaii State Species of Concern, MBTA-protected species, and ESA-listed species identified in the 2011 EIS. Updated information for the Hawaiian hoary bat is provided in Section 3.7.1.4. The following describes anticipated impacts to wildlife associated with the mitigation for the Hawaiian hoary bat, which will be implemented as part of the HCP Amendment.

In accordance with the requirements of HRS Chapter 195D, mitigation carried out under an HCP must result in a net benefit to the covered species. As discussed in Section 3.7.2.6, mitigation for take under Tiers 1-3 has achieved the interim success criteria and is expected to continue to provide a benefit to the Hawaiian hoary bat. Mitigation for take under Tiers 4 – 6 is intended to further protect and restore native habitats used by the Hawaiian hoary bat. As detailed in Section 3.7.2.6, the mitigation is expected to provide a beneficial impact to this species, and possibly other wildlife species, over the term of the HCP and beyond.

As previously described, implementation of the mitigation measures, including installation of water features, reforestation of hedgerows and other related activities, will involve vegetation clearing, excavation and use of construction equipment. These activities could result in short-term impacts to wildlife due to habitat disturbance and noise from vehicles and equipment. Impacts to sensitive species are anticipated to be negligible because the area has been previously disturbed, and all activities will occur in areas that are subject to ongoing ranching activities. Furthermore, measures to avoid and minimize impacts to wildlife and habitat will be implemented, consistent with the information provided in the 2011 EIS. These will include standard BMPs related to minimizing the extent of disturbance and preventing the introduction or spread of invasive species.

The proposed mitigation measures include retrofitting existing water troughs and creating two new water features designed to hold water year-round. Although these new water features could attract mosquitos, they are not anticipated to significantly increase the presence of mosquitos beyond the current conditions, given the existing ponds in the Waihou Area and surrounding lands. Furthermore, mosquitos are a food source for Hawaiian hoary bats, which presumably will help to control the population.

Over the long-term, each of the components of the proposed mitigation is expected to contribute to preservation and restoration/management of habitat for Hawaiian hoary bat, and other wildlife including those associated with forest habitat. Collectively, the proposed mitigation measures are designed to aid in the recovery of the Hawaiian hoary bat and will provide a net benefit to the species, as detailed in the Draft HCP Amendment.

Archaeological Resources

An archaeological resource investigation specific to the Mitigation Area has not been conducted; however, previous archeological investigations in the Kahikinui District suggest that archaeological sites in the upper elevations of Leeward Haleakalā are temporary in nature with no permanent dwellings or associated agricultural development (Kirch et al. 2004; Dixon et al. 1999). Most sites, including primary and temporary habitations, agricultural features, heiau and other sites with

ritual functions, boundary markers, shelters, surface midden, burials, and other permanent features appear to be concentrated below 3,000 feet in elevation (Kirch et al. 2004; Dixon et al. 1999), but some types of temporary sites may occur above 6,000 feet in elevation if the topography is gentle (Soehren 1963 as cited in DOFAW 2004; NSF 2010). Based on this information, it is anticipated that archaeological resources within the Mitigation Area (3,500 to 5,500 feet asl) are limited, and likely consist of rock shelters, cairns, ridge trails, and other temporary use sites.

An archaeological investigation will be conducted prior to commencing any ground disturbing activities associated with the proposed mitigation, and consultation with the Hawai'i State Historic Preservation Division (SHPD) will be conducted as needed. Any historical, cultural, and archeological resources that are identified will be avoided to the extent possible through micro-siting and other BMPs. Contractor requirements will include precautionary measures related to the inadvertent discovery of cultural remains, such as stopping work in the immediate area of the discovery and immediately notifying the SHPD. With these measures, mitigation activities are not expected to significantly impact archeological or cultural resources.

Traffic and Transportation

Access to the Mitigation Area will be via the existing 'Ulupalakua Ranch road network. Construction materials for water trough replacement/retrofitting, pond and dip tank installation, and reforestation (including fencing) will be transported to the Mitigation Area by flatbed truck and staged in a designated area. No helicopters will be needed to deliver materials to the Mitigation Area. Access for mitigation crews, as well as subsequent maintenance and monitoring activities will be via passenger vehicles (e.g., pickup truck or similar).

Implementation of the mitigation will result in a minor increase in truck trips to the Mitigation Area during the initial stages of mitigation implementation (e.g., installation of water features, reforestation activities and fence installation), with less frequent trips during subsequent maintenance and monitoring activities over the term of the ITP. However, the truck traffic will generally be limited to the existing 'Ulupalakua Ranch roads and will be within the range of normal conditions associated with ongoing ranch operations. As such, mitigation is expected to have a negligible impact to traffic and transportation.

Noise

Within the Mitigation Area, existing noise levels are relatively low and consist primarily of sounds associated with ongoing ranching activities and the environmental conditions (e.g., wind, birds).

Implementation of the proposed mitigation will generate noise from activities including ground excavation for pond/dip tank installation, fence post pounding, and vehicle operation (flat-bed and pick-up trucks or similar). Vehicle noise will generally come from two sources: (1) initial traffic related to infrastructure improvements and reforestation, and (2) minor ongoing traffic from monitoring/maintenance staff and contractors.

Overall, noise generated as part of the proposed mitigation is expected to be minor and short-term in duration, and generally commensurate with existing ranching operations. No noise-generating mitigation activities will be conducted at night. Noise generated during mitigation activities is not

expected to exceed permissible sound levels and will be conducted in compliance with the requirement of HAR Chapter 46 (Community Noise Control).

Air Quality

The existing air quality in east Maui is considered to be relatively good because of the low levels of development and automobile emissions, as well as exposure to consistently strong winds which help to disperse any accumulation of emissions. Because the Mitigation Area is in an undeveloped area, the only sources of pollutant air emissions are generally associated with fuel combustion from vehicles on 'Ulupalakua Ranch and nearby roads. As described in the 2011 EIS, the region where the Mitigation Area is located is currently in attainment of all criteria pollutants specified by the Clean Air Act and the Hawai'i ambient air quality standards.

Implementation of the proposed mitigation is not expected to significantly affect air quality. Proposed earthwork will be small-scale and temporary, and the primary fossil-fueled equipment use will also be limited to construction. Maintenance of fences and other infrastructure, as well as the planned acoustic monitoring will require infrequent vehicle use (typically light trucks). Therefore, a minor amount of fugitive dust and greenhouse gas emissions will occur due to the vehicle use and equipment use associated with mitigation activities. Over the long-term, reforestation could contribute to a reduction in wind erosion, thereby reducing dust in the air.

Visual Resources

The visual setting of the Mitigation Area is characterized by expansive agricultural areas (pastureland) and other natural features, with little to no development. As described above, the Mitigation Area is largely comprised of grasslands that are used for cattle grazing, with some patches of forested areas. These habitats have been degraded by commercial ranching activities, which reduces the scenic value to some extent.

The reforested hedgerows and ungulate-proof fencing are the primary visual elements proposed as part of the mitigation. In general, these will be consistent with existing features within the Mitigation Area and the surrounding ranch lands. The reforested hedgerows will be similar to other forested areas in the surrounding landscape and will ultimately contribute to the scenic character in the vicinity of the Mitigation Area. The legal protections through the conservation easement will help maintain these reforested areas and prevent the loss of other trees, thereby providing a long-term benefit to scenic values.

The water troughs and the new ponds will have a very low profile and will be similar to existing water features within the Mitigation Area. These will not be readily visible from outside the Mitigation Area and are expected to have minimal to no effect on visual resources.

Land Use

The Mitigation Area is located on land owned by 'Ulupalakua Ranch. Under the proposed HCP mitigation, a permanent conservation easement over the entire Mitigation Area will be conveyed to HILT. As described earlier, this easement will not supersede the existing agricultural easement but will impose additional requirements necessary for implementing the bat-focused conservation

measures. Cattle grazing will continue to occur in the pastures between the hedgerows. Overall, the proposed mitigation will be consistent with existing land uses, plans, and policies. As such, no impacts to land use are anticipated.

3.7.2.7 Summary of Impacts

Consistent with the summary of potential impacts provided in the 2011 EIS, Project-related impacts to wildlife are anticipated to be less than significant, particularly those impacts associated with noise and disturbance, loss of wildlife habitat, and mortality of non-listed wildlife and species of concern. Overall, take of listed species will be mitigated such that the impact will be less than significant with implementation of mitigation.

Specific to the Hawaiian hoary bat, the Project will result in an estimate increase in take beyond that previously anticipated in the approved HCP; however, land-based preservation and habitat restoration and management will be implemented to mitigate the impacts, thereby providing a net benefit to the species.

3.8 Archaeological and Cultural Resources

The 2011 EIS provides a definition of archaeological and cultural resources, discusses the regulatory setting and existing conditions, assesses the potential impacts relative to archaeological and cultural resources that could result from construction, operations and maintenance of the Project (as well as the no action alternative), and presents associated avoidance, minimization and mitigation measures. Impacts to archaeological and cultural resources resulting from Project implementation are commensurate with the assessment provided in the 2011 EIS, and there are no substantive changes to this discussion related to the increase in estimated take levels of the Hawaiian hoary bat.

3.9 Transportation and Traffic

The 2011 EIS provides a definition of transportation and traffic as a resource, discusses the existing conditions, assesses the potential impacts relative to transportation and traffic that could result from construction, operations and maintenance of the Project (as well as the no action alternative), and presents associated avoidance, minimization and mitigation measures. Impacts to transportation and traffic as a result of Project implementation are commensurate with the assessment provided in the 2011 EIS, and there are no substantive changes to this discussion related to the increase in estimated take levels of the Hawaiian hoary bat.

3.10 Hazardous and Regulated Materials and Wastes

The 2011 EIS provides a definition of hazardous materials and wastes, discusses the existing conditions, assesses the potential impacts relative to hazardous materials and waste that could result from construction, operations and maintenance of the Project (as well as the no action alternative), and identifies relevant minimization measures. Impacts related to hazardous materials and waste as a result of Project implementation are commensurate with the assessment provided in

the 2011 EIS, and there are no substantive changes to this discussion related to the increase in estimated take levels of the Hawaiian hoary bat.

3.11 Noise

The 2011 EIS describes the regulatory framework related to noise, discusses the existing conditions, assesses the potential noise-related impacts that could result from construction, operations and maintenance of the Project (as well as the no action alternative), and identifies relevant avoidance, minimization and mitigation measures. Impacts related to noise as a result of Project implementation are commensurate with the assessment provided in the 2011 EIS, and there are no substantive changes to this discussion related to the increase in estimated take levels of the Hawaiian hoary bat.

3.12 Air Quality

The 2011 EIS provides a definition of air quality, discusses the existing conditions, assesses the potential impacts to air quality that could result from construction, operations and maintenance of the Project (as well as the no action alternative), and identifies relevant avoidance and minimization measures. Impacts related to noise as a result of Project implementation are commensurate with the assessment provided in the 2011 EIS, and there are no substantive changes to this discussion related to the increase in estimated take levels of the Hawaiian hoary bat.

3.13 Visual Resources

The 2011 EIS provides a definition of visual resources, discusses the existing conditions, assesses the potential impacts to visual resources that could result from construction, operations and maintenance of the Project (as well as the no action alternative), and identifies relevant avoidance, minimization and mitigation measures. Impacts related to visual impacts as a result of Project implementation are commensurate with the assessment provided in the 2011 EIS, and there are no substantive changes to this discussion related to the increase in estimated take levels of the Hawaiian hoary bat.

3.14 Surrounding Land Use and Agriculture

The 2011 EIS discusses the existing conditions, and assesses the potential impacts to land use and agriculture that could result from construction, operations and maintenance of the Project (as well as the no action alternative). Impacts related to land use and agriculture as a result of Project implementation are commensurate with the assessment provided in the 2011 EIS, and there are no substantive changes to this discussion based on the increase in estimated take levels of the Hawaiian hoary bat.

3.15 Public and Construction Safety

The 2011 EIS discusses the existing conditions, assesses the potential impacts to public and construction safety that could result from construction, operations and maintenance of the Project

(as well as the no action alternative), and identifies relevant avoidance and minimization and measures. Impacts related to visual impacts as a result of Project implementation are commensurate with the assessment provided in the 2011 EIS, and there are no substantive changes to this discussion related to the increase in estimated take levels of the Hawaiian hoary bat.

3.16 Socioeconomic Characteristics

The 2011 EIS discusses the existing conditions, and assesses the potential impacts related to socioeconomics that could result from construction, operations and maintenance of the Project (as well as the no action alternative). Impacts related to socioeconomics as a result of Project implementation are commensurate with the assessment provided in the 2011 EIS, and there are no substantive changes to this discussion related to the increase in estimated take levels of the Hawaiian hoary bat.

3.17 Public Infrastructure and Services

The 2011 EIS discusses the existing conditions, and assesses the potential impacts to public infrastructure and services that could result from construction, operations and maintenance of the Project (as well as the no action alternative). Impacts related to public infrastructure and services as a result of Project implementation are commensurate with the assessment provided in the 2011 EIS, and there are no substantive changes to this discussion related to the increase in estimated take levels of the Hawaiian hoary bat.

4.0 Cumulative Impacts

Cumulative impacts are defined as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions” (HAR § 11-200). HAR § 11-200-17(g) requires that an EIS include “specific reference to related projects, public and private, existent or planned in the region ... for purposes of examining the possible overall cumulative impacts of such actions.”

The 2011 EIS presents an analysis of the cumulative impact of the construction, operation and maintenance, closure and decommissioning of the Project, taking into account the effects in common with other past, present, and reasonably foreseeable future projects. The cumulative impacts analysis highlighted past projects that are closely-related either in time or space (i.e., temporally or in geographic proximity) to the Project; present projects that were underway at the time the EIS was being prepared; and reasonably foreseeable future projects, including those for which there are existing decisions, funding, formal proposals, or which are highly probable, based on known opportunities or trends.

The Project has been constructed and the extent of impacts to date are commensurate with those described in the 2011 EIS, with the exception of the increase in estimated take of the Hawaiian hoary bat. Therefore, for the purposes of this SEIS, the discussion of cumulative impacts is specifically focused on the Hawaiian hoary bat impacts and associated mitigation. This analysis includes the past, present and reasonably foreseeable actions previously considered in the 2011 EIS, as well as newly identified actions that may also contribute to cumulative impacts specific to the Hawaiian hoary bat. The other components of the cumulative impact analysis presented in the 2011 EIS are incorporated by reference.

4.1 Climate

The 2011 EIS discusses the cumulative impacts related to climate. There are no substantive changes to this discussion based on the increase in estimated take levels of the Hawaiian hoary bat, nor is implementation of the newly proposed mitigation for Hawaiian hoary bats expected to contribute to cumulative impacts on climate.

4.2 Geology and Topography

The 2011 EIS discusses the cumulative impacts to geology and topography. There are no substantive changes to this discussion based on the increase in estimated take levels of the Hawaiian hoary bat, nor is implementation of the newly proposed mitigation for Hawaiian hoary bats expected to contribute to cumulative impacts on geology and topography.

4.3 Soils

The 2011 EIS discusses the cumulative impacts to soils. There are no substantive changes to this discussion based on the increase in estimated take levels of the Hawaiian hoary bat, nor is implementation of the newly proposed mitigation for Hawaiian hoary bats expected to contribute to cumulative impacts on soils.

4.4 Natural Hazards

The 2011 EIS discusses the cumulative impacts related to natural hazards. There are no substantive changes to this discussion based on the increase in estimated take levels of the Hawaiian hoary bat, nor is implementation of the newly proposed mitigation for Hawaiian hoary bats expected to contribute to cumulative impacts related to natural hazards.

4.5 Hydrology and Water Resources

The 2011 EIS discusses the cumulative impacts to hydrology and water resources. There are no substantive changes to this discussion based on the increase in estimated take levels of the Hawaiian hoary bat, nor is implementation of the newly proposed mitigation for Hawaiian hoary bats expected to contribute to cumulative impacts on hydrology and water resources.

4.6 Vegetation

The 2011 EIS discusses the cumulative impacts to vegetation. There are no substantive changes to this discussion based on the increase in estimated take levels of the Hawaiian hoary bat, and this information is incorporated by reference. In addition to the actions considered in the 2011 EIS analysis, the proposed mitigation for the Hawaiian hoary bat involves reforestation of hedgerows to create suitable foraging and roosting habitat for bats on 'Ulupalakua Ranch property, near Kula Forest Reserve. This effort is expected to involve planting of suitable tree species (preferably koa and a'ali'i) in degraded pasturelands that are used for commercial cattle ranching.

As discussed in Section 3.7.2.6, this action is expected to benefit vegetation resources by restoring native tree species in pasturelands that are currently dominated by non-native grass species. As such, the mitigation (in combination with the Project and other actions) is not expected to contribute to significant cumulative effects to vegetation resources.

4.7 Wildlife

Similar to the analysis of Project-related impacts, the geographic area included in the cumulative analysis of impacts on wildlife included the wind farm site, generator-tie line corridor and Pāpaka Road (including a 0.25-mile buffer on either side of the generator-tie line and Pāpaka Road centerlines). For ESA-listed species, the cumulative impact analysis area also includes other operating and proposed wind farms on Maui that could impact the same population of covered species addressed in the HCP for the Project. A discussion of cumulative impacts on non-listed

wildlife, MBTA-protected species, state Species of Concern, and ESA-listed species is provided below.

4.7.1 Non-listed Wildlife

The 2011 EIS discusses potential cumulative impacts to non-listed wildlife species. There are no substantive changes to this information, particularly as related to the increase in estimated take levels of the Hawaiian hoary bat. The discussion contained in the 2011 EIS is incorporated by reference.

4.7.2 MBTA-protected Species

The 2011 EIS discusses potential cumulative impacts to MBTA-protected species. There are no substantive changes to this information, particularly as related to the increase in estimated take levels of the Hawaiian hoary bat. The discussion contained in the 2011 EIS is incorporated by reference.

4.7.3 Hawai'i State Species of Concern

The 2011 EIS discusses potential cumulative impacts to state species of concern. There are no substantive changes to this information, particularly as related to the increase in estimated take levels of the Hawaiian hoary bat. The discussion contained in the 2011 EIS is incorporated by reference.

4.7.4 ESA-listed Species

The 2011 EIS discusses potential cumulative impacts to ESA-listed species, including the Hawaiian hoary bat, Hawaiian petrel, Hawaiian goose, and Blackburn's sphinx moth. An updated analysis of cumulative impacts to the Hawaiian hoary bat, based on the Draft HCP Amendment, is provided below. The 2011 EIS discussion relative to the other ESA-listed species needs no change and is incorporated by reference.

Cumulative impacts to the Hawaiian hoary bat relate to the impacts associated with the HCP Amendment when considered in the context of past, present and reasonably anticipated future actions that could also have an impact on the bat, both on Maui and statewide. On Maui, past development and other land use changes have resulted in the loss of bat roosting and foraging habitat through the conversion of forest to agriculture and other uses. Resort or recreational developments, farming, road construction, pesticide use, and wildfires are expected to persist into the future and have the potential to result in further habitat loss or alteration, either directly or through the introduction or spread of invasive plant and insect species. Other direct impacts to bats associated with these activities may occur through collisions with structures, such as barbed wire fences, wind turbines, and communications towers, or disturbance at roost sites. These activities may also indirectly affect bats through the displacement or reduction in the number of prey resources.

In addition to the Hawaiian hoary bat take authorized under the approved HCP, the only other authorized take of the Hawaiian hoary bat on Maui is from two other utility-scale wind farms operating with approved HCPs (see Table 4-1). The Kaheawa Wind Phase I Project (20 GE 1.5-MW wind turbines) and Kaheawa Wind Phase II Project (14 GE 1.5-MW wind turbines) are located on west Maui and have authorized take levels of 50 bats and 11 bats, respectively, over their 20-year permit terms (Kawailoa Wind Power 2006, SWCA 2011). Due to higher than anticipated incidental take levels of bats, Kaheawa Wind Phase II is in the process of amending its HCP (ESRC 2015) and has requested additional take of 27 bats. The take for all existing Maui projects is estimated at 11.4 bats per year. Based on the population estimate for Maui (see Section 3.7.2.4), the cumulative impact of all current Maui wind projects is not expected to have a significant impact on the population of Hawaiian hoary bats on the island.

The potential for additional development must also be considered as part of cumulative impacts to species. The Hawaiian Electric Companies issued a renewable energy request for proposals seeking to develop an additional 60 MW of renewable energy on Maui (HECO 2018). No new wind energy projects were identified for Maui as a result of this process. It is not known if a similar request will be initiated in the future, but the start of operations of a new project in the next 5 years is unlikely given that no projects were identified in 2018. The Hawai'i Clean Energy Initiative (HRS 196-10.5) and Renewable Portfolio Standards (HRS 269-92) specifies that the State of Hawai'i will establish a renewable portfolio standard of 100% of net electricity sales from renewable sources by 2045. It would be anticipated that new wind projects will be proposed in the future, but the timing, approval, construction, and operation of such projects is uncertain and is therefore not possible to incorporate into the analysis of cumulative impacts.

Based on the population estimate provided for Maui, the cumulative impact for current and proposed wind energy development is not expected to have a significant impact on Maui's hoary bats. These take rates are likely to decline as the risk factors associated with Hawaiian hoary bat fatalities are researched and minimization measures are improved for wind farms. Additionally, several companies are working to develop effective bat deterrents and conducting research into ultrasonic and ultraviolet deterrents to reduce the risk of bat fatalities at wind farms. The installation of bat deterrents at wind farms in Hawai'i is anticipated within the next 5 years and would further reduce the risk of cumulative impacts to the bat if implemented for future projects.

Table 4-1. Current and Requested Take Authorizations for the Hawaiian Hoary Bat

Applicant	Permit Duration	Megawatts	Location	Current Take Authorization ¹	Take Request for Future HCP or HCP Amendment ^{1,2}
Kahuku Wind Power ³	2010 - 2030	30	Kahuku, O'ahu	32 bats	NA
Kaheawa Wind Power I	2006 - 2026	30	Maalaea, Maui	50 bats	NA
Kaheawa Wind Power II	2012 - 2032	21	Maalaea, Maui	11 bats	38 bats

Applicant	Permit Duration	Megawatts	Location	Current Take Authorization¹	Take Request for Future HCP or HCP Amendment^{1,2}
Kawailoa Wind Power	2012 - 2032	69	Kawailoa, O'ahu	60 bats	222 bats
U.S. Army Kahuku Training Area Single Wind Turbine ³	2010 - 2030	NA	Kahuku, O'ahu	2 adults, 2 juvenile bats	NA
Auwahi Wind	2012 - 2037	24	Ulupalakua Ranch, Maui	21 bats	140 bats
Na Pua Makani Wind Farm	Final requested (21 years)	25	Kahuku, O'ahu	NA	51 bats
Pakini Nui Wind Farm	Draft requested (20 years)	21	Hawai'i Island	NA	26 bats
Lalamilo Wind Farm	Draft requested (20 years)	3.3	Hawai'i Island	NA	6 bats
Pelekane Bay Watershed Restoration Project ³	2010 - 2030	NA	Hawai'i Island	16 bats	NA
1. Total take authorization includes adult and juvenile bats; number of adult equivalents provided by D. Sether, USFWS, 2017. 2. Total includes previous authorized take. 3. Take authorized under ESA Section 7 Biological Opinion.					

Becoming snagged on barbed wire is a documented mortality source for bats statewide, with rates on Maui expected to be similar to the statewide range of zero to 0.8 Hawaiian hoary bats per 62 miles of barbed wire (Zimpfer and Bonaccorso 2010). Observed fatalities are uncommon because most fences are not checked regularly and any bats that may be caught on these fences may be quickly taken by predators or scavengers. Based on the low estimates of mortality related to bat impalement on barbed-wire fences, the impact of the HCP Amendment in combination with this impact is not expected to result in significant cumulative impacts to the species on Maui or statewide.

The activities that directly impact bats on Maui also occur statewide. The direct impacts from other authorized or proposed actions which could take bats includes the following: (1) authorized take approved for two existing wind projects on O'ahu (Kawailoa is seeking an amendment to increase the amount of authorized Hawaiian hoary bat take), (2) requested take for one proposed wind project on O'ahu, and (3) requested take for two existing wind projects and one restoration project on Hawai'i Island (Table 4-1). Take authorization for these wind farms is contingent upon approved mitigation, which is expected to fully offset these projects' take. However, movement of bats between islands is anticipated to be rare; therefore, the Project would only be expected to contribute to cumulative impacts to the population on Maui alone.

Approved and pending authorized levels of bat take would be expected to be fully mitigated, with the exception of the U.S. Army Kahuku Training Area and Pelekane Bay Watershed Restoration

Project, for which mitigation is recommended under the USFWS's ESA Section 7 Biological Opinion (USFWS 2003), but not required. The approved and pending HCPs include a combination of habitat restoration and research. Habitat restoration is intended to create or improve the quality of bat foraging and roosting habitat, the loss and degradation of which has been identified as a major factor contributing to decline of the species (USFWS 1998). Restoration actions incorporated into the approved and pending HCPs include installation of ungulate fencing, the removal of non-native ungulates and invasive plant species, and/or planting of native trees and shrubs. Over time, these actions are anticipated to create high quality, sustainable native roosting and foraging habitat, benefiting bats beyond the ITP/ITL terms, and thereby resulting in a net benefit to the species.

Additionally, the research component of the mitigation is critical to filling data gaps about the species and was identified as a priority recovery action in the Hawaiian hoary bat recovery plan (USFWS 1998). Research projects approved by USFWS and DOFAW are designed to gain an understanding of basic life history parameters and develop effective mitigation measures for the species (DOFAW 2015), which will ultimately guide future management and recovery efforts. The take estimation process provides a high degree of certainty that actual take will be less than predicted take. Because current and pending actions with HCPs are expected to fully mitigate for their take and provide a net benefit as required by Hawai'i law, there is no anticipated significant, adverse, cumulative impact to the Hawaiian hoary bat from the HCP Amendment.

4.8 Archaeological and Cultural Resources

The 2011 EIS discusses the cumulative impacts to archaeological and cultural resources. There are no substantive changes to this discussion based on the increase in estimated take levels of the Hawaiian hoary bat, nor is implementation of the newly proposed mitigation expected to contribute to cumulative impacts to archaeological and cultural resources.

4.9 Transportation and Traffic

The 2011 EIS discusses the cumulative impacts related to transportation and traffic. There are no substantive changes to this discussion based on the increase in estimated take levels of the Hawaiian hoary bat, nor is implementation of the newly proposed mitigation expected to contribute to cumulative impacts to transportation and traffic.

4.10 Hazardous and Regulated Materials and Waste

The 2011 EIS discusses the cumulative impacts related to hazardous materials and waste. There are no substantive changes to this discussion based on the increase in estimated take levels of the Hawaiian hoary bat, nor is implementation of the newly proposed mitigation expected to contribute to cumulative impacts to hazardous materials and waste.

4.11 Noise

The 2011 EIS discusses the cumulative impacts related to noise. There are no substantive changes to this discussion based on the increase in estimated take levels of the Hawaiian hoary bat, nor is

implementation of the newly proposed mitigation expected to contribute to cumulative impacts to noise.

4.12 Air Quality

The 2011 EIS discusses the cumulative impacts related to air quality. There are no substantive changes to this discussion based on the increase in estimated take levels of the Hawaiian hoary bat, nor is implementation of the newly proposed mitigation expected to contribute to cumulative impacts to air quality.

4.13 Visual Resources

The 2011 EIS discusses the cumulative impacts related to visual resources. There are no substantive changes to this discussion based on the increase in estimated take levels of the Hawaiian hoary bat, nor is implementation of the newly proposed mitigation expected to contribute to cumulative impacts to visual resources.

4.14 Surrounding Land Use and Agriculture

The 2011 EIS discusses the cumulative impacts related to surrounding land use and agriculture. There are no substantive changes to this discussion based on the increase in estimated take levels of the Hawaiian hoary bat, nor is implementation of the newly proposed mitigation expected to contribute to cumulative impacts to surrounding land use and agriculture.

4.15 Public and Construction Safety

The 2011 EIS discusses the cumulative impacts related to public and construction safety. There are no substantive changes to this discussion based on the increase in estimated take levels of the Hawaiian hoary bat, nor is implementation of the newly proposed mitigation expected to contribute to cumulative impacts to public and construction safety.

4.16 Socioeconomic Characteristics

The 2011 EIS discusses the cumulative impacts related to socioeconomic characteristics. There are no substantive changes to this discussion based on the increase in estimated take levels of the Hawaiian hoary bat, nor is implementation of the newly proposed mitigation expected to contribute to cumulative impacts to socioeconomic characteristics.

4.17 Public Infrastructure and Services

The 2011 EIS discusses the cumulative impacts related to public infrastructure and services. There are no substantive changes to this discussion based on the increase in estimated take levels of the Hawaiian hoary bat, nor is implementation of the newly proposed mitigation expected to contribute to cumulative impacts to public infrastructure and services.

5.0 Regulatory Context / Consistency with Plans and Policies

As described in the original EIS, there are a variety of federal, state and county regulations and policies that are applicable to the Project.

5.1 Federal Regulations

The 2011 EIS discussed the federal regulations relevant to the Project and presented information regarding the status of compliance with each regulation. An updated discussion of compliance with the Endangered Species Act (ESA) and the National Environmental Policy Act (NEPA) are provided in the following sections. The discussion provided in the 2011 EIS relative to the Migratory Bird Treaty Act, National Historic Preservation Act, Clean Water Act, Clean Air Act, and Federal Aviation Regulations does not require revision with regard to the proposed HCP Amendment and is incorporated by reference.

5.1.1 *Endangered Species Act*

The purpose of the ESA (16 U.S.C. §§ 1531-1544), as amended, is to conserve threatened and endangered plant and animal species and their habitats, specifically those areas that have been designated as “critical habitat.” The ESA defines an endangered species as one that is “in danger of extinction throughout all or a significant portion of its range” and a threatened species as one that “is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.” Critical habitat includes areas containing habitat features that are essential to conservation of a listed species, regardless of whether those areas are currently occupied by the species.

Under Section 7 of the ESA, federal agencies must consult with the USFWS and/or National Marine Fisheries Service (NMFS), depending on the species under review, to ensure that their actions are not likely to jeopardize the continued existence of endangered and threatened species or destroy or adversely modify critical habitat for endangered and threatened species. Section 9 of the ESA prohibits take of any threatened or endangered species without a permit, unless otherwise authorized. “Take” under the ESA means “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or to attempt to engage in any such conduct.” “Harass,” according to the definition of take in the ESA, means “an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering.” “Harm” means “an act which actually kills or injures wildlife. Such acts may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering” (50 CFR 17.3).

In 1982, Congress amended the ESA to allow a private applicant to incidentally take an ESA-listed species that would otherwise be prohibited under Section 9(a)(1)(B). When a non-federal

landowner wishes to proceed with an activity that is legal in all other respects, but that may result in the incidental taking of a listed species, an ITP, as defined under Section 10 of the ESA, is required. Incidental take is defined as take that is “incidental to, and not the purpose of, the carrying out of an otherwise lawful activity” (50 CFR 17.3). An HCP must accompany an application for an ITP to demonstrate that all reasonable and prudent efforts have been made to avoid, minimize, and mitigate for the effects of the potential incidental take. To that end, an HCP specifies: (1) the impact that will likely result from the taking; (2) the steps that will be taken to “minimize and mitigate” these impacts, including the funding available to implement these steps; (3) alternatives to the taking that were considered and why such alternatives are not being pursued; and (4) any other measures required by the USFWS as necessary or appropriate to the HCP. Guidance for preparation and required components of an HCP are provided in the revised 2016 Habitat Conservation Planning Handbook (USFWS and NMFS 2016). As issuance of an ITP by the USFWS or NMFS constitutes a federal action subject to Section 7 of the ESA, the agency is also required to conduct a Section 7 consultation to determine whether the Project would jeopardize a listed species or adversely modify its critical habitat.

Auwahi Wind was issued an ITP from the USFWS for the Project on February 24, 2012. The ITP and associated HCP (Tetra Tech 2012) provides coverage for incidental take of four listed species that have the potential to be impacted by the Project: Hawaiian hoary bat, Hawaiian petrel, Hawaiian goose, and Blackburn’s sphinx moth. The ITP authorized the following amounts of incidental take over the 25-year permit term: 21 Hawaiian hoary bats; 87 Hawaiian petrels; 5 Hawaiian geese; and 28 acres of habitat for Blackburn’s sphinx moth. The above levels of take were anticipated to result from Project construction and operations, including collision with vehicles, generator tie-lines, substations, wind turbines and other Project structures.

Based on post-construction mortality monitoring conducted for the Project, Hawaiian hoary bat take has been higher than anticipated and modeled estimations of take indicate that the Project has exceeded the currently authorized take limit, even with the implementation of additional voluntary avoidance and minimization measures. Therefore, in 2015, Auwahi Wind initiated consultation with USFWS regarding a major amendment to the HCP and an increase in the amount of Hawaiian hoary bat take authorized under the ITP. Auwahi Wind is requesting incidental take coverage for an additional 119 Hawaiian hoary bats (for a total of 140 bats) over the 25-year permit term, which expires in 2037. The Draft HCP Amendment has been prepared and will be published in the Federal Register in early 2019 for public review.

5.1.2 National Environmental Policy Act

The National Environmental Policy Act (NEPA) establishes national environmental policy and goals for the protection, maintenance, and enhancement of the environment and provides a process for implementing these goals (42 United States Code [U.S.C.] 4321 et seq.). NEPA requires federal agencies to incorporate environmental considerations in their planning and decision-making process through a systematic interdisciplinary approach. Specifically, all federal agencies are to prepare detailed statements that assess the environmental impact of and alternatives to federal

actions that could significantly affect the environment. Pursuant to NEPA and its implementing regulations (40 CFR Part 1500 through 1508), these statements are required to describe the existing environmental conditions, the proposed action and reasonable alternatives, potential environmental impacts of the proposed action, and measures to minimize environmental impacts.

Issuance of an ITP is a federal action subject to compliance with the procedural requirements of NEPA and its implementing regulations. In January 2012, the USFWS completed an Environmental Assessment (EA) that addressed the anticipated environmental effects of issuing an ITP to Auwahi Wind. The EA concluded that the proposed action would not significantly affect the quality of the environment, and a Finding of No Significant Impact (FONSI) was issued on February 23, 2012.

In response to Auwahi Wind's request to amend the approved HCP, USFWS is pursuing additional NEPA compliance. As three other wind energy projects are simultaneously requesting Section 10 authorization, USFWS is preparing a Programmatic EIS (PEIS) to address the potential environmental impacts that would result from permit issuance for all four projects. In addition to Auwahi Wind, the PEIS is also considering impacts associated with approval of a new HCP for the Pakini Nui Wind Farm (located on Hawai'i Island), and major amendments to existing HCPs for the Kaheawa Wind Power II Project (located on Maui) and the Kawaihoa Wind Power project (located on O'ahu). All four wind energy facilities are already constructed and in operation. The USFWS issued a Notice of Intent to prepare a PEIS on June 1, 2018. Public comments were received during a 30-day scoping period and public scoping meetings were held on Hawai'i Island, Maui and Oahu. The Draft PEIS will be published in the Federal Register in early 2019 for public review.

5.1.3 Migratory Bird Treaty Act

There are no substantive changes in the status of compliance with the Migratory Bird Treaty Act.

5.1.4 National Historic Preservation Act

There are no substantive changes in the status of compliance with the National Historic Preservation Act.

5.1.5 Clean Water Act

There are no substantive changes in the status of compliance with the Clean Water Act.

5.1.6 Clean Air Act

There are no substantive changes in the status of compliance with the Clean Air Act.

5.1.7 Federal Aviation Regulations

There are no substantive changes in the status of compliance with Federal Aviation Regulations.

5.2 State Regulations

The original EIS identified the state regulations relevant to the Project and discussed the status of compliance with each regulation. An updated discussion of compliance with the State Endangered Species Act (HRS Chapter 195D) and the Hawai'i Environmental Impact Review Law (HRS Chapter 343) are provided in the following sections. The discussion provided in the original EIS relative to the Hawai'i Coastal Zone Management Act (HRS Chapter 205A), State Land Use Law (HRS Chapter 205), State Conservation District Law (HRS Chapter 183), Hawai'i State Plan (HRS Chapter 226), and State Historic Preservation Functional Plan does not require revision with regard to the proposed HCP Amendment and is incorporated by reference.

5.2.1 Hawai'i Environmental Impact Review Law (HRS Chapter 343)

HRS Chapter 343 is designed to “establish a system of environmental review which will ensure that environmental concerns are given appropriate consideration in decision making along with economic and technical considerations.” The regulations identify nine specific activities that trigger the requirement for compliance with HRS Chapter 343. The Project involves several triggers for compliance with HRS Chapter 343, including use of state land, use of county land, and use of land classified as conservation district. An EIS was prepared for the Project; the Final EIS was accepted by the Maui County Planning Commission on August 9, 2011 and was published by OEQC in the *Environmental Notice* on August 23, 2011. The Planning Commission was identified as the approving agency for the 2011 EIS because of their responsibility for approving the major discretionary permits for the Project (that is, a Special Management Area Use Permit and County Special Use Permit).

The Project was constructed in 2012 substantially as described in the 2011 EIS, and no changes to the Project are proposed that would affect the size, scope, location, intensity, use or timing of the action. However, because the impacts to the Hawaiian hoary bat are greater than anticipated in the 2011 EIS, the DOFAW determined that an SEIS is warranted per HAR §11-200-27, which provides that an SEIS shall be warranted where, among other things, “*the intensity of environmental impacts will be increased*” or “*where new circumstances or evidence have brought to light different or likely increased environmental impacts not previously dealt with.*” Based on feedback received from the County of Maui Planning Director (see Appendix B), it was determined that DOFAW would serve as the approving agency for the SEIS. On December 8, 2017, DOFAW published their determination that an SEIS is required simultaneously with an SEISPN for the Project. Publication of the SEISPN initiated a 30-day public scoping period. In compliance with the requirement of 11-200-29 and 1-200-22, this Draft SEIS was published on December 8, 2018; the 45-day public comment period extends through January 22, 2019.

5.2.2 Hawai'i Coastal Zone Management Program (HRS Chapter 205A)

The 2011 EIS provides an overview of the Hawaii Coastal Zone Management Program (HRS Chapter 205A) and discusses the extent to which the Project is consistent with the objectives and policies of

the program. Relative to the increase in estimated take of the Hawaiian hoary bat, there are no substantive changes in the status of compliance with the Hawai'i Coastal Zone Management Program.

5.2.3 State Land Use Law (HRS Chapter 205)

There are no substantive changes in the status of compliance with the State Land Use Law (HRS Chapter 205) relative to the increase in estimated take of the Hawaiian hoary bat.

5.2.4 State Conservation District Law (HRS Chapter 183)

There are no substantive changes in the status of compliance with the State Conservation District Law (HRS Chapter 183) relative to the increase in estimated take of the Hawaiian hoary bat.

5.2.5 State Endangered Species Act (HRS Chapter 195D)

Any species of aquatic life, wildlife, or land plant that has been determined to be a threatened or endangered species pursuant to the ESA is also considered to be threatened or endangered under the state law, and subject to the conditions of HRS § 195D-4. In addition, any indigenous species may be determined by DLNR to be threatened or endangered based on the following factors:

- The present or threatened destruction, modification, or curtailment of its habitat or range;
- Overuse for commercial, sporting, scientific, educational, or other purposes;
- Disease or predation;
- The inadequacy of existing regulatory mechanisms; and
- Other natural or artificial factors affecting its continued existence in Hawai'i.

An ITL may be obtained from DLNR (DOFAW) to allow a take of a threatened or endangered species provided that (1) take impacts are minimized and mitigated; (2) the mitigation plan increases the likelihood that the species will survive and recover; (3) the project provides net environmental benefits; and (4) the take is not likely to cause the loss of genetic representation of an affected population of any endangered, threatened, proposed, or candidate plant species.

Auwahi Wind was issued an ITL from DOFAW for the Project on February 9, 2012. The ITL and associated HCP (Tetra Tech 2012) provides coverage for incidental take of four listed species that have the potential to be impacted by the Project: Hawaiian hoary bat, Hawaiian petrel, Hawaiian goose, and Blackburn's sphinx moth. The ITL authorized the following amounts of incidental take over the 25-year permit term: 21 Hawaiian hoary bats; 87 Hawaiian petrels; 5 Hawaiian geese; and 28 acres of habitat for Blackburn's sphinx moth.

Based on post-construction mortality monitoring conducted for the Project, Hawaiian hoary bat take has been higher than anticipated and modeled estimations of take indicate that the Project has exceeded the currently authorized take limit, even with the implementation of additional voluntary avoidance and minimization measures. Therefore, in 2015, Auwahi Wind initiated consultation

with DOFAW regarding a major amendment to the HCP and an increase in the amount of Hawaiian hoary bat take authorized under the ITL. Auwahi Wind is requesting incidental take coverage for an additional 119 Hawaiian hoary bats (for a total of 140 bats) over the 25-year permit term, which expires in 2037. The Draft HCP Amendment was published on December 8, 2018 for a 60-day public review period.

HRS Chapter 195D includes specific HCP approval and ITL issuance criteria. Table 5-1 lists these criteria and includes a discussion of the extent to which each requirements or criterion has been met for the Project.

Table 5-1. HCP Approval and ITL Issuance Criteria

Requirement/Criteria	Discussion of Compliance
HCP Approval Criteria (HRS Chapters 195D-21(b)(1) and (c))	
(b)(1)(A) The HCP will further the purposes of HRS Chapter 195D by protecting, maintaining, restoring, or enhancing identified ecosystems, natural communities, or habitat types upon which endangered, threatened, proposed, or candidate species depend within the area covered by the HCP	Mitigation consisting of habitat restoration, acoustic monitoring, and research is successfully being implemented to offset take authorized under the approved HCP. The Draft HCP Amendment details additional mitigation for the Hawaiian hoary bat (Tiers 4-6) to protect, restore, and manage habitat that is suitable for foraging and roosting. As detailed in Section 6.2 of the Draft HCP Amendment, this mitigation will fully offset the additional take and will provide a net benefit to the Hawaiian hoary bat.
(b)(1)(B) The HCP will increase the likelihood of recovery of the endangered or threatened species that are the focus of the HCP	Impacts of incidental take will be minimized to the maximum extent practicable and mitigated such that the incidental take will be fully offset. The proposed mitigation actions are supported as critical to the recovery of the Hawaiian hoary bat by the available literature. Collectively, the mitigation actions will lead to substantial increases in habitat use by Hawaiian hoary bats, foraging and roosting opportunities, and population, resulting in an overall net benefit to the species. A detailed discussion of the benefits and the extent to which they are expected to occur is provided in Section 6.2 of the Draft HCP Amendment.
(c)(1) Implementation of the HCP is not likely to jeopardize the continued existence of any endangered, threatened, proposed, or candidate species identified in the plan area	Implementation of the HCP Amendment is not expected to jeopardize the continued existence of any listed or candidate species in the Project Area.
(c)(2) Implementation of the HCP is not likely to cause any native species not endangered or threatened at the time of plan submission to become threatened or endangered	The Project Area consists of grassland and dry shrubland vegetation communities that have been degraded by ongoing cattle ranching. The majority of species that occur are non-native and common throughout Hawaii. Implementation of the HCP Amendment does not involve any actions that are expected to impact native species to the degree such that they would become threatened or endangered.

Requirement/Criteria	Discussion of Compliance
ITL Issuance Criteria (HRS Chapter 195D-4(g))	
The take is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity	The purpose of the activity is to construct and operate a wind farm; take of Hawaiian hoary bats is incidental to this activity.
(1) The applicant shall minimize and mitigate the impacts of the take to the maximum extent practicable	A variety of measures to avoid and minimize impacts to the Hawaiian hoary bat have been and continue to be implemented. These relate to general project development, pre-construction surveys and timing considerations, project siting, invasive species management, fire prevention, as well as operational measures involving LWSC. The LWSC measures are based on a detailed analysis of the best available information and calculation of a cut-in speed that is the maximum extent practicable. The Draft HCP Amendment details additional mitigation for the Hawaiian hoary bat (Tiers 4-6) to protect, restore, and manage habitat that is suitable for foraging and roosting. In combination with the mitigation for Tiers 1-3, these efforts will fully offset the incidental take and provide a net benefit to the Hawaiian hoary bat.
(2) The applicant shall guarantee that adequate funding for the HCP will be provided	The total funding assurance for Tier 4 will be for \$4.01 million; this includes the cost of implementing the mitigation, adaptive management, funding for DLNR technical assistance and compliance monitoring, as well as a 5% contingency fund. Funding assurances for Tiers 5 and 6, should they be triggered, are currently based on estimates of the cost of Tier 4 mitigation and are estimated to be approximately \$2.27 and \$1.67 (including contingency funds). Additional detail on the funding is provided in Section 9.4 of the Draft HCP Amendment.
(3) The applicant shall post a bond, letter of credit, or provide other similar financial tools or provide other means approved by the Board, adequate to ensure monitoring of the species by the State and to ensure the applicant takes all actions necessary to minimize and mitigate the impacts of the take	Funding assurances will be in the form of a bond, letter of credit, or similar instrument naming the USFWS and DLNR as beneficiaries. The letter of credit or similar financial instrument will be in place within 60 days of issuance of the ITP and ITL. Additional detail on the funding assurances is provided in Section 9.4 of the Draft HCP Amendment.
(4) The HCP shall increase the likelihood that the species will survive and recover	Impacts of incidental take will be minimized to the maximum extent practicable and mitigated such that the incidental take will be fully offset. The proposed mitigation actions are supported as critical to the recovery of the Hawaiian hoary bat by the available literature. Collectively, the mitigation actions will lead to substantial increases in habitat use by Hawaiian hoary bats, foraging and roosting opportunities, and population, resulting in an overall significant net benefit to the species. A detailed discussion of the benefits and the extent to which they are expected to occur is provided in Section 6.2 of the Draft HCP Amendment.

Requirement/Criteria	Discussion of Compliance
(5) The plan takes into consideration the full range of the species on the island so that cumulative impacts associated with the take can be adequately assessed	Post-construction mortality monitoring studies at wind farms on Maui (Auwahi Wind 2017, KWP I 2017, KWP II 2017), in combination with current research and literature suggest that the Hawaiian hoary bat occurs in higher numbers on Maui than previously thought. Based on the best scientific data currently available, the Project is unlikely to cause adverse impacts to the species' overall population or recovery potential. Based on the population estimate, the cumulative impact for current, and proposed wind energy development is not expected to have a significant impact on Maui's hoary bats. Additional detail regarding population-level impacts and cumulative impacts is provided in Section 5.1.3 of the Draft HCP Amendment.
(6) The measures required under 195D-21(b) shall be met and DLNR has received any other assurances that may be required so that the HCP may be implemented	The Draft HCP Amendment includes the specific content requirements for an HCP, as listed in HRS Chapter 195D-21(b)(2). To date, no other assurances have been identified by DLNR.
(7) The activity does not involve the use of submerged lands, mining or blasting	The Project does not involve any of the listed activities.
(8) The cumulative impact of the activity provides net environmental benefits	In addition to the mitigation that is currently being implemented under the approved HCP, additional mitigation for the Hawaiian hoary bat is detailed in the Draft HCP Amendment. The additional mitigation (which corresponds with take for Tiers 4-6) would protect, manage, and enhance habitat that is suitable for foraging and roosting. In addition, the easement will be recorded in perpetuity, outlasting the permit term, and will continue to provide new habitat benefits to multiple generations of bats, long after the Project ceases to operate. As detailed in Section 6.2 of the Draft HCP Amendment, this mitigation will fully offset the additional take and will provide a net benefit to the Hawaiian hoary bat.
(9) The take is not likely to cause the loss of genetic representation of an affected population of any endangered, threatened, proposed, or candidate plant species	Based on the median core use area for one bat and the acreage of forested habitat on Maui, the estimated bat population on Maui is expected to be sizable. Given the reproductive estimates of bats provided in the USFWS guidance for calculation of indirect take, the estimated annual offspring from this population is expected to be significantly greater than the Project take. As such, implementation of the HCP Amendment is not cause the loss of genetic representation of the Hawaiian hoary bat population on Maui. Additional analysis is provided in Section 5.1.3.1 of the Draft HCP Amendment.

5.2.6 Hawai'i State Plan (HRS Chapter 226)

There are no substantive changes in the status of compliance with the Hawai'i State Plan (HRS Chapter 226). However, as requested by the State Office of Planning in their comments on the SEISPN, this Draft SEIS includes a discussion of compliance with all three components of the Hawai'i State Plan, as presented in Table 5-2.

Table 5-2. Consistency with the Hawai'i State Plan

Components of Hawai'i State Plan	Applicability to the Project
PART I. OBJECTIVES AND POLICIES	
Population	This theme is not applicable to the Project.
Economy--in general	<p>The Project would be in compliance with this theme, particularly the following objectives and policies:</p> <p>(a)(1) Increased and diversified employment opportunities to achieve full employment, increased income and job choice, and improved living standards for Hawai'i's people, while at the same time stimulating the development and expansion of economic activities capitalizing on defense, dual-use, and science and technology assets, particularly on the neighbor islands where employment opportunities may be limited.</p> <p>As described in the 2011 EIS, Project implementation includes beneficial impacts associated with construction expenditures and employment during construction, as well as employment and electricity rates over the duration of the 20-year operational phase.</p>
Economy--agriculture	<p>The Project would be in compliance with this theme, particularly the following objectives and policies:</p> <p>(a)(3) An agriculture industry that continues to constitute a dynamic and essential component of Hawai'i's strategic, economic, and social well-being.</p> <p>As described in the 2011 EIS, the Project is compatible with the ongoing ranching activities at 'Ulupalakua Ranch.</p>
Economy—visitor industry	This theme is not applicable to the Project.
Economy—federal expenditures	This theme is not applicable to the Project.
Economy--potential growth and innovative activities	<p>The Project would be in compliance with this theme, particularly the following objectives and policies:</p> <p>(b)(1) Facilitate investment and employment growth in economic activities that have the potential to expand and diversify Hawai'i's economy, including but not limited to diversified agriculture, aquaculture, renewable energy development, creative media, health care, and science and technology-based sectors.</p> <p>(b)(8) Accelerate research and development of new energy-related industries based on wind, solar, ocean, underground resources, and solid waste.</p> <p>As detailed in the 2011 EIS, the Project involves construction and operation of a wind energy facility that provides renewable energy to the island of Maui.</p>
Economy--information industry	This theme is not applicable to the Project.
Physical environment--land-based, shoreline, and marine resources	The Project would be in compliance with this theme, particularly the following objectives and policies:

<p>Components of Hawai'i State Plan</p>	<p>Applicability to the Project</p>
	<p>(b)(3) Take into account the physical attributes of areas when planning and designing activities and facilities.</p> <p>(b)(4) Manage natural resources and environs to encourage their beneficial and multiple use without generating costly or irreparable environmental damage.</p> <p>(b)(8) Pursue compatible relationships among activities, facilities, and natural resources.</p> <p>As detailed in the 2011 EIS, the Project is located on ranch land with degraded habitat and has been sited to avoid intact native vegetation to the maximum extent possible. The Project involves take of four endangered species, including the Hawaiian hoary bat, Hawaiian petrel, Hawaiian goose, and Blackburn's sphinx moth. As detailed in the approved HCP and Draft HCP Amendment, compensatory mitigation would be implemented to fully offset the take and provide a net benefit to these species.</p>
<p>Physical environment-- scenic, natural beauty, and historic resources</p>	<p>The Project would be in compliance with this theme, particularly the following objectives and policies:</p> <p>(a)(1) Promote the preservation and restoration of significant natural and historic resources.</p> <p>(a)(3) Promote the preservation of views and vistas to enhance the visual and aesthetic enjoyment of mountains, ocean, scenic landscapes, and other natural features.</p> <p>As detailed in the 2011 EIS, the Project involves installation of wind turbines and a generator-tie line, which can affect views from surrounding areas. However, the Project is in a low-density rural area and the local topography restricts views of the facilities to areas immediately surrounding the site. Impacts to views have been minimized to the extent possible.</p>
<p>Physical environment-- land, air, and water quality</p>	<p>The Project would be in compliance with this theme, particularly the following objectives and policies:</p> <p>(a)(1) Maintenance and pursuit of improved quality in Hawai'i's land, air, and water resources.</p> <p>(b)(3) Promote effective measures to achieve desired quality in Hawai'i's surface, ground, and coastal waters.</p> <p>As detailed in the 2011 EIS, Project implementation involves construction-related impacts (noise, dust, and erosion), but these are short-term and have been minimized through implementation of BMPs. Over the long-term, the Project would provide a benefit associated with reduction of greenhouse gases.</p>
<p>Facility systems-- solid and liquid wastes; water; transportation; telecommunications</p>	<p>These themes are not applicable to the Project.</p>
<p>Facility systems--energy</p>	<p>The Project would be in compliance with this theme, particularly the following objectives and policies:</p>

Components of Hawai'i State Plan	Applicability to the Project
	<p>(a)(2) Increased energy security and self-sufficiency through the reduction and ultimate elimination of Hawai'i's dependence on imported fuels for electrical generation and ground transportation.</p> <p>(a)(3) Greater diversification of energy generation in the face of threats to Hawai'i's energy supplies and systems.</p> <p>(a)(4) Reduction, avoidance, or sequestration of greenhouse gas emissions from energy supply and use.</p> <p>As detailed in the 2011 EIS, the Project is a wind energy facility that provides renewable energy to the island of Maui. Generation and integration of wind energy into the electric grid decreases fossil fuel consumption, thereby reducing greenhouse gas emissions.</p>
Socio-cultural advancement (housing, health, education, social services, leisure, individual rights and personal well-being, culture, public safety, and government)	These themes are not applicable to the Project.
PART II. FUNCTIONAL PLANS¹	
Agriculture	The Hawai'i Department of Agriculture Strategic Plan identifies the mission of maintain the agricultural sector of Hawai'i's economy, with specific goals related to increasing markets and product value, and increasing production value. The Project is consistent with these goals, including the specific objective of assuring land, water and financing for farming, as it is compatible with the ongoing ranching activities at 'Ulupalakua Ranch.
Conservation Lands	This functional plan is not applicable to the Project.
Education	This functional plan is not applicable to the Project.
Employment	This functional plan is not applicable to the Project.
Energy	As detailed in the 2011 EIS, the purpose of the Project is to provide clean, renewable wind energy for the island of Maui. The Project directly contributes to the Hawai'i Clean Energy Initiative, which set a goal of achieving 100 percent clean energy by 2045.
Health	This functional plan is not applicable to the Project.
Higher Education	This functional plan is not applicable to the Project.
Historic Preservation	The 2011 EIS addressed the applicability of the historic preservation plan; this discussion is incorporated by reference.
Housing	This functional plan is not applicable to the Project.
Human Services	This functional plan is not applicable to the Project.
Recreation	This functional plan is not applicable to the Project.

Components of Hawai'i State Plan	Applicability to the Project
Tourism	This functional plan is not applicable to the Project.
Transportation	This functional plan is not applicable to the Project.
PART III. PRIORITY GUIDELINES	
Economic Development	<p>The Project would be in compliance with economic priority guidelines, including:</p> <p>(f)(1) Encourage the development, demonstration, and commercialization of renewable energy sources</p> <p>As detailed in the 2011 EIS, the Project is a wind energy facility that provides renewable energy to the island of Maui.</p>
Population Growth and Land Resources	This priority guideline is not applicable to the Project.
Crime and Criminal Justice	This priority guideline is not applicable to the Project.
Affordable Housing	This priority guideline is not applicable to the Project.
Quality Education	This priority guideline is not applicable to the Project.
Sustainability	<p>The Project would be in compliance with the sustainability priority guidelines and principles, particularly the following:</p> <p>(1) Encouraging balanced economic, social, community, and environmental priorities.</p> <p>(2) Encouraging planning that respects and promotes living within the natural resources and limits of the State.</p> <p>As detailed in the 2011 EIS, the Project provides a source of renewable energy for the island of Maui, directly contributing to the state and county renewable energy goals, as well as providing an economic benefit.</p>
Climate Change Adaptation	By generating renewable energy, the Project would reduce greenhouse gas emissions, thereby providing a benefit relative to climate change. However, the Project does not involve climate change adaptation, relative to this priority guideline.
<p>1. The list of functional plans is based on the inventory and status provided in <i>The Hawai'i State Plan Update: Phase 1, Final Report</i> (State Office of Planning 2018).</p>	

5.3 Local Regulations

The 2011 EIS identified the local regulations relevant to the Project and discussed the status of compliance with each regulation. An updated discussion of compliance with the Maui County General Plan is provided in the following sections. The discussion provided in the 2011 EIS relative to the County zoning, Special Management Area and shoreline setback are do not require revision with regard to the proposed HCP Amendment and are incorporated by reference.

5.3.1 County Zoning

As detailed in the 2011 EIS, the Project falls entirely within the agricultural zoning district, as designated by the County of Maui. There are no changes in the zoning designation or the status of compliance with the County zoning requirements.

5.3.2 Special Management Area

As detailed in the 2011 EIS, the entire wind farm site and a small segment of Pāpaka Road is within the SMA. Under HRS Chapter 205A, authority to regulate development within the SMA is delegated to the various counties. Prior to construction of the Project, an SMA Permit was obtained from the County of Maui Planning Commission. There are no substantive changes in the status of compliance with the County's SMA rules. This conclusion is supported by the response provided by the County of Maui Planning Director (see Appendix B).

5.3.3 Maui General Plan

The Maui County General Plan is a long-term, comprehensive blueprint for the physical, economic, environmental development and cultural identity of the county. As explained in the 2011 EIS, there are three tiers to the General Plan: the Countywide Policy Plan; the Maui Island Plan; and nine Community Plans. There are no substantive changes in the status of compliance with the components of the Maui General Plan. However, where applicable, the discussion of the Project's consistency with plan goals, objectives, and policies has been updated below to reflect the increase in estimated take of the Hawaiian hoary bat and associated compensatory mitigation.

5.3.3.1 Countywide Policy Plan

The Countywide Policy Plan (County of Maui 2010) serves as an overarching policy document with broad goals, objectives, policies, and implementing actions. It also provides the policy framework for the development of the Maui Island Plan and the nine Community Plans. The Countywide Policy Plan includes a total of 11 themes. The 2011 EIS discussed consistency with the following four themes that are considered to be relevant to the Project: protect the natural environment, preserve local cultures and traditions, strengthen the local economy, and improve physical infrastructure. Based on the increase in estimate take of the Hawaiian hoary bat, an updated discussion of the theme related to protection of the natural environmental is provided below. The discussion of Project compliance with other previously referenced goals, as presented in the 2011 EIS, is not affected by the increased take of Hawaiian hoary bat; this information is incorporated by reference.

A. Protect the Natural Environment

Goal: *Maui County's natural environment and distinctive open spaces will be preserved, managed, and cared for in perpetuity.*

Objective 1: *Improve the opportunity to experience the natural beauty and native biodiversity of the islands for present and future generations.*

Policies:

a. Perpetuate native Hawaiian biodiversity by preventing the introduction of invasive species, containing or eliminating existing noxious pests, and protecting critical habitat areas.

c. Restore and protect forests, wetlands, and stream flows, and guard against wildfires, flooding, and erosion.

Discussion: As described in the 2011 EIS, the Project was sited to avoid and minimize impacts to biologically sensitive areas, including the Kanaio Natural Area Reserve and the Auwahi Forest Restoration Project. Project implementation also included a variety of BMPs and other measures to minimize potential environmental impacts, such as those related to invasive species and wildfire. Incidental take of four endangered species has been addressed through an HCP and ITP/ITL. As the estimated take of the Hawaiian hoary bat has been greater than anticipated, Auwahi Wind is seeking an amendment to the HCP and ITP/ITL. The HCP Amendment includes avoidance and minimization measures, as well as a comprehensive mitigation approach to protect, manage, and enhance approximately 1,752 acres of habitat for bat foraging and roosting. Collectively, these actions would ensure that the benefit to the Hawaiian hoary bat offsets the incidental take and provides a net benefit to the Hawaiian hoary bat.

5.3.3.2 Maui Island Plan

The Maui Island Plan was adopted on December 28, 2012, followed by adoption of a long-range implementation program on May 29, 2014. Together these documents provide direction for future growth, the economy, and social and environmental decision-making through 2030, as well as significant capital improvement investments (County of Maui 2012; County of Maui 2014).

The 2011 EIS addressed those areas of then applicable Maui Island Plan that are most relevant to the Project and discussed the consistency with related relevant goals, objectives, and policies. These include heritage resources, economic diversification, and infrastructure and public facilities. Although a revised version of the Maui Island Plan was adopted following acceptance of the 2011 EIS, neither the content of the plan nor Project consistency with the plan has changed substantially. Based on the increase in estimate take of the Hawaiian hoary bat, an updated discussion for the relevant components of heritage resources is provided below (per the 2012 Maui Island Plan). The discussion of Project compliance with other previously referenced plan areas, as presented in the 2011 EIS, is not affected by the increased take of Hawaiian hoary bat; this information is incorporated by reference.

2. Heritage Resources: Cultural, historic, and archeological resources; shoreline, reefs and nearshore waters; watersheds, streams, and wetlands; wildlife and natural areas; and scenic resources.

Wildlife and Natural Areas

Goal 2.4: *Maui's natural areas and indigenous flora and fauna will be protected.*

Objective 2.4.3: Greater protection of sensitive lands, indigenous habitat, and native flora and fauna.

Policies:

2.4.3.c: Promote innovative environmental-planning methods and site-planning standards that preserve and re-establish indigenous flora and fauna habitat, to preserve and restore connected habitat corridors and open space.

2.4.3.d: Utilize protection tools such as conservation easements, land trusts, land banks, Purchase of Developments Rights (PDRs), Transfer of Development Rights (TDRs), and other stewardship tools to acquire natural areas.

2.4.3.g: Encourage reforestation efforts that increase native species' habitat.

2.4.3i: Support increased dedicated funding for the acquisition, protection, restoration, or preservation of important natural areas or open space through the following: grants from the Land and Water Conservation Fund; dedicated funding from real property taxes or other appropriate revenues; bond issues; real estate transfer tax; revenues from the Transient Accommodations Tax; development mitigation fees; and other appropriate funding sources.

Discussion: As described in the 2011 EIS, the Project was sited to avoid and minimize impacts to biologically sensitive areas. Incidental take of four endangered species has been addressed through an HCP and ITP/ITL. As the estimated take of the Hawaiian hoary bat has been greater than anticipated, Auwahi Wind is seeking an amendment to the HCP and ITP/ITL. The HCP Amendment includes avoidance and minimization measures, as well as a comprehensive mitigation approach to protect, manage, and enhance approximately 1,752 acres of habitat for bat foraging and roosting. The mitigation includes creation and management of water features, reforestation of hedgerows, installation of ungulate fencing, and fire prevention, as well as legal protection through a permanent conservation easement.

5.3.3.3 Community Plans

The Project spans the boundaries for three of the nine community plan areas designated for Maui Island: Hāna, Makawao-Pukalani, and Kihei-Mākena. As detailed in the 2011 EIS, the wind farm and a portion of the generator-tie line are within the boundaries for the Hāna Community Plan (Maui County Council 1994). The remainder of the generator-tie line and interconnection substation are within the boundaries for the Makawao-Pukalani Community Plan (Maui County Council 1996). The proposed Tier 4 Mitigation Area is also within this community plan area. The Kihei-Mākena Community Plan boundaries include a portion of Papaka Road.

Similar to the other components of the Maui General Plan, the 2011 EIS discusses consistency with the relevant goals, objectives, policies and implementing actions for each of the community plans. An updated discussion of consistency with the plan elements that relate to the natural environment is provided below, based on the revised analysis of impacts to the Hawaiian hoary bat. The discussion of Project compliance with other previously referenced elements of the three community plans, as presented in the 2011 EIS, is not affected by the increased take of Hawaiian hoary bat; this information is incorporated by reference.

Hāna Community Plan

Environment

Goal: *Protection and management of Hāna's land, water and ocean resources to ensure that future generations can enjoy the region's exceptional environmental qualities.*

Objectives and Policies:

- 3. Manage, protect, and where appropriate, restore areas which have significant indigenous flora and fauna habitat resource value.*

Discussion: The Project was designed to reduce impacts to indigenous flora and fauna to the greatest extent possible. Incidental take of four endangered species has been addressed through an HCP and ITP/ITL. As the estimated take of the Hawaiian hoary bat has been greater than anticipated, Auwahi Wind is seeking an amendment to the HCP and ITP/ITL. The HCP Amendment includes avoidance and minimization measures, as well as a comprehensive mitigation approach to protect, manage, and enhance approximately 1,752 acres of habitat for bat foraging and roosting. Collectively, these actions would ensure that the benefit to the Hawaiian hoary bat offsets the incidental take and provides a net benefit to the Hawaiian hoary bat. The mitigation area is located outside the Hāna Community Plan boundary in the neighboring Makawao-Pukalani-Kula community, discussed below. See Section 3.7 and the Draft HCP Amendment for more detailed information on Project impacts and mitigation benefits for the species.

Makawao-Pukalani-Kula Community Plan

Environment

Goal: *Protection of Upcountry's natural resources and environment as a means of preserving and enhancing the region's unique beauty, serenity, ecology, and productivity, in order that future generations may enjoy and appreciate an environment of equal or higher quality.*

Objectives and Policies:

- 1. Preserve environmental resources by maintaining important agricultural lands as an integral part of the open space setting in each community.*
- 2. Recognize agricultural lands as an essential ingredient to the Upcountry atmosphere.*
- 3. Recognize and protect rare, endangered and unique biological resources in the region.*

6. *Preserve the existing visual, noise, odor and air quality characteristics found in agricultural/rural neighborhoods of the Makawao-Pukalani-Kula region.*
9. *Promote landscaping which utilizes endemic and indigenous plant species.*

Discussion: As detailed in the 2011 EIS, the Project is consistent with agricultural land uses and ranching operations are not adversely affected by Project implementation. Although there are visual impacts and some noise is generated by the Project, the affected areas are minimal due to the remote location of the wind farm site. Additional information regarding these impacts is provided in Sections 3.11 and 3.13 of the 2011 EIS.

As discussed above for both the Countywide Policy Plan and the Maui Island Plan, the Project was designed to reduce impacts to unique biological resources to the greatest extent possible. Incidental take of four endangered species has been addressed through an HCP and ITP/ITL. As the estimated take of the Hawaiian hoary bat has been greater than anticipated, Auwahi Wind is seeking an amendment to the HCP and ITP/ITL. The HCP Amendment includes avoidance and minimization measures, as well as a comprehensive mitigation approach to protect, manage, and enhance approximately 1,752 acres of habitat for bat foraging and roosting. Collectively, these actions would ensure that the benefit to the Hawaiian hoary bat offsets the incidental take and provides a net benefit to the Hawaiian hoary bat. The mitigation would help preserve and enhance existing ranch land in perpetuity, with habitat restoration/management including approximately 311 acres of reforestation. Additional information regarding the Project impacts and mitigation for the Hawaiian hoary bat is provided in Section 3.7 and the Draft HCP Amendment.

Kihei-Mākena Community Plan

There are no substantive changes in the status of compliance with the Kihei-Mākena Community Plan.

5.4 Required Permits

The permits that were listed in the original EIS were all successfully obtained for development of the wind farm. As described throughout this document, Hawaiian hoary bat take has been higher than anticipated and modeled estimations of take indicate that the Project has exceeded the currently authorized take limit, even with the implementation of additional voluntary avoidance and minimization measures. As such, Auwahi Wind is seeking to amend the approved HCP and ITP/ITL to increase the amount of authorized take of the Hawaiian hoary bat. The list of permits and approvals required for the Project are listed in Table 5-2. The permits and approvals that are shown in bold typeface are those that are required to address the increased take of Hawaiian hoary bats. The remaining permits and approvals are those that were obtained prior to construction and remain in effect as applicable for Project operation.

Table 5-3. Permits and Approvals Required for the Auwahi Wind Farm Project

Permit or Approval	Responsible Agency	Status
Habitat Conservation Plan	USFWS and DOFAW	Approved in January 2012; major amendment in progress
Incidental Take Permit	USFWS	Issued on February 24, 2012; major amendment in progress
Incidental Take License	DOFAW	Issued on February 9, 2012; major amendment in progress
NEPA Compliance	USFWS	FONSI issued by USFWS on February 23, 2012; Programmatic EIS (for issuance of amended ITP) in progress
HRS Chapter 343 Compliance	Maui County Planning Commission (2011 EIS), DOFAW (Supplemental EIS) ¹	EIS accepted by Maui County Planning Commission on August 9, 2011; Supplemental EIS in progress
Conservation District Use Permit	DLNR Office of Conservation and Coastal Lands (OCCL)	Approved on February 24, 2012
Special Management Area (SMA) Use Permit	Maui County Planning Commission	Approved on November 8, 2011
County Special Use Permit	Maui County Planning Commission	Approved on November 8, 2011
Request for Use of State Lands (Easement)	DLNR Land Division	Obtained prior to construction
Use and Occupancy Agreement	Hawai'i Department of Transportation (HDOT)	Obtained prior to construction
Power Purchase Agreement	Public Utilities Commission	Approved June 15, 2011
Notice of Proposed Construction of Alteration	Federal Aviation Administration	Completed prior to construction
Noise Permit	Hawai'i Department of Health (HDOH)	Obtained prior to construction
Air Permit	HDOH	Obtained prior to construction
Moving Permit	HDOT and County of Maui Development Services Administration	Obtained prior to construction
Construction Permits	Various	Obtained prior to construction
Well Construction and Pump Installation Permit	DLNR Commission on Water Resource Management (CWRM)	Obtained prior to construction
<p>1. The County of Maui Planning Commission was the approving agency for the 2011 EIS. Based on DOFAW's request for a Supplemental EIS, Auwahi Wind consulted with the County Department of Planning, with respect to the Planning Commission's responsibility as the approving agency. In a letter dated August 24, 2017, the Planning Director responded that it is unlikely that the HCP Amendment would substantially affect the permits issued by the Commission or the Commission's or Department's land use permitting responsibilities and deferred to DOFAW regarding the need for an SEIS. Based on this feedback, it was determined that DOFAW would serve as the approving agency for the SEIS.</p> <p>2. It is currently anticipated that the proposed mitigation for Hawaiian hoary bats would not require any permits based on the scope of the proposed activities and the requirements of the Maui County Code. Specifically, it is assumed that the proposed work would constitute "agricultural land conservation," which is a permitted use in the County's agricultural zone (Maui County Code Chapter 19.30A.050.A.2). Furthermore, it is assumed that a grading permit would not be required based on requirements of Chapter 20.08.030.C.</p>		

6.0 Other HRS Chapter 343 Requirements

6.1 Secondary and Cumulative Impacts

The 2011 EIS addressed potential secondary and cumulative impacts as a result of the wind farm Project; this discussion refers specifically to Section 4 for details regarding cumulative impacts to listed species including the Hawaiian hoary bat. Based on the updated discussion of direct, indirect, and cumulative impacts (as provided in Sections 3 and 4 of this SEIS), there are no substantive changes needed to this information, and the discussion contained in the 2011 EIS is incorporated by reference.

6.2 Relationship between Short-Term Uses and Long-Term Productivity

The relationship between short-term uses and long-term productivity relative to the Project was addressed in the 2011 EIS. There are no substantive changes needed to this discussion based on the increase in estimated take levels of the Hawaiian hoary bat. The discussion contained in the 2011 EIS is incorporated by reference.

6.3 Irreversible and Irrecoverable Commitment of Resources

Irreversible and irretrievable commitment of resources associated with the Project, particularly with respect to the use of non-renewable resources and the potential for environmental accidents, was addressed in the 2011 EIS. There are no substantive changes needed to this discussion based on the increase in estimated take levels of the Hawaiian hoary bat. The discussion contained in the 2011 EIS is incorporated by reference.

6.4 Environmental Effects Which Cannot be Avoided

The 2011 EIS discusses environmental effects which cannot be avoided, particularly those associated with archaeological and cultural resources, as well as threatened and endangered species. Consistent with the information provided in the 2011 EIS, consultation with USFWS and DOFAW has been conducted and measures are being taken to avoid and minimize these impacts to the extent practicable. Specific to the Hawaiian hoary bat, the HCP and ITP/ITL amendment process is being conducted to address the increase in estimated take of this species; the Draft HCP Amendment presents a comprehensive approach to avoid, minimize and mitigate the potential impacts, such that implementation of the HCP Amendment is expected to provide a net benefit to the species.

6.5 Rationale for Proceeding

The rationale for proceeding with the Project was addressed in the 2011 EIS. Specifically, it references that the addition of wind-generated energy diversifies Maui's power supply and contributes to the state's energy independence and security, as well as helps to meet the state's

established regulatory requirements and initiatives. Based on this rationale and the previous analysis of environmental impacts, the Project successfully obtained the required permits and approvals and was constructed in 2012.

There are no substantive changes needed to this discussion based on the modified analysis of impacts to the Hawaiian hoary bat. The Project continues to be an important source of renewable energy for Maui and is contributing to achieving the state's clean energy goals. Although the Project is resulting in greater impacts to the Hawaiian hoary bat than originally anticipated, the HCP Amendment incorporates specific measures that would be implemented to avoid, minimize and mitigation those impacts, and ultimately is expected to provide a net benefit to the species.

6.6 Unresolved Issues

The 2011 EIS discusses unresolved issues relative to the Project, including those related to archaeological and cultural resources, hydrology and water resources, and wildlife resources. The issues related to archaeological and cultural resources, and hydrology and water resources were resolved prior to construction, consistent with the discussion in the 2011 EIS.

Relative to wildlife resources, the 2011 EIS specifies that the potential incidental impacts to threatened or endangered wildlife species and associated mitigation measures are being assessed in cooperation with the USFWS and DOFAW, and an ITP/ITL will be obtained prior to Project implementation. As previously discussed, an HCP was approved, and Auwahi Wind was issued an ITP by the USFWS and an ITL by DOFAW on February 24 and February 9, 2012, respectively.

Because Hawaiian hoary bat take has been higher than anticipated, Auwahi Wind is seeking an amendment to the HCP and ITP/ITL to increase the authorized take levels for the Hawaiian hoary bat. Updated information associated with the HCP Amendment is presented as part of this Draft SEIS; DOFAW acceptance of the SEIS will need to occur prior to approval of the HCP Amendment. Upon approval of the HCP Amendment, it is anticipated that USFWS and DOFAW will authorize the increased take levels under ITP/ITL.

7.0 Consulted Parties

As described in the 2011 EIS, coordination and consultation with ‘Ulupalakua Ranch, neighboring communities and governmental agencies began in 2007, when the Project was first proposed by Shell Wind Energy. When Auwahi Wind Energy, LLC acquired the Project in October 2009 and continued the coordination and consultation effort. A detailed list of the consulted parties, as well as the consultation efforts conducted throughout the environmental review process are presented in the 2011 EIS (and copies of public comments provided in Appendices J and K); this information is incorporated by reference. Following is a discussion of consultation that has been conducted subsequent to the 2011 EIS, specifically in support of the HCP amendment and this SEIS process.

7.1 Consultation

Specific to the increase in take of the Hawaiian hoary bat, Auwahi Wind initiated consultation with the relevant agencies in February 2015, with ongoing consultation conducted since that time. Ongoing consultation efforts have included multiple meetings with the ESRC, which are open to the public. A summary of the key consultation activities is provided in Table 7-1.

Table 7-1. Summary of Consultation Conducted for HCP Amendment and SEIS Process

Date	Parties Involved	Summary of Consultation Activity
February 25, 2015	USFWS, DOFAW	Meeting to discuss Auwahi Wind’s intent to pursue major amendment of HCP and ITP/ITL
October 16, 2015	USFWS, DOFAW	Meeting to discuss key components of HCP Amendment, including take request, mitigation strategy and mitigation tier triggers
March 17, 2016	USFWS, DOFAW	Submittal of first draft of Draft HCP Amendment to agencies
May 4, 2016	USFWS, DOFAW	Meeting to discuss agency comments and request further clarification and guidance
June 29, 2016	USFWS, DOFAW	Submittal of second draft of Draft HCP Amendment to agencies
July 31, 2016	USFWS, DOFAW	Comments provided by agencies on second draft of Draft HCP Amendment
August 11, 2016	USFWS, DOFAW	Submittal of third draft of Draft HCP Amendment to agencies
October 31, 2016	USFWS, DOFAW	Presentation of revised take authorization (as requested by agencies in response to additional fatalities in 2016)
December 8, 2016	USFWS, DOFAW, USGS, ESRC	Briefing to ESRC on HCP Amendment, including the revised take authorization request
January 20, 2017	USFWS, DOFAW, USGS	Meeting with agencies and USGS statisticians to discuss post-construction mortality monitoring results and associated take estimates
May 2017	USFWS, DOFAW	Comments provided by agencies on third draft of Draft HCP Amendment
May 2, 2017	County of Maui	Correspondence submitted to County of Maui regarding SEIS and HRS Chapter 343 requirements

Date	Parties Involved	Summary of Consultation Activity
June 29, 2017	USFWS, DOFAW	Meeting to discuss new USFWS guidance regarding appropriate types of Hawaiian hoary bat mitigation and limitations on the use of mitigation tiers
August 24, 2017	County of Maui	Letter provided by Planning Director stating that it is unlikely that the HCP Amendment would substantially affect the Planning Commission's issued permits or the Commission's or Department's land use permitting responsibilities, and deferring to DOFAW determination for an SEIS
October 9, 2017	USFWS, DOFAW	Submittal of fourth draft of Draft HCP Amendment
January 2018	USFWS, DOFAW	Comments provided by agencies on fourth draft of Draft HCP Amendment
March 20, 2018	USFWS, DOFAW	Meeting with agencies to discuss updates to guidance and need for consistency
May 1, 2018	USFWS	Meeting to discuss revisions to Draft HCP Amendment based on agency comments related to mitigation tiers, mitigation approach and adaptive management
May 21, 2018	USFWS, DOFAW	Meeting to discuss take estimates, biological basis for mitigation tiers, and triggers for mitigation tiers
May 25, 2018	USFWS, DOFAW	Meeting to discuss Tier 4 mitigation
July 13, 2018	USFWS, DOFAW	Submittal of fifth draft of Draft HCP Amendment to agencies
August 7, 2018	USFWS	Comments provided by USFWS on fifth draft of Draft HCP Amendment
August 13, 2018	USFWS, DOFAW	Submittal of revisions in response to USFWS comments
August 30, 2018	ESRC	Presentation of Tier 4 mitigation plan to ESRC
August 31, 2018	USFWS, DOFAW	Submittal of sixth draft of Draft HCP Amendment to agencies
September 2018	USFWS, DOFAW	Comments provided by USFWS on sixth draft of Draft HCP Amendment
September 28, 2018	USFWS, DOFAW	Submittal of final Draft HCP Amendment to agencies
October 25, 2018	ESRC	Presentation of Draft HCP Amendment to ESRC

7.2 SEISPN Distribution

The SEISPN was published in OEQC's *Environmental Notice* on December 8, 2017 for a 30-day public review period, which began on the date of publication and ended on January 8, 2018. Notice of the EISPN publication was distributed to the parties listed in Table 7-2.

Table 7-2. SEISPN Distribution List

Federal Agencies	County Agencies
USFWS Pacific Islands Office	County of Maui Department of Planning
U.S. Geological Survey (USGS) Pacific Islands Water Science Center	County of Maui Department of Public Works
National Marine Fisheries Service	Libraries
National Parks Service	Legislative Reference Bureau Library
Department of Agriculture, National Resources Conservation Service	Department of Business, Economic Development and Tourism, Research Division Library
Federal Aviation Administration	Hawai'i State Library, Hawai'i Documents Center
Federal Transit Administration	Hawai'i State Library, Kaimuki Regional Library
U.S. Coast Guard	Hawai'i State Library, Kihei Public Library
State Agencies	University of Hawai'i, Environmental Center
State of Hawai'i Department of Health, Environmental Health Administration	University of Hawai'i, Thomas H Hamilton Library
State of Hawai'i Department of Health, Clean Water Branch	University of Hawai'i, Maui College Library
State of Hawai'i, Department of Land and Natural Resources	Elected Officials
Hawai'i State Historic Preservation Division	U.S. Senator Mazie Hirono
State of Hawai'i Department of Hawaiian Home Lands	U.S. Senator Brian Schatz
State of Hawai'i Department of Agriculture	U.S. Representative Tulsi Gabbard
State of Hawai'i Department of Accounting and General Services	State Senator J. Kalani English
State of Hawai'i Department of Business, Economic Development and Tourism	State Representative Kyle T. Yamashita
Hawai'i State Energy Office	Maui County Council Yuki Lei Kashiwa Sugimura
Hawai'i State Office of Planning	Landowners and Individuals
State of Hawai'i Department of Defense	Ulupalakua Ranch
State of Hawai'i Department of Transportation	Sally Kaye
University of Hawai'i, Water Resource Research Center	Media
Office of Environmental Quality Control	Maui News
Office of Hawaiian Affairs	

7.3 Comments Received on SEISPN

Upon publication of the SEISPN in the Environmental Notice, a 30-day public comment was held (from December 8, 2017 to January 8, 2018).

A total of 12 comment letters were received in response to the SEISPN. A list of the parties that submitted comments, and a brief summary of those comments is provided in Table 7-3. Copies of the comment letters and the response provided to each are provided in Appendix C.

Table 7-3. Summary of Comments Received on SEISPN

Agency or Individual	Date of Comment	Summary of Comments Provided
University of Hawai'i, Water Resource Research Center	Letter dated December 14, 2017	No comment
The Maui News	Email dated December 15, 2017	Request for clarification of authorized take levels, and exceedance of take limits
State of Hawai'i Department of Defense	Letter dated December 19, 2017	No comment
Sally Kaye	Email dated December 21, 2017	Requests that changes in operation be considered; requests to be a consulted party
State of Hawai'i Department of Health, Maui District Office	Letter dated December 28, 2017	No comment
State of Hawai'i Department of Health, Environmental Planning Office	Letter dated January 3, 2018	Provides resources specific to health land use guidance, the Hawaii Environmental Health Portal, and the environmental justice mapping and screening tool, as well as relevant regulatory requirements and minimization measures related to water quality, fugitive dust, hazardous waste, and noise
Robert Aldrich	Letter dated January 5, 2018	Raises concerns with take of Hawaiian hoary bats and other endangered species resulting from operation of wind turbines and discusses the ecological and cultural value of these species; also raises concerns with use of in-lieu fee programs for mitigation
State Office of Planning	Letter dated January 5, 2018	Requests updated analysis of consistency with Hawai'i Coastal Zone Management Program (HRS 205A-2) and Hawai'i State Planning Act (HRS Chapter 226) based on HCP Amendment; recommends consultation with County of Maui Planning Department regarding the need for a modified or new SMA use permit
State Senator Gil Riviere	Letter dated January 8, 2018	Expresses concern with increased bat take; requests analysis of population level impacts and cumulative effects; requests information on history of curtailment; requests information related to effectiveness of mitigation; suggests a review of the financial viability of the Project; and requests information related to the recent nacelle collapse.
Maui Tomorrow Foundation, Inc.	Letter dated January 8, 2018	Requests that the SEIS include various alternatives, species ecology and population estimates, the effectiveness of the mitigation areas, the impact of increased take on the species' viability, and the accuracy of the proposed level of take
Hawai'i Department of Land and Natural Resources, Engineering Division	Letter dated January 8, 2018	No comment
County of Maui Department of Planning	Letter dated January 12, 2018	Request that SEIS include a detailed analysis of the proposed amendments to the HCP, any new community feedback obtained, alternatives to the proposed action, and an analysis of why the estimated take has increased

7.4 Draft SEIS Distribution

The Draft SEIS was submitted to OEQC for publication in the December 8, 2018 edition of the *Environmental Notice*. Publication of the Draft SEIS marks the beginning of a 45-day public review period, which ends on January 22, 2019. The parties listed in Table 7-4 were either provided a copy of the Draft SEIS or a notice of availability letter containing information on how to access a copy of the Draft SEIS, as well as instructions on how to submit comments on the Draft SEIS. In addition, a limited number of documents were provided as loan copies in libraries.

Table 7-4. Draft SEIS Distribution List

Federal Agencies	County Agencies
USFWS Pacific Islands Office	County of Maui Department of Planning
U.S. Geological Survey (USGS) Pacific Islands Water Science Center	County of Maui Department of Public Works
National Marine Fisheries Service	Libraries
National Parks Service	Legislative Reference Bureau Library
Department of Agriculture, National Resources Conservation Service	Department of Business, Economic Development and Tourism, Research Division Library
Federal Aviation Administration	Hawai'i State Library, Hawai'i Documents Center
Federal Transit Administration	Hawai'i State Library, Kaimuki Regional Library
U.S. Coast Guard	Hawai'i State Library, Kihei Public Library
State Agencies	University of Hawai'i, Environmental Center
State of Hawai'i Department of Health, Environmental Health Administration	University of Hawai'i, Thomas H Hamilton Library
	University of Hawai'i, Maui College Library
State of Hawai'i Department of Health, Clean Water Branch	Elected Officials
State of Hawai'i, Department of Land and Natural Resources	U.S. Senator Mazie Hirono
Hawai'i State Historic Preservation Division	U.S. Senator Brian Schatz
State of Hawai'i Department of Hawaiian Home Lands	U.S. Representative Tulsi Gabbard
State of Hawai'i Department of Agriculture	State Senator J. Kalani English
State of Hawai'i Dept. of Accounting and General Services	State Senator Gil Riviere
State of Hawai'i Department of Business, Economic Development and Tourism	State Representative Kyle T. Yamashita
	Maui County Council Yuki Lei Kashiwa Sugimura
Hawai'i State Energy Office	Landowners, Organizations and Individuals
Hawai'i State Office of Planning	Ulupalakua Ranch
State of Hawai'i Department of Defense	Sally Kaye
State of Hawai'i Department of Transportation	Robert Aldrich
University of Hawai'i, Water Resource Research Center	Maui Tomorrow Foundation, Inc.
Office of Environmental Quality Control	Media
Office of Hawaiian Affairs	Maui News

7.5 Other Outreach Efforts

As previously described, Auwahi Wind Energy, LLC acquired the Project in 2009. Since that time, Auwahi Wind has been engaged in comprehensive external affairs and public outreach efforts. These efforts are intended to provide ongoing communication and engagement with the neighboring communities, governmental agencies, elected officials and the general public. Specifically, Auwahi Wind staff regularly attend the monthly meetings for Ka 'Ohāna O Kahikinui (Kahikinui Homestead) to allow for two-way dialogue with the neighboring homestead families. Additional meetings are held with 'Ulupalakua Ranch staff, as well as the Kahikinui, Kanaio and Kaupō communities regarding Project-related issues on a proactive, as needed basis. Similarly, ongoing outreach is conducted with governmental agencies and elected officials as needed to maintain open communication regarding the Project. At a broader scale, Sempra is also actively engaged with local groups and organizations, with support provided to a variety of causes, including those related to renewable energy, engineering and technology, and restoration and conservation.

8.0 List of Preparers

A detailed list of the people responsible for the original EIS analysis and documentation is provided in Section 8 of the 2011 EIS; this list is incorporated by reference. Additional people involved in the preparation of this Draft SEIS and their respective roles are listed in Table 8-1.

Table 8-1. List of Preparers for Draft SEIS

Name	Primary Responsibility
Lisa Kettley, Tetra Tech	Senior planner
Rachael Katz, Tetra Tech	Project planner
Matt Stelmach, Tetra Tech	Biological resources (HCP amendment)
Alicia Oller, Tetra Tech	Biological resources (HCP amendment)
Kristina Dick, Tetra Tech	GIS data management and mapping
Rusty Childers, Tetra Tech	Technical editing
Linnea Fossum, Tetra Tech	Senior review
Marie VanZandt, Sempra	Environmental lead
Amy Nefouse, Sempra	Senior environmental counsel
Lisa Briggs, Sempra	Community outreach

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Appendix A. 2011 EIS Acceptance and Publication Documentation

ALAN M. ARAKAWA
Mayor

WILLIAM R. SPENCE
Director

MICHELE CHOUTEAU McLEAN
Deputy Director

FILE COPY



AUG 23 2011

COUNTY OF MAUI
DEPARTMENT OF PLANNING

August 10, 2011

RECEIVED
11 AUG 10 P3:29

Mr. Gary L. Hooser, Director
Office of Environmental Quality Control
235 South Beretania Street, Suite 702
Honolulu, Hawaii 96813

Dear Mr. Hooser:

SUBJECT: FINAL ENVIRONMENTAL IMPACT STATEMENT (EIS) FOR THE AUWAHI WIND FARM, LOCATED AT ULUPALAKUA RANCH, DISTRICTS OF HANA, KULA, AND KIHEI, ISLAND AND COUNTY OF MAUI, STATE OF HAWAII; TMK(S): (2) 1-9-001:006, (2) 2-1-002:001, (2) 2-1-002:002, (2) 2-1-003-050, (2) 2-1-003-054, (2) 2-1-003-999, (2) 2-1-004:006, (2) 2-1-004:016, (2) 2-1-004:017, (2) 2-1-004:018, (2) 2-1-004:049, (2) 2-1-004:071, (2) 2-1-004:106, (2) 2-1-004:999, (2) 2-1-005:023, (2) 2-1-005:030, (2) 2-1-005:045, (2) 2-1-005:055, (2) 2-1-005:057, (2) 2-1-005:077, (2) 2-1-005:095, (2) 2-1-005:100, (2) 2-1-005:108, (2) 2-1-008:001, (2) 2-1-008:131, (2) 2-1-008:999, (2) 2-1-009:001, AND (2) 2-1-009:999 (EIS 2011/0001)

The Maui Planning Commission, at its regular meeting on August 9, 2011, ACCEPTED the Final EIS for the above project. Please publish the Final EIS in the August 23, 2011 issue of The Environmental Notice.

We have attached a completed OEQC publication form, a completed Final EIS distribution list, and a hardcopy of the Final EIS. Also attached is a CD containing a PDF format of the Final EIS and publication form. An electronic file of the project summary will be emailed to your office separately.

Thank you for your cooperation. If you have any questions, please contact Staff Planner Joseph Prutch at joseph.prutch@mauicounty.gov or at (808) 270-7512.

Sincerely,

Handwritten signature of Clayton I. Yoshida.

CLAYTON I. YOSHIDA, AICP
Planning Program Administrator

for WILLIAM SPENCE
Planning Director

Mr. Gary L. Hooser, Director
August 10, 2011
Page 2

Attachments

xc: Joseph M. Prutch, Staff Planner
Leilani Pulmano, Munekiyo & Hiraga, Inc.
Project File (w/ Copy of Attachment)
General File

WRS:CIY:JMP:sa

K:\WP_DOCS\PLANNING\EIS\2011\0001_AuwahiWindFarm\OEQC_FEIStans.doc

**Publication Form
The Environmental Notice
Office of Environmental Quality Control**

Instructions: Submit one hardcopy of the document along with determination letter from the agency.
On a compact disk, put an electronic copy of this Publication Form and a PDF of the FEIS.

Name of Project: Auwahi Wind Farm

Applicable Law: Chapter 343, HRS

Type of Document: Final Environmental Impact Statement

Island: Island of Maui

District: Districts of Hana, Kula, and Kihei

TMK: (2) 1-9-001:006, (2) 2-1-002:001, (2) 2-1-002:002, (2) 2-1-003-050, (2) 2-1-003-054, (2) 2-1-003-999, (2) 2-1-004:006, (2) 2-1-004:016, (2) 2-1-004:017, (2) 2-1-004:018, (2) 2-1-004:049, (2) 2-1-004:071, (2) 2-1-004:106, (2) 2-1-004:999, (2) 2-1-005:023, (2) 2-1-005:030, (2) 2-1-005:045, (2) 2-1-005:055, (2) 2-1-005:057, (2) 2-1-005:077, (2) 2-1-005:095, (2) 2-1-005:100, (2) 2-1-005:108, (2) 2-1-008:001, (2) 2-1-008:131, (2) 2-1-008:999, (2) 2-1-009:001, (2) 2-1-009:999

Permits Required: Special Management Area Use Permit; County Special Use Permit; Conservation District Use Permit; State Incidental Take License; Federal Incidental Take Permit; Clean Water Act Compliance; Request for Use of State Lands; Use and Occupancy Agreement; County Right-of-Way Approval; Moving Permits; Notice of Proposed Construction of Alteration; Noise Permit; Air Permit; Well Construction and Pump Installation Permits; and Grading, Building and other Construction Permits.

Name of Applicant or Proposing Agency: Auwahi Wind Energy LLC
Address: 101 Ash St, HQ 14
City, State, Zip: San Diego, California 92101
Contact and Phone: Contact: Mitch Dmohowski (619) 696-2155

Approving Agency: County of Maui, Planning Commission
Address: 250 South High Street
City, State, Zip: Wailuku, Maui, Hawai'i 96793
Contact and Phone: Contact: Joe Prutch (808) 270-7512

Consultant
Address: Tetra Tech EC, Inc.
City, State, Zip: 737 Bishop Street, Suite 3020 Honolulu, Hawai'i 96813
Contact and Phone: Contact: Anna Mallon (808) 394-4109
1750 SW Harbor Way, Suite 400
Portland, Oregon 97201
Contact: Alicia Oller (503)727-8072

Comments FEIS accepted by the Accepting Authority. There is no comment period.

Project Summary:

Auwahi Wind Energy LLC (Auwahi Wind) is proposing to construct a wind farm with a net generating capacity of approximately 21 megawatts (MW), augmented with a battery energy storage system. The proposed Project would also include an operations and maintenance facility and related infrastructure, a 14.5-kilometer 34.5-kilovolt (kV) generator-tie line, an interconnection substation, a microwave communication tower, and a construction access route along existing public and private roadways.

Of the 50 states, Hawai'i is the most dependent on imported energy. In 2005, approximately 95 percent of Hawai'i's primary energy was derived from imported fossil fuels such as petroleum and coal. In an attempt to alleviate its dependence on imported fuels, Hawai'i required HECO, and affiliate MECO, to generate renewable energy equivalent to 40 percent by 2030. Furthermore, the Global Warming Solutions Act of 2007 requires the Hawai'i greenhouse gas (GHG) emissions be reduced to levels at or less than 1990 levels by January 2020.

The proposed Project would help to meet these regulations by providing clean, renewable wind energy for the island of Maui while displacing GHG emissions from fossil-fueled electrical generation. The proposed Project would also provide economic benefits to the local community through contributions into the economy, generation of new jobs, and introduction of a stable, long term source of tax revenue for the state and county. The power generated by the wind farm would provide long-term price stability for consumers. Additionally, 'Ulupalakua Ranch would continue to utilize the lands for cattle ranching operations.

Auwahi Wind completed desktop and field-based analyses for biological, cultural, visual, air, and noise resources that could be potentially affected by the proposed Project. In general, Project-related impacts would be small relative to the benefits that the addition of renewable energy to MECO would provide. Where potentially significant impacts were identified, Auwahi Wind developed appropriate measures to avoid, minimize, and mitigate impacts. In all resource areas, neither significant cumulative impacts nor secondary impacts would result from Project construction or operations. While the No Action Alternative would avoid the environmental impacts identified in the EIS, it would not meet the objectives of the proposed Project including contributing to Hawai'i's Renewable Portfolio Standard, providing economic benefits to the local community, or providing long term displacement of GHG emissions from fossil-fueled electrical generation.

Appendix B. County of Maui Planning Director Letter

ALAN M. ARAKAWA
Mayor

WILLIAM R. SPENCE
Director

MICHELE CHOUTEAU McLEAN
Deputy Director



COUNTY OF MAUI
DEPARTMENT OF PLANNING

August 24, 2017

Mr. David Smith
State of Hawaii
Department of Land and Natural Resources
Division of Forestry and Wildlife
1151 Punchbowl Street, Room 325
Honolulu, Hawaii 96813

Dear Mr. Smith:

SUBJECT: SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT (SEIS) DETERMINATION FOR A MAJOR AMENDMENT TO A HABITAT CONSERVATION PLAN AND INCIDENTAL TAKE LICENSE FOR THE AUWAHI WIND FARM FACILITY, LOCATED AT ULUPALAKUA RANCH, ISLAND AND COUNTY OF MAUI, STATE OF HAWAII; TMKS: (2) 2-1-009:001 ET AL. (EIS 2011/0001)(RFC 2017/0065)

The Department of Planning (Department) has reviewed your letter dated May 2, 2017, requesting a statement of position and comments on whether a SEIS is required or if the Department has any other concerns related to a possible Major Amendment to the existing Incidental Take License and associated Habitat Conservation Plan for incidental take of Hawaiian hoary bats by the Auwahi Wind Farm Energy Facility. The Maui Planning Commission (Commission) was the approving agency for the original Environmental Impact Statement for the project due to the Commission's land use permitting obligations for a Special Management Area (SMA) Use Permit and two (2) County Special Use Permits. However, we appreciate that your letter seeks a statement from the Department instead of a request that we schedule the Commission to consider and develop such a position.

The Department understands that it is the Division of Forestry and Wildlife's (DOFAW) position that an SEIS is warranted by a proposed Major Amendment to an existing Incidental Take License and associated Habitat Conservation Plan which would provide for the incidental take of up to 10-fold the number of Hawaiian hoary bats as provided for under the existing license and plan. The Department considers it unlikely that such a proposed Major Amendment would substantially affect the Commission's issued permits or the Commission's or Department's land use permitting responsibilities. So we defer to DOFAW's and the Board of Land and Natural Resources' determination of the possible need for a SEIS to accommodate the Major Amendment. However, it is possible that mitigations to address increased environmental impacts not previously dealt with may trigger the need for land use permits from the Department, or less likely, the Commission. So once such possible mitigations have been

Mr. David Smith
August 24, 2017
Page 2

identified, please contact the Department again regarding our possible permitting obligations for them and, particularly, if we have any such obligation, include such mitigations within the scope of the SEIS itself or a similar mechanism to address possible impacts of those mitigations.

If additional clarification is required, please contact Current Planning Supervisor Jeffrey Dack by email at jeffrey.dack@mauicounty.gov or by telephone at (808) 270-6275.

Sincerely,



WILLIAM SPENCE
Planning Director

xc: Clayton I. Yoshida, AICP, Planning Program Administrator (PDF)
John S. Rapacz, Planning Program Administrator (PDF)
Jeffrey P. Dack, Current Planning Supervisor (PDF)
Development Services Administration
Dan Hyatt, Sempra U.S. Gas & Power
Leilani Pulmano, Munekiyo Hiraga
Project File
General File

WRS:CIY:ela

K:\WP_DOCS\PLANNING\RFC\2017\0065_AuwahiWindPowerFacility_EIS\ResponseToDLNR.doc

Appendix C. SEISPN Comments and Responses



UNIVERSITY
of HAWAII®
MĀNOA

Water Resources Research Center

December 14, 2017

Department of Land and Natural Resources/Division of Forestry and Wildlife
1151 Punchbowl Street, #325
Honolulu Hawaii 96813
Attn: Katherine Cullison

Ms. Cullison:

This is to acknowledge receipt of your letter for review of a Supplemental Environmental Impact Statement Preparation Notice for the Auwahi Wind Farm, east Maui, Hawaii.

Unfortunately, the Water Resources Research Center does not have the capacity to review the SEISPN at this time due to the faculty position vacancy.

While we continue to explore filling the current vacancy, the Center will exclude itself from commentary on this specific environmental assessment study.

Sincerely,

A handwritten signature in black ink, appearing to read 'D. Lerner'.

Darren T. Lerner, PhD
Interim Director

2540 Dole Street, Holmes Hall 283
Honolulu, Hawai'i 96822
Telephone: (808) 956-7847
Fax: (808) 956-5044

An Equal Opportunity/Affirmative Action Institution

Auwahi Wind

November 19, 2018

Mr. Darren T. Lerner, PhD
Interim Director
University of Hawaii, Water Resources Research Center
2540 Dole Street, Holmes Hall 283
Honolulu, HI 96822

RE: Response to Comment Letter for the Auwahi Wind Project - Supplemental Environmental Impact Statement Preparation Notice (SEISPN)


Dear Mr. Lerner:

Thank you for your comment letter dated December 14, 2017 in response to the Supplemental Environmental Impact Statement Preparation Notice (SEISPN) for the Auwahi Wind Project. We appreciate your response and understand that you have no comments at this time. We will keep you informed regarding publication of the Draft Supplemental Environmental Impact Statement (SEIS), which will include a 45-day public review period.

If you have any questions or require additional information, please contact me at (619) 696-3003 or MVanZandt@SempraGlobal.com.

Sincerely,

Auwahi Wind Energy, LLC



Marie VanZandt
Environmental Permitting & Safety Manager

Woeck, Brita

From: Brian Perry <bperry@mauinews.com>
Sent: Friday, December 15, 2017 3:06 PM
To: Katherine.Cullison@hawaii.gov
Cc: Woeck, Brita
Subject: Auwahi Wind EISPN

Aloha Katherine Cullison and Brita Woeck,

I'm contacting you via email because you're listed as contacts on Tetra Tech's Dec. 7 memorandum on the public release of supplemental EIS preparation notice for Auwahi Wind Farm.

Auwahi Wind's request is to increase its authorized bat take from 21 to 197.

Page 1 of the supplemental EIS notice says "Projects of take of the Hawaiian hoary bat . . . **suggest** that authorized take levels will be exceeded."

However, page 19 of the state Department of Land and Natural Resources' October 2016 report to the state Legislature reports that Auwahi's "total adjusted take" of hoary bats was 23.

Doesn't this mean that Auwahi already has exceeded its authorized take of bats by at least two as early as June 2016?

What is the current take of bats more than a year later?

What happens when the "total adjusted take" exceeds the authorized one?

Thank you,

Brian Perry
City Editor
The Maui News

Auwahi Wind

November 19, 2018

Mr. Brian Perry
City Editor
The Maui News
100 Mahalani Street
Wailuku, HI 96793

RE: Response to Comment Letter for the Auwahi Wind Project – Supplemental Environmental Impact Statement Preparation Notice (SEISPN)

Dear Mr. Perry:

Thank you for your email dated December 15, 2017 in response to the Supplemental Environmental Impact Statement Preparation Notice (SEISPN) for the Auwahi Wind Project. We understand that you would like more information regarding Hawaiian hoary bat take, specifically, the current level of take that has occurred and how this relates to the authorized take limits. Your input has been considered in preparing the Draft Supplemental Environmental Impact Statement (SEIS), and the topics identified in your letter will be addressed in the Draft SEIS as appropriate.

We appreciate your participation in the environmental review process. We will keep you informed regarding publication of the Draft SEIS, which will include a 45-day public review period. If you have any questions or require additional information, please contact me at (619) 696-3003 or MVanZandt@SempraGlobal.com.

Sincerely,

Auwahi Wind Energy, LLC

Marie VanZandt

Marie VanZandt
Environmental Permitting & Safety Manager

DAVID Y. IGE
GOVERNOR



ARTHUR J. LOGAN
MAJOR GENERAL
ADJUTANT GENERAL

KENNETH S. HARA
BRIGADIER GENERAL
DEPUTY ADJUTANT GENERAL

STATE OF HAWAII
DEPARTMENT OF DEFENSE
OFFICE OF THE ADJUTANT GENERAL
3949 DIAMOND HEAD ROAD
HONOLULU, HAWAII 96816-4495

December 19, 2017

Ms. Marie VanZandt
Auwahi Wind Energy, LLC;
488 8th Avenue, HQ12
San Diego, California 92101

Dear Ms. VanZandt:

Subject: Public Release of Supplemental Environmental Impact Statement Preparation Notice (SEISPN) for the Auwahi Wind Farm, east Maui, Hawai'i

Thank you for the opportunity to comment on the above project. The State of Hawaii Department of Defense has no comments to offer relative to the proposed project.

Should you have any questions or concerns, please have your staff contact Ms. Shao Yu Lee, our Land Manager on Oahu, at (808) 733-4222.

Sincerely,

A handwritten signature in black ink, appearing to read "Neal S. Mitsuyoshi".

NEAL S. MITSUYOSHI, P.E.
Colonel, Hawaii National Guard
Chief Engineering Officer

- c: Ms. Kathrine Cullison, Department of Land and Natural Resources/Division of Forestry and Wildlife
- ✓ Ms. Brita Woock, Tetra Tech, Inc.
- Ms. Havinne Okamura, HI-EMA
- Mr. Albert Chong, HI-EMA
- Mr. Karl Motoyama, Hawaii Army National Guard Environmental (HIARNG-ENV)
- Maj Nhut Dao, 154th Civil Engineer Squadron (154th CES)

Auwahi Wind

November 19, 2018

Mr. Neal S. Mitsuyoshi, P.E.
Colonel, Hawaii National Guard
Chief Engineering Officer
State of Hawaii, Department of Defense
3949 Diamond Head Road
Honolulu, HI 96816

RE: Response to Comment Letter for the Auwahi Wind Project - Supplemental Environmental Impact Statement Preparation Notice (SEISPN)


Dear Mr. Mitsuyoshi:

Thank you for your comment letter dated December 19, 2017 in response to the Supplemental Environmental Impact Statement Preparation Notice (SEISPN) for the Auwahi Wind Project. We appreciate your response and understand that you have no comments in response to the SEISPN. We will keep you informed regarding publication of the Draft Supplemental Environmental Impact Statement (SEIS), which will include a 45-day public review period.

If you have any questions or require additional information, please contact me at (619) 696-3003 or MVanZandt@SempraGlobal.com.

Sincerely,

Auwahi Wind Energy, LLC



Marie VanZandt
Environmental Permitting & Safety Manager

Woeck, Brita

From: Sally Kaye <skaye@runbox.com>
Sent: Thursday, December 21, 2017 11:13 AM
To: Katherine.Cullison@hawaii.gov
Cc: Woeck, Brita
Subject: Auwahi Wind Supplemental EISPN

December 21, 2017

Re: Notice published in the OEQC, December 8, 2017, for a Supplemental Environmental Impact Statement, Prep Notice, Auwahi Wind Habitat Conservation Plan Amendment –

Dear Ms. Cullison:

Since it does not appear that there are any draft amendments available to review for comment, I will only state at this early stage that it is unacceptable to claim that “Auwahi Wind is not proposing any substantive changes to the existing Project or its operation.” Changes in operation must be considered.

I wish to become a consulted party in this matter.

Thank you,

Sally Kaye
511 Ilima Ave.
P.O. Box 631313
Lana`i City, HI 96763
808-565-6276
skaye@runbox.com

Auwahi Wind

November 19, 2018

Ms. Sally Kaye
511 Ilima Ave
P.O. Box 631313
Lanai City, HI 96763

RE: Response to Comment Letter for the Auwahi Wind Project – Supplemental Environmental Impact Statement Preparation Notice (SEISPN)

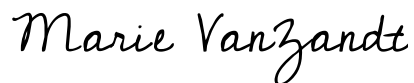
Dear Ms. Kaye:

Thank you for your email dated December 21, 2017 in response to the Supplemental Environmental Impact Statement Preparation Notice (SEISPN) for the Auwahi Wind Project (Project). We understand that you would like operational changes to be considered for the Project. Your input has been considered in preparing the Draft Supplemental Environmental Impact Statement (SEIS), and this topic will be addressed in the Draft SEIS as appropriate.

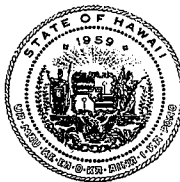
We appreciate your participation in the environmental review process. We will keep you informed regarding publication of the Draft SEIS, which will include a 45-day public review period. If you have any questions or require additional information, please contact me at (619) 696-3003 or MVanZandt@SempraGlobal.com.

Sincerely,

Auwahi Wind Energy, LLC



Marie VanZandt
Environmental Permitting & Safety Manager



STATE OF HAWAII
DEPARTMENT OF HEALTH
MAUI DISTRICT HEALTH OFFICE
54 HIGH STREET
WAILUKU, HAWAII 96793-3378

LORRIN W. PANG, M.D., M.P.H.
DISTRICT HEALTH OFFICER

December 28, 2017

Ms. Katherine Cullison
Department of Land & Natural Resources
Division of Forestry & Wildlife
1151 Punchbowl Street
Honolulu, Hawaii 96813

Dear Ms. Cullison:

Subject: AUWAHI WIND PROJECT
Applicant: Department of Land & Natural Resources
Permit (s): State Incidental Take License
TMK: (2) 1-9-001:006
Location: District of Hana
Description: Impact of the Auwahi Wind Farm (Project) to the Hawaiian hoary bat

Thank you for the opportunity to review this project. We have no comments to offer. Should you have any questions, please contact me at 808 984-8230 or email me at patricia.kitkowski@doh.hawaii.gov.

Sincerely,

Patti Kitkowski
District Environmental Health Program Chief

c EPO {Via Email}
Tetra Tech, Inc.

Auwahi Wind

November 19, 2018

Ms. Patti Kitkowski
District Environmental Health Program Chief
State of Hawaii, Department of Health
Maui District Health Office
54 High Street
Wailuku, HI 96793

RE: Response to Comment Letter for the Auwahi Wind Project - Supplemental Environmental Impact Statement Preparation Notice (SEISPN)

Dear Ms. Kitkowski:

Thank you for your comment letter dated December 28, 2017 in response to the Supplemental Environmental Impact Statement Preparation Notice (SEISPN) for the Auwahi Wind Project. We appreciate your response and understand that you have no comments in response to the SEISPN. We will keep you informed regarding publication of the Draft Supplemental Environmental Impact Statement (SEIS), which will include a 45-day public review period.

If you have any questions or require additional information, please contact me at (619) 696-3003 or MVanZandt@SempraGlobal.com.

Sincerely,

Auwahi Wind Energy, LLC



Marie VanZandt
Environmental Permitting & Safety Manager



STATE OF HAWAII
DEPARTMENT OF HEALTH
P. O. BOX 3378
HONOLULU, HI 96801-3378

In reply, please refer to:
File:

EPO 17-307

January 3, 2018

Ms. Brita-Woeck
Tetra Tech, Inc.
737 Bishop Street, Suite 2340, Mauka Tower
Honolulu, Hawaii 96813
Email: Brita.Woeck@tetrattech.com

Dear Ms Woeck:

SUBJECT: Supplemental Environmental Impact Statement Preparation Notice (SEISPN) for Auwahi Wind Farm, East Maui, Hawaii
TMK: Wind Farm Site (2) 1-9-001:006

The Department of Health (DOH), Environmental Planning Office (EPO), acknowledges receipt of your SEISPN to our office via the OEQC link:

http://oegc2.doh.hawaii.gov/EA_EIS_Library/2017-12-08-MA-Needs-Supplemental-Auwahi-Wind-HCP-Amendment.pdf

We understand from the OEQC publication form project summary that "*Auwahi Wind LLC is seeking approval of a major amendment to the HCP and ITL to increase the amount of authorized bat take from 21 to 197 bats to cover the duration of the Project's operating life, along with approval of additional compensatory mitigation.*"

Hawaii's environmental review laws require Environmental Assessments (EAs) and Environmental Impact Statements (EISs) to consider health in the discussion and the mitigation measures to reduce negative impacts. In its definition of 'impacts,' §11-200-2, Hawaii Administrative Rules (HAR) includes health effects, whether primary (direct), secondary (indirect), or cumulative. Further, §11-200-12(b)(5), HAR, lists public health as one of the criteria for determining whether an action may have a significant impact on the environment.

We advocate that you consider health from a broad perspective; one that accounts for the social, economic, and environmental determinants of health and wellbeing. Community well-being can be impacted by access to physical activity, health care, feelings of social connectedness and safety. Design solutions that take these factors into consideration positively contribute to the social determinants of health in a community, improving the well-being of those who live there by influencing health promoting behaviors. Social determinants contribute to preventable chronic diseases such as asthma, diabetes, obesity, and cardiovascular disease.

In the development and implementation of all projects, EPO strongly recommends regular review of State and Federal environmental health land use guidance. State standard comments to support sustainable healthy design are provided at: <http://health.hawaii.gov/epo/landuse>. Projects are required to adhere to all applicable standard comments.

We suggest you review the requirements of the Clean Water Branch (Hawaii Administrative Rules {HAR}, Chapter 11-54-1.1, -3, 4-8) and/or the National Pollutant Discharge Elimination System (NPDES) permit (HAR, Chapter 11-55) at: <http://health.hawaii.gov/cwb>. If you have any questions, please contact the Clean Water Branch (CWB), Engineering

Ms. Brita-Woeck
Page 2
January 3, 2018

Section at (808) 586-4309 or cleanwaterbranch@doh.hawaii.gov. If your project involves waters of the U.S., it is highly recommended that you contact the Army Corps of Engineers, Regulatory Branch at: (808) 835-4303.

If temporary fugitive dust emissions could be emitted when the project site is prepared for construction and/or when construction activities occur, we recommend you review the need and/or requirements for a Clean Air Branch (CAB) permit (HAR, Chapter 11-60.1 "Air Pollution Control"). Effective air pollution control measures need to be provided to prevent or minimize any fugitive dust emissions caused by construction work from affecting the surrounding areas. This includes the off-site roadways used to enter/exit the project. The control measures could include, but are not limited to, the use of water wagons, sprinkler systems, and dust fences. For questions contact the Clean Air Branch via e-mail at: Cab.General@doh.hawaii.gov or call (808) 586-4200.

Any waste generated by the project (that is not a hazardous waste as defined in state hazardous waste laws and regulations), needs to be disposed of at a solid waste management facility that complies with the applicable provisions (HAR, Chapter 11-58.1 "Solid Waste Management Control"). The open burning of any of these wastes, on or off site, is strictly prohibited. You may wish you review the Minimizing Construction & Demolition Waste Management Guide at: <http://health.hawaii.gov/shwb/files/2016/05/constdem16.pdf> Additional information is accessible at: <http://health.hawaii.gov/shwb>. For specific questions call (808) 586-4226.

If noise created during the construction phase of the project may exceed the maximum allowable levels (HAR, Chapter 11-46, "Community Noise Control") then a noise permit may be required and needs to be obtained before the commencement of work. Relevant information is online at: <http://health.hawaii.gov/irhb/noise> EPO recommends you contact the Indoor and Radiological Health Branch (IRHB) at (808) 586-4700 with any specific questions.

EPO also encourages you to examine and utilize the Hawaii Environmental Health Portal at: <https://eha-cloud.doh.hawaii.gov>. This site provides links to our e-Permitting Portal, Environmental Health Warehouse, Groundwater Contamination Viewer, Hawaii Emergency Response Exchange, Hawaii State and Local Emission Inventory System, Water Pollution Control Viewer, Water Quality Data, Warnings, Advisories and Postings.

To better protect public health and the environment, the U.S. Environmental Protection Agency (EPA) has developed an environmental justice (EJ) mapping and screening tool called EJSCREEN. It is based on nationally consistent data and combines environmental and demographic indicators in maps and reports. EPO encourages you to explore, launch and utilize this powerful tool in planning your project. The EPA EJSCREEN tool is available at: <http://www.epa.gov/ejscreen>.

We hope this information is helpful. If you have any questions please contact us at DOH.epo@doh.hawaii.gov or call us at (808) 586-4337. Thank you for the opportunity to comment.

Mahalo nui loa,



Laura Leialoha Phillips McIntyre, AICP
Environmental Planning Office

LM:nn

c: Marie VanZandt (via email: MVanZandt@SempraGlobal.com)
Katherine Cullison, DLNR/DOFAW (via email: Kahterine.Cullison@hawaii.gov)
DOH: DHO Maui, CWB, CAB, IRHB {via email only}

Attachment: U.S. EPA EJSCREEN Report for Project Area

Please be advised:

The Environmental Planning Office (EPO), along with the Clean Air, Clean Water, and Wastewater Branches moved to Waimano Ridge. The new address, for EPO, as of December 1, 2017, is:

Environmental Planning Office, DOH, Hale Ola, 2827 Waimano Home Road #109, Pearl City, Hawaii 96782

Please feel free to come and visit our new offices anytime. Please note that there is a security guard at the bottom of the hill (before entering DOH property). Our office phone numbers, email and website will all remain the same.





EJSCREEN Report (Version 2017)

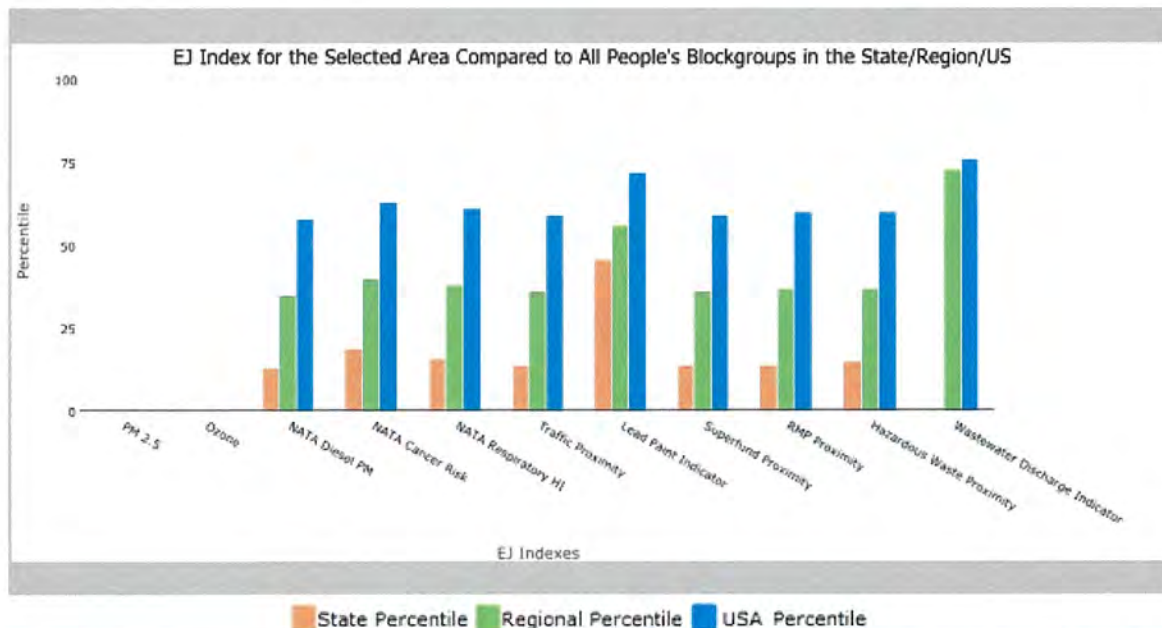


1 mile Ring Centered at 20.596806,-156.318917, HAWAII, EPA Region 9

Approximate Population: 1

Input Area (sq. miles): 3.14

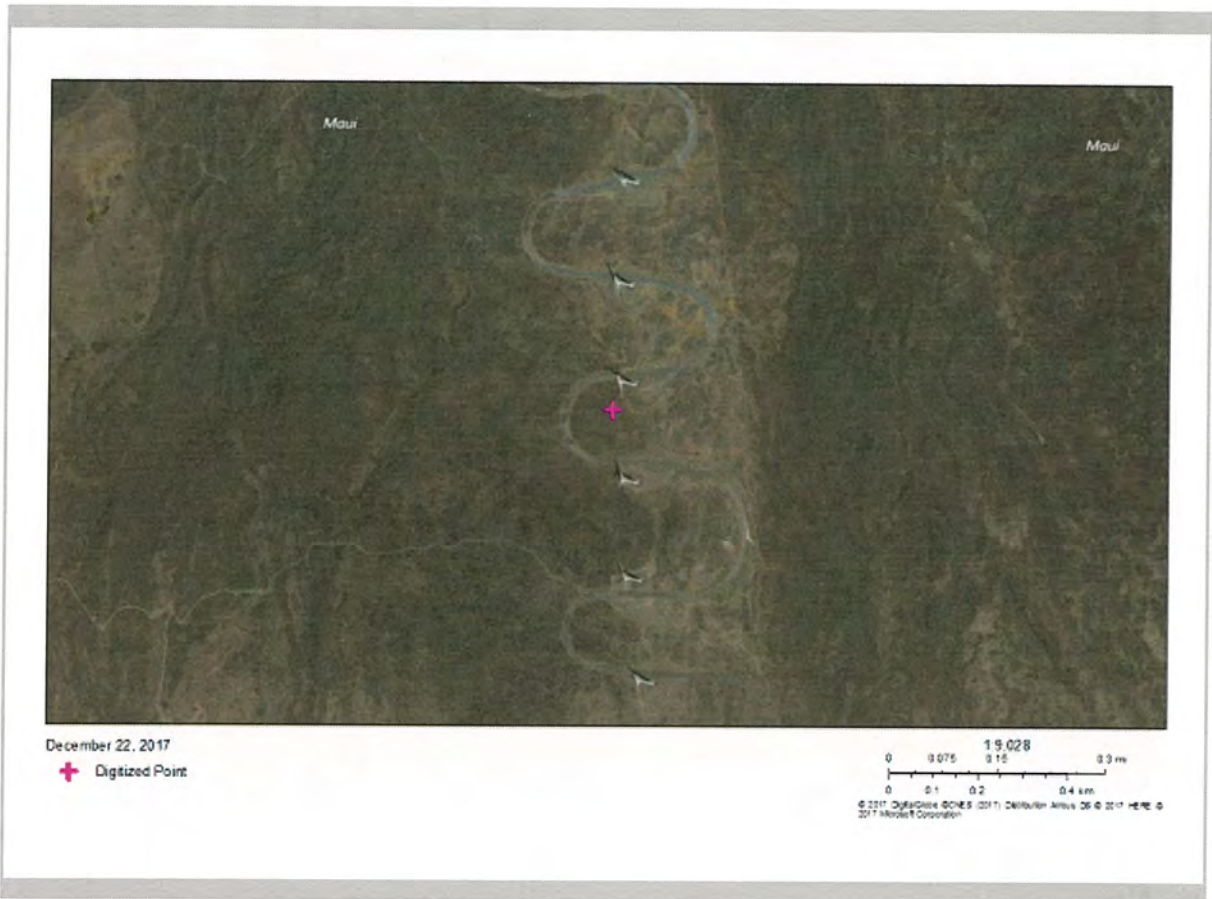
Selected Variables	State Percentile	EPA Region Percentile	USA Percentile
EJ Indexes			
EJ Index for PM2.5	N/A	N/A	N/A
EJ Index for Ozone	N/A	N/A	N/A
EJ Index for NATA ⁺ Diesel PM	13	35	58
EJ Index for NATA ⁺ Air Toxics Cancer Risk	19	40	63
EJ Index for NATA ⁺ Respiratory Hazard Index	16	38	61
EJ Index for Traffic Proximity and Volume	14	36	59
EJ Index for Lead Paint Indicator	46	56	72
EJ Index for Superfund Proximity	14	36	59
EJ Index for RMP Proximity	14	37	60
EJ Index for Hazardous Waste Proximity	15	37	60
EJ Index for Wastewater Discharge Indicator	N/A	73	76



This report shows the values for environmental and demographic indicators and EJSCREEN indexes. It shows environmental and demographic raw data (e.g., the estimated concentration of ozone in the air), and also shows what percentile each raw data value represents. These percentiles provide perspective on how the selected block group or buffer area compares to the entire state, EPA region, or nation. For example, if a given location is at the 95th percentile nationwide, this means that only 5 percent of the US population has a higher block group value than the average person in the location being analyzed. The years for which the data are available, and the methods used, vary across these indicators. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports.

1 mile Ring Centered at 20.596806,-156.318917, HAWAII, EPA Region 9

Approximate Population: 1
Input Area (sq. miles): 3.14



Sites reporting to EPA	
Superfund NPL	0
Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDF)	0

EJSCREEN Report (Version 2017)



1 mile Ring Centered at 20.596806,-156.318917, HAWAII, EPA Region 9

Approximate Population: 1

Input Area (sq. miles): 3.14

Selected Variables	Value	State Avg.	%ile in State	EPA Region Avg.	%ile in EPA Region	USA Avg.	%ile in USA
Environmental Indicators							
Particulate Matter (PM 2.5 in $\mu\text{g}/\text{m}^3$)	N/A	N/A	N/A	9.9	N/A	9.14	N/A
Ozone (ppb)	N/A	N/A	N/A	41.8	N/A	38.4	N/A
NATA* Diesel PM ($\mu\text{g}/\text{m}^3$)	0.00842	0.149	3	0.978	<50th	0.938	<50th
NATA* Cancer Risk (Lifetime risk per million)	24	34	0	43	<50th	40	<50th
NATA* Respiratory Hazard Index	0.47	1	1	2	<50th	1.8	<50th
Traffic Proximity and Volume (daily traffic count/distance to road)	0	1000	4	1100	2	590	2
Lead Paint Indicator (% Pre-1960 Housing)	0.18	0.16	64	0.24	55	0.29	48
Superfund Proximity (site count/km distance)	0.0047	0.1	13	0.15	3	0.13	0
RMP Proximity (facility count/km distance)	0.045	0.39	5	0.98	2	0.73	3
Hazardous Waste Proximity (facility count/km distance)	0.0049	0.1	13	0.12	1	0.093	0
Wastewater Discharge Indicator (toxicity-weighted concentration/m distance)	0	0.04	N/A	13	59	30	40
Demographic Indicators							
Demographic Index	48%	51%	35	47%	52	36%	71
Minority Population	53%	77%	12	59%	43	38%	70
Low Income Population	42%	26%	85	36%	62	34%	66
Linguistically Isolated Population	0%	6%	22	9%	19	5%	44
Population With Less Than High School Education	3%	9%	20	17%	14	13%	16
Population Under 5 years of age	5%	6%	36	7%	35	6%	38
Population over 64 years of age	12%	16%	36	13%	58	14%	48

* The National-Scale Air Toxics Assessment (NATA) is EPA's ongoing, comprehensive evaluation of air toxics in the United States. EPA developed the NATA to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that NATA provides broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. More information on the NATA analysis can be found at: <https://www.epa.gov/national-air-toxics-assessment>.

For additional information, see: www.epa.gov/environmentaljustice

EJSCREEN is a screening tool for pre-decisional use only. It can help identify areas that may warrant additional consideration, analysis, or outreach. It does not provide a basis for decision-making, but it may help identify potential areas of EJ concern. Users should keep in mind that screening tools are subject to substantial uncertainty in their demographic and environmental data, particularly when looking at small geographic areas. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports. This screening tool does not provide data on every environmental impact and demographic factor that may be relevant to a particular location. EJSCREEN outputs should be supplemented with additional information and local knowledge before taking any action to address potential EJ concerns.

Auwahi Wind

November 19, 2018

Ms. Laura Leialoha Phillips McIntyre, AICP
State of Hawaii, Department of Health
Environmental Planning Office
P.O. Box 3378
Honolulu, HI 96801

RE: Response to Comment Letter for the Auwahi Wind Project – Supplemental Environmental Impact Statement Preparation Notice (SEISPN)

Dear Ms. McIntyre:

Thank you for your comment letter dated January 3, 2018 in response to the Supplemental Environmental Impact Statement Preparation Notice (SEISPN) for the Auwahi Wind Project.

We understand the importance of considering public health as part of the environmental impact process and appreciate the resources that you provide specific to health land use guidance and sustainable design, the Hawaii Environmental Health Portal, and the environmental justice mapping and screening tool, as well as relevant regulatory requirements and minimization measures related to water quality, fugitive dust, hazardous waste, and noise. This information has been considered in preparing the Draft Supplemental Environmental Impact Statement (SEIS). We will keep you informed regarding publication of the Draft SEIS, which will include a 45-day public review period.

If you have any questions or require additional information, please contact me at (619) 696-3003 or MVanZandt@SempraGlobal.com.

Sincerely,

Auwahi Wind Energy, LLC

Marie VanZandt

Marie VanZandt
Environmental Permitting & Safety Manager

1/5/18

To: Katherine Cullison
Katherine.Cullison@hawaii.gov
Subj: Auwahi Wind EISPN

I am for replacing WGTs with renewable energy that costs less and is environmentally friendly, therefore I am against any increase in the incidental take of endangered species. WGTs are increasingly killing more animals than predicted and there is no end in sight. They are contributing to the extinction of endangered species. As such, directly killing endangered species and altering their habitat makes no sense.

Direct take comprises individuals that are killed or injured colliding with turbines or associated structures on site. Indirect take considers that it is possible that adult birds killed through on-site due to collisions could have been tending to eggs, nestlings or dependent fledglings, or adult bats could have been tending to dependent juveniles. In such cases, the loss of these adults would then also lead to the loss of their eggs or dependent young. Loss of eggs or young would be “indirect take” attributable to the project. Loss of productivity is not counted as permitted take.

Indirect take impacts on birds and bats and can contribute to increased mortality, alterations in the availability of food, roost and nest resources, increased risk of predation, and potentially altered demographics, genetic structure, and population viability. Indirect take is not counted as permitted take making further studies incomplete.

Hoary bats and nene provide great pride and interest to the people of Hawaii. They have great value to us from a cultural and ecological standpoint, and protect us from diseases. Animal diversity is critical to maintaining a balanced and healthy ecology. As biologists know all species are interrelated and the loss of one species causes a harmful ripple effect among the others. Killing bats and nene is just one more example of mainland investors taking the resources and culture of Hawaii for their corporate and personal gain.

The endangered animals have intrinsic value. Future generation should be able to see and enjoy the wildlife their ancestors enjoyed for generations. Allowing their kill has a moral side to it as well. It is inhumane. Animals exist for their own purposes and should be left to flourish and thrive as best they can without human interference.

There are mosquito-borne disease outbreaks, like Zika, Dengue, and chikungunya virus. Hoary bats eat mosquitos. We need to stop killing bats not increasing incidental take. Article IX of the Hawaii Constitution is about the states responsibility for “Protection and promotion of public health.” Not only do they control flying insects like mosquitoes, they also pollinate commercial crops and flowers. Has this ever been included in an EIS or HCP review?

Hawaii’s five major wind farms are killing endangered Hawaiian hoary bats at a much faster pace than expected. The wind farms have killed 146 Hawaiian hoary bats out of the 187 they are allowed. They’ve killed that many in 6.4 years while they were not expected to reach the total for 20 years or more.” The wind farms have also killed at least 50 nene – the endangered Hawaiian goose and state

bird – and 26 petrels, an endangered seabird. A new study that looked at hoary bat mortality at wind energy facilities during 2014 revealed that populations of the species may plunge by a staggering 90 percent in the next 50 years if no action is taken. (Batcon.org) A March 26, 2013 Wildlife Society bulletin article included a study that estimated 888,000 bats and 573,000 bird fatalities (including 83,000 raptor fatalities) were killed by wind turbines in North America. According to a 2015 report from the **Daily Caller**, America's wind turbines in the last five years killed more than three times as many birds killed in the BP oil spill. A 10/10/16 study by the University of California estimated that the hoary bat population could be reduced by 90% and increase the risk of extinction due to wind turbines.

One of the proposals of the wind farm operators is off-site mitigation or in-lieu programs. Federal law, 40 CFR 230.98, delineates mitigation banks and in-lieu programs. An in lieu fee program (ILF) is one method of “compensatory mitigation” for damages to the environment. It occurs when a permittee provides funds to an in-lieu sponsor, e.g. a public agency or non-profit organization, is often OFF SITE, and typically occurs after the permitted impacts. Such is the case with the Auwahi operations. Successful ILF programs require active and engaged stakeholders to provide context-specific guidance, feedback, and oversight in the creation and implementation of an ILF program. In retrospect there appears to be only one cultural stake holder during initial planning or more recent input from Aha Moku councils. Administering an ILF program is complex and requires staff who have expertise in ecosystems and environmental services, as well as staff who specialize in financial accounting and budget management. There is a high level of uncertainty associated with in-lieu fee programs regarding the final mitigation. Why take the risk? Some consider ILFs as a de facto tax which can have the result of increasing costs which are indirectly passed on to the public. An ILF is tantamount to a license to kill so long as the applicant pays for the damages. It has moral implications. It's an inducement, almost bribery that allows the applicant to be relieved of the duty to protect the environment if they dedicate money to another project or entity. Like a double-edged sword, applicants turn it around and use the government “approved” ILF to induce the public to accept the ILF as a trade-off that allows environmental damage the public would not otherwise approve. It is a form of corruption - a debasement of the concept of environmental protection. As far as “restoring habitat,” WGT need to be removed in the future otherwise the wind turbines will continue to disrupt the ecosystem.

“Wind farms – are 96% useless and cost 150 times more than necessary for what they do... If we built windfarms for the electricity they generate, we'd be better off paying for reliable electrons from cheap brown coal, and using the savings to research a cure for cancer. The point in putting up expensive, infrasonic thumping towers of steel and concrete that kill birds and explode bat lungs is because it reduces our carbon dioxide emissions, except that it doesn't really.” (Joannenova.com)

The State of Hawaii and stakeholders must finally stop their obsession with wind energy over other forms of renewable energy and stop unnecessarily killing endangered species.

Robert Aldrich
160 Keonekai Rd #16-202
Kihei, HI 96753

Auwahi Wind

November 19, 2018

Mr. Robert Aldrich
160 Keonekai Rd. #16-202
Kihei, HI 96753

RE: Response to Comment Letter for the Auwahi Wind Project – Supplemental Environmental Impact Statement Preparation Notice (SEISPN)

Dear Mr. Aldrich:

Thank you for your comment letter dated January 5, 2018 in response to the Supplemental Environmental Impact Statement Preparation Notice (SEISPN) for the Auwahi Wind Project.

We understand that you are concerned with take of Hawaiian hoary bats and other endangered species resulting from operation of wind turbines and acknowledge the value of these species. We understand that you are also concerned with the use of in-lieu fee programs for mitigation associated with incidental take of endangered species. Your input has been considered in preparing the Draft Supplemental Environmental Impact Statement (SEIS), and the topics identified in your letter will be addressed in the Draft SEIS as appropriate.

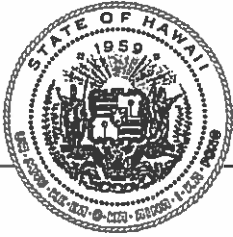
We appreciate your participation in the environmental review process. We will keep you informed regarding publication of the Draft SEIS, which will include a 45-day public review period. If you have any questions or require additional information, please contact me at (619) 696-3003 or MVanZandt@SempraGlobal.com.

Sincerely,

Auwahi Wind Energy, LLC

Marie VanZandt

Marie VanZandt
Environmental Permitting & Safety Manager



**OFFICE OF PLANNING
STATE OF HAWAII**

235 South Beretania Street, 6th Floor, Honolulu, Hawaii 96813
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804

Telephone: (808) 587-2846
Fax: (808) 587-2824
Web: <http://planning.hawaii.gov/>


DAVID Y. IGE
GOVERNOR

LEO R. ASUNCION
DIRECTOR
OFFICE OF PLANNING

DTS201801041517NA

January 5, 2018

To: Suzanne Case, Chairperson
Department of Land and Natural Resources

From: Leo R. Asuncion, Director
Office of Planning 

Attention: Katherine Cullison
Division of Forestry and Wildlife

Subject: Supplemental Environmental Impact Statement Preparation Notice – Auwahi
Wind Farm, East Maui

TMKs: Wind Farm Site - (2) 1-9-001:006; Transmission Line - (2) 1-9-001:006,
(2) 2-1-009:001, (2) 2-1-009:999, (2) 2-1-008:001; and Papaka Road -(2) 2-1-
004:006, (2) 2-1-004:049, (2) 2-1-004:106, (2) 2-1-005:022, (2) 2-1-005:023, (2)
2-1-005:027, (2) 2-1-005:032, (2) 2-1-005:034, (2) 2-1-005:045, (2) 2- 1-005:055,
(2) 2-1-005:077, (2) 2-1-008:090, and (2) 2-1-005:108

Thank you for the opportunity to provide comments on the Supplemental Environmental Impact Statement Preparation Notice (SEISPN) for the Auwahi Wind Farm located at the Ulupalakua Ranch, Kihei, Island of Maui. The SEISPN review material was transmitted to our office by letter dated December 7, 2017.

It is our understanding that an Environmental Impact Statement (EIS) was developed in February 2011, which examined environmental, economic, and social impacts resulting from the operation of the Auwahi Wind Farm (project). The Maui Planning Commission subsequently approved the project in August 2011. The project is operating on an Incidental Take License (ITL) issued by the Department of Land and Natural Resources (DLNR)/Division of Forestry and Wildlife.

The 2011 ITL projections for the operation of the wind turbines have already exceeded the 25-year permit term for endangered species such as the Hawaiian Hoary Bat. Auwahi Wind Energy, LLC is seeking approval of a major amendment to the Habitat Conservation Plan (HCP) and ITL to increase the amount of authorized bat take from 21 to 197 bats to cover the duration of the wind farm's operating life, along with approval of additional mitigation efforts.

The Office of Planning (OP) has reviewed the transmitted Draft EA and has the following comments to offer:

1. Hawaii Coastal Zone Management (CZM) Program:

OP acknowledges that the 2011 EIS provided a thorough analysis of the objectives and policies of the Hawaii CZM Program, Hawaii Revised Statutes (HRS) § 205A-2.

The Supplemental Environmental Impact Statement (SEIS) should include analysis on the project's consistency HRS § 205A-2 in lieu of the HCP amendments; clarify if "intensity of environmental impacts" may alter the project's consistency with the objectives and policies of the Hawaii CZM program; and consider mitigation efforts if there are conflicts with this statute.

2. Hawaii State Planning Act, Hawaii Revised Statutes (HRS) Chapter 226:

We acknowledge that the 2011 EIS contained an examination of the project's consistency with the themes, goals, objectives and policies of the Hawaii State Planning Act, and the project's compatibility with the State Historic Preservation Functional Plan. The 2011 EIS did not include analysis on the project's adherence with Part III – Priority Guidelines of the Hawaii State Planning Act.

The SEIS should evaluate all parts of the Hawaii State Planning Act in relation to the proposed amendments to the HCP and changes to the ITL. The analysis should note any conflicts with HRS Chapter 226 due to the intensity of environmental impacts caused by amending the HCP. The examination on HRS Chapter 226 can cite the discussion from the 2011 EIS on Part I – Overall Themes, Goals, Objectives and Policies, and Part II – Planning Coordination and Implementation (State Historic Preservation Functional Plan). A discussion on the project's consistency with Part III of the Priority Guidelines should be included in the SEIS.

The themes, goals, objectives, policies, and Priority Guidelines of HRS Chapter 226 that are not applicable to the project should be stated as such in the SEIS. Furthermore, if no changes to the applicable themes, goals, objectives, policies, and State Historic Preservation Functional Plan cited in the 2011 EIS are expected, the SEIS should affirmatively state this and include discussion paragraphs.

3. Special Management Area (SMA):

Please consult with the County of Maui, Planning Department as to whether a modification to the granted SMA use permit or a new SMA use permit is required for Auwahi Wind Farm. The SEIS should discuss the requirements of the SMA use in accordance with the SMA guidelines pursuant to HRS § 205A-26, and the County of Maui SMA rules.

We have no further comments at this time. If you have any questions regarding this comment letter, please contact Joshua Hekeka of our office at (808) 587-2845.

Auwahi Wind

November 19, 2018

Mr. Leo R. Asuncion
Director
State of Hawaii, Office of Planning
235 South Beretania Street, 6th Floor
Honolulu, HI 96804

RE: Response to Comment Letter for the Auwahi Wind Project – Supplemental Environmental Impact Statement Preparation Notice (SEISPN)

Dear Mr. Asuncion:

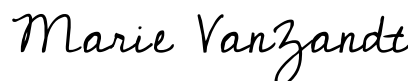
Thank you for your comment letter dated January 5, 2018 in response to the Supplemental Environmental Impact Statement Preparation Notice (SEISPN) for the Auwahi Wind Project's.

We understand you would like the Draft Supplemental Environmental Impact Statement (SEIS) to include a discussion of the Project's consistency with Hawaii's Coastal Zone Management (CZM) program pursuant to Hawaii Revised Statute (HRS) §205A-2, as well as all three parts of the Hawaii State Planning Act (HRS Chapter 226), particularly the priority guidelines. We also acknowledge your recommendation to consult with the County of Maui Planning Department regarding the requirement for modification of the Special Management Area (SMA) Use permit, and consideration of the SMA guidelines pursuant to HRS Chapter 205A-26 and the County of Maui SMA rules. Your input has been considered, and these items will be addressed in the Draft SEIS.

We appreciate your participation in the environmental review process. We will keep you informed regarding publication of the Draft SEIS, which will include a 45-day public review period. If you have any questions or require additional information, please contact me at (619) 696-3003 or MVanZandt@SempraGlobal.com.

Sincerely,

Auwahi Wind Energy, LLC



Marie VanZandt
Environmental Permitting & Safety Manager



The Senate

STATE CAPITOL
HONOLULU, HAWAII 96813

January 8, 2018

Auwahi Wind, LLC
Marie Vanzandt
488 8th Avenue, HQ12
San Diego, CA 92101
MVanZandt@SempraGlobal.com

Submitted via Email

Tetra Tech, Inc.
Brita Woeck
737 Bishop Street, Suite 2340
Honolulu, HI 96813
Brita.Woeck@tetrattech.com

State of Hawaii Board of Land and Natural Resources
Katherine Cullison
DLNR/Division of Forestry and Wildlife
1151 Punchbowl Street
Honolulu, HI 96813
Katherine.Cullison@hawaii.gov

RE: Auwahi Wind, LLC SEISPN

Dear Sir/Madame:

Please accept these comments and questions regarding Auwahi Wind, LLC's Supplemental EIS Preparation Notice.

"Auwahi Wind LLC is seeking approval of a major amendment to the HCP and ITL to increase the amount of authorized bat take from **21 to 197 bats** to cover the duration of the Project's operating life, along with approval of additional compensatory mitigation. (emphasis added)

COMMENT 1: This is a staggering increase for an endangered species of which the population is unknown! They are asking for this increase when they were reasonably sure, just six years ago, that 21 would suffice. Meanwhile, have they replaced a single bat through any mitigation

measure? If they had requested 197 in 2011, would they have been approved? If the previously proposed mitigation measures have not been demonstrated effective, the population level is still unknown, and there is no evidence that any additional bats have been brought into the population, how is this amendment even being considered?

COMMENT 2: Thorough analysis of cumulative impacts of the affected species on Maui and Statewide must be considered. What assurance will be presented that the proposed amendments will provide a net benefit to the species? It seems reasonable that the cost of increased mitigation could be astronomical.

The Final EIS, page 3-79 mentions nightly curtailment: "Furthermore, the WTGS are expected to be curtailed (turned-off) on a regular basis between 2300 hours and 0600 hours due to the low demand for power from MECO during this time period. The expected risk and magnitude of bat collisions will be reduced below the estimates because the WTGs blades will not be spinning during these periods of night-time curtailment."

COMMENT 3: What is the history of curtailment on this project? What levels of Low Wind Speed Curtailment have been utilized? What levels of LWSC and/or curtailment will be studied?

COMMENT 4: How will avoidance and mitigation measures be enhanced? How did the previously approved measures perform? What has been learned since 2011 that will inform this project on how to increase avoidance and improve mitigation?

COMMENT 5: A full accounting of the financial viability of this project should be performed. How has this project affected the cost of electricity on Maui and the cost to rate payers? How much electricity has been generated? How has the energy generation performed, when compared to projections from 2011? It would appear the cost of mitigation must be greatly increased. Is the project still financially viable?

COMMENT 6: One of the nacelles collapsed catastrophically. What was the cause of this system failure? What assurance is there that another, similar accident will not occur? What was the financial impact to Auwahi Wind, LLC? How long was the turbine out of service and how much energy was not generated by the loss of this wind turbine? What are the statistics for annual energy generation, compared to name plate value?

Thank you for this opportunity to share my thoughts.

Respectfully submitted,



Gil Riviere
Senator, District 23
Oahu's North and Windward Shores

Auwahi Wind

November 19, 2018

Mr. Gil Riviere
Senator, District 23
The Senate
State Capital
Honolulu, HI 96813

RE: Response to Comment Letter for the Auwahi Wind Project – Supplemental Environmental Impact Statement Preparation Notice (SEISPN)

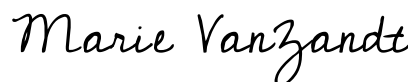
Dear Mr. Riviere:

Thank you for comment letter dated January 8, 2018 in response to the Supplemental Environmental Impact Statement Preparation Notice (SEISPN) for the Auwahi Wind Project. We understand that you are concerned with take of Hawaiian hoary bats; specifically relating to the increased take estimate, population level impacts, cumulative effects, and effectiveness of mitigation. In addition, we understand you are interested in current and proposed levels of curtailment, as well as the financial viability, energy generation, and safety of the Project. Your input has been considered in preparing the Draft Supplemental Environmental Impact Statement (SEIS), and the various topics identified in your letter will be discussed in the Draft SEIS as appropriate.

We appreciate your participation in the environmental review process. We will keep you informed regarding publication of the Draft SEIS, which will include a 45-day public review period. If you have any questions or require additional information, please contact me at (619) 696-3003 or MVanZandt@SempraGlobal.com.

Sincerely,

Auwahi Wind Energy, LLC



Marie VanZandt
Environmental Permitting & Safety Manager

Maui Tomorrow Foundation
55 North Church St, Suite A-4
Wailuku, HI 96793

Ms. Katherine Cullison
1151 Punchbowl Street, #325
Honolulu, HI 96813

January 8, 2018

**Re: SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE FOR THE
AUWAHI WIND FARM, MAUI**

Dear Ms. Cullison:

Maui Tomorrow Foundation, Inc. supports renewable energy and efforts to combat climate change. However, we are concerned that the EISPN for the Auwahi Wind facility does not mention the consideration of any new alternatives other than the increase in allowable take of the endangered Hawaiian Hoary Bat (`ope`ape`a). Unless we have data to support higher take levels, it is irresponsible to ask that the existing take be increased, just because we have found out that more bats are dying than anticipated. Alternatives that should be considered in the Supplemental EIS include:

1. On-site mitigation
2. Not running the turbines during times when Maui Electric is curtailing power from Auwahi Wind.
3. Not running the turbines unless the actual wind speed is above the speed when hoary bats are likely to be active
4. Stopping further operation of the project until definitive data re. endangered species populations, reproduction, and habits have been developed
5. Shutting down the project entirely

The EIS should discuss the certainty with which the actual population of the `ope`ape`a is known, and what percentage of the total population of bats the current or amended HCP would allow Auwahi Wind to take. It should also discuss the certainty with which it is known whether that percentage is sustainable, or whether the proposed increased take would instead undermine the recovery of this endangered species.

The EISPN should discuss the home range of the `ope`ope`a; the certainty with which that range is known; whether the bats at Auwahi are utilizing the designated mitigation areas; and whether there has been proven reproduction in those areas.

The EISPN should discuss changes to the costs and benefits of the Auwahi Wind project that result from each of the alternatives considered, and should factor in curtailment of power by

Maui Electric.

The EIS should discuss why more Endangered Species are dying than previously expected, and should consider whether “mistake” or “failure” in the original analysis was a possible factor. It should also discuss the confidence level for the latest calculations, and compare them to the confidence level for the previous calculations.

Mahalo,

Albert Perez
Executive Director
Maui Tomorrow Foundation, Inc.

Auwahi Wind

November 19, 2018

Mr. Albert Perez
Executive Director
Maui Tomorrow Foundation, Inc.
55 North Church St., Suite A-4
Wailuku, HI 96793

RE: Response to Comment Letter for the Auwahi Wind Project – Supplemental Environmental Impact Statement Preparation Notice (SEISPN)

Dear Mr. Perez:

Thank you for your comment letter dated January 8, 2018 in response to the Supplemental Environmental Impact Statement Preparation Notice (SEISPN) for the Auwahi Wind Project.

We understand that you are concerned with take of the Hawaiian hoary bat and acknowledge your request for consideration of various alternatives in the Draft Supplemental Environmental Impact Statement (SEIS). We understand that you are also interested in additional discussion of Hawaiian hoary bat ecology and population estimates, the effectiveness of the mitigation areas, the impact of increased take on the bat's viability, and the accuracy of the proposed level of take. Your input has been considered in preparing the Draft SEIS, and the various topics identified in your letter will be discussed in the Draft SEIS as appropriate.

We appreciate your participation in the environmental review process. We will keep you informed regarding publication of the Draft SEIS, which will include a 45-day public review period. If you have any questions or require additional information, please contact me at (619) 696-3003 or MVanZandt@SempraGlobal.com.

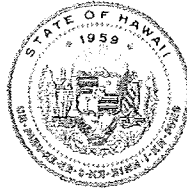
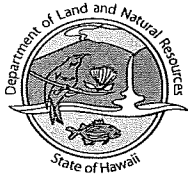
Sincerely,

Auwahi Wind Energy, LLC



Marie VanZandt
Environmental Permitting & Safety Manager

DAVID Y. IGE
GOVERNOR OF HAWAII



SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE
MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

January 8, 2018

State of Hawaii
Department of Land and Natural Resources
Division of Forestry and Wildlife
Attention: Ms. Kate Cullison
1151 Punchbowl Street; #325
Honolulu, Hawaii 96813

via email: Katherine.Cullison@hawaii.gov

Dear Ms. Cullison:

SUBJECT: Supplemental Environmental Impact Statement Preparation Notice for the
Auwahi Wind Farm Project

Thank you for the opportunity to review and comment on the subject matter. The Department of Land and Natural Resources' (DLNR) Land Division distributed or made available a copy of your report pertaining to the subject matter to DLNR Divisions for their review and comments.

At this time, enclosed are comments from the Engineering Division on the subject matter. Should you have any questions, please feel free to call Lydia Morikawa at 587-0410. Thank you.

Sincerely,

A handwritten signature in black ink, appearing to read "Russell Y. Tsuji".

Russell Y. Tsuji
Land Administrator

Enclosure

cc: Ms. Brita Woeck; Tetra Tech, Inc. via email: Brita.Woeck@tetrattech.com
Central Files

DAVID Y. IGE
GOVERNOR OF HAWAII



SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE
MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

December 13, 2017

MEMORANDUM

TO:

DLNR Agencies:

- Div. of Aquatic Resources
- Div. of Boating & Ocean Recreation
- Engineering Division**
- Div. of Forestry & Wildlife
- Div. of State Parks
- Commission on Water Resource Management
- Office of Conservation & Coastal Lands
- Land Division – Maui District
- Historic Preservation

FROM:

Russell Y. Tsuji, Land Administrator

SUBJECT:

Supplemental Environmental Impact Statement Preparation Notice for the
Auwahi Wind Farm Project

LOCATION:

District of Hana, Island of Maui; Various TMK's

APPLICANT:

Tetra Tech, Inc. on behalf of Auwahi Wind Energy, LLC

Transmitted for your review and comment is information on the above-referenced subject matter. We would appreciate your comments by **January 6, 2018**.

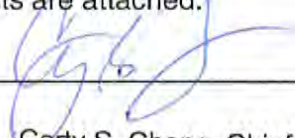
The Supplemental EIS can be found on-line at: <http://health.hawaii.gov/oegc/> (Click on The Environmental Notice in the middle of the page.)

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Darlene Nakamura at 587-0417. Thank you.

Attachments

- We have no objections.
- We have no comments.
- Comments are attached.

Signed:



Print Name:

Carty S. Chang, Chief Engineer

Date:

12/13/17

cc: Central Files

Auwahi Wind

November 19, 2018

Mr. Carty Chang
State of Hawaii
Department of Land and Natural Resources, Engineering Division
P.O Box 621
Honolulu, HI 96809

RE: Response to Comment Letter for the Auwahi Wind Project - Supplemental Environmental Impact Statement Preparation Notice (SEISPN)

Dear Mr. Chang:

Thank you for your comment letter dated January 8, 2018 in response to the Supplemental Environmental Impact Statement Preparation Notice (SEISPN) for the Auwahi Wind Project. We appreciate your response and understand that you have no comments at this time. We will keep you informed regarding publication of the Draft Supplemental Environmental Impact Statement (SEIS), which will include a 45-day public review period.

If you have any questions or require additional information, please contact me at (619) 696-3003 or MVanZandt@SempraGlobal.com.

Sincerely,

Auwahi Wind Energy, LLC

Marie VanZandt

Marie VanZandt
Environmental Permitting & Safety Manager

ALAN M. ARAKAWA
Mayor

WILLIAM R. SPENCE
Director

MICHELE CHOUTEAU McLEAN
Deputy Director



COUNTY OF MAUI
DEPARTMENT OF PLANNING

January 12, 2018

Katherine Cullison
Attention: Auwahi Wind EISPN
Department of Land and Natural Resources/Division of Forestry and Wildlife
1151 Punchbowl St., #315
Honolulu, Hawaii 96813

Brita Woeck
Attention: Auwahi Wind EISPN
Tetra Tech, Inc.
737 Bishop St., Suite 2340, Mauka Tower
Honolulu, Hawaii 96813

Dear Ms. Cullison and Ms. Woeck:

SUBJECT: COMMENTS ON THE SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE (SEISPN) FOR THE AUWAHI WIND FARM, HANA, ISLAND OF MAUI, HAWAII; TMKS: WIND FARM SITE--(2)1-9-001:006; TRANSMISSION LINE--1-9-001:006, 2-1-009:001, 999, 2-1-008:001; PAPAKA ROAD--2-1-004:006, 049, 106, 2-1-005:022, 023, 027, 032, 034, 045, 055, 077, 108, 2-1-0-08:090 (RFC 2017/0125)

The Department of Planning (Department) is in receipt of the above-referenced letter, dated December 7, 2017, regarding the subject Supplemental Environmental Impact Statement (SEIS) Preparation Notice for the Auwahi Wind Farm. The Department understands that the SEIS is being prepared to analyze the Applicant's request to increase allowable takings of the Hawaiian hoary bat. The Final Environmental Impact Statement (FEIS) was accepted by the Maui Planning Commission on August 9, 2011. The FEIS determined that the project would involve the taking of up to 21 bats over the incidental take permit (ITP) and incidental take license (ITL) term of 25 years. The Department understands the Applicant has determined that up to 197 bats will be taken over the 25-year term.

Based on the foregoing, the Department provides the following comments in preparation of the Supplemental EIS:

1. The property is owned by Ulupalakua Ranch Inc., and a portion is leased to Auwahi Wind Energy LLC.
2. Provide a detailed analysis of the proposed amendments to the Habitat Conservation Plan, described in your letter dated December 7, 2017:
(1) additional measures to avoid and minimize Hawaiian hoary bat take;

- (2) estimated total Project-related Hawaiian hoary bat take, projected over the remainder of the permit term, based on results of project-specific post-construction mortality monitoring; (3) a request for additional take of Hawaiian hoary bats; (4) associated additional compensatory mitigation; and (5) a long-term post-construction monitoring plan.
3. Identify and describe any new community feedback obtained as a result of any meetings with regard to the proposed project? Please incorporate it in the Supplemental EIS.
 4. Include a section on "Alternatives to the Proposed Action," and include an analysis of why the estimated taking of an endangered species is being increased from 21 bats to 197 bats during the 25-year term.

Thank you for the opportunity to comment. Please include the Department on the distribution list for the Supplemental EIS. Should you require further clarification, please contact Staff Planner Livit Callentine by email at livit.callentine@mauicounty.gov or by phone at (808) 270-5537.

Sincerely, ✓



for: WILLIAM SPENCE
Planning Director

xc: Clayton I. Yoshida, Planning Program Administrator (PDF)
Livit U. Callentine, AICP, Staff Planner (PDF)
Katherine Cullison, DLNR/Division of Forestry and Wildlife (PDF)
Brita Woeck, Tetra Tech, Inc. (PDF)
Project File

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Auwahi Wind

November 19, 2018

Mr. William Spence
Planning Director
County of Maui, Department of Planning
2200 Main Street, Suite 315
Wailuku, HI 96793

RE: Response to Comment Letter for the Auwahi Wind Project – Supplemental Environmental Impact Statement Preparation Notice (SEISPN)

Dear Mr. Spence:

Thank you for your comment letter dated January 12, 2018 in response to the Supplemental Environmental Impact Statement Preparation Notice (SEISPN) for the Auwahi Wind Project. We understand that you are interested in a detailed analysis of the proposed amendments to the Habitat Conservation Plan, including additional measures to avoid and minimize take of Hawaiian hoary bats, an estimate of total take based on Project-specific post-construction mortality monitoring, additional compensatory mitigation, and long-term post-construction monitoring. We understand that you are also interested in community feedback to date and alternatives to the proposed action. Your input has been considered in preparing the Draft Supplemental Environmental Impact Statement (SEIS), and the various topics identified in your letter will be discussed in the Draft SEIS as appropriate.

We appreciate your participation in the environmental review process. We will keep you informed regarding publication of the Draft SEIS, which will include a 45-day public review period. If you have any questions or require additional information, please contact me at (619) 696-3003 or MVanZandt@SempraGlobal.com.

Sincerely,

Auwahi Wind Energy, LLC



Marie VanZandt
Environmental Permitting & Safety Manager