TETRA TECH

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MAY - 8 2019

April 26, 2019

Scott Glenn, Director
Office of Environmental Quality Control (OEQC)
Department of Health, State of Hawai'i
235 S. Beretania Street, Room 702
Honolulu, Hawai'i 96813

Dear Mr. Scott,

On behalf of Kawailoa Wind LLC, we are submitting the enclosed Draft Supplemental Environmental Impact Statement (SEIS) package for the Kawailoa Wind Farm, located in the Waialua District on the island of O'ahu (tax map key [TMK] (1) 61006001, 61007001 and 62011001). We request publication of the draft SEIS for a 45-day public comment period in the May 8, 2019 edition of the Environmental Notice. The Draft SEIS includes copies of all written comments received during the 30-day public consultation period for the SEIS Preparation Notice (SEISPN).

The following documents are included in the enclosed package: (1) one hard copy and three electronic (pdf) copies of the Draft SEIS, (2) one hard copy and one electronic (Word) copy of the completed OEQC publication form, and (3) one hard copy and one electronic (pdf) copy of the distribution list for verification by OEQC pursuant to Section 11-200-20, Hawai'i Administrative Rules. Upon receiving verification from OEQC, we will notify those so indicated on the distribution list such that they will have the full 45-day period to review and comment on the Draft SEIS. Simulatenous with this submittal, a copy of the Draft SEIS is being transmitted to the State of Hawaii Department of Land and Natural Resources (DLNR) Division of Forestry Wildlife (DOFAW), as the approving agency.

If there are any questions, please contact Lisa Kettley at (808) 441-6651 or lisa.kettley@tetratech.com.

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Sincerely,

Lisa Kettley
Tetra Tech, Inc.

cc: Glenn Metzler, State of Hawaii Department of Land and Natural Resources (DLNR) Division of Forestry and Wildlife (DOFAW)

Enclosures

Tetra Tech, Inc.
737 Bishop Street, Suite 2340 | Honolulu, Hawaii 96813
Tel 808.441.6600 | Fax 808.836.1689 | www.tetratech.com

19-339

APPLICANT
PUBLICATION FORM

Project Name:	Draft Supplemental EIS for Kawailoa Wind Farm (for Amendment to Habitat Conservation Plan and Incidental Take License)
Project Short Name:	Kawailoa Wind Farm Supplemental EIS
HRS §343-5 Trigger(s):	Provisions of HRS Chapter 201N , use of State lands and use of lands within the Conservation District (note that these were triggers for original EIS)
Island(s):	Oahu
Judicial District(s):	Waialua
TMK(s):	(1) 61006001, 61007001 and 62011001
Permit(s)/Approval(s):	Amendment to Habitat Conservation Plan, Incidental Take License and Incidental Take Permit
Approving Agency:	Department of Land and Natural Resources (DLNR) Division of Forestry and Wildlife (DOFAW)
Contact Name, Email, Telephone, Address	Glenn Metzler 1151 Punchbowl Street, Room 325, Honolulu, HI 96813 Glenn.M.Metzler@hawaii.gov
Applicant:	Kawailoa Wind, LLC
Contact Name, Email, Telephone, Address	Brita Woeck 1166 Avenue of the Americas, 9th Floor, New York, NY 10036 BRIWO@orsted.com
Consultant:	Tetra Tech, Inc.
Contact Name, Email, Telephone, Address	Lisa Kettley 737 Bishop Street, Suite 2340, Honolulu, HI 96813 lisa.kettley@tetratech.com

Status (select one)	**Submittal Requirements**
____ DEA-AFNSI	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.
_x__ 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.

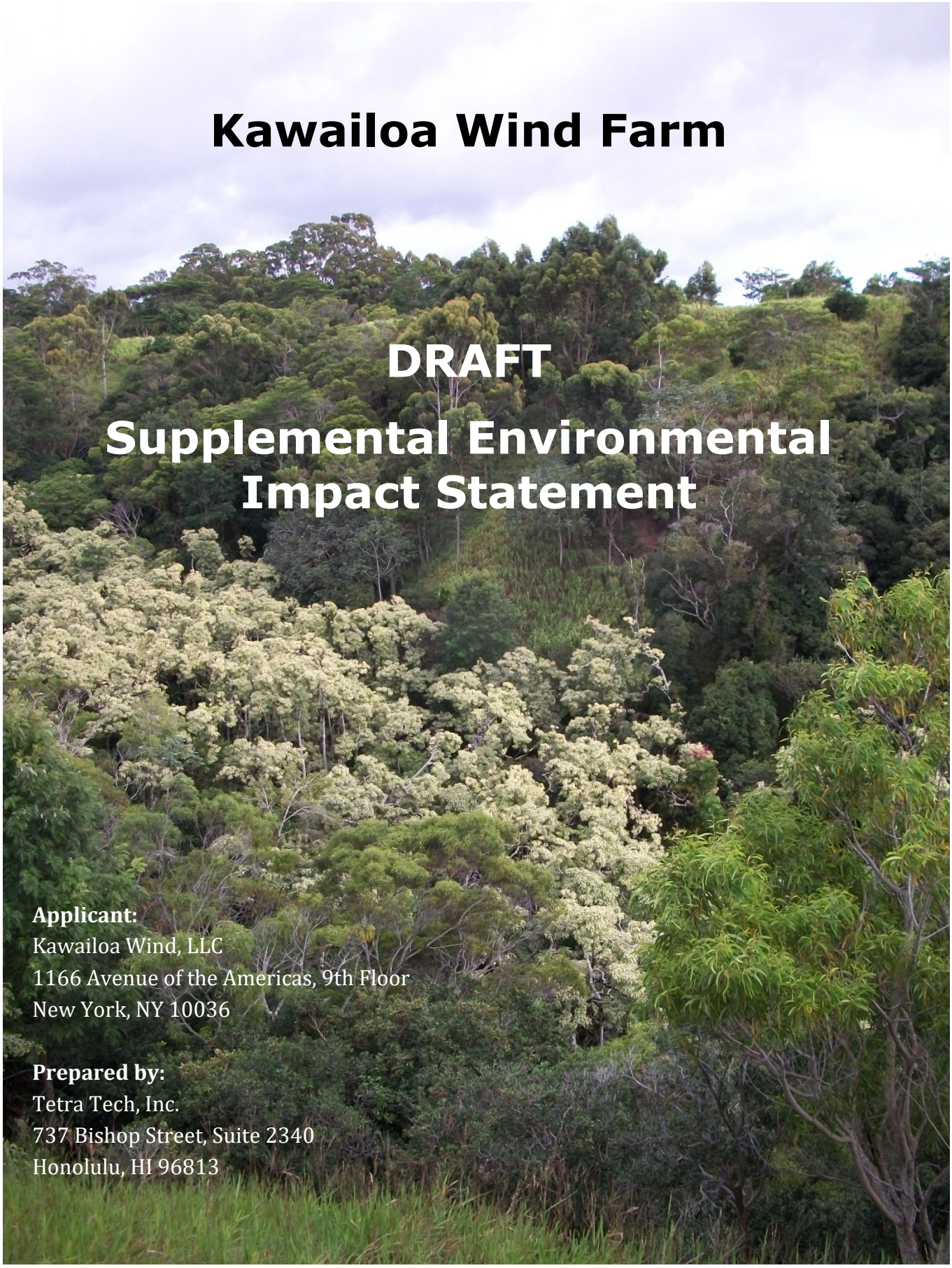
19-339

____ 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 Kawailoa Wind Project is an approximately 69-megawatt wind farm located approximately 5 miles northeast of Hale'iwa town on the north shore of O'ahu. An EIS for the Project was accepted by the State of Hawai'i Department of Business, Economic Development, and Tourism in July 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 State of Hawai'i Department of Land and Natural Resources (DLNR) Division of Forestry and Wildlife (DOFAW), pursuant to HRS Chapter 195D. The HCP and ITL provide coverage for incidental take of state listed wildlife species, including the endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*). Post-construction mortality monitoring data indicate that operation of the wind turbines is resulting in a greater number of endangered Hawaiian hoary bat fatalities than anticipated in the approved HCP and authorized under the ITL. As such, Kawailoa Wind is pursuing an amendment to the HCP as part of the request to increase the amount of Hawaiian hoary bat take authorized by the ITL. Additionally, Kawailoa Wind is requesting to add take authorization for the endangered Hawaiian petrel (*Pterodroma sandwichensis*). Given that the impacts to the Hawaiian hoary bat and Hawaiian petrel are greater than anticipated, DOFAW requested that an SEIS be prepared to support its decision making for the requested amendment to the HCP and ITL. A separate but parallel HCP Amendment and environmental review process is being conducted in compliance with federal requirements, pursuant to the Endangered Species Act and National Environmental Policy Act.

Kawailoa Wind Farm



DRAFT

Supplemental Environmental Impact Statement

Applicant:
Kawailoa Wind, LLC
1166 Avenue of the Americas, 9th Floor
New York, NY 10036

Prepared by:
Tetra Tech, Inc.
737 Bishop Street, Suite 2340
Honolulu, HI 96813

DRAFT Supplemental Environmental Impact Statement

Kawailoa Wind
Oʻahu, Hawaiʻi

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 Section 11-200-17, Hawaiʻi Administrative Rules.

Bryan Martin, Authorized Signatory
Kawailoa Wind, LLC

4/24/19
DATE

Prepared for:

State of Hawaiʻi
Department of Land and Natural Resources, Division of Forestry and Wildlife

PROJECT SUMMARY

Project Name	Kawailoa Wind Farm
Applicant/ Project Owner	Kawailoa Wind, LLC
Project Summary[1]	The Kawailoa Wind Project (Project) is an approximately 69-megawatt (MW) wind farm located approximately 5 miles northeast of Haleʻiwa town on the north shore of Oʻahu. Pursuant to Hawaiʻi Revised Statutes (HRS) Chapter 343, an Environmental Impact Statement (EIS) was accepted by the State of Hawaiʻi Department of Business, Economic Development, and Tourism (DBEDT) in July 2011. The Project was subsequently constructed and has been in operation since 2012. The Project is operating under an approved Habitat Conservation Plan (HCP) and associated Incidental Take Permit (ITP) and Incidental Take License (ITL), which authorize take of threatened and endangered species protected under federal and state regulations, respectively. Post-construction mortality monitoring data indicate that operation of the wind turbines is resulting in a greater number of endangered Hawaiian hoary bat or ʻōpeʻapeʻa (*Lasiurus cinereus semotus*) fatalities than anticipated in the HCP and authorized by the ITP/ITL. As such, Kawailoa Wind is pursuing an amendment to the HCP as part of the request to increase the amount of Hawaiian hoary bat take authorized by the ITP/ITL. Additionally, Kawailoa Wind is requesting to add take authorization for the endangered Hawaiian petrel or ʻuaʻu (*Pterodroma sandwichensis*). Except for the need for an 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 are consistent with the description provided in the 2011 EIS. However, given that the impacts to the Hawaiian hoary bat and Hawaiian petrel are greater than anticipated, the State of Hawaiʻi Department of Land and Natural Resources (DLNR) Division of Forestry and Wildlife (DOFAW) requested that a Supplemental EIS (SEIS) be prepared to support its decision making for the requested amendment to the HCP and ITL. The Draft HCP Amendment was published for public review in October 2018, pursuant to the requirements of HRS Chapter 195D. Based on the information presented in the Draft HCP Amendment, this Draft SEIS documents the increase in Project-related impacts to the Hawaiian hoary bat and Hawaiian petrel and the additional measures that will be implemented to avoid, minimize and mitigate those impacts, within the context of the HRS Chapter 343 requirements. A separate but parallel HCP Amendment and environmental review process is being conducted in compliance with federal requirements, pursuant to the Endangered Species Act and National Environmental Policy Act.
Project Location	Former Kawailoa Plantation, North Shore, Oʻahu
Land Ownership	Kamehameha Schools
Tax Map Keys (TMK)[2]	(1) 61006001, 61007001 and 62011001
State Land Use District	Agriculture
County Zoning	AG-1 (Restricted Agricultural) and P-1 (Restricted Preservation)

Required Permits/ Approvals	Amendment to HCP and ITP/ITL[3]
Actions Requiring Environmental Review Under HRS Chapter 343	The Project originally required compliance with HRS Chapter 343 based on the provisions of HRS Chapter 201N, as well as for the use of State lands and use of lands within the Conservation District.[4] 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 requested amendment to the HCP and ITL.
Approving Agency	DLNR DOFAW[5]
Contact Information	Kawailoa Wind, LLC 1166 Avenue of the Americas, 9th Floor New York, NY 10036 Contact: Brita Woeck BRIWO@orsted.com Tetra Tech, Inc. 737 Bishop Street, Suite 2340, Honolulu, Hawai'i 96813 Contact: Lisa Kettley lisa.kettley@tetratech.com

1. The proposed action described in the 2011 EIS included possible communication equipment located on Mt. Ka'ala, as well as an optional battery energy storage system. It was subsequently determined that neither equipment was needed and thus, were not installed. Therefore, these components are not addressed as part of the Project in this document. Additional discussion is provided in Section 2.1.3.
2. The wind farm facilities addressed by the HCP Amendment are within TMKs (1) 61006001, 61007001 and 62011001. The onsite access roads and unoccupied portions of the Project area are within other TMKs, as listed in the 2011 EIS.
3. 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 (and the associated NEPA and HRS Chapter 343 environmental review) are the only approvals currently requested.
4. Pursuant to HRS Chapter 201N, a request for development of a permit plan for a renewable energy facility was submitted to DBEDT; HRS Chapter 201N-8 specifies that HRS Chapter 343 applies to any permit plan application. The anticipated use of State lands and use of lands within the Conservation District were associated with possible communication equipment to be installed near Mt. Ka'ala to accommodate interconnection with the Hawaiian Electric Company, Inc. (HECO) electric grid. As noted above, these facilities were not constructed.
5. Pursuant to HRS Chapter 201N, DBEDT was the approving agency for the 2011 EIS. Given their request for an SEIS, DOFAW coordinated with DBEDT regarding the role of the approving agency. In coordination with DBEDT, it was determined that DOFAW would serve as the approving agency for the SEIS.

EXECUTIVE SUMMARY

The Kawailoa Wind Project (Project) is an approximately 69-megawatt (MW) wind farm located on former Kawailoa Plantation lands owned by Kamehameha Schools, approximately 5 miles northeast of Haleʻiwa town on the north shore of Oʻahu. Pursuant to Hawaiʻi Revised Statutes (HRS) Chapter 343, an Environmental Impact Statement (EIS) was prepared for the Project and was accepted by the State of Hawaiʻi Department of Business, Economic Development, and Tourism (DBEDT) in July 2011. The Project was subsequently constructed and has been in operation since 2012.

The Project is operating under an approved Habitat Conservation Plan (HCP) and associated Incidental Take Permit (ITP) and Incidental Take License (ITL), which authorize take of threatened and endangered species protected under the federal Endangered Species Act (ESA) and HRS Chapter 195D, respectively. Post-construction mortality monitoring data indicate that operation of the wind turbines is resulting in a greater number of endangered Hawaiian hoary bat or ʻōpeʻapeʻa (*Lasiurus cinereus semotus*) fatalities than anticipated in the HCP and authorized by the ITP/ITL. As such, Kawailoa Wind is pursuing an amendment to the HCP, in accordance with the ESA and HRS Chapter 195D, as part of the request to increase the amount of Hawaiian hoary bat take authorized by the ITP/ITL. Additionally, Kawailoa Wind is requesting to add take authorization for the endangered Hawaiian petrel or ʻuaʻu (*Pterodroma sandwichensis*). This species was not originally covered by the HCP and ITP/ITL as it was not known to occur regularly on Oʻahu and was not expected to transit the Project area; therefore, take was thought to be highly unlikely. However, recent acoustic surveys have documented Hawaiian petrel on Oʻahu and two fatalities have been observed at the Project.

Except for the need for an 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 are consistent with the description provided in the 2011 EIS. However, given that the impacts to the Hawaiian hoary bat and Hawaiian petrel are greater than anticipated, DOFAW requested that a Supplemental EIS (SEIS) be prepared to support its decision making for the requested amendment to the HCP and ITL.

The HCP amendment process involves in-depth analysis of the estimated take of Hawaiian hoary bat and Hawaiian petrel over the remainder of the permit term, and development of appropriate minimization and mitigation measures to offset the impacts. A detailed discussion of this process and the resulting information is presented in the Draft HCP Amendment, which was published for public review in October 2018, pursuant to the requirements of HRS Chapter 195D.[1] This Draft SEIS is based on the information presented in the Draft HCP Amendment; the purpose of this document is to disclose the increased Project-related impacts to the Hawaiian hoary bat and Hawaiian petrel as well as the additional measures that will be implemented to minimize and mitigate those

[1] The Draft HCP Amendment was published by the Office of Environmental Quality Control (OEQC) in the *Environmental Notice*. It can be accessed at: http://oeqc2.doh.hawaii.gov/Other_TEN_Publications/2018-10-23-OA-DHCP-Kawailoa-Amendment.pdf

impacts, within the context of the HRS Chapter 343 requirements. Moving forward, the HCP Amendment will be revised based on the comments received through the Draft HCP Amendment review process. Those revisions, as well as comments received on this Draft SEIS, will be incorporated into a Final SEIS, as appropriate. Approval of the HCP Amendment and ITL would not occur until the Final SEIS has been accepted by DOFAW.

As further discussed in Section 5.1, a separate but parallel HCP Amendment and environmental review process is being conducted in compliance with federal requirements, pursuant to the ESA and National Environmental Policy Act (NEPA).

Description of Project

The 2011 EIS presented a detailed description of the Project, involving construction and operation of a wind energy facility on the former Kawailoa Plantation lands owned by Kamehameha School. It includes various components which collectively function to generate and transmit electricity to the existing Hawaiian Electric Company, Inc. (HECO) grid; these components include 30 wind turbine generators, an electrical collector system (with both underground and overhead electrical collector lines), and electrical substation, interconnection equipment, an operations and maintenance (O&M) building, and meteorological monitoring equipment.[2] The Project was constructed and has been in operation since 2012.

As specified in the approved HCP, Kawailoa Wind implemented low wind speed curtailment (LWSC) from the start of Project operations to reduce risk to Hawaiian hoary bats. This operational protocol involves restricting turbine operation by feathering the turbine blades (that is, rotating blades parallel to the wind) during periods of low wind speed (i.e., below 5.0 meters per second [m/s]) between sunset and sunrise from March to November, as pre-construction data showed relatively higher bat activity during these periods. There have been incremental extensions to the LWSC period as an adaptive management response to the occurrence of bat fatalities outside the initial LWSC period. This avoidance and minimization measure does not involve modification of any facilities or other aspects of the Project. Additional information regarding avoidance and minimization measures, including LWSC, is provided in Section 3.5.4.

Alternatives

A range of alternative actions were identified and considered through the Project planning and site layout process. The 2011 EIS presents the framework that was used for identification and consideration of alternatives to construction and operation of the Project, including those alternatives that were considered in detail as well as those eliminated from further consideration. Because the Project has been constructed generally as described in the 2011 EIS and no changes are

[2] Following issuance of the EIS, several components that were included in the Project description (e.g., an optional battery energy storage system and communication equipment on Mt. Kaʻala) were determined to not be needed and thus were not installed. In addition, Turbine 15 (which was originally sited just south of Turbine 16) was re-sited to a central portion of the Project area. Further discussion of these items is provided in Section 2.1.3.

proposed to the Project, the original discussion of Project alternatives in the 2011 EIS is still applicable and no additional Project alternatives are being considered in this SEIS.

Specific to the estimated increase in Hawaiian hoary bat take, two alternative approaches related to modified Project operations have been identified and considered through the HCP Amendment process. These consist of modifications to Project operational protocols, including full nighttime curtailment, and curtailment with cut-in speeds of 5.5 m/s. These alternative approaches from the HCP Amendment, as well as a "No HCP Amendment" alternative (i.e., a "no action" alternative) are addressed in Section 2.2.2.

Potential Impacts

The only Project-related impacts that are known to substantially differ from the information presented in the 2011 EIS relate to the Hawaiian hoary bat and the Hawaiian petrel. The approved HCP and ITP/ITL authorized a take limit of 60 bats for the Project; based on post-construction mortality monitoring and modeling estimates (which also account for unobserved direct take and estimated indirect take), this take limit has been exceeded.[3] As previously described, the Hawaiian petrel was not originally included in the approved HCP and take was not authorized as part of the ITP/ITL, as this species was not known to occur regularly on O'ahu and was not expected to transit the Project area, and therefore, take was thought to be highly unlikely. However, recent surveys have documented Hawaiian petrel on O'ahu and two fatalities have been observed at the Project (in 2017 and 2018).

As part of the HCP amendment process, direct and indirect effects to the Hawaiian hoary bat and the Hawaiian petrel were evaluated and the results were used to develop revised take estimates. Based on the modeling results, and accounting for implementation of avoidance and minimization measures (as further described below), the total take authorization request for the Hawaiian hoary bat as part of the HCP Amendment is for an additional 205 bats (for a total of 265 bats, including the current authorization of 60 bats). The estimate of total Project-related take and the take authorization request for the Hawaiian petrel is a total of 19 petrels and 5 chicks. Additional detail regarding the estimated Project-related take, as well as updated information regarding each species, is provided in Section 3.5.

Besides the impacts to Hawaiian hoary bat and Hawaiian petrel, Project-related impacts are commensurate with the assessment provided in the 2011 EIS. 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, archaeological and cultural resources, transportation and traffic, hazardous materials, noise, air quality, visual resources, land use, public construction and safety, socioeconomic characteristics, and public infrastructure and services. However, impacts to these resources specific to implementation of the additional mitigation proposed under the HCP amendment is discussed as applicable (see Section 3.5.4).

[3] 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.

Avoidance, Minimization and Mitigation Measures

In cases where adverse impacts were identified in the 2011 EIS, Kawailoa Wind developed best management practices (BMPs) and mitigation measures to avoid, minimize and mitigate 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.

Over the course of Project operations, Kawailoa Wind has continued to evaluate measures to further reduce the risk to Hawaiian hoary bats. Specifically, Kawailoa Wind has implemented multiple adaptive management efforts including modification of the LWSC protocol, implementation of innovative approaches to post-construction mortality monitoring (e.g., use of canine search teams), and support for development of bat deterrent technology. In addition, as the baseline minimization strategy for the HCP Amendment, Kawailoa Wind will (1) extend LWSC with a cut-in speed of 5.0 m/s at all turbines to occur year-round from sunset to sunrise, (2) increase LWSC cut-in speed to 5.2 m/s through a 0.2 m/s hysteresis to increase the "down time" of the wind turbines and reduce the number of stop/start events per night, (3) conduct an ultrasonic acoustic bat deterrent "proof of concept" test, and (4) install bat deterrents at all 30 Project turbines when they are shown to be at least as effective as LWSC at reducing bat take.[4]

In addition to these avoidance and minimization measures, and consistent with the biological goals of the HCP Amendment, Kawailoa 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 U.S. Fish and Wildlife Service (USFWS) and the State of Hawai'i Department of Land and Natural Resources (DLNR) Division of Forestry and Wildlife (DOFAW). 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), agency guidance described in the ESRC Bat Guidance (DLNR 2015), and conservation and management priorities identified by the agencies. Tier 4 bat mitigation consists of contributing $2,750,000 toward acquisition and long-term protection of the Helemano Wilderness Area through a partnership with the Trust for Public Land (TPL), USFWS, DOFAW and other funding partners. Tier 5 and Tier 6 mitigation for the Hawaiian hoary bat will include either (1) contribution of funding to acquire property to protect bat roosting and foraging habitat in perpetuity, or (2) bat habitat management/restoration at Helemano Wilderness Area, Waimea Native Forest, or a similar site.

With regard to the Hawaiian petrel, the avoidance and minimization measures previously implemented for the Newell's shearwater are also applicable to the Hawaiian petrel. These measures include minimizing on-site lighting at buildings; implementation of a Wildlife Education

[4] It is anticipated that acoustic bat deterrents will be commercially available for installation at the Project as soon as May 2019.

and Observation Program (WEOP) to reduce vehicle collision risk; and following Avian Power Line Interaction Committee (APLIC) guidelines for overhead collection lines. Mitigation for the Hawaiian petrel will consist of funding predator control and burrow monitoring for the Hanakāpiʻai and Honokoa Hawaiian petrel breeding colonies within the Hono O Nā Pali Natural Area Reserve (NAR), located in the northwest portion of Kauaʻi.

Compatibility with Land Use Plans and Policies

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 and Hawaiian petrel. Accounting for recent plan and policy updates, the Project is still consistent with the applicable plans and policies. An updated discussion of consistency with these plans and policies is provided in Section 5.

Required Permits and Approvals

A range of federal, state and local permits and approvals were required for construction and operation of the Project, as detailed in the 2011 EIS. The necessary permits and approvals were obtained prior to construction and remain in effect, as applicable.

As described above, Kawailoa Wind is seeking an 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 are not expected to be affected by the increase in estimated take of the Hawaiian hoary bat or the addition of Hawaiian petrel take. An updated list of the required permits and approvals required for the Project is provided in Section 6.

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1.0 Purpose and Need

1.1 Project Overview

The Kawailoa Wind Project (Project) is an approximately 69-megawatt (MW) wind farm located on former Kawailoa Plantation lands owned by Kamehameha Schools, approximately 5 miles northeast of Haleʻiwa town on the north shore of the island of Oʻahu, Hawaiʻi. Pursuant to Hawaiʻi Revised Statutes (HRS) Chapter 343, an Environmental Impact Statement (EIS) was prepared for the Project and was accepted by the State of Hawaiʻi Department of Business, Economic Development, and Tourism (DBEDT) in July 2011. The required permits and approvals were subsequently obtained, and the Project was constructed with commercial operation commencing in November 2012. The Project is expected to be in operation through 2032, in accordance with the terms of its power purchase agreement (PPA).

As part of the permitting process, Kawailoa 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 Hawaiʻi 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 Hawaiʻi endangered species law (HRS Chapter 195D), respectively. The ITP/ITL provide coverage for incidental take[5] of federal and state-listed threatened or endangered species that could potentially be impacted by the Project; specific measures to minimize and mitigate impacts to those species were identified as part the associated Habitat Conservation Plan (HCP; SWCA 2011). The ITP and ITL each have a term of 20 years, expiring in 2032.

Post-construction mortality monitoring conducted as part of the Project indicates that operation of the wind turbines is causing a greater number of endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*) fatalities than was anticipated in the approved HCP and authorized by the ITP/ITL. Therefore, Kawailoa Wind is pursuing an amendment to the HCP (HCP Amendment) as part of the request to increase the amount of Hawaiian hoary bat take authorized by the ITP/ITL. Additionally, Kawailoa Wind is requesting incidental take coverage for the Hawaiian petrel or ʻuaʻu (*Pterodroma sandwichensis*). This species was not originally included in the HCP because it was not known to occur regularly on Oʻahu and was not expected to transit the Project area; therefore, take was thought to be highly unlikely. However, recent acoustic surveys have documented Hawaiian petrel on Oʻahu and two fatalities have been observed at the Project.

In-depth analysis of the estimated Hawaiian hoary bat and Hawaiian petrel take that is expected to occur over the remainder of the permit term has been conducted, and additional minimization and mitigation measures have been identified as part of the HCP amendment process. This information is detailed in the Draft HCP Amendment, which was published for public review by the Office of

[5] Pursuant to HRS Chapter 195D-2, the term "take" means to means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect endangered or threatened species of aquatic life or wildlife, or to cut, collect, uproot, destroy, injure, or possess endangered or threatened species of aquatic life or land plants, or to attempt to engage in any such conduct.

Environmental Quality Control (OEQC) in the October 23, 2018 edition of the *Environmental Notice*, pursuant to the requirements of HRS Chapter 195D. A copy of the Draft HCP Amendment is available at: http://oeqc2.doh.hawaii.gov/Other_TEN_Publications/2018-10-23-OA-DHCP-Kawailoa-Amendment.pdf.

The purpose of this Draft SEIS is to disclose the increased Project-related impacts to the Hawaiian hoary bat and Hawaiian petrel as well as the additional measures that will be implemented to minimize and mitigate those impacts, within the context of the requirements of HRS Chapter 343. As a supplemental document, it is based on the structure and format of the 2011 EIS with updated information according to the details presented in the Draft HCP Amendment.

1.1.1 Background

The 2011 EIS included background information regarding the applicant; updated information on the applicant and current Project owner is provided below. Additional background information relating to HRS Chapter 343 compliance, as well as the approved ITP/ITL and the HCP amendment process, is also provided.

1.1.1.1 Applicant

Kawailoa Wind was formed by First Wind, LLC (First Wind), a Boston-based wind energy company, for the express purpose of developing a wind power facility on former Kawailoa Plantation lands owned by Kamehameha Schools. Following construction, the Project was acquired by D.E. Shaw Renewable Investments, LLC. The Project is a wholly-owned subsidiary of DESRI IV, LLC, which is an investment fund managed by D.E. Shaw Renewable Investments, LLC.

1.1.1.2 HRS Chapter 343 Compliance

It was originally anticipated that the Project would involve the use of State lands and use of lands within the Conservation District,[6] both of which are actions that require compliance with HRS Chapter 343. In addition, pursuant to HRS Chapter 201N, a request for development of a permit plan for a renewable energy facility was submitted to the State of Hawai‘i Department of Business, Economic Development, and Tourism (DBEDT); HRS Chapter 201N-8 specifies that HRS Chapter 343 applies to any permit plan application. As such, DBEDT served as the approving agency for the HRS Chapter 343 process, and an EIS was prepared pursuant to the requirements of HRS Chapter 343 and Hawai‘i Administrative Rules (HAR) § 11-200. The EIS described the proposed construction, operation and maintenance of the wind farm as well as alternative actions that were considered, evaluated the anticipated impacts of the proposed action (and alternatives), and identified measures that would be implemented to avoid, minimize and mitigate the anticipated

[6] The anticipated use of State lands and use of lands within the Conservation District were associated with possible communication equipment to be installed near Mt. Ka‘ala to accommodate interconnection with the Hawaiian Electric Company, Inc. (HECO) electric grid. It was subsequently determined that this equipment was not needed, and therefore it was not installed.

impacts. The Final EIS was published by the Office of Environmental Quality Control (OEQC) in the *Environmental Notice* on July 8, 2011 and was accepted by DBEDT on July 20, 2011. Subsequently, an Environmental Assessment (EA) was prepared to evaluate the potential impacts associated with implementation of the Project's HCP; based on their role with the HCP, DOFAW was the approving agency for the EA. DOFAW issued a Finding of No Significant Impact (FONSI), which was published by OEQC in the *Environmental Notice* on October 8, 2011 (see Appendix A).

The Project was constructed in 2012 and 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 are consistent with the description provided in the 2011 EIS. However, because the impacts to the Hawaiian hoary bat are greater than anticipated and impacts to the Hawaiian petrel have subsequently been identified, DOFAW requested that a Supplemental EIS (SEIS) be prepared to support its decision-making for the requested amendment to the HCP and ITL. The need for an SEIS was identified 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*."

Based on their request for an SEIS, DOFAW coordinated with DBEDT as the approving agency for the 2011 EIS. In coordination with DBEDT, it was determined that DOFAW would serve as the approving agency for the SEIS (see Appendix B). On July 8, 2018, DOFAW published their determination regarding the need for an SEIS, simultaneously with an SEIS Preparation Notice (SEISPN) for the Project (see Appendix C). Additional information regarding the SEISPN is provided in Section 5.2.3.

1.1.1.3 Incidental Take Authorization

As summarized above, to address the potential for incidental take of federal and state-listed threatened or endangered species, Kawailoa 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 an ITP and an ITL require development and approval of an HCP prior to authorization. The purpose of an HCP is to identify the anticipated effects of a proposed taking and the measures that would be implemented for minimization, mitigation and monitoring, thus providing a net recovery benefit to the affected species.

An HCP was prepared for the Project to address the following species (collectively referred to as "Covered Species"): threatened Newell's shearwater or ʻaʻo (*Puffinus newelli*), endangered Hawaiian duck or koloa maoli (*Anas wyvilliana*), endangered Hawaiian stilt or aeʻo (*Himantopus mexicanus knudseni*), endangered Hawaiian coot or ʻalae keʻokeʻo (*Fulica alai*), endangered Hawaiian moorhen or ʻalae ʻula (*Gallinula chloropus sandvicensis*), endangered Hawaiian short-eared owl or pueo (*Asio flammeus sandwichensis*), and endangered Hawaiian hoary bat or ʻōpeʻapeʻa (*Lasiurus cinereus semotus*). The HCP was approved and the ITP and ITL were subsequently issued by USFWS and DOFAW on December 8, 2011 and January 6, 2012, respectively.

Monitoring and Compliance

The approved HCP includes requirements for post-construction mortality monitoring and reporting. These efforts are 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 limitations of the HCP and the associated ITP/ITL. Post-construction mortality monitoring and reporting was initiated in 2012 and is ongoing in accordance with protocols approved by USFWS and DOFAW.

Based on the post-construction monitoring data collected to date, operation of the Project has resulted in more take of Hawaiian hoary bats than originally anticipated. Fatality modeling, which is used to estimate total take, indicates the Project has exceeded the currently authorized bat take limit, even with implementation of additional avoidance and minimization measures such as increasing the period of low wind speed curtailment (LWSC).[7,8] In the approved HCP, Kawailoa Wind committed to implementing LWSC between sunset and sunrise from March to November, based on pre-construction data that showed relatively higher bat activity during these periods. There have been incremental extensions to the LWSC period as an adaptive management response to the occurrence of bat fatalities outside the initial LWSC period, as further detailed in Section 3.5.4.

Take of Hawaiian hoary bats has been higher than anticipated under the approved HCP, in part because risk to bats from wind energy development in Hawai‘i was largely unknown and thus underestimated at the time the HCP was approved. Furthermore, advancements have been made in the ability to statistically model future fatality rates. When the HCP was approved, post-construction mortality monitoring data from Hawai‘i wind farms were scant and estimates of take were based on the best available surrogate information, consisting of pre-construction acoustic data which is now recognized as a poor predictor of post-construction fatality rates (Hein et al. 2013). This resulted in an underestimate of the number of bat fatalities expected to occur as a result of Project operations. In addition, since the development of the approved HCP, the USFWS and DOFAW have adopted a more conservative standard for estimating bat take, which is also now used to evaluate HCP compliance. Thus, the initial estimate of take included in the HCP and subsequent estimates of take for the purpose of evaluating permit compliance (incorporating actual fatality data) were based on different methodologies.

[7] The agencies 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.

[8] LWSC involves removing turbines from service by feathering the turbine blades until the wind reaches a pre-determined speed (greater than the manufacturer’s recommended cut-in speed). “Feathering” means that the turbine blades are rotated parallel to the wind, resulting in very slow movement of the rotor (1 rotation per minute or less). LWSC during nighttime hours has been found to reduce 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 3.5.4.

HCP Amendment

In November 2015, Kawailoa Wind initiated consultation with USFWS and DOFAW regarding an amendment to the HCP. The amendment process has been underway since that time; as detailed in Section 7.0, extensive consultation has been conducted to support development of the HCP Amendment. The purpose of the HCP Amendment is to support a request to 1) increase the amount of authorized take of the Hawaiian hoary bat beyond that authorized under the approved ITP/ITL, and 2) add the Hawaiian petrel as a Covered Species under the ITP/ITL. In addition, the HCP Amendment identifies associated appropriate minimization measures, mitigation actions, an adaptive management strategy, and a long-term post-construction monitoring plan. It does not propose to change the original 20-year permit term of the ITP/ITL, nor does it consider expansion of the existing facility or Project area. Additional detail regarding the Draft HCP Amendment, including public review and the subsequent federal and state approval processes, is provided in Sections 5.0 and 7.0.

1.2 Project 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 the State of Hawai'i's Renewable Portfolio Standard (RPS; HRS Chapter 269-92), the Hawai'i Clean Energy Initiative (HCEI) and other similar regulations and initiatives. Collectively, these regulations and initiatives reflect the State's commitment to move away from petroleum-based energy generation and expand its portfolio of locally generated renewable energy projects, thus establishing an overwhelming need for renewable energy projects throughout the State. The purpose of the Project is to provide clean, renewable wind energy for Hawai'i.

The Project was constructed in 2012, and the purpose and need for the Project remain as described in the 2011 EIS. The detailed statements of purpose and need, as presented in Section 1.2 of the 2011 EIS are incorporated by reference.

1.3 Project Objectives

As detailed in the 2011 EIS, given the statutory need for renewable energy projects in the State of Hawai'i and the purpose of providing renewable wind energy, several objectives were identified for the Project, pursuant to HAR § 11-200-17(e)(2).

The Project was constructed in 2012, and the objectives remain as described in the 2011 EIS. The detailed list of objectives, as presented in Section 1.3 of the 2011 EIS are incorporated by reference.

1.4 Scope of SEIS

The full range of Project-related impacts, both adverse and beneficial, were discussed in detail as part of the 2011 EIS. As previously described, the Project has been constructed and except for the need for an amendment to the HCP and ITP/ITL, there have been no substantial changes to the Project. The only Project-related impacts that are known to substantively differ from the

information presented in the 2011 EIS relate to the Hawaiian hoary bat and the Hawaiian petrel. As such, the scope of analysis for the SEIS is specifically focused on the additional Project-related impacts and associated mitigation for these species. Issues beyond the anticipated Project-related impacts and mitigation associated with the increased take of the Hawaiian hoary bat and Hawaiian petrel are not addressed in this document.

For ease of use, the SEIS follows the same general organization and format as the 2011 EIS. Updated information is provided for individual sections of the document, as appropriate based on the details presented in the Draft HCP Amendment. For sections that do not require updated information relative to the additional impacts and mitigation for Hawaiian hoary bat and Hawaiian petrel, a statement is included to this effect (with information from the 2011 EIS incorporated by reference).

2.0 Description of Project and Alternatives

The 2011 EIS presented a detailed description of the proposed action, involving construction and operation of a wind energy facility on the former Kawailoa Plantation lands; it also addressed the range of alternative actions that were evaluated (including those that were eliminated from further consideration). The Project was subsequently constructed and has been in operation since 2012. As this document is an SEIS (which is intended to document the changes from the original EIS), it carries forward the Project as the action that is evaluated for potential environmental impacts from the 2011 EIS. 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. A summary, which includes minor modifications to the Project description, is provided below.

2.1 Existing Wind Farm Project

2.1.1 Background and History

In 2008, Kamehameha Schools conducted a master planning effort to develop a framework for sustainable management for all its land holdings on the north shore of O‘ahu. The resulting plan identified a range of development concepts, including outdoor education, diversified agriculture, and renewable energy, all of which were developed with community input and reflect Kamehameha Schools’ vision and mission. Seven catalyst projects were described in the Master Plan, one of which was a wind energy project on lands that were historically part of Kawailoa Plantation (Kamehameha Schools 2008). Following presentation of the development concept in their Master Plan, Kamehameha Schools solicited proposals from wind farm developers in anticipation of a formal renewable energy project selection process by HECO. Subsequently, HECO issued a Request for Proposals (RFP) for Renewable Energy Projects for the Island of O‘ahu (dated June 2008). In 2009, the project was selected by HECO to be one of several projects included in their renewable energy portfolio, which established the rights to negotiate a PPA. Folowing selection, Kawailoa Wind acquired the rights to develop the project. Additional details regarding the background and history of the Project, including a discussion of site suitability, are provided in the 2011 EIS and are incorporated by reference.

2.1.2 Project Location

The Project is located approximately 5 miles northeast of Hale‘iwa town, on the north shore of the Island of O‘ahu. The Project area is comprised almost entirely of Kawailoa Plantation lands, which are owned by Kamehameha Schools. The onsite access roads traverse several small properties owned by other entities. Kamehameha Schools has grants of easement with these other landowners for long-term access through their properties for both Kamehameha Schools and its lessees and

tenants, including Kawailoa Wind. In addition, Kawailoa Wind has a separate access agreement with three of these landowners.

The Project facilities which are addressed in the HCP Amendment are located within tax map key (TMK) (1) 61007001, 62011001, and 61006001. Other TMKs that comprise unoccupied portions of the Project area, as well as areas traversed by the onsite access roads are listed and are shown in the 2011 EIS.

2.1.3 Project Description

As described in the 2011 EIS, the Project is an approximately 69-MW wind farm located on former Kawailoa Plantation lands owned by Kamehameha Schools. The Project includes various components which collectively function to generate and transmit electricity to HECO's existing grid. These components are listed below and are shown in Figure 2-1. A detailed description of the facilities, including the approximate footprint and area of disturbance associated with each component is provided in the 2011 EIS.

- Wind turbine generators (30 Siemens SWT-2.3 101 turbines)
- Electrical collector system (including underground and overhead electrical collector lines)
- Electrical substation
- Interconnection facilities (at each of two points of interconnection [POI])
- Communication equipment
- Operations and maintenance (O&M) building
- Meteorological monitoring equipment

The electricity generated by the wind turbines is carried by a series of underground and overhead electrical collector lines to the electrical substation, where the voltage is increased to sub-transmission (46-kilovolt [kV]) levels. Overhead 46-kV connector lines carry the electricity to interconnection facilities (at two separate POIs with the existing HECO 46-kV sub-transmission lines), where the wind-generated electricity is integrated into the existing HECO grid. A dedicated communication link between the wind farm site and the HECO grid is provided via microwave communication equipment located at each of the interconnection facilities.[9] Other appurtenant facilities include an O&M building, which houses the wind farm management system, and meteorological equipment for monitoring the wind resources.

[9] The 2011 EIS described possible communication equipment at two locations near Mt. Ka'ala. It was subsequently determined that this equipment was not needed, and thus it was not installed.

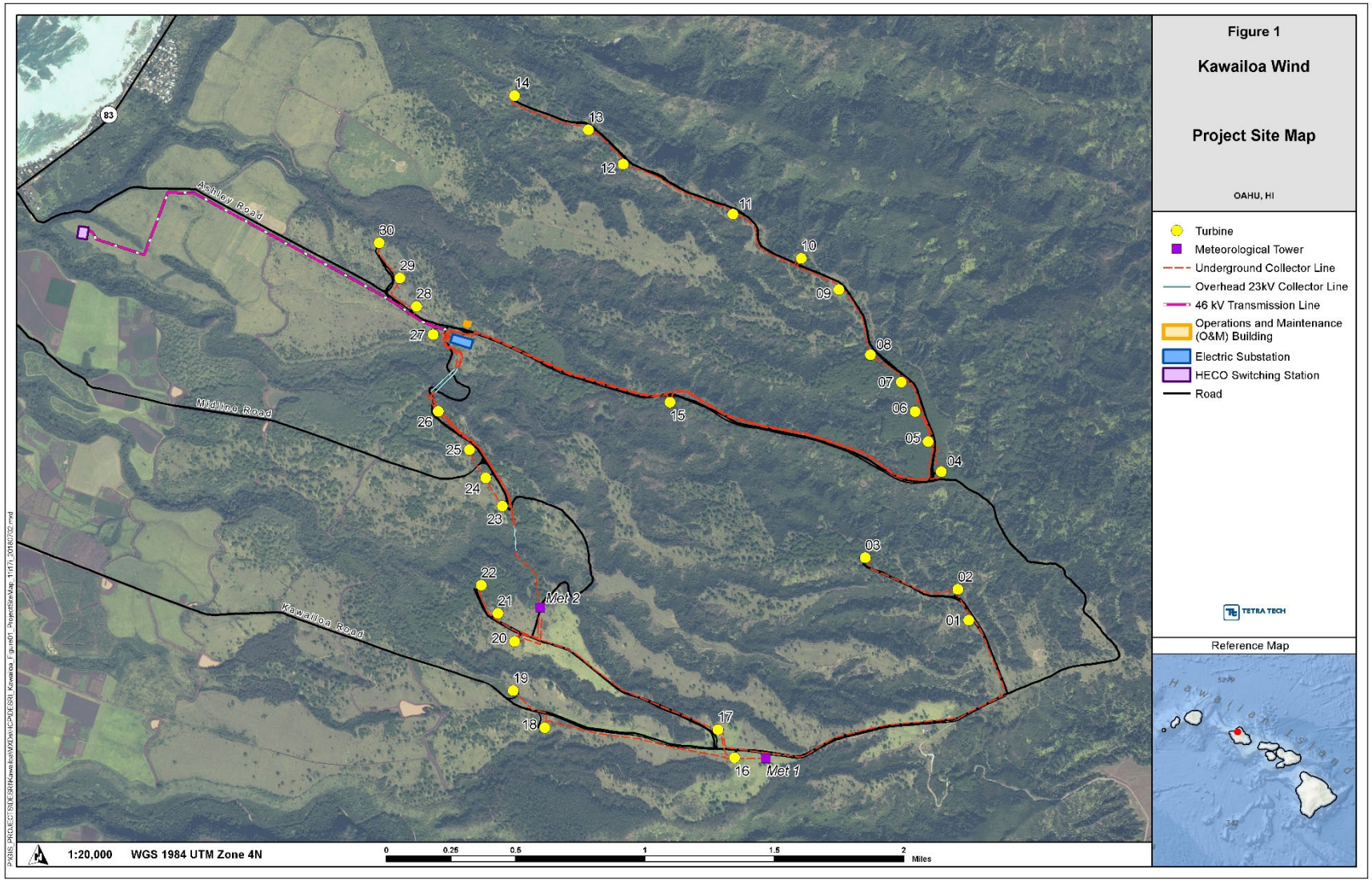

Figure 2-1. Project Site Layout

Consistent with the schedule provided in the 2011 EIS, construction of the Project was completed in 2012.[10] Construction activities, including implementation of best management practices (BMPs) and other avoidance, minimization and mitigation measures, were conducted as anticipated. In general, the Project facilities were installed as designed, with no substantial deviations from the description provided in the 2011 EIS, with the exception of the minor modifications listed below. No changes in the Project facilities are proposed as part of the HCP Amendment.

- Turbine 15 was originally sited just south of Turbine 16, near the southern boundary of the Project area (see Figure 4 in the 2011 EIS). Prior to construction, this turbine was re-sited to a central portion of the Project area (along Ashley Road, see Figure 2-1) to avoid encroachment into an existing easement.
- An optional battery energy storage system was identified as a potential mechanism to partially store, regulate and stabilize the energy output from the Project. However, it was subsequently determined that this equipment was not needed for grid integration purposes and thus, it was not installed.
- The Project was designed to include possible communication equipment in two locations near Mt. Ka‘ala to facilitate interconnection with HECO’s electrical grid; however, it was subsequently determined that this equipment was not needed and thus, it was not installed.

2.1.4 Operational Protocol

As specified in the approved HCP, Kawailoa Wind committed to implementing LWSC from the start of Project operations 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 (i.e., below 5.0 meters per second [m/s]) between sunset and sunrise from March to November, as pre-construction data showed relatively higher bat activity during these periods. There have been incremental extensions to the LWSC period as an adaptive management response to the occurrence of bat fatalities outside the initial LWSC period. 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 3.5.4. Alternative operational protocols that were considered through the HCP Amendment process are referenced in Section 2.2.2, with further detail provided in the Draft HCP Amendment.

[10] 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). At the end of the operational period, decommissioning and site restoration will be implemented, in accordance with the description provided in the 2011 EIS.

2.2 Alternatives

2.2.1 Project Alternatives

Based on the Project objectives, a range of alternatives to construction and operation of the Project were identified and considered through the Project planning and site layout process. The 2011 EIS presents the framework that was used for identification and consideration of alternatives, including those alternatives that were considered in detail as well as those eliminated from further consideration. The alternatives evaluated in the 2011 EIS include an alternative layout for the communication equipment near Mt. Kaʻala, as well as the No Action alternative. The alternatives that were considered during the planning process but eliminated from further consideration (as they did not meet the Project objectives or were otherwise not considered to be feasible) include: (1) different turbine locations on the Kamehameha School's property, (2) different turbine models and sizes, (3) decreased generating capacity, (4) increased generating capacity, (5) wind farm development elsewhere on Oʻahu, (6) delayed implementation of the Project, (7) alternate energy storage technologies, and (8) different sources of renewable energy. A detailed discussion of these alternatives is provided in Section 2.2.3.1 through 2.2.3.8 of the 2011 EIS.

Because the Project was constructed generally as described in the 2011 EIS, the original discussion of Project alternatives in the 2011 EIS is still applicable; this information is incorporated by reference. However, as previously noted, the communication equipment near Mt. Kaʻala was subsequently determined to not be needed, and thus was not constructed; as such, the alternative layout for the communication equipment is no longer relevant and therefore, is not further addressed in this SEIS. As the Project is fully operational and is contributing to Hawaiʻi's portfolio of locally generated renewable energy projects as mandated by the State's RPS, HCEI and other relevant regulations and initiatives, consistent with the Project purpose and need, no additional Project alternatives are being considered in this SEIS. Alternatives relating to different protocols for Project operations, which were identified and evaluated through the HCP amendment process, are discussed below.

2.2.2 Alternative Operational Protocols Considered in HCP Amendment

Specific to the estimated increase in Hawaiian hoary bat take, several alternative approaches were identified and considered through the HCP Amendment process. Specific approaches that were considered include modifications to the Project's operational protocols, including (1) full nighttime curtailment, and (2) curtailment with cut-in speeds of 5.5 m/s. These alternatives, as well as a "no HCP Amendment" (no action) alternative, are discussed below. No petrel-specific alternatives were identified, because avoidance and minimization measures already implemented for Newell's shearwater (and other birds) are also applicable to the Hawaiian petrel; these measures are described in Section 5.3 of the approved HCP.

2.2.2.1 Full Nighttime Curtailment

This alternative would consist of feathering turbine blades year-round from one hour before sunset to one hour after sunrise at all Project turbines (full nighttime turbine shutdown) to avoid future Hawaiian hoary bat take and further reduce collision risk for the Hawaiian petrel and Newell's shearwater. The approved HCP, which identifies existing avoidance and minimization measures, mitigation measures, and monitoring commitments for the Covered Species, would remain in effect. However, the HCP would need to be amended to increase the level of authorized Hawaiian hoary bat take to address take in exceedance of the current permit. An HCP amendment would also be required to add the Hawaiian petrel as a Covered Species because nighttime curtailment is not expected to eliminate all risk to this species.

This alternative was not carried forward for further consideration because full nighttime curtailment would reduce power generation such that Kawailoa Wind would not be able to meet the contractual obligations under the Project's PPA with HECO. Specifically, this alternative would reduce annual energy production by approximately 45 percent, resulting in an annual power generation loss on the order of 61,000 MW hours per year. Revenue losses under full nighttime curtailment would render the Project commercially unviable, forcing Kawailoa Wind to cease operation. As the largest wind energy generating facility in Hawaii, this would eliminate a significant contribution to the State's RPS and would not meet the purpose and need.

2.2.2.2 Curtailment with Cut-in Speeds of 5.5 Meters Per Second or Above

This alternative would consist of implementing LWSC with an increased cut-in speed of 5.5 m/s or greater. As bat fatalities have been observed at the Project in all months, curtailment at higher cut-in speeds would be implemented year-round. This alternative was not considered further for two reasons: (1) the benefits of cut-in speeds above 5.0 m/s are uncertain, and (2) the nature of the wind regime at the Project is such that this alternative would result in unacceptable reductions to power generation.

Studies conducted on the mainland to evaluate the effectiveness of LWSC relative to minimizing impacts to bats have provided a range of results. Overall, increasing cut-in speeds between 1.5 and 3.0 m/s above the manufacturer's cut-in speed has been shown to yield reductions in bat fatalities, ranging from 10 to 92 percent, with at least a 50 percent reduction in bat fatalities when turbine cut-in speed was increased by 1.5 m/s above the manufacturer's cut-in speed (Arnett et al. 2013b). Significant reductions in bat fatality rates have been demonstrated when cut-in speeds are raised incrementally from 3.5 to 4.5 to 5.5 m/s (Good et al. 2012); however, the results of studies evaluating the additional benefits of raising cut-in speeds above 5.0 m/s are ambiguous. Additionally, some studies have shown that equally beneficial reductions in bat fatalities may be achieved by feathering blades or slowing rotor speed up to the turbine manufacturer's cut-in speed (low-speed idling) without LWSC (Baerwald et al. 2009; Young et al. 2011, 2012; Good et al. 2017). While there may be additional benefits to bats associated with progressively higher levels of LWSC,

the effectiveness of LWSC is dependent on project-specific characteristics such as wind regime, bat species at risk, surrounding land uses, and other factors (Arnett et al. 2013a).

Arnett et al. (2009, 2010) demonstrated that bat fatalities were reduced by an average of 82 percent (95 percent confidence interval [CI]: 52 to 93 percent) in 2008, and by 72 percent (95 percent CI: 44 to 86 percent) when the cut-in speed was increased to 5.0 m/s and turbine blades were feathered at lower wind speeds. In a synthesis of 10 studies, Arnett et al. (2013a) identified only one study that found increasing cut-in speeds above 5.0 m/s resulted in a statistically significant reduction in bat mortality over LWSC with cut-in speeds of 5.0 m/s. Although other studies from the mainland U.S. have suggested that increasing cut-in speeds to 6.0 m/s or 6.5 m/s may be more effective at reducing bat fatalities (e.g., Good et al. 2011, Hein et al. 2014), only Good et al. (2012) has shown a statistically significant reduction in bat fatalities between different LWSC cut-in speeds (bat fatalities were lower at a cut-in speed of 6.5 m/s than 5.0 m/s). Given the ambiguous results from other studies and the differences in life history characteristics between the resident Hawaiian hoary bat and migratory mainland hoary bats, the application of increased cut-in speeds beyond what is currently proposed may not be more effective in Hawaii.

As described in the HCP Amendment, LWSC regimes are appropriate when determined on a Project-specific basis: considering the wind regime, PPA contractual obligation, financial considerations, and bat fatality patterns. Specifically, the wind regime at the Project is an important consideration driving the development of appropriate LWSC that both reduces bat collision risk while maintaining operation of a commercially viable project.

During a typical year, average hourly wind speeds between sunset and sunrise (when curtailment would be implemented) range from 4.6 to 5.9 m/s (with an average of 5.4 m/s). Moreover, during 8 months of the year, the proportion of sunset to sunrise hours with hourly wind speeds below 5.5 m/s ranges from 75 to 100 percent. That is, during the period when LWSC would be implemented, average wind speeds do not typically exceed 5.5 m/s. Therefore, implementing LWSC with a cut-in speed of 5.5 m/s or greater would result in proportionally greater periods of Project inoperation compared to wind energy facilities with regimes characterized by high wind speeds.

While the additional benefits to bats from raising cut-in speeds above 5.0 m/s are ambiguous, the negative impacts to energy generation are significant. Under this alternative, implementing LWSC at the Project with a cut-in speed of 5.5 m/s would reduce annual energy production by approximately 2 percent, resulting in an annual power generation loss on the order of 2,500 MW hours per year. Generation losses and costs associated with implementing cut-in speeds of 6.0 or 6.5 m/s would be substantially greater. Even under the current LWSC regime of 5.0 m/s, Kawailoa Wind does not consistently meet minimum production requirements in individual years. Therefore, this alternative would increase the risk that Kawailoa Wind would not meet the requirements specified in its PPA with HECO, thereby jeopardizing continued operation of the Project. For these reasons, this alternative was not carried forward for further consideration.

2.2.2.3 No HCP Amendment

Under this alternative, the Project would remain in place, but the approved HCP would not be amended, such that the increased Hawaiian hoary bat take and addition of Hawaiian petrel as a Covered Species would not be authorized. The approved HCP and existing take limits would remain in effect, and Project operations would continue as authorized under the existing ITP/ITL in order to meet the Project's minimum required power production. The avoidance and minimization measures set forth in the approved HCP would continue to be implemented. Any take that may occur beyond the currently approved levels would not be authorized. As it would require that Kawailoa Wind operate out of compliance with HRS Chapter 195D, this alternative was not carried forward.

3.0 Existing Environment, Potential Impacts, and Mitigation Measures

The 2011 EIS and subsequent EA addressed the full range of environmental, cultural, and socioeconomic resources that could be affected by implementation of the wind farm and the associated HCP, respectively. The Project has been constructed and the extent of impacts to date are commensurate with those described in the 2011 EIS and subsequent EA, except that the impacts to the Hawaiian hoary bat have been greater than anticipated and the potential for impacts to the Hawaiian petrel were subsequently identified.

Those resource categories that are not affected by the increased take of the Hawaiian hoary bat or Hawaiian petrel are noted accordingly, and the discussion contained in the 2011 EIS and subsequent EA is incorporated by reference. Specific to the Hawaiian hoary bat and Hawaiian petrel, an updated discussion of the existing conditions, additional impacts, and additional avoidance, minimization, and mitigation measures is provided based on the information presented in the Draft HCP Amendment. The potential impacts associated with implementation of the HCP Amendment (e.g., compensatory mitigation for the Hawaiian hoary bat and Hawaiian petrel) are addressed across the range of environmental resources as part of Section 3.5.

3.1 Climate

The 2011 EIS provides a definition of climate, discusses the existing conditions, assesses the potential impacts on climate that could result from construction and operations of the Project (as well as the no action alternative). This discussion includes a description of the conditions associated with global climate change, and the expected benefits of the Project on the climate through displacement of fossil fuel consumption and thus reduction in greenhouse gas emissions. Climate-related impacts resulting from Project implementation are commensurate with the assessment provided in the 2011 EIS. No change in potential impacts to climate are anticipated as a result of the increased take of the Hawaiian hoary bat and Hawaiian petrel.

3.2 Air Quality

The 2011 EIS discusses the applicable federal and state air quality standards, describes the existing ambient air conditions, assesses the potential impacts to air quality that could result from construction and operations of the Project (as well as the no action alternative), and identifies relevant BMPs. Project-related impacts related to air quality are commensurate with the assessment provided in the 2011 EIS. No change in potential impacts to air quality are anticipated as a result of the increased take of the Hawaiian hoary bat and Hawaiian petrel.

3.3 Geology, Topography, and Soils

The 2011 EIS provides a definition of these resources, discusses the existing conditions, assesses the potential impacts to geology, topography, and soils that could result from construction and

operations of the Project (as well as the no action alternative), and identifies relevant BMPs. Impacts to geology, topography, and soils resulting from Project implementation are commensurate with the assessment provided in the 2011 EIS. No change in potential impacts to geology, topography and soils are anticipated as a result of the increased take of the Hawaiian hoary bat and Hawaiian petrel.

3.4 Hydrology and Water Resources

The 2011 EIS provides a definition of hydrology and water resources (including jurisdictional wetlands and waters of the U.S.), discusses the existing conditions, assesses the potential impacts relative to hydrology and water resources that could result from construction and operations of the Project (as well as the no action alternative), and identifies relevant BMPs. Impacts related to hydrology and water resources resulting from Project implementation are commensurate with the assessment provided in the 2011 EIS. No change in potential impacts to hydrology and water resources are anticipated as a result of the increased take of the Hawaiian hoary bat and Hawaiian petrel.

3.5 Biological Resources

The 2011 EIS identifies the various biological resources within the Project area (including flora, fauna, and threatened and endangered species), describes the historical and existing conditions relative to these resources, presents the analysis of potential impacts that could result from implementation of the Project (as well as the no action alternative), and describes the measures to avoid, minimize and mitigate Project-related impacts to biological resources. As previously noted, an EA was subsequently prepared to further evaluate implementation of the HCP, and includes additional detail regarding the avoidance, minimization and mitigation measures for the Covered Species. Except as related to the Hawaiian hoary bat and Hawaiian petrel, which are further discussed below, biological resource impacts are consistent with the assessment provided in the 2011 EIS and EA, which are incorporated by reference.

Both the Hawaiian hoary bat and Hawaiian petrel are federally listed as endangered and are protected under the ESA, and are also listed as endangered by the State of Hawai‘i and are protected under HRS Chapter 195D. Prior to construction of the Project, Kawailoa Wind prepared an HCP and obtained an ITP/ITL authorizing incidental take of listed species, including the Hawaiian hoary bat. Hawaiian petrel was not included as a Covered Species in the HCP and ITP/ITL because it was not known to occur regularly on O‘ahu and was not expected to transit the Project area; therefore, take was thought to be highly unlikely. Post-construction mortality monitoring data from the first five years of Project operation indicate that estimated take of the Hawaiian hoary bat has exceeded the level of take anticipated in the HCP and authorized in the ITP/ITL. Also, two petrel fatalities have been observed within the Project area. As such, impacts to these two species have been greater than anticipated and Kawailoa Wind is pursuing an amendment to the HCP and ITP/ITL to increase authorized take levels for the Hawaiian hoary bat and to include the Hawaiian petrel as a Covered Species.

The HCP amendment process involves in-depth analysis of the estimated take of Hawaiian hoary bat and Hawaiian petrel over the remainder of the permit term, and development of appropriate minimization and mitigation measures to offset the impacts. The following resources were used to support the analysis and prepare the Draft HCP Amendment:

- Post-construction mortality monitoring data for the Project (Kawailoa Wind Power, LLC 2013, 2014, 2015; Tetra Tech 2016, 2017a);
- Evidence of Absence (EoA) fatality modeling tool (Dalthorp et al. 2017);
- Updated information on the distribution of Hawaiian hoary bats in the north Koʻolau Mountains and their behavior within the Project area (Gorresen et al. 2015);
- New research on the potential for operational measures to minimize bat collision risk, such as acoustic deterrents and LWSC (Arnett et al. 2011, Arnett et al. 2013a, Hein and Schirmacher 2013, Tidhar et al. 2013, Hein et al. 2014, Schirmacher et al. 2018);
- USFWS guidance for calculation of Hawaiian hoary bat indirect take (USFWS 2016a);
- Endangered Species Recovery Committee (ESRC) Hawaiian Hoary Bat Guidance Document (DLNR 2015);
- Historic observations and results of acoustic surveys for Hawaiian petrel on Oʻahu (Pyle and Pyle 2017, Conservation Metrics, Inc. in prep, Young et al. in prep); and
- Verbal and written guidance from USFWS and DOFAW regarding Hawaiian hoary bat take estimation, mitigation, adaptive management, and monitoring (provided after issuance of the DLNR Bat Guidance in 2015 and through July 2018).

This section presents current information regarding the Hawaiian hoary bat and Hawaiian petrel, including the species biology, distribution, threats and occurrence within the Project area. A discussion of the estimated take levels and population-level impacts 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 detailed in the Draft HCP Amendment.

3.5.1 Historical Conditions

The 2011 EIS discusses the historical conditions within the Project area, including the vegetation that likely occurred in pre-Contact times, conversion to agricultural fields for cultivation of sugar cane in the late 1800s, and introduction of non-native species for windbreaks and other purposes. There are no substantive changes to this information; the discussion contained in the 2011 EIS is incorporated by reference.

3.5.2 Existing Conditions

3.5.2.1 Flora

As described in the 2011 EIS and subsequent EA, the vegetation within the Project area is generally characterized as a mixture of aggressive weedy species that have proliferated since the abandonment of sugar cane agriculture. Remnants of native vegetation occur on the steep slopes of the gulches in the upper parts of the site. In general, the lack of native species is attributed to years of agricultural activities and invasion by non-native plant and animal species. No federally or state listed endangered, threatened, or candidate plant species are known to occur within the Project area, and no portion of the Project area has been designated as critical habitat. There are no substantive changes to the information provided in the 2011 EIS and subsequent EA.

3.5.2.2 Fauna

The 2011 EIS and subsequent EA describe the fauna within the Project area, which include mammals, avifauna and invertebrates. As detailed in this discussion, with the exception of the endangered Hawaiian hoary bat, the mammalian species documented within the Project area are non-native feral species including feral pig (*Sus scrofa*), mongoose (*Herpestes aruopunctatus*), domestic dog (*Canis lupus familiaris*), rat (*Rattus* sp.) and cat (*Felis catus*). Avian species that have been detected within the Project area are predominantly introduced species. A limited number of native species were recorded prior to construction and during post-construction monitoring including the threatened Newell's shearwater (presumably detected during radar surveys), the black-crowned night heron (*Nycticorax nycticorax*), great frigate bird (*Fregata minor*), sooty tern (*Onychoprion fuscatus*), White-tailed tropicbird (*Phaethon lepturus*) and Hawaiian duck-mallard (*Anas* sp.). Native avian species that have been observed adjacent to the Project area include the endangered Hawaiian coot (*Fulica alai*) and endangered Hawaiian moorhen (*Gallinula chloropus sandvicensis*). As noted throughout this document, the Hawaiian petrel was not previously believed to regularly occur on O'ahu and thus was not expected to transit the vicinity of the Project; however, two fatalities have been observed in the Project area. No federally or state listed invertebrate species are known to occur within the Project site.

There are no substantive changes to this information and impacts related to fauna are commensurate with the assessment provided in the 2011 EIS and subsequent EA, except as related to the Hawaiian hoary bat and Hawaiian petrel, which are discussed in the following section.

3.5.2.3 Threatened or Endangered Species

As documented in the 2011 EIS and subsequent EA, no federally or state listed endangered, threatened or candidate species are known to permanently reside within the wind farm site and no portion of the site has been designated as critical habitat for any listed species. However, several listed species have been detected either within or adjacent to the site; these include the threatened Newell's shearwater, endangered Hawaiian duck, endangered Hawaiian stilt, endangered Hawaiian

coot, endangered Hawaiian moorhen, endangered Hawaiian short-eared owl, and endangered Hawaiian hoary bat. Although not previously detected within the site, a seabird carcass (later identified as a Hawaiian petrel) was incidentally found onsite in 2017. A second Hawaiian petrel carcass was found onsite in August 2018.

An updated discussion is provided below for the Hawaiian hoary bat, based on new and relevant information regarding this species. This includes a description of the species' population, biology and distribution, as well as the current threats and potential occurrence at the Project area. A similar discussion has also been added for the Hawaiian petrel. The information provided in the 2011 EIS and EA relative to the Newell's shearwater, Hawaiian duck, Hawaiian stilt, Hawaiian coot, Hawaiian moorhen and Hawaiian short-eared owl is still applicable and is incorporated by reference.

Hawaiian Hoary Bat

Population, Biology, and Distribution

The Hawaiian hoary bat is the only native land mammal present in the Hawaiian archipelago. It is a sub-species of the hoary bat, which occurs across much of North and South America. However, recent research indicates that Hawaiian hoary bats may consist of two distinct lineages because of multiple colonization events (Baird et al. 2015, Russell et al. 2015). Nevertheless, only one bat species is currently recognized in Hawai'i and is listed as endangered. Both males and females have a wingspan of approximately 1 foot (0.3 meter), although females are typically larger-bodied than males. Both sexes have a coat of brown and gray fur. Individual hairs are tipped or frosted with white (Mitchell et al. 2005).

The Hawaiian subspecies of the hoary bat has been recorded on Kaua'i, O'ahu, Moloka'i, Maui, Lāna'i, Hawai'i, and Kaho'olawe, but no historical population estimates exist for this subspecies. Modern population estimates have been wide-ranging, and although recent studies and ongoing research have shown that bats have a wide distribution across the islands, accurate population estimates are not currently available (DLNR 2015). The most recent population trends come from an occupancy study on Hawai'i Island from 2007-2011, which found the population to be "stable to increasing" (Bonaccorso et al. 2013). The islands of Kaua'i and Hawai'i are anticipated to support the largest populations (Mitchell et al. 2005, USFWS 2017). The Hawaiian hoary bat is believed to occur primarily below an elevation of 4,000 feet (1,220 meters) but has been recorded between sea level and approximately 9,050 feet (2,760 meters) in elevation on Maui, with most records occurring at or below approximately 2,060 feet (628 meters) (USFWS 1998).

Hawaiian hoary bats roost in native and non-native vegetation from 3 to 29 feet (1 to 9 meters) above ground level. They have been observed roosting in 'ōhi'a (*Metrosideros polymorpha*), hala (*Pandanus tectorius*), coconut palms (*Cocos nucifera*), kukui (*Aleurites moluccana*), kiawe (*Prosopis pallida*), avocado (*Persea americana*), mango (*Mangifera indica*), shower trees (*Cassia javanica*), pukiawe (*Leptecophylla tameiameiae*), common ironwood (*Casuarina equisetifolia*), macadamia (Macadamia spp.), and fern clumps; they are also suspected to roost in eucalyptus (*Eucalyptus* spp.) and Sugi pine (*Cyrptomeria japonica*) stands (USFWS 1998, Mitchell et al. 2005, Gorresen et al.

2013, Kawailoa Wind Power 2013). Hawaiian hoary bats have been known to use both native and non-native habitats for feeding and roosting (Gorresen et al. 2013, Mitchell et al. 2005). Bat activity has been generally detected in Hawai‘i in essentially all habitats, including in clearings, along roads, along the edges of tree lines, in gulches, and at irrigation ponds; monitoring to date indicates that bats use these features for travelling and foraging. The species has been rarely observed using lava tubes, cracks in rocks, or man-made structures for roosting. While roosting during the day, Hawaiian hoary bats are solitary, although mothers and pups roost together (USFWS 1998).

Bonaccorso et al. (2015) studied foraging of the Hawaiian hoary bat on Hawai‘i Island and defined the foraging range as the area traversed by an individual as it forages and moves between day roosts and nocturnal foraging areas. This research documented a maximum straight-line distance between any two points in the foraging range of approximately 7 miles (11.3 kilometers). Bonaccorso et al. (2015) found moderately large Hawaiian hoary bat foraging ranges on Hawai‘i Island in late spring, summer and fall with a mean of 570.1 ± 178.7 acres (230.7 ± 72.3 hectares). Foraging activity within this area was concentrated within small core use areas with a mean of 63.0 ± 17.1 acres (25.5 ± 6.9 hectares, or 11.1 percent of mean foraging range) that exhibited limited overlap among individual areas. Additional studies have demonstrated that Hawaiian hoary bats can range between habitats and elevations within a single night to target optimal local foraging opportunities (Gorresen et al. 2013, 2015), with bats spending 20 to 30 minutes hunting in a feeding range before moving on to another (Bonaccorso 2010).

It is suspected that breeding primarily occurs between April and August. Lactating females have been documented from June to August, indicating that this is the period when non-volant young are most likely to be present. To be conservative, however, USFWS and DOFAW consider young to be non-volant and dependent on the female from June 1 through September 15. Breeding has been documented on the islands of Hawai‘i, Kaua‘i, and O‘ahu (Baldwin 1950; Kepler and Scott 1990; Menard 2001, Kawailoa Wind Power 2013), but likely also occurs on Moloka‘i and Maui. It is not known whether bats observed on other islands breed locally or only visit these islands during non-breeding periods.

Seasonal changes in the abundance of Hawaiian hoary bat at different elevations indicate that altitudinal movements occur on Hawai‘i Island. During the breeding period (April through August), Hawaiian hoary bat occurrences increase in the lowlands and decrease at high elevation habitats. In the winter, bat occurrences increase in high elevation areas (above 5,000 feet or 1,525 meters) especially from January through March (Menard 2001; Bonaccorso 2010). It is not known if similar patterns of migration occur in the Project area or elsewhere on O‘ahu, but seasonal migration patterns may play a factor in risk exposure.

Hawaiian hoary bats feed on a variety of native and non-native night-flying insects, including moths, beetles, crickets, mosquitoes and termites (Whitaker and Tomich 1983). They appear to prefer moths ranging between 0.6 and 0.89 inches (16 to 20 millimeters [mm]) in size (Bellwood and Fullard 1984; Fullard 2001). Koa moths (*Scotorythra paludicola*), which are endemic to the Hawaiian Islands and use koa (*Acacia koa*) as a host plant (Haines et al. 2009), are frequently targeted as a food source (Gorresen/USGS, pers. comm.). Prey is located using echolocation. Water

features and edges of habitat (e.g., coastlines and forest/pasture boundaries) appear to be important foraging areas (Grindal et al. 1999, Francl et al. 2004, Brooks and Ford 2005, Morris 2008, Menzel et al. 2002). In addition, the species is attracted to insects that congregate near lights (USFWS 1998, Mitchell et al. 2005, Bellwood and Fullard 1984). Bats begin foraging either just before or after sunset depending on the time of year (USFWS 1998, Mitchell et al. 2005).

Current Threats

Possible threats to the Hawaiian hoary bat include pesticides (either directly or by impacting prey species), fire, predation, alteration of prey availability due to the introduction of non-native insects, habitat loss, and roost disturbance (USFWS 1998). Bats are also known to collide with structures, such as barbed wire fences, wind turbines, and communication towers. Management of the Hawaiian hoary bat is limited by a lack of information on key roosting and foraging areas, food habits, seasonal movements, and reliable population estimates (USFWS 1998). Based on existing information, it is not known whether the availability of roost trees is a limiting factor because the Hawaiian hoary bat roosts in a variety of native and non-native trees, many of which are abundant and some considered invasive (such as kiawe and eucalyptus). However, loss of roosting and foraging habitat is a significant long-term threat to the Hawaiian hoary bat (USFWS 1998, Mitchell et al. 2005, DLNR 2015). The resident human population of Hawai‘i has nearly doubled from the time the bat was listed in 1970 to 2017 (from 768,000 to 1.4 million; U.S. Census Bureau 2018), leading to increased residential development (Cassiday 2014) and associated habitat removal. The NOAA Coastal Change Program (2015) estimates 0.68 percent of forests on O‘ahu were lost between 2005 and 2011. During the same period, there was a 2.65 percent increase in developed area and a 3.54 percent increase in impervious surface on O‘ahu (NOAA Coastal Change Program 2015).

In their continental United States and Canada range, hoary bats are known to be more susceptible to collision with wind turbines than most other bat species (Erickson 2003; Johnson 2005). Most mortality has been detected during the fall migration period. Hoary bats in Hawai‘i do not migrate in the traditional sense, although as indicated, some seasonal altitudinal movements occur. Currently, it is not known if Hawaiian hoary bats are equally susceptible to turbine collisions during their altitudinal migrations as hoary bats are during their migrations in the continental United States.

Species Occurrence in the Project Area

The current understanding of Hawaiian hoary bat occurrence in the Project area is informed by data from ongoing monitoring for the Project, as well as relevant research in Hawai‘i. Specifically, information used to determine bat occurrence and thereby inform the potential take analysis for the HCP Amendment includes:

- Acoustic monitoring within the Project area;
- Post-construction mortality monitoring within the Project area; and
- Results of a research study that investigated regional occupancy of Hawaiian hoary bats near the Project area (Gorresen et al. 2015).

A detailed discussion of these monitoring and research efforts is provided in the Draft HCP Amendment.

Hawaiian Petrel

Population, Biology, and Distribution

The endemic Hawaiian petrel is one of the larger species in the Pterodroma genus that formerly nested in large numbers on all the main Hawaiian Islands, except Niʻihau. Currently, Hawaiian petrels are known to nest at high elevations on Maui, Kauaʻi, Hawaiʻi, and Lānaʻi. Small breeding colonies may also occur on Molokaʻi and Kahoʻolawe (Pyle and Pyle 2017). A recent study by Young et al. (in prep) documented that Hawaiian petrels occur on Oʻahu; however, surveys to date have not provided evidence that breeding colonies are present on Oʻahu (Pyle and Pyle 2017; USFWS 2017; Young et al. in prep).

Hawaiian petrel populations have declined significantly in Hawaiʻi since the 1990s (Day et al. 2003; Duffy 2010; Raine et al. 2017). Recent population estimates for the species vary depending on methodology and years sampled. Estimates based on pelagic observations between 1980 and 1994 estimated 19,000 birds (3,750 to 4,500 breeding pairs) occurred throughout the Hawaiian Islands (Spear et al. 1995). Joyce (2013) estimated the total population of Hawaiian petrels to be roughly 52,000 individuals, including juveniles and subadults, using at-sea sightings. More recently, Pyle and Pyle (2017) estimated about 6,000 breeding pairs based on observations at colony sites. It is difficult to estimate the breeding population for this species given the steep terrain of breeding areas and the nocturnal nature of the species.

Much of the life of a petrel is spent at sea, and birds rarely return to land outside of the breeding season. During the non-breeding season, Hawaiian petrels are found far offshore, primarily in equatorial waters of the eastern tropical Pacific. The Hawaiian petrel has been observed from 42 degrees north to 5 degrees north and from 148 degrees west to 158 degrees west (King 1967, 1970, Pitman 1982). The Maui Nui Seabird Recovery Project (MNSBRP) reports locations of petrels from Alaska to Peru, encompassing much of the central Pacific (MNSBRP 2018).

Adult Hawaiian petrels return to their natal colony to breed each year between March and April. They return to the same nesting site over many years (Cruz and Cruz 1990; Podolsky and Kress 1992). Breeding season trips can last up to 21 days (Simons 1985). Nesting colonies are typically on steep slopes at high elevation, xeric habitats or wet, dense forests. Nests may be in burrows, crevices, or cracks in lava tubes in both sparsely vegetated areas and areas with dense vegetation (e.g., uluhe fern [*Dicranopteris linearis*]). In a breeding colony on Maui, nests occur in more densely vegetated areas of shrub cover (Simons and Hodges 1998).

Both adults are active throughout the breeding season. One egg is laid by the female, which is incubated alternately by both parents for approximately 55 days. The egg is not replaced if it is lost to predation. When eggs hatch in July or August, both adults make nocturnal flights out to sea to bring food back to the nestlings. Hawaiian petrels feed their young mostly at night and most movements take place during crepuscular periods. On Kauaʻi, Hawaiian petrels traveled primarily inland in the evening, seaward in the morning, and in both directions during the night (Day and Cooper 1995). In October and November, the fledged young depart for the open ocean.

Several factors can influence the breeding activity of Hawaiian petrels. Adult Hawaiian petrels are long lived (up to 30 years) and do not breed until age 6. Although a petrel may not breed every year, they return to the colony to socialize (USFWS 1983; Mitchell et al. 2005). During their pre-breeding years, petrels may "wander" or "prospect," visiting several potential breeding sites (established colonies, former breeding sites, and uncolonized sites). Simons (1984) reports that about 30 percent of the active burrows at a large colony on Maui were occupied by pre-breeding birds. Factors such as availability of mates, food abundance, the presence of predators and conspecifics could all be important for deciding where to breed (Podolsky and Kress 1992).

Current Threats

A variety of threats have been documented for the Hawaiian petrel, but the primary limiting factors include habitat degradation at breeding colonies and disturbance or predation by introduced animals during the breeding season (USFWS 1983; Carlile et al. 2003; Mitchell et al. 2005; Duffy and Capece 2014, Raine et al. 2017). Introduced ungulates (e.g., feral goats, pigs, axis deer, and cattle) browse on native vegetation and groundcover within petrel colonies, and trample and collapse burrows causing nest abandonment. The soil disturbance caused by ungulates also facilitates the introduction and spread of invasive plants which further reduces habitat suitability for petrels (Reeser and Harry 2005, Duffy 2010, VanZandt et al. 2014). Ungulates also create trails in the colony that increase predators' access to active burrows. Annual monitoring of nests at Haleakalā National Park has shown that predation by cats and mongooses causes more than 60 percent of all egg and chick mortality in some years (Simons 1998 as cited in Carlile et al. 2003). Rats also prey upon adult Hawaiian petrels, but to a lesser extent. Even an individual predator, such as a barn owl (*Tyto alba*) or small Indian mongoose (*Herpestes javanicus*), can be extremely destructive and decimate a population of colony-nesting seabirds (Hodges and Nagata 2001, Raine et al. 2017). Development of new fisheries and overfishing may indirectly harm seabird populations by eliminating predatory fish needed to drive petrel prey species closer to the surface (Ainley et al. 2014). Additionally, the effect of climate change and patterns of fisheries bycatch could negatively affect petrel populations (Raine et al. 2017).

Hawaiian petrels are also threatened by light pollution and can become disoriented and fallout (falling exhausted to the ground) or collide with structures because of light attraction (Telfer et al. 1987, Ainley et al. 1997, Cooper and Day 1998, Rodriguez et al. 2017). Juvenile birds are particularly vulnerable to light attraction, and grounded birds are vulnerable to mammalian predators or vehicle strikes.

In addition, petrels sometimes collide with power lines, fences, and other structures (Hodges 1994). Modeling for Kaua'i Island suggests that collisions with transmission lines impact a large proportion of the population, with an estimated 600 to 1,993 annual fatalities attributed to birds striking lines (USFWS 2016b).

Hawaiian petrels have also been killed due to collisions with wind turbines. In addition to the single fatality observed at the Project on O'ahu in 2017, eight Hawaiian petrels have been documented as wind facility-related fatalities on Maui since wind facility operations began in 2006 through the end of 2017 (Diane Sether/USFWS, pers. comm., April 2018).

Species Occurrence on O‘ahu and in the Project Area

In summer and fall 2009, prior to construction of the Project, radar surveillance and audiovisual sampling was conducted over 10 nights at the Project area. The purpose of the surveys was to sample representative seabird passage rates for use in estimating the risk of seabird take resulting from collisions with turbines and meteorological towers (Cooper et al. 2011). Supplementary radar surveys were conducted in June 2011 for 16 nights to measure passage rates over the northeastern-most turbine string (Cooper and Sanzenbacher 2011). Two new areas were sampled for 5 nights each to increase radar coverage of the Project area. Sites sampled in 2009 were also resampled for 3 nights each in 2011.

All surveys found an extremely low number of targets exhibiting flight speeds and flight patterns that fit the “shearwater-like” category. The mean movement rate across all nights and all sites for 2009 and 2011 was 0.66 shearwater-like targets/hour (Cooper and Sanzenbacher 2011). None of the radar targets could be visually verified during these surveys; however, Cooper et al. (2011) suggested that the individuals were more likely to have been Newell’s shearwaters than Hawaiian petrels because of the timing of movements and because the available literature suggested that Newell’s shearwaters rather than Hawaiian petrels occur on O‘ahu.

In 2016, Young and VanderWerf (2016) assessed seabird presence at three sites on O‘ahu – Mt. Ka‘ala, Palikea, and Kalihi. No Hawaiian petrels were detected by acoustic sensors at these sites during the survey (Young and VanderWerf 2016). During the 2017 breeding season, eight acoustic sensors were deployed at 16 locations on O‘ahu to survey for Hawaiian petrels and other listed seabirds. Hawaiian petrel calls were detected at one site on the windward slope of Mt. Ka‘ala at 3,600 feet (1,100 meters) elevation, over 8 miles (13 kilometers) southwest of the Project. Calls were detected on seven nights in May and July of 2017 (Conservation Metrics, Inc., in prep). Although the detections were a first record for O‘ahu for several decades, it cannot be determined from the acoustic data alone whether the species was breeding/nesting or whether the recorded calls were from prospecting birds. The Hawaiian petrel fatalities observed at the Project in July 2017 and August 2018 confirms Hawaiian petrels occur more frequently on portions of the island than previously expected and may transit through the Project area.

3.5.3 Potential Impacts and Mitigation Measures (Flora)

The 2011 EIS and subsequent EA present the potential impacts associated with implementation of the Project (and the Project alternatives, including the no action alternative). Project-related impacts to vegetation include direct impacts associated with clearing and ground disturbance during construction, the potential for introduction and/or spread of invasive species, routine vegetation clearing within the search plots around each turbine and trampling of vegetation during monitoring. Impacts to vegetation resulting from Project implementation are commensurate with the assessment provided in the 2011 EIS and EA.

3.5.4 Potential Impacts and Mitigation Measures (Fauna)

The 2011 EIS and subsequent EA include a complete analysis of the impacts to wildlife resulting from the Project (and the Project alternatives, including the no action alternative). This discussion addresses the risk of collision with wind farm facilities, the potential effect of electromagnetic fields (EMF) on wildlife, direct impacts associated with construction activities, and indirect impacts from habitat displacement for both non-listed and listed wildlife species. Impacts resulting from Project implementation are commensurate with the results of this analysis and are not further addressed in this SEIS, with the exception of those associated with the Hawaiian hoary bat and Hawaiian petrel.

3.5.4.1 Listed Species

As detailed in the 2011 EIS and subsequent EA, construction and operation of the wind farm creates the potential for listed species to collide with Project components, including the wind turbines.

The HCP prepared by Kawailoa Wind for the Project addressed the potential impact of collision with Project components for seven listed species; the HCP was approved and the ITP/ITL were authorized by USFWS and DOFAW, respectively. The ITP/ITL authorized incidental take of the following species: Newell's shearwater, Hawaiian duck, Hawaiian stilt, Hawaiian coot, Hawaiian moorhen, Hawaiian short-eared owl, and Hawaiian hoary bat.

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. In addition, observed Hawaiian petrel take within the Project area and recent surveys documenting Hawaiian petrels on Oʻahu indicate that incidental take authorization is needed for this species. Therefore, Kawailoa Wind is preparing an HCP Amendment in support of a request to amend the ITP/ITL to increase the authorized take level of the Hawaiian hoary bat and to include the Hawaiian petrel. The Draft HCP Amendment responds to the need for authorization of incidental take of listed species, and measures to minimize and mitigate these impacts, pursuant to the ESA and HRS Chapter 195D. Authorization of the ITP/ITL requires an HCP that supports the continued existence of and aids in the recovery of the listed species while allowing for incidental take as a result of the Project.

Based on the information presented in the Draft HCP Amendment, the following sections present an updated discussion of the potential impacts to the Hawaiian hoary bat and new information regarding the potential impacts to the Hawaiian petrel. Project-related impacts to the other federally and state listed species (including Newell's shearwater, Hawaiian duck, Hawaiian stilt, Hawaiian coot, Hawaiian moorhen, and Hawaiian short-eared owl) have not substantially deviated from what was presented in the 2011 EIS and EA and are not addressed as part of the HCP amendment process. The discussion related to these species as presented in the 2011 EIS and EA is still relevant and is incorporated by reference.

Hawaiian Hoary Bat

As detailed in the 2011 EIS and subsequent EA, Hawaiian hoary bats are known to use both native and non-native habitats for feeding and roosting. The vegetated areas within the Project area consist mostly of former agricultural land, alien grassland and forest. The forest habitat is fairly homogenous and comprised of non-native species, including stands of albizia, ironwood and eucalyptus trees; these trees may provide roosting habitat for bats. Bat activity has been detected in essentially all habitats, including in clearings, along roads, along the edges of treelines, in gulches, and at irrigation ponds; monitoring results indicate that bats use these features for travelling and foraging. Based on pre-and post-construction acoustic surveys, the Hawaiian hoary bat occurs year-round within the Project area, with higher activity recorded from April to October. Bats are also known to occur in very low numbers at the nearby Kahuku Wind Power facility (SWCA 2010) and have been documented across the slopes of northern Koʻolau Mountains (Gorresen et al. 2015).

Results from post-construction mortality monitoring efforts at multiple wind farm facilities in Hawaiʻi have demonstrated that Hawaiian hoary bats are susceptible to collisions with wind turbines. The potential for bats to collide with meteorological towers, communication equipment, overhead cables, utility poles, and other associated structures is considered to be negligible because these features are immobile and are expected to be readily detectable by the bats through echo-location. No bat fatalities have been observed as part of monitoring conducted under the meteorological towers. Direct and indirect impacts to Hawaiian hoary bats are also not expected as a result of Project-related habitat disturbance, because habitat availability has not measurably decreased as a result of the Project and vegetation clearing has and continues to be performed only during those times of year when Hawaiian hoary bats are not expected to be breeding (thus avoiding the potential for harm to non-volant juvenile bats).

As part of the HCP amendment process, post-construction mortality monitoring data for the Project (from the start of Project operations in 2012 through the present) have been used to calculate conservative estimates of the total bat take anticipated to result from collisions with the wind turbines over the remaining years of the ITP/ITL term. The results of this effort are summarized below. A detailed discussion of the specific take calculations, including the associated inputs and assumptions, is provided in the Draft HCP Amendment.

Estimated Project-Related Take

As of December 31, 2017, 32 bat fatalities have been observed during systematic monitoring at the Project (direct take); there have also been two incidentally-detected fatalities. Using the EoA software to calculate adjusted take (thus accounting for unobserved direct take), it can be asserted with 80 percent certainty that no more than 62 bats have been taken as of December 31, 2017.[11] Indirect take was estimated using current agency guidance (USFWS 2016a) and data from the Project. Based on an estimated direct take of 62 bats, indirect take as of December 31, 2017 is estimated at 7 adult equivalents. Thus, the estimated total take through December 31, 2017 is 69

[11] An 80 percent credibility level for the take projection is required by USFWS and DOFAW to assess compliance with an ITP/ITL; this provides a conservative estimate, erring in favor of the Covered Species.

bats. Based on the approved HCP and ITP/ITL, the currently authorized take limit for the Project is 60 bats.

Considerable progress has been made over the years toward a bat deterrent device becoming commercially available, as results from field trials for acoustic bat deterrents[12] have been promising. In 2006, field trials for bat deterrents at ponds in the Fernow Experimental Forest in West Virginia revealed a 90 percent reduction in activity at all ponds (Szewczak and Arnett 2008). Acoustic deterrents were tested on wind turbines on the mainland in 2009 and 2010, resulting in as much as 64 percent fewer fatalities compared to when wind turbines operated without deterrents (Arnett et al. 2013a). Initial research shows that ultraviolet deterrents may be promising, as well as acoustic types, as field tests on Hawai'i Island showed an 88 percent reduction in mean bat activity (Hein and Schirmacher 2013). Additional testing of acoustic deterrents on the mainland continues to improve effectiveness and/or range of the deterrents (B. Morton/NRG, pers. comm., 2018). A recent NRG Systems webinar (2018) suggested that the effectiveness of acoustic deterrents could range from 20 to 100 percent at present, with higher effectiveness shown for mainland hoary bats. Additional broad-scale field trials at commercial wind facilities on the mainland are underway, which should provide valuable insights into their effectiveness and potential implementation strategies. The potential effectiveness of deterrent technology to supplement or replace reductions in take achieved through LWSC is unknown but is assumed to be an important minimization tool in the near future.

As described in the HCP Amendment, implementation of deterrent technology has been included as part of the baseline minimization strategy, with installation to occur when the technology is commercially available and shown to be at least as effective as LWSC (assumed to be in 2022). However, because there is uncertainty as to the effectiveness of deterrents at reducing bat take, it is assumed that take will be reduced as a result of deterrents only for Tier 5. Specifically, the following two scenarios were modeled based on assumed effectiveness or availability of deterrents at reducing take:

- Tier 5: Modeling of projected take at the Tier 5 level assumed minimization measures will realize a 50 percent reduction in the current level of take; and
- Tier 6: Modeling of projected take at the Tier 6 level assumed minimization measures realize a zero percent reduction in the current level of take. This tier is designed to be conservative in order to provide assurance that the total requested take will not be exceeded.

Based on the modeling results for these scenarios, the total take request for the Project as part of the HCP Amendment is for an additional 205 bats (for a total of 265 bats, including the current authorization of 60 bats). The take estimate by tier is summarized in Table 3-1. For each tier listed,

[12] Acoustic bat deterrent devices are designed to emit an ultrasonic acoustic field in the same range as bats' natural calling frequencies, which interferes with their ability to receive and interpret their own echolocation calls. The result is a disorienting airspace that is difficult to navigate, thus discourages bats from entering the area (NRG 2018).

the total take represents the cumulative take attributed to the identified tier as well as all previous tiers. For example, estimated total take of 115 bats in Tier 4 includes the 60 bats authorized under the approved HCP and an additional 55 bats requested as part of the HCP Amendment for Tier 4. The values of estimated take allotted to each tier is based on USFWS recommendations for tiered take at wind facilities (USFWS 2018).

The assumptions used in the modeling provide reasonable assurance that the take estimate at the end of the permit term will be lower than the conservative projected estimate. A detailed discussion of the modeling, including the calculations of direct and indirect take, as well as the applicable parameters and assumptions is provided in the Draft HCP Amendment.

Table 3-1. Estimated Take and Total Take Request for Each Tier

Tier	Take Per Tier	Total Take[2]	Percent of Additional Requested Take	Justification[1]
1-3 (existing)	N/A	60	N/A	Existing authorization based on approved HCP
4 (proposed)	55	115	27	Based on the mitigation offset of the Helemano Wilderness Area (see Section 3.5)
5 (proposed)	85	200	41	Based on a 50% take reduction in years 2022 – 2032 due to deterrents
6 (proposed)	65	265	32	Unaltered take estimate; no reduction in years 2022 – 2032 due to deterrents[3]

1. Kawailoa Wind assumes a bat deterrent will be commercially available, and deterrents installed by 2022 will achieve a 50 percent reduction in the current rate of bat take for Tier 5; Tier 6 is based on the assumption that deterrents are either not available or they are ineffective.
2. Total take for each tier is cumulative (i.e., it accounts for the previous tiers).
3. Tier 6 is based on the conservative assumption that there will be no measurable effect of minimization measures on bat take in order to provide certainty that the total requested take will not be exceeded.

Population-Level Impacts

The Hawaiian hoary bat was listed as endangered in 1970 and has persisted to present with no direct intervention to preserve or protect the species. The most recent population studies come from an occupancy study conducted on Hawai‘i Island from 2007-2011, which show the population of Hawaiian hoary bats is “stable to increasing” (Gorresen et al. 2013). However, no population estimates were provided. The Recovery Plan for the Hawaiian Hoary Bat (USFWS 1998) states “since no accurate population estimates exist for this subspecies and because historical information regarding its past distribution is scant, the decline of the bat has been largely inferred.” Although overall numbers of Hawaiian hoary bats are believed to be low, they are thought to occur in the greatest numbers on the islands of Hawai‘i and Kaua‘i (Menard 2001). Until recently, bats found on O‘ahu were thought to be migrant or vagrant (USFWS 1998), but bat monitoring data and research at Kawailoa Wind and in the northern Ko‘olau Mountains has demonstrated that bats reside and breed on O‘ahu, are more widespread, and occur in higher numbers than previously thought (see

Section 3.5.2.3; Kawailoa Wind Power 2013, Gorresen et al. 2015). Several research projects are currently being conducted on O'ahu to better understand Hawaiian hoary bat movement and distribution. No studies to date have provided evidence that the population is in decline, and the bat population appears to be larger than once thought. Preliminary results from a bat occupancy study on O'ahu is showing bat activity at acoustic monitoring locations across O'ahu (Erica Adamczyk/WEST, pers. comm., July 2018). Species recovery goals at the federal level are currently focused on the islands of Hawai'i, Maui and Kaua'i, as recommended by the Recovery Plan for the Hawaiian Hoary Bat (USFWS 1998). USFWS is conducting a 5-year review and may have updated population information for O'ahu after this review is completed.

The approved ITP/ITL authorized take of 60 bats over 20 years, or 3 bats per year. Based on predictions from post-construction mortality monitoring data for the Project and very conservative statistical tools, the maximum estimated average annual rate of total take is 13.25 bats per year (265 bats/20 years) over the permit term. The rate of 13.25 bats taken per year represents the maximum projected take under the conservative assumption that minimization measures are ineffective at reducing take. Considering the avoidance and minimization measures committed to by Kawailoa Wind, which are further discussed in the following section, the total take rate may be as low as 5.75 bats per year (i.e., if take does not exceed the Tier 4 take request [115 bats/20 years]). It is anticipated that the mitigation proposed as part of the HCP Amendment will protect and restore bat habitat (as detailed below) and, based on a conservative mitigation acreage ratio, will fully offset the impact of the taking. Additionally, the take estimate incorporates an 80 percent credible level, which means there is an 80 percent certainty that the actual number of fatalities *is less than* or equal to the reported number. Furthermore, Kawailoa Wind has developed an adaptive management program whereby exceedance of specific take limits and take rate thresholds will trigger additional minimization measures. Although it is difficult to assess the effect that Hawaiian hoary bat take resulting from the Project may have on the local population of this species, it is anticipated that the potential impacts would be offset by mitigation. Therefore, no population level impacts are expected for the Hawaiian hoary bat as a result of the Project. Additional detail regarding adaptive management and proposed mitigation is provided in subsequent sections.

Avoidance and Minimization Measures

As detailed in the 2011 EIS and the subsequent EA, several measures to avoid and minimize risk to Hawaiian hoary bats and other listed species were incorporated into the design of the Project. These measures include the use of monopole steel tubular towers and turbine rotors with a significantly slower rotational speed (compared to older designs), placement of electrical lines underground where practicable, marking of guy wires and overhead lines, minimizing nighttime construction, and restrictions on clearing trees greater than 15 feet in height between July 1 to August 15 (when non-volant Hawaiian hoary bats juveniles may occur). In addition, LWSC was implemented from the start of commercial operations to minimize risk to Hawaiian hoary bat. Based on the best available science at the time, the LWSC protocol involved raising the cut-in speed of the project's wind turbines to 5 m/s from March through November, which is when bat activity was consistently documented, for the duration of the night (from sunset to sunrise).

Over the course of Project operations, Kawailoa Wind has evaluated and incorporated options to further reduce the risk to Hawaiian hoary bats. This includes multiple adaptive management efforts such as modification of the LWSC protocol, innovative approaches to post-construction mortality monitoring, and support for development of the latest technologies that could reduce risk to bats. In response to the occurrence of bat fatalities outside the initial LWSC period, implementation of LWSC was extended to December 15 in 2012 and the starting date was subsequently moved up to February 10 and then February 6 in 2013 and 2015, respectively. After a bat fatality in late December 2016, implementation of LWSC was further extended to December 31 in 2017. Kawailoa Wind also initiated the use of trained dogs in July 2013 and continues to use canine search teams to increase searcher efficiency and reduce uncertainty in the amount of bat take documented as part of the post-construction mortality monitoring program. In addition, research and engineering development of an ultrasonic bat deterrent was funded as an adaptive management effort to promote options for reducing bat fatalities (Kawailoa Wind Power, LLC 2014).

In addition to the avoidance and minimization measures described above, Kawailoa Wind has investigated other potential measures that could further reduce bat take, including additional increases in LWSC. In particular, as detailed in the Draft HCP Amendment, a detailed analysis was conducted to evaluate various LWSC scenarios that incorporate different cut-in speeds and implementation periods. Based on the results of this analysis, Kawailoa Wind will implement the operational minimization measures listed below; these actions will be the baseline minimization measures to minimize risk to the Hawaiian hoary bat as part of the HCP Amendment. The operational minimization measures were presented to USFWS and DOFAW in May 2018, and both agencies were supportive of the measures.

1. Extend LWSC with a cut-in speed of 5.0 m/s at all turbines to occur year-round from sunset to sunrise.
2. Increase LWSC cut-in speed to 5.2 m/s through a 0.2 m/s hysteresis to increase the "down time" of the wind turbines and reduce the number of stop/start events per night by extending the rolling average time from 10 to 20 minutes. Hysteresis is a LWSC regime that offsets the "cut-out" and "cut-in" speeds, such that it takes a higher average wind speed (raised cut-in speed) for the turbines to return to operation after stopping due to LWSC.[13] All Project turbines individually monitor wind speed using turbine-mounted anemometers and are programmed to shut off when wind speeds are 5.0 m/s or lower and to start up again when wind speeds reach 5.2 m/s, thereby increasing the cut-in speed and extending the period during which collision risk for bats is minimized.

[13] Observations of bat behavior have identified risk factors to bats correlating with periods of low wind speed (Arnett et al. 2013b, Welling et al. 2018). Based on an experimental test of operational minimization treatments, Shirmacher et al. (2018) found that bats may be at risk of collision during operational transitions (i.e., during turbine start-up or shut-down). This risk was demonstrated by a significant increase in the probability of finding a fatality at turbines with increased wind turbine stops. Hysteresis is a method of reducing the number of start and stop events.

3. Conduct an ultrasonic acoustic bat deterrent "proof of concept" test, in collaboration with NRG Systems. NRG Systems installed an ultrasonic acoustic bat deterrent system at turbine 30 (where the most bat fatalities [16 percent] have been detected as of December 31, 2017) to evaluate effectiveness of the deterrent specific to Hawaiian hoary bats. The deterrent was deployed in July 2018. Effectiveness at reducing bat activity levels will be evaluated using thermal imaging over a 60-day study period to document the bat approach paths and activity in relation to the rotor swept area. Data collected at the Project will supplement the results of NRG Systems' ongoing testing at wind farms on the continental United States. Results of NRG Systems' testing and those of other deterrent systems will be used to inform minimization measures at the Project.
4. Kawailoa Wind will install bat deterrents at all 30 Project turbines when bat deterrents become commercially available and are shown to be at least as effective as LWSC at reducing bat take. For the purposes of take estimation, Kawailoa Wind assumes deterrents will be installed by 2022.

On-going post-construction mortality monitoring will be a key component to assess the effectiveness of the baseline minimization approach (as well as the effectiveness of adaptive management measures, which would be triggered should the measures listed above not have the intended effect of reducing bat take). The data are also expected to provide insight to spatial and temporal patterns of bat fatalities, to help refine minimization measures. However, fatality sample sizes have been, and will likely continue to be, insufficient to draw statistically meaningful correlations between minimization actions and mortality levels. A summary of the post-construction mortality monitoring program and the adaptive management strategy is provided in subsequent sections, with further detail presented in the Draft HCP Amendment.

Mitigation

In addition to the avoidance and minimization measures discussed above, and consistent with the biological goals of the approved HCP and Draft HCP Amendment, Kawailoa Wind has been and will continue implementing mitigation for impacts to the Hawaiian hoary bat based on the different tiers of take. Pursuant to the requirements of the HRS Chapter 195D and the ESA, the mitigation is designed to result in an overall net benefit to the species and fully offset the impacts of the taking.

Mitigation for the authorized take (Tiers 1-3) has already been implemented and is ongoing, in coordination with USFWS and DOFAW. The proposed mitigation for the additional requested take (Tiers 4 – 6) was developed as part of the HCP amendment process. Tier 4 mitigation is already in process; planning for the Tier 5 and Tier 6 mitigation will be initiated when 75 percent of the estimated take for the current tier has been reached (using the 80 percent upper credible limit), as listed in Table 3-2. Based on this approach, it is estimated that it would take more than 2 years for the Tier 4 limit to be reached after hitting the Tier 5 mitigation planning trigger; therefore, assuming timely review and approval of any required mitigation measure, the implementation of mitigation actions will begin by the time the total take estimate reaches the next tier threshold.

Table 3-2. Triggers for Planning for Future Tiers of Mitigation

Mitigation Tier	Trigger for Mitigation Planning	
	Description of Trigger	Cumulative Take Estimate[1]
Tier 5	75% of Tier 4 authorized take limit	86 bats
Tier 6	75% of Tier 5 authorized take limit	123 bats
1. Take represents the cumulative take including prior tiers.		

The ongoing mitigation for Tiers 1-3 and the proposed mitigation for Tiers 4-6 is summarized in the following sections. The existing mitigation for Tiers 1-3 was included in the original HCP and is summarized below for reference purposes. The proposed mitigation for Tiers 4-6 was developed as part of the HCP amendment process and is responsive to the recovery goals identified in the Hawaiian Hoary Bat Recovery Plan (USFWS 1998), agency guidance described in the ESRC Bat Guidance (DLNR 2015), and conservation and management priorities identified by the agencies. Additional information regarding the guidance to date is provided in the Draft HCP Amendment.

Existing Mitigation (per Approved HCP)

Tier 1 Mitigation

The existing Tier 1 mitigation for the Hawaiian hoary bat involves wetland restoration/ management measures, as described in the approved HCP. Specific components include acoustic monitoring for bats, removal of invasive species and creation of bat lanes to improve foraging, insect sampling, ungulate fencing and predator control. This mitigation has already been implemented and is being adaptively managed in coordination with USFWS and DLNR.

Tier 2 and Tier 3 Mitigation

Tier 2 and Tier 3 mitigation for the Hawaiian hoary bat includes three ongoing research projects funded by Kawailoa Wind. These three current research projects address (1) modeling to quantify foraging habitat use and suitability, (2) genetic diversity and sex-specific food habits, and (3) distribution and seasonal occupancy on O‘ahu. Additional detail is provided in the Draft HCP Amendment and Kawailoa Wind annual reports.

Based on these ongoing research projects, in combination with a previous occupancy power analysis study, there is an outstanding funding obligation for the Tier 2 and 3 mitigation. Based on USFWS and DOFAW guidance, there are no remaining research funding gaps for joint agency sub-committee approved projects (Glenn Metzler/DOFAW, pers. comm., August 2, 2017). To fulfill the remaining uncommitted funding obligation, Kawailoa Wind will contribute the remaining funds towards the purchase of the 3,716-acre Waimea Native Forest. The land will be acquired through a partnership with The Trust for Public Land (TPL) and DOFAW, as well as other funding partners. This mitigation aligns with current USFWS and DOFAW guidance which identifies land acquisition as an appropriate mitigation approach for the Hawaiian hoary bat (DLNR 2015).

Proposed Tier 4 Mitigation (per HCP Amendment)

Tier 4 bat mitigation will consist of contributing $2,750,000 toward acquisition and long-term protection of the Helemano Wilderness Area through a partnership with TPL, USFWS, DOFAW and other funding partners.[14] The Helemano Wilderness Area encompasses approximately 2,882 acres in central Oʻahu, approximately 3 miles from the Project (Figure 3-1).[15] It includes significant tracts of native forest habitat within the documented range of the Hawaiian hoary bat that are at risk due to the encroachment of invasive plant and animal species, as well as development and other potential anthropogenic activities. It also includes non-forested fallow agricultural areas that are suitable for restoration. The mix of forested lands and fallow agricultural lands is anticipated to provide both foraging and roosting habitat for the Hawaiian hoary bat. A number of monitoring efforts have shown that there is bat activity surrounding the Helemano Wilderness Area, and the area itself is also likely occupied by hoary bats. Furthermore, it is likely that the contiguous tracts of mixed forest habitat in the Helemano Wilderness Area and current lack of development in this region supports movements of bats between Central Oʻahu and the North Shore along the major forested parcels within the Koʻolau mountain range. The acquisition permanently protects these parcels for the Hawaiian hoary bat, as well as many other native species, and enhances the connectivity between other natural area reserves.

Following acquisition, DOFAW is responsible for long-term ownership and management of the Helemano Wilderness Area. As one of the conditions of ownership, DOFAW will develop and implement a long-term management strategy to protect and maintain existing habitat and restore and improve degraded habitat. Research will be incorporated into the overall management plan for the area that will focus on identifying optimal habitat or limiting factors for the Hawaiian hoary bat. The land deed will include the requirement that HWA be managed in perpetuity for the protection of habitat and conservation of listed endangered species including the Hawaiian hoary bat, 20 species of listed plants, and other rare species. USFWS will be consulted during the development of the multi-resource management plan to ensure the forest management activities consider impacts to listed species.

[14] Because of its commitment to the Helemano Wilderness Area acquisition as appropriate bat mitigation and knowing that other buyers were interested in these parcels for development, Kawailoa Wind provided a funding deposit to TPL in October 2018, prior to issuance of the ITP/ITL, to ensure that the land could be purchased for conservation in a timely manner. Should USFWS or DOFAW fail to grant an ITP or ITL to Kawailoa Wind for the HCP Amendment, Kawailoa Wind reserves the right to sell their paid interest in this mitigation.

[15] The Helemano Wilderness Area was originally 3,056 acres. However, while in negotiation for the HCP Amendment, a portion of TMK 6-4-004:001 was subdivided by the landowner, and as a result, the area is now 2,882 acres. This subdivision demonstrates that the threat of development is real and imminent for these parcels.

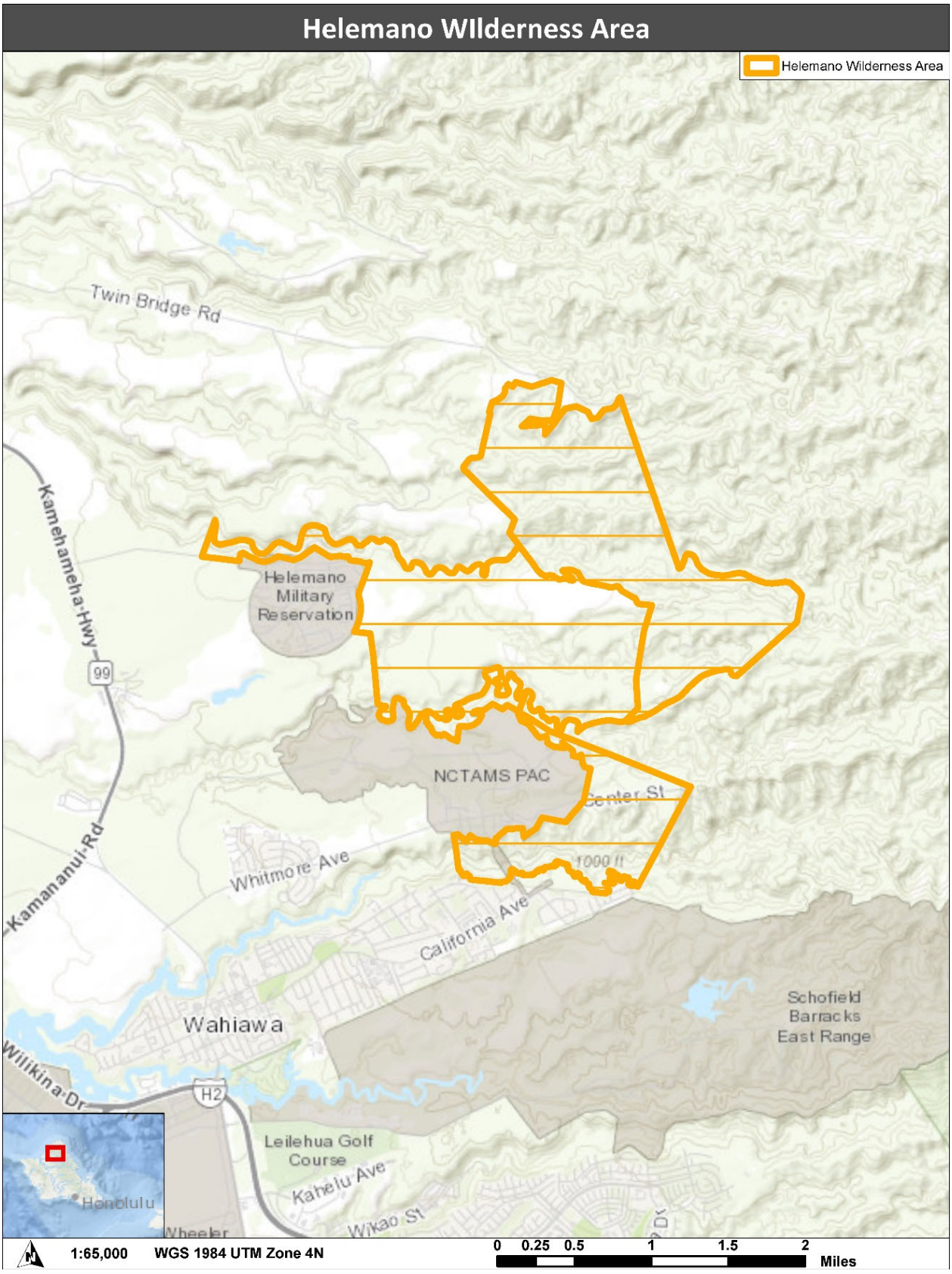

Figure 3-1. Location of the Helemano Wilderness Area (Tier 4 Mitigation)

DOFAW's management strategy has not been finalized at this time. Management activities are expected to vary among the parcels based on the objectives and management needs of each specific area but are expected to include activities such as control of feral ungulates, rodent and invasive species; erosion control; confinement of hiking and camping in designated locations; and reforestation with native and non-native hardwood tree species (Marigold Zoll/DOFAW, pers. comm., May 2018).

This mitigation will fully offset the take for Tier 4 and will provide a net benefit to the Hawaiian hoary bat. Kawailoa Wind will derive the Tier 4 mitigation from only a portion of the Helemano Wilderness Area; however, the funding provided by Kawailoa Wind enables the acquisition and protection of the entire area. Conservation of the Helemano Wilderness Area will ensure protection of Hawaiian hoary bat habitat from future development and meets the USFWS and DLNR long-term conservation goals, including the enhancement and connectivity of important conservation areas. These actions will benefit bats beyond the term of the ITP/ITL by providing native forest roosting and foraging habitat in perpetuity, thereby providing a net benefit to the species. Protection of Helemano Wilderness Area also provides a unique opportunity for habitat management on a large scale to assess the effectiveness of various approaches in recovering bat populations.

Additional detail regarding the Tier 4 mitigation approach is contained in the Draft HCP Amendment.

Proposed Tier 5 and Tier 6 Mitigation (per HCP Amendment)

For Tier 5 and Tier 6 mitigation, Kawailoa Wind will identify and implement mitigation based on the options identified as priorities by USFWS and DOFAW. These options currently include the following, listed in order of priority (as identified by Kawailoa Wind):

- **Habitat Protection and Preservation:** Contribute funding to acquire property that will protect bat roosting and foraging habitat in perpetuity; or
- **Habitat Restoration/Land Management:** Conduct bat habitat management/restoration at Helemano Wilderness Area, Waimea Native Forest, or similar site.

Mitigation measures under Tiers 5 and 6 may occur much later in the permit term, or may never occur, if take remains within the authorized take limit for Tier 4. Therefore, while anticipated mitigation for Tiers 5 and 6 is described below, the most appropriate option will be selected in consultation with USFWS and DOFAW at the time mitigation planning is triggered. This approach allows Kawailoa Wind to describe the preferred mitigation based on current information for the purposes of the HCP Amendment, while leveraging information that will be learned from ongoing Hawaiian hoary bat research and addresses some of the existing information gaps, best available science, and current USFWS and DOFAW guidance. Adaptive management is identified as a strategy to address uncertainty due to current information and data gaps.

Within 6 months of reaching the trigger for Tier 5 or Tier 6 mitigation (should each tier be triggered), a detailed site-specific mitigation implementation plan will be submitted to USFWS and DOFAW for the applicable tier of mitigation. The plan will incorporate the best available science

related to Hawaiian hoary bat habitat requirements and will be tailored to the site-specific management needs; it will address the plan area, site feasibility, mitigation actions, measures of success, monitoring, how the mitigation will offset take, and cost estimates. This is expected to provide sufficient time for comment and feedback necessary for such a plan to be approved by USFWS and DOFAW, given the anticipated 2-year lead time between triggering and exceeding the current tier take limit.

The following subsections summarize the approach and selection criteria that would be applied for each of the mitigation options identified for Tier 5 and Tier 6 (should they be triggered). Additional detail regarding the Tier 5 and 6 mitigation approach is provided in the Draft HCP Amendment.

Habitat Protection and Preservation

The biological objective of this mitigation option is to protect and preserve, in perpetuity, bat roosting and/ or foraging habitat that would otherwise be threatened with degradation or development. Should habitat protection/preservation be selected for Tier 5 or Tier 6, Kawailoa Wind would continue to coordinate with TPL, USFWS, DOFAW, and others to identify key parcels that would benefit the Hawaiian hoary bat. Land would be protected and preserved through acquisition, easement, or other legal conservation instrument. For this mitigation option, the following selection criteria would be used to identify a suitable mitigation parcel:

- The mitigation parcel is on the Island of Oʻahu.
- A minimum of 20.3 acres would be used to offset one Hawaiian hoary bat (based on the median bat core use area identified from data by Bonaccorso et al. 2015).
- The mitigation parcel includes land acquisition/protection or protection plus management actions (rather than protection alone).
- The mitigation parcel faces a threat such as development or other threats that are not consistent with suitable or high value bat habitat (e.g., level of protection, intact versus degraded habitat, etc.). Parcels that are at risk of development, deforestation, or other degradation would have a higher priority than those not at risk.
- Larger parcels are typically preferable to smaller parcels. However, the location of a smaller parcel (e.g., adjacent to another larger area that supports bats or is being restored to support bats) could make it more attractive as a mitigation site.
- The mitigation parcel would be protected in perpetuity (i.e., fee simple, conservation easement, or other arrangement agreed upon by Kawailoa Wind and the agencies). Proposed management practices are consistent with bat roosting and/or foraging habitat.
- Recent evidence of bat activity has been identified at the mitigation parcel or neighboring parcels that indicates bat use of the mitigation parcel, in conjunction with suitable habitat on the mitigation parcel.

A minimum of 1,725 acres would be protected and preserved for Tier 5 and 1,319 acres would be protected and preserved for Tier 6. These values are based on the 20.3-acre median core bat use

area as an appropriate approximation of bat density, justifying a take offset of 85 and 65 bats for Tier 5 and Tier 6, respectively. The actual size of the mitigation parcel would depend on habitat suitability, characteristics of the land, and the other selection criteria identified above.

This mitigation would protect and preserve current bat roosting and/or foraging habitat to ensure that areas that are already providing habitat for bats will continue to do so in perpetuity. It would extend beyond the term of the ITP/ITL, for multiple generations of bats, thus providing a net benefit for the species. By protecting existing habitat that would inevitably no longer support the Hawaiian hoary bat, the mitigation is expected to support an increase in bats over the expected future baseline.

Habitat Restoration/Land Management

The biological objective of this mitigation option is to 1) restore habitat that is considered low value for the Hawaiian hoary bat to a condition that would promote survival and/or to 2) prevent the degradation of habitat that would otherwise decline thereby decreasing its suitability as bat habitat. Should habitat restoration/management be selected for Tier 5 or Tier 6, Kawailoa Wind would conduct or fund appropriate bat habitat restoration/management from the options identified below (listed in order of priority as identified by Kawailoa Wind). The prioritization is intended to build on the Tier 3 and Tier 4 mitigation and considers the level of information known about the potential mitigation parcels; however, the timing in which mitigation is triggered will impact the selection. These management actions are distinct from the protection offered by preservation under Tier 3 and Tier 4 by improving the suitability of existing low value lands within the parcel and preventing degradation by invasive species or other factors.

- Helemano Wilderness Area: Kawailoa Wind would provide funds to DOFAW to restore and improve degraded or low value bat habitat within portions of Helemano Wilderness Area. Funding of management activities would be for a minimum of 1,725 acres for Tier 5 and a minimum of 1,319 acres for Tier 6.[16] As previously noted, DOFAW is planning to develop a long-term management strategy for this area; relevant management activities could include: fencing portions of the parcel; control of feral ungulates, rodents, and invasive plant species; control of erosion throughout plantings and other methods; and reforestation with native and non-invasive hardwood tree species.
- Waimea Native Forest: Kawailoa Wind would provide funds to DOFAW to restore or prevent degradation of habitat to benefit the Hawaiian hoary bat within the Waimea Native Forest. Funding of management activities would be for a minimum of 1,725 acres for Tier 5 and a minimum of 1,319 acres for Tier 6. DOFAW would develop a long-term management strategy for the Waimea Native Forest; management measures could include: fencing portions of the parcel; control of invasive species as feral ungulates, plants, and other species; and planting native trees and plants.

[16] Kawailoa Wind could mitigate for one tier, and/or a portion of both tiers but the full mitigation for both tiers would not be appropriate for the remaining lands in HWA.

- Alternative Parcel: If the above-listed options are not feasible, Kawailoa Wind would work with DOFAW and USFWS to identify an alternative parcel on Oʻahu to conduct or fund bat habitat management/restoration as part of Tier 5 and/or Tier 6 mitigation. Management actions implemented at an alternative parcel would likely include activities similar to those proposed for Helemano Wilderness Area and Waimea Native Forest. Should this option be chosen, Kawailoa Wind would work with DOFAW and USFWS to develop a site-specific mitigation implementation plan to restore habitat for the benefit of the Hawaiian hoary bat.

Habitat restoration or land management at Helemano Wilderness Area or Waimea Native Forest (or another similar site) would restore habitat to a condition beneficial to bats as determined by the best scientific literature and/or agency guidance. The mitigation would improve roosting and foraging habitat for bats by increasing forested areas for roosting and increasing edge habitats for foraging. Furthermore, the management activities would restore native habitats, providing additional environmental benefits. By addressing bat habitat needs, the mitigation would increase the carrying capacity and create new core use areas which could be occupied by additional bats, thus providing a net benefit to the species.

Hawaiian Petrel

Estimated Project-Related Take

Seabird mortality due to collisions with human-made objects, such as power lines and wind turbines, has been documented in the Hawaiian Islands (Telfer et al. 1987; Hodges 1994; Cooper and Day 1998; Podolsky et al. 1998; USFWS 2016b). In addition to the two fatalities observed at the Project, other Hawaiian petrel fatalities that have been detected at wind energy facilities in Hawaiʻi as of December 31, 2018 include seven fatalities at Kaheawa Wind Farm on Maui (Kaheawa Wind Power, LLC 2017, SWCA 2017) and one fatality at Auwahi Wind Farm, also on Maui (Tetra Tech 2017b). No Hawaiian petrel fatalities have been observed at the Kahuku Wind Farm, which is the only other operating facility on Oʻahu. No fatalities of Newell's shearwater have been detected at wind energy facilities in Hawaiʻi.

The collision avoidance rate is a critical component in assessing a given species' risk of collision (Chamberlain et al. 2006). Seabird and waterfowl species have been documented detecting and avoiding turbines and other human-made structures (e.g., transmission lines) in low-light conditions (Winkelman 1995; Dirksen et al. 1998; Desholm and Kahlert 2005; Desholm et al. 2006; Tetra Tech 2008); however, recent monitoring of powerline collisions in key areas indicates that this remains one of several threats to the species, particularly at cross-island powerlines (Ainley et al. 2001, USFWS 2016b). Petrels are adept at flying through forests to and from their nests during low-light and variable weather conditions and may exhibit strong avoidance behaviors when approaching wind turbine generators or other structures. Petrels have been observed exhibiting avoidance behaviors at communication towers on Lānaʻi (Tetra Tech 2008) by adjusting flight directions away from the tower or by approaching the tower and turning away from the structure to avoid it. It is reasonable to assume that petrels have the behavioral and physical capabilities to avoid turbines, and therefore are likely to exhibit a high collision avoidance rate. However, at least

one downed petrel observed is likely to have collided with a communication tower on Lānaʻi (A. Siddiqi/DOFAW, pers. comm., September 2018).

Potential sources of direct mortality of petrels at the Project include collisions with wind turbine generators, meteorological towers, and overhead generator-tie lines. On July 21, 2017, a single Hawaiian petrel carcass, confirmed through genetic analysis, was observed incidentally (not during standardized searches). The results of the standardized post-construction mortality monitoring performed through 2017 were analyzed using the multiple years analysis module in the EoA tool to calculate a conservative estimate of total direct petrel take anticipated over the remaining years of the ITP/ITL term. Although the petrel fatality was detected outside of the search plot, it was included as a detected fatality for the purposes of take prediction to provide a conservative estimate.

Using past monitoring data within the EoA software to estimate the direct take estimated to occur over the permit term, it can be asserted with 80 percent certainty that no more than 19 petrels are expected to be taken. Indirect take was estimated using current agency guidance (USFWS 2016a) and data from the Project. Based on a projected annual take rate of 0.95 (19 birds over the 20 year permit terms), indirect take is estimated at 5 chicks over the remainder of the permit term.

Population-Level Impacts

The total population of Hawaiian petrels is estimated between 19,000 and 52,000 individuals (Spear et al. 1995, Joyce 2013). The take authorization request for the Project is 19 adults and 5 chicks. This level of take is between 0.126 percent and 0.046 percent of the total estimated population and should not have a population-level effect on Hawaiian petrels because stable populations can absorb low levels (i.e., less than 1 percent of current population) of additive mortality. Conclusive evidence of a breeding colony on Oʻahu has not been found, and if breeding colonies are present on Mt. Kaʻala or elsewhere, there is no evidence to indicate they are genetically distinct from colonies on all other islands. The proposed mitigation, which is further discussed below, will further minimize the potential for population-level effects as a result of Project operations.

Avoidance and Minimization Measures

The avoidance and minimization measures previously implemented for the Newell's shearwater also minimize risk to the Hawaiian petrel. These measures are described in detail in Section 5.3 of the approved HCP and include: minimizing on-site lighting at buildings; implementation of a Wildlife Education and Observation Program (WEOP) to reduce vehicle collision risk; and following Avian Power Line Interaction Committee (APLIC) guidelines for overhead collection lines.

Mitigation

Mitigation for the Hawaiian petrel will consist of funding predator control and burrow monitoring for Hawaiian petrel breeding colonies within the Hono O Nā Pali NAR, located in the northwest portion of Kauaʻi. The Hono O Nā Pali NAR is a 3,579-acre managed reserve that contains rare plants, endemic stream invertebrates, and nesting forest birds and seabirds. Hanakāpiʻai and

Hanakoa are two of six sites that are managed by DOFAW and the Kauaʻi Endangered Seabird Recovery Project (KESRP) as part of the Hono O Nā Pali NAR Seabird Mitigation Project.

The Hanakāpiʻai site encompasses 138 acres of mid- to high-elevation terrain and is located in the center of the Hono o Nā Pali NAR. The presence of a very large Hawaiian petrel colony was initially confirmed at Hanakāpiʻai in 2014. KESRP began monitoring in 2015 and subsequently, DOFAW predator control began at Hanakāpiʻai in June 2016. A more comprehensive seabird monitoring and predator control program was initiated in 2017 by DOFAW and KESRP.

The Hanakoa site encompasses 58 acres and is located in the western portion of the Hono o Nā Pali NAR, adjacent to and southwest of Hanakāpiʻai. In 2016, KESRP confirmed the existence of a large colony of Hawaiian petrels, as well as a breeding population of Newell's shearwaters in this location. Predator control was initiated in September 2016; a more comprehensive seabird monitoring and predator control program was initiated in 2017 by DOFAW and KESRP (Raine et al. 2018b).

Funding for the predator control and burrow monitoring efforts at these two sites runs out at the end of 2019. Therefore, Kawailoa Wind will fund predator control to be conducted by DOFAW (or a similar entity approved by USFWS and DOFAW) and burrow monitoring to be conducted by KESRP (or a similar entity approved by USFWS and DOFAW) at Hanakāpiʻai and Hanakoa in 2020. Based on costs provided by KESRP and DOFAW, the total mitigation funding will be $392,800. Specific activities to be implemented include:

- Monitoring activity of nesting seabirds with cameras, song meters, and on the ground surveys.
- Monitoring predator activity with cameras, traps, and on the ground surveys.
- Implementing focused removal of predators surrounding nest sites. Rodents would be controlled using automatic resetting traps (A-24, Goodnature, NZ). Cat trapping would consist of cage traps and Conibears. Pigs would be removed using a combination of targeted trapping and firearms. Non-native barn owls would be removed in areas with high seabird activity by targeted shooting and trapping.
- Responding to outbreaks of seabird depredation with increased predator trapping across the entire NAR and at major predator ingress points into the NAR.

Based on previous monitoring data and expected increases to the numbers of burrows monitored as well as increases to predator control efforts, Kawailoa Wind's mitigation is expected to offset the 19 adult petrels and five chicks that are estimated to be taken during the remainder of the permit term (see Section 6.3.4 and Appendix 16). Although predator control efforts are aimed at increasing reproductive success because most predation at the colonies affects chicks, predator control also has the potential to have a positive impact on adult survival because adult petrels are sometimes preyed upon (Hodges and Nagata 2001). The effectiveness of predator control at the two colonies has been demonstrated by monitoring data which shows that reproductive success has increased at both colonies since predator control efforts were fully implemented. The combined experience of KESRP and NARS have been proven and vetted within the seabird and conservation community.

The mitigation for the Hawaiian petrel is expected to fully offset the anticipated take and provide a net conservation benefit by producing more petrels than are authorized to be taken by the Project, contributing to recovery of the species.

Additional detail regarding the mitigation approach for the Hawaiian petrel mitigation is provided in the Draft HCP Amendment.

Monitoring and Reporting

Kawailoa Wind conducts monitoring for downed wildlife based on the post-construction mortality monitoring protocol and associated adaptive management provisions defined in the approved HCP. The purpose of these efforts is to monitor direct take of wildlife species to ensure compliance with the ITP/ITL and the provisions and take limitations in the HCP.

As detailed in the approved HCP and further described in the Draft HCP Amendment, the protocol includes an initial 3-year intensive monitoring period, followed by alternating periods of scaled-back systematic monitoring, punctuated by a year of intensive monitoring every 5 years (e.g., years 6, 11, and 16). The initial 3 years of intensive post-construction monitoring was completed in November 2015, and the long-term monitoring approach has since been implemented. The long-term monitoring involves searches at each turbine twice per week, including roads and graded pads occurring within a 115-foot radius of the turbine. The turbine plots are primarily searched by a canine search team (trained dogs accompanied by their handlers). When conditions limit the use of dogs (e.g., weather, injury, availability of canine search team, etc.), search plots may be surveyed by Project staff. All search plots are mowed on a regular basis. If staff only are used to conduct searches for more than three consecutive searches, vegetation management will occur more frequently (as needed based on the vegetation growth for the season) than with dog-assisted searches because dogs use odor clues rather than vision to locate fatalities. Carcass removal (CARE) trials and searcher efficiency (SEEF) trials are conducted on a regular basis to obtain data that are used to estimate actual take levels for the Project.

As specified in the approved HCP, Kawailoa Wind has and will continue to prepare written reports describing results from monitoring efforts to demonstrate HCP compliance and identify any proposed adaptive management strategies. In addition, at a minimum, Kawailoa Wind has and will continue to meet with USFWS and DLNR semi-annually throughout the permit term to discuss the monitoring results in the context of compliance with authorized take limits.

Adaptive Management

Adaptive management, as identified in the revised 2016 Habitat Conservation Planning and Incidental Take Permit Processing Handbook, is a key strategy for addressing uncertainty associated with an HCP's conservation program (USFWS and NMFS 2016). Kawailoa Wind has developed an adaptive management strategy to account for uncertainty in the amount of take of the Covered Species expected over the remainder of the permit term and the effectiveness of minimization measures (e.g., LWSC). The adaptive management strategy focuses more specifically on the Hawaiian hoary bat because the potential for take of this species is highest. The adaptive

management strategy is designed to indicate if take is occurring at a rate greater than expected and is projected to exceed permitted take before the end of the permit term but has not yet exceed the permitted amount.

As part of the adaptive management strategy, Kawailoa Wind has identified additional minimization measures that could be implemented, if necessary, in the future to minimize take of the Hawaiian hoary bat should the current measures prove to not have the anticipated effect. If additional minimization is triggered, Kawailoa Wind will implement one or more measures including turbine operational adjustments (e.g., increases in hysteresis), installation of additional bat deterrents, alteration of site conditions (e.g., changes in landscape features, structures and/or lighting), or other technologies as available. The selection of measures to implement will be based on the best available science, results from current Hawaiian hoary bat research (the results of ongoing research are expected to be reported starting in 2020), new technological advances, and Project-specific mortality monitoring data. Kawailoa Wind will review these options at the time additional minimization measures are triggered and choose the option best suited to minimize impacts to bats.

A detailed discussion of the adaptive management triggers and minimization measures is provided in the Draft HCP Amendment.

3.5.4.2 Impacts of HCP Implementation

As detailed throughout this document, HCP implementation involves avoidance, minimization and mitigation measures, with adaptive management as needed, and a long-term post-construction monitoring plan. The potential impacts associated with implementation of the approved HCP were evaluated in the 2011 EA. In particular, this evaluation addressed the avoidance, minimization and mitigation measures related to the Newell's shearwater, Hawaiian duck, Hawaiian stilt, Hawaiian coot, Hawaiian moorhen, Hawaiian short-eared owl, and Hawaiian hoary bat, as well as the post-construction monitoring plan. The impacts of the actions conducted to date have not substantially deviated from what was described in the 2011 EA; this information is incorporated by reference.

New actions that are proposed in the HCP Amendment (beyond what was included in the approved HCP) relate to the additional avoidance, minimization and mitigation for the Hawaiian hoary bat, as well as mitigation for the Hawaiian petrel. As such, the assessment of potential impacts associated with implementation of the HCP Amendment is focused on these specific activities. The following subsections briefly identify the existing conditions and describe the potential effects of implementing the avoidance, minimization and mitigation actions in the HCP Amendment on various resources that comprise the human and natural environment. Resource categories that were considered in this analysis are consistent with those addressed in the 2011 EIS and subsequent EA. For resources that implementation of the HCP Amendment would not be expected to have any potential for impacts to occur, further evaluation was not conducted; these include climate, transportation and traffic, hazardous materials, visual resources, socioeconomic characteristics, natural hazards, public safety, public infrastructure and services.

Air Quality

Air quality across Hawai‘i is consistently some of the best in the nation, with criteria pollutant levels well below state and federal ambient air quality standards (DOH 2016). Similar to the Project area, the existing air quality at the mitigation sites for the Hawaiian hoary bat and Hawaiian Petrel is considered to be relatively good because of low levels of development in the surrounding areas, and exposure to consistently strong winds which help to disperse any emissions.

Avoidance and Minimization Measures for Hawaiian Hoary Bat under HCP Amendment

The avoidance and minimization measures proposed for the Hawaiian hoary bat under the HCP Amendment (e.g., increased LWSC, bat deterrent “proof of concept” test, and eventual installation of bat deterrents at all turbines) would not result in any emissions and are not expected to affect the air quality surrounding the area.

Mitigation for Hawaiian Hoary Bat under HCP Amendment

Contribution of funding for the acquisition of Helemano Wilderness Area for Tier 4 mitigation or other similar lands for Tier 5 and/or 6 mitigation (should this option be selected) would not result in any ground disturbance, emission of pollutants, or other activities that could affect air quality.

If habitat restoration activities are funded as part of Tier 5 and/or Tier 6 bat mitigation, the associated activities (e.g., installation of fencing, out-planting of small trees) would involve some degree of ground disturbance as well as operation of vehicles and equipment, which could result in emissions of fugitive dust and air quality pollutants associated with fossil-fuel fired internal combustion engines. However, any such emissions are expected to be temporary and minor in nature, and no air quality impacts are expected to occur over the long-term.

Mitigation for Hawaiian Petrel under HCP Amendment

Activities that would occur as part of the funding for predator control and burrow monitoring within the Hanakāpi‘ai and Honokoa Hawaiian petrel colonies would involve little to no ground disturbance or use of vehicles or large equipment. As such, air quality impacts are expected to be negligible, if any.

Geology, Topography and Soils

Avoidance and Minimization Measures for Hawaiian Hoary Bat under HCP Amendment

The avoidance and minimization measures proposed for the Hawaiian hoary bat under the HCP Amendment would only involve work on the existing turbines and surrounding turbine pads, with no ground disturbance within the Project area. As such, these activities are not expected to affect geology, topography or soils.

Mitigation for Hawaiian Hoary Bat under HCP Amendment

The Helemano Wilderness Area is situated on the western side of the Ko‘olau Mountain Range along the northeastern edge of the Schofield Plateau, which formed when lava flows from the Ko‘olau Volcano reached the slopes of the Waianae Volcano (Macdonald et al. 1983). No unique or unusual geologic resources or conditions are known to occur. The topography is sloping and varied.

Soils in this region include Helamano silty clay, Wahiawa silty clay, Paaloa silty clay, and Leilehua silty clay, as well as Rough mountainous land (NRCS 2017).

Contribution of funding for the acquisition of Helemano Wilderness Area for Tier 4 mitigation (or other similar lands for Tier 5 and/or 6 mitigation, should this option be selected) would not involve any ground disturbance. As such, implementation of this mitigation would not affect geology, soils or topography.

Habitat restoration activities that would be funded at Helemano Wilderness Area (or another similar site) as part of Tier 5 and/or Tier 6 bat mitigation would involve localized excavation for measures such as installation of fence posts and out-planting of small trees. Habitat restoration activities are not expected to require any large-scale excavation, filling or levelling. Standard erosion control measures would be implemented, as appropriate. As such, the proposed mitigation activities are not expected to substantially affect geology, topography or soils.

Mitigation for Hawaiian Petrel under HCP Amendment

The Hanakāpiʻai and Honokoa Hawaiian petrel colonies are located within the Hono O Nā Pali NAR, near the northwestern coast of Kauaʻi. This portion of the island has heavily eroded since the primary shield-building volcanic activity formed the island, resulting in steep ridges and deep valleys (SOEST 2013). Soils in this area are predominantly classified as Rock outcrop and Rough mountainous land (NRCS 2017).

Activities that would occur as part of the funding for predator control and burrow monitoring within the Hanakāpiʻai and Honokoa Hawaiian petrel colonies would involve little to no ground disturbance and therefore, are not expected to impact geology, topography or soils.

Hydrology and Water Resources

Avoidance and Minimization Measures for Hawaiian Hoary Bat under HCP Amendment

The avoidance and minimization measures proposed for the Hawaiian hoary bat under the HCP Amendment would only involve work on the existing turbines and surrounding turbine pads. As such, these measures would have no effect on any water resources within the Project area.

Mitigation for Hawaiian Hoary Bat under HCP Amendment

The Helemano Wilderness Area spans two watersheds: Paukauila and Kiikii (Parham et al. 2008). Streams within the Paukauila watershed portion of Helemano Wilderness Area include Helemano Stream, which is a perennial stream. Streams within the Kiikii watershed portion include Poamoho Stream and Kaukonahua Stream. According to the National Wetland Inventory (NWI) dataset, there are no wetland features located within the Helemano Wilderness Area (USFWS 2018). Specific to groundwater, the Helemano Wilderness Area is part of the Wahiawa aquifer; this aquifer contains high-level groundwater and has a sustainable yield of 23 million gallons per day (CWRM 2008).

No ground-based activities would be associated with contribution of funding for the acquisition of Helemano Wilderness Area as part of the Tier 4 mitigation (or other similar lands for Tier 5 and/or

6 mitigation, should this option be selected). As such, these mitigation activities would not affect hydrology or water resources.

Habitat restoration activities that would be funded at Helemano Wilderness Area (or another similar site) as part of Tier 5 and/or Tier 6 bat mitigation would involve localized and small-scale ground disturbance for activities such as fence installation and out-planting of small trees. No work would be conducted within or near the streams, nor would any of the activities affect groundwater. Standard erosion control measures would be implemented as needed to minimize the potential for water quality impacts from erosion and sedimentation. As such, no direct or indirect impacts to any water resources are anticipated.

Mitigation for Hawaiian Petrel under HCP Amendment

The Hanakāpiʻai and Honokoa Hawaiian petrel colonies are located within the Hanakāpiʻai watershed, which is relatively small and steep in its upper reaches. It includes Hanakāpiʻai Stream, which is a perennial feature with multiple tributaries (Parham et al. 2008). Based on the NWI dataset, no wetland features are known to occur in these areas (USFWS 2018). Groundwater in this region is part of the Napali aquifer. This aquifer contains basal groundwater with a discontinuous confining layer and has a sustainable yield of 17 million gallons per day (CWRM 2008).

Activities that would occur in association with the funding of predator control and burrow monitoring within the Hanakāpiʻai and Honokoa Hawaiian petrel colonies would involve little to no ground disturbance and would not occur within or near Hanakāpiʻai Stream or its tributaries. As such, no impacts to water resources are anticipated.

Biological Resources

Avoidance and Minimization Measures for Hawaiian Hoary Bat under HCP Amendment

As described in the 2011 EA, the downed wildlife searches conducted as part of the post-construction mortality monitoring involve routine vegetation clearing within the designated search plots. Monitoring is ongoing, and impacts are commensurate with the description provided in the 2011 EA. The additional avoidance and minimization measures proposed for the Hawaiian hoary bat under the HCP Amendment would only involve work on the existing turbines and surrounding turbine pads. As such, these measures are not expected to adversely affect any vegetation or wildlife. Overall, implementation of the measures is intended to provide a benefit by reducing the current risk of collision with the wind turbines for Hawaiian hoary bats and other avian species.

Mitigation for Hawaiian Hoary Bat under HCP Amendment

A range of habitats occur within the Helemano Wilderness Area; the majority of the site is comprised of mature native and mixed forest, with other areas dominated by non-forested, fallow agricultural areas that are planned for managed reforestation. Native species that are likely to occur within the forest habitat, many of which are listed as endangered or threatened, include nānū (*Gardenia mannii*), loʻulu (*Pritchardia* sp.), uhiuhi (*Mezoneuron kavaiensis*), kauila (*Colubrina oppositifolia*), *Bonamia menziesii*, haʻiwale (*Cyrtandra dentate*), *Chamaesyce rockii*, haha (*Cyanea* sp.), ānini (*Eurya sandwicensis*), hulumoa (*Exocarpos gaudichaaudii*), *Hesperomannia arborescens*,

koki‘o (*Hibiscus kokio*), ‘ohe (*Joinvillea ascendens*), koki‘o (*Psychotria hexandra var oahuensis*), *Huperzia nutans*, *Phyllostegia hirsute*, kōpiko (*Psychotria hexandra*), kaul (*Pteralyxia macrocarpa*), ‘ohe (*Polyscias gymnocarpa*), and nuku ‘i‘iwi (*Strongylodon ruber*) (DOFAW and TPL 2016). As previously described, this habitat is within the documented range of the Hawaiian hoary bat; the species has been documented in adjacent areas and is likely to be present within the Helemano Wilderness Area as well. Other native wildlife that are expected to occur include the O‘ahu ‘amakihi (*Chlorodrepanis flava*), pueo, and tree snail species (*Achatinella* spp.). No portion of the Helemano Wilderness Area has been designated as critical habitat, although critical habitat for O‘ahu ‘elepaio occurs immediately adjacent to the site.

Overall, acquisition and long-term management of the Helemano Wilderness Area is expected to provide a significant benefit to biological resources through the long-term protection and improvement of habitat for both native plant and wildlife species, including the Hawaiian hoary bat and a variety of listed plants. Following acquisition, the lands would be transferred to DOFAW for long-term management, including control of invasive species and reforestation. The Tier 4 mitigation involves contribution of funding for a portion of the acquisition of Helemano Wilderness Area; funding for acquisition of other similar lands could also occur for Tier 5 and/or 6 mitigation, should this option be selected. This mitigation would not include any management activities or other on the ground work. As such, implementation of the mitigation would not directly affect any biological resources, but indirectly would provide a significant benefit by enabling acquisition and long-term protection of the entire Helemano Wilderness Area.

Funding of habitat restoration activities at Helemano Wilderness Area (or another similar site) for the purposes of Tier 5 and/or Tier 6 bat mitigation would allow for activities such as installation of fencing and other ungulate and rodent control methods, removal of invasive plant species, and out-planting of native and non-invasive plant species. These activities would result in localized and small-scale ground disturbance and some degree of disturbance to existing habitat. Short-term impacts to wildlife could occur due to habitat disturbance and noise from equipment. However, it is expected that these activities would be focused in the previously disturbed portions of Helemano Wilderness Area, with minimal disturbance of the native forest habitat. Standard BMPs to avoid and minimize impacts to vegetation and wildlife would be implemented, including measures to minimize the extent and duration of disturbance, and prevent introduction or spread of invasive species. In addition, as previously noted, USFWS and DOFAW would be consulted during the development of the management plan to ensure the forest management activities consider impacts to listed species. Overall, the mitigation would provide a long-term benefit to both vegetation and wildlife species throughout Helemano Wilderness Area. In particular, the measures would be designed to provide a benefit to the Hawaiian hoary bat, as detailed in the Draft HCP Amendment.

Mitigation for Hawaiian Petrel under HCP Amendment

The Hono o Nā Pali NAR includes lowland mesic, lowland wet, and montane wet habitat communities. These habitats support more than 200 native plant species and 30 native wildlife species, many of which are considered rare. The NAR also includes critical habitat for more than 60 plant species and a range of ecosystems (NARS 2011; DLNR 2018). The Hanakāpi‘ai site and

Honokoa sites are generally characterized as montane wet habitat, which includes ʻōhiʻa and other native plant species such as lapalapa (*Cheirodendron platyphyllum* subsp. *kauiense*), ʻōlapa (*Cheirodendron trigynum*), kāwaʻu (*Ilex anomala*), kōlea (*Myrsine* spp.), ʻohe (*Tetraplasandra* spp.), kanawao (*Broussaisia arguta*), pūkiawe (*Leptecophylla tameiameiae*), naʻenaʻe (*Dubautia* spp.), koliʻi (*Trematolobelia kauaiensis*), ōhelo kau lāʻau (*Vaccinium calycinum*), ālani (*Melicope clusiifolia*), and mokihana (*Melicope anisata*) (DOFAW 2011). These areas also provide important habitat for many native wildlife species. In addition to several species of seabirds (including the endangered Newellʻs shearwater and Hawaiian petrel), other wildlife that occurs in this area include a variety of native forest birds, waterbird species, raptors, invertebrate species and aquatic biota, many of which are federally and state listed. Invasive species that pose a signfiicant threat to the native resources within the NAR include feral ugulates (especially pigs and goats), feral cats and rats, and a variety of non-native weed species (NARS 2011).

Mitigation for the Hawaiian petrel would involve funding for ongoing predator control and burrow monitoring within the Hanakāpiʻai and Honokoa colonies. Activities associated with the mitigation would result in little to no ground disturbance or other impacts to sensitive habitat within the NAR. Rather, the mitigation would allow for continuation of the current predator control and burrow monitoring efforts, which to date, have substantially increased Hawaiian petrel reproductive success within the two colonies. As such, the Hawaiian petrel mitigation is expected to provide a long-term benefit, as further detailed Draft HCP Amendment.

Historic, Archaeological and Cultural Resources

Avoidance and Minimization Measures for Hawaiian Hoary Bat under HCP Amendment

The avoidance and minimization measures proposed for the Hawaiian hoary bat under the HCP Amendment will only involve work on the existing turbines and surrounding turbine pads. As such, these measures would have no effect on historic, archaeological or cultural resources within the Project area beyond those described in the 2011 EIS and EA.

Mitigation for Hawaiian Hoary Bat under HCP Amendment

No archaeological resources have been documented within Helemano Wilderness Area, as a systematic investigation has not been conducted. Historic properties within this area may include various trails and ditch tunnels, as identified by the Office of Hawaiian Affairs (OHA) Kipuka database (OHA 2018). It is anticipated that traditional and cultural practices in this area would be consistent with those in other forested areas on Oʻahu, and could include hunting, gathering of forest resources, and other similar activites.

Contribution of funding for the acquisition of Helemano Wilderness Area for Tier 4 mitigation (or other similar lands for Tier 5 and/or 6 mitigation, should this option be selected) would not involve any ground-distrubance or other physical activities. As such, implementation of this mitigation is not expected to directly affect historic, archaeological or cultural properties.

Habitat restoration activities that would be funded at Helemano Wilderness Area (or another similar site) as part of Tier 5 and/or Tier 6 bat mitigation are expected to involve localized ground-

disturbance for measures such as installation of fence posts and out-planting of small trees. Depending on the specific activities that are planned, an archaeological review would be conducted as appropriate. Any historic, cultural, and archeological resources that are identified would be avoided to the extent possible and precautionary measures related to the inadvertent discovery of cultural remains would be conducted. Therefore, implementation of mitigation activities is not expected to adversely affect archeological or cultural resources, should they occur. Over the long-term, the mitigation would contribute to preservation of native species within this region, which could be expected to have a positive impact on traditional and cultural resources.

Mitigation for Hawaiian Petrel under HCP Amendment

Previous archaeological studies within the Nā Pali Coast State Park described an extensive pre-contact population and agricultural use within Nā Pali region from as early as A.D. 1000-1300. Archaeological sites that were identified in the coastal areas include house sites, irrigated agricultural systems, heiau, burials and trails (Tomonari-Tuggle 1989). Inland areas, including the Hanakāpiʻai and Honokoa sites have not been systematically surveyed and no sites have been documented, although terracing and other similar features have been noted (NARS 2011). The entire Nā Pali District is listed on the state and national registers of historic places (Carpenter et al. 2010). Traditional and cultural practices throughout the valleys in the Nā Pali region involved extensive cultivation of taro and other crops (e.g., bananas, sugar cane and sweet potato) and plants for uses such as bark cloth and oil for light. Coastal areas and streams were used to gather marine and freshwater resources. Some of these activities, as well as use of the trails within and between the valleys, are ongoing (Maly 2003, NARS 2011).

Activities that would occur in association with the funding for predator control and burrow monitoring within the Hanakāpiʻai and Honokoa Hawaiian petrel colonies would involve activites such as installation of monitoring cameras, ground surveys, and placement of traps for feral ungulates, and would require little to no ground disturbance. As such, no impacts to archaeological resources are expected. By contributing to the preservation of native species within this region, it is expected that the mitigation could have a positive impact on traditional and cultural resources.

Noise

Avoidance and Minimization Measures for Hawaiian Hoary Bat under HCP Amendment

The avoidance and minimization measures proposed for the Hawaiian hoary bat under the HCP Amendment would be limited to work on the existing turbines and surrounding turbine pads. The increased LWSC measures would not generate any noise beyond current levels. Similarly, the bat deterrent devices utilize ultrasonic technology and would not produce any audible noise. As such, these activities are not expected to result in increased noise levels.

Mitigation for Hawaiian Hoary Bat under HCP Amendment

The Helemano Wilderness Area is located in an expansive natural area characterized by densely vegetated forest, with limited human activity. Ambient noise levels are associated with environmental sounds such as wind, rain, and animals (particularly birds), and are typically low. Some degree of noise is associated with surrounding urban development, including Wahiawa town and nearby roadways.

No ground-based activities would be associated with contribution of funding for the acquisition of Helemano Wilderness Area as part of the Tier 4 mitigation (or other similar lands for Tier 5 and/or 6 mitigation, should this option be selected). As such, these mitigation activities would not affect noise levels.

Habitat restoration activities that would be funded at Helemano Wilderness Area (or another similar site) as part of Tier 5 and/or Tier 6 bat mitigation would involve activities such as installation of fencing and other ungulate and rodent control methods, removal of invasive plant species, and out-planting of native and non-invasive plant species. These activities would likely involve the use of motorized equipment and vehicles, which would generate intermittent noise. However, noise resulting from the proposed mitigation is expected to be minor and short-term in duration, with no long-term impacts to noise.

Mitigation for Hawaiian Petrel under HCP Amendment

Given the isolated location and natural setting of the Hono o Nā Pali NAR, noise levels in this region are relatively low. Ambient noise levels are generally associated with environmental sounds such as wind, rain, and animals; human-derived noise is generally limited to recreational users.

Mitigation for the Hawaiian petrel would involve funding for ongoing predator control and burrow monitoring within the Hanakāpiʻai and Honokoa portions of the Hono o Nā Pali NAR, with activities such as installation of monitoring cameras, conducting ground surveys, and placement of traps for feral ungulates. These activities are not expected to involve the use of motorized equipment or vehicles. Noise generated as part of the predator control and burrown monitoring efforts is expected to be minor and short-term, similar in nature to current research and monitoring activities within the NAR.

Land Use

Avoidance and Minimization Measures for Hawaiian Hoary Bat under HCP Amendment

The avoidance and minimization measures proposed for the Hawaiian hoary bat under the HCP Amendment would be limited to work on the existing turbines and surrounding turbine pads, with no changes in the current land use within the Project area. As such, no land use impacts are expected to occur.

Mitigation for Hawaiian Hoary Bat under HCP Amendment

The Helemano Wilderness Area is located within the state Agricultural and Conservation Districts. It includes both undisturbed natural habitat, as well as lands that were historically and/or currently used for agricultural purposes. This area is also used for recreation; the Poamoho Trail traverses through and provides access to the summit of the Koʻolau Mountains.

Over the long-term, acquisition and long-term management of the Helemano Wilderness Area is expected to preserve and protect important natural habitat including significant tracts of native forest. This would require discontinuation of any remaining agricultural operations within the acquisition area. However, there is ample agricultural land available in the surrounding areas, such that agricultural productivity is not expected to be significantly affected in this region. Proposed

management activities by DOFAW are expected to include habitat restoration and forestry activities, which are compatible uses within the state Conservation and Agricultural Districts. Public access and recreational use would also continue. As such, neither contribution of funding for the acquisition of Helemano Wilderness Area as part of the Tier 4 mitigation, nor funding of habitat restoration activities as part of Tier 5 and/or Tier 6 bat mitigation is expected to adversely affect existing land use.

Mitigation for Hawaiian Petrel under HCP Amendment

The Hono o Nā Pali NAR was designated in 1983 and expanded in 2009 to preserve native natural communities. Management of the NAR is provided by DOFAW (DOFW 2018). The NAR is located within the protective subzone of the State Conservation District. Public access is allowed for recreational and cultural uses. Current uses include hiking, bird watching, hunting, as well as research and educational purposes.

Mitigation for the Hawaiian petrel would involve funding for ongoing predator control and burrow monitoring within the Hanakāpiʻai and Honokoa portions of the Hono o Nā Pali NAR. Activities associated with the mitigation would be consistent with the overall goal of preserving native resources within the NAR, and would result in no impacts to existing land use or public access.

3.6 Historic, Archaeological, and Cultural Resources

The 2011 EIS discusses the existing conditions, assesses the potential impacts relative to historic, archaeological, and cultural resources that could result from construction and operations and maintenance of the Project (as well as the no action alternative), and presents associated mitigation measures. Impacts to historic, archaeological, and cultural resources resulting from Project implementation are commensurate with the assessment provided in the 2011 EIS.

Although neither the Hawaiian hoary bat or Hawaiian petrel were identified as cultural resources in the Cultural Impact Assessment that was previously conducted for the Project, it is understood that some individuals and families may identify the Hawaiian hoary bat as an ʻaumākua (family or personal gods, deified ancestors who might assume the form of a bat). Such spiritual beliefs and values are personal and immeasurable; therefore, these effects to cultural resources cannot be quantified. However, minimization and mitigation measures proposed under the HCP amendment would be expected to result in long-term beneficial impacts to Hawaiian hoary bats on the island of Oʻahu.

3.7 Visual Resources

The 2011 EIS provides a definition of visual resources, discusses the existing conditions, assesses the potential impacts relative to visual resources that could result from construction and operations and maintenance of the wind farm (as well as the no action alternative), and identifies the measures taken to minimize visual impacts to the extent possible. Impacts to visual resources resulting from Project implementation are commensurate with the assessment provided in the

2011 EIS. No change in potential impacts to visual resources are anticipated as a result of the increased take of the Hawaiian hoary bat and Hawaiian petrel.

3.8 Noise

The 2011 EIS provides a definition of noise as a resource, discusses the existing conditions, and assesses the potential noise-related impacts that could result from construction and operations and maintenance of the wind farm (as well as the no action alternative). Project-related impact related to noise are commensurate with the assessment provided in the 2011 EIS. No change in potential noise-related impacts are anticipated as a result of the increased take of the Hawaiian hoary bat and Hawaiian petrel.

3.9 Land Use

The 2011 EIS provides a definition of land use as a resource, summarizes the relevant land use regulations, discusses the existing conditions, and assesses the potential impacts relative to land use that could result from construction and operations and maintenance of the wind farm (as well as the no action alternative). Impacts to land use resulting from Project implementation are commensurate with the assessment provided in the 2011 EIS. No change in potential impacts to land use are anticipated as a result of the increased take of the Hawaiian hoary bat and Hawaiian petrel.

3.10 Transportation and Traffic

The 2011 EIS discusses the existing transportation infrastructure and traffic conditions (as related to O‘ahu’s harbors, roadways and airports), assesses the potential impacts relative to transportation and traffic that could result from construction and operations of the wind farm (as well as the no action alternative), and presents associated mitigation measures. Impacts to transportation and traffic resulting from Project implementation are commensurate with the assessment provided in the 2011 EIS. No change in potential impacts to transportation or traffic are anticipated as a result of the increased take of the Hawaiian hoary bat and Hawaiian petrel.

3.11 Military Operations

The 2011 EIS discusses the existing conditions related to the Tactical Flight Training Area and other military operations in the vicinity of the wind farm, assesses the potential impacts to military operations that could result from construction and operations and maintenance of the wind farm (as well as the no action alternative), and presents associated mitigation measures. Impacts to military operations resulting from Project implementation are commensurate with the assessment provided in the 2011 EIS. No change in potential impacts to military operations are anticipated as a result of the increased take of the Hawaiian hoary bat and Hawaiian petrel.

3.12 Hazardous Materials

The 2011 EIS provides a definition of hazardous materials, discusses the existing conditions, assesses the potential impacts relative to hazardous materials that could result from construction

and operations and maintenance of the wind farm (as well as the no action alternative), and identifies relevant BMPs. Impacts related to hazardous materials resulting from Project implementation are commensurate with the assessment provided in the 2011 EIS. No change in potential impacts related to hazardous materials are anticipated as a result of the increased take of the Hawaiian hoary bat and Hawaiian petrel.

3.13 Socioeconomic Characteristics

The 2011 EIS provides a definition of socioeconomic characteristics, discusses the existing conditions, and assesses the potential impacts that could result from construction and operations and maintenance of the wind farm (as well as the no action alternative). Impacts related to socioeconomic characteristics resulting from Project implementation are commensurate with the assessment provided in the 2011 EIS. No change in potential impacts related to socioeconomic characteristics are anticipated as a result of the increased take of the Hawaiian hoary bat and Hawaiian petrel.

3.14 Natural Hazards

The 2011 EIS provides a definition of natural hazards (including hurricanes and tropical storms, tsunamis, volcanic eruptions, earthquakes, flooding and wildfire), discusses the existing conditions, and assesses the potential impacts relative to natural hazards that could result from construction and operations and maintenance of the wind farm (as well as the no action alternative). Impacts related to natural hazards resulting from Project implementation are commensurate with the assessment provided in the 2011 EIS. No change in potential impacts related to natural hazards are anticipated as a result of the increased take of the Hawaiian hoary bat and Hawaiian petrel.

3.15 Public Safety

The 2011 EIS addresses public safety concerns associated with the wind farm, discusses the existing conditions, and assesses the potential impacts relative to public safety that could result from construction and operations and maintenance of the wind farm (as well as the no action alternative). Impacts to public safety resulting from Project implementation are commensurate with the assessment provided in the 2011 EIS. No change in potential impacts to public safety are anticipated as a result of the increased take of the Hawaiian hoary bat and Hawaiian petrel.

3.16 Public Infrastructure and Services

The 2011 EIS provides a definition of public infrastructure and services (including energy, solid waste, waste and wastewater, and telecommunication services), discusses the existing conditions, and assesses the potential impacts relative to natural hazards that could result from construction and operations and maintenance of the wind farm (as well as the no action alternative). Project-related impacts to public infrastructure and services are commensurate with the assessment provided in the 2011 EIS. No change in potential impacts to public infrastructure and services are anticipated as a result of the increased take of the Hawaiian hoary bat and Hawaiian petrel.

4.0 Other HRS Chapter 343 Topics

4.1 Secondary and Cumulative Impacts

HAR § 11-200-17(I) requires consideration of the direct and indirect effects of a proposed action as well as its induced and secondary effects.[17] The 2011 EIS addressed these topics and concluded that the Project would not cause significant secondary effects relative to conditions associated with the local economy, land use and development, or nearby military training and operations. The associated impacts resulting from Project implementation are commensurate with the assessment provided in the 2011 EIS; the discussion contained in the 2011 EIS is incorporated by reference.

Assessment of cumulative impacts considered other actions that occurred in the recent past, present and reasonably foreseeable future within the vicinity of the Project and involve impacts to resources also affected by the Project. Cumulative impacts can result from otherwise insignificant but incremental effects of individual actions, when considered together. The analysis of potential cumulative impacts in the 2011 EIS focused on climate change, military operations and listed species. There are no substantive changes to the discussion of cumulative impacts on climate change or military operations; the discussion contained in the 2011 EIS is incorporated by reference. A detailed discussion of cumulative impacts on the Hawaiian hoary bat and Hawaiian petrel, based on the analysis conducted for the HCP Amendment process, is provided below.

4.1.1 Listed Species

Take of the Hawaiian hoary bat and Hawaiian petrel has been authorized or requested through HCPs for a variety of projects on Oʻahu, Maui, Hawaiʻi Island, Kauaʻi, and Lānaʻi (Table 4-1). In accordance with the ESA and HRS Chapter 195D, HCPs are required to minimize and mitigate the effects of the incidental take to the maximum extent practicable. In addition to the above requirements, the State of Hawaiʻi requires that all HCPs and the actions authorized under the plan should be designed to result in an overall net benefit to the Covered Species.

In addition to the take that has already been authorized, and the anticipated HCP amendments, the proposed Na Pua Makani Wind Project on Oʻahu and pending requests for ITLs by Pakini Nui Wind Farm and Lalamilo Wind Farm also have the potential to result in incidental take of, and contribute to cumulative impacts to, the Covered Species (Table 4-1). Furthermore, it is anticipated that due to the State's RPS objectives, which require "a renewable portfolio standard of… one hundred percent of net electricity sales by December 31, 2045" (HRS Chapter 269-92), wind energy development in Hawaiʻi will continue in the future. However, it is expected that if the HCPs or HCP amendments for any or all the potential projects are approved, the impacts and mitigation measures will resemble

[17] Secondary effects are those effects which are caused by the action and are later in time or farther removed in distance but are still reasonably foreseeable. Indirect effect may include growth inducting effects and other effect related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems.

those discussed for the Project, where the mitigation measures are expected to offset the anticipated take and provide a net benefit to the species.

At a broader scale, Kawailoa Wind represents one of many development projects that can be expected to occur on the islands of Oʻahu, Maui, Kauaʻi, and Hawaiʻi Island. These islands have experienced increasing human population growth and real estate development, and those will likely continue to increase in the future. This growth may further contribute to some of the causes of decline of the Covered Species, such as mammal predation, light disorientation, pesticide use, and loss of nesting or roosting habitats. Kawailoa Wind's HCP Amendment includes minimization measures for the Hawaiian hoary bat that are expected to result in take levels substantially less than the maximum take amount requested for authorization. Additionally, the adaptive management program provides specific actions to be taken should Tier 5 assumptions (regarding the effectiveness of baseline minimization measures) be invalid. Moreover, through mitigation, projects like Kawailoa Wind are implementing measures to offset take and provide a net benefit to the affected species. In general, it is assumed that future development projects will be conducted in compliance with all applicable local, state, and federal environmental regulations. Updated cumulative effects analysis for the Hawaiian hoary bat and Hawaiian petrel are provided below.

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

Name	Permit Duration	Location	Total Take Currently Authorized[1]	Total Take Pending Approval[2]
Tower Kauaʻi Lagoons Land, LLC	12/09/2016 – 11/09/2042	Lihue, Kauaʻi	Hawaiian petrel (1)	N/A
Kauaʻi Island Utility Cooperative (Short-Term)[3]	Permit renewal for an indefinite period	Kauaʻi (island-wide)		Hawaiian petrel (2 per year)
Kahuku Wind Farm	06/07/2010– 06/06/2030	Kahuku, Oʻahu	Hawaiian petrel (12) Hawaiian hoary bat (32)	N/A
Kawailoa Wind Farm	12/08/2011– 12/07/2031	Haleʻiwa, Oʻahu	Hawaiian hoary bat (60)	Hawaiian petrel (24)[4] Hawaiian hoary bat (265)
Na Pua Makani Wind Project	9/7/2018- 9/6/2039	Kahuku, Oʻahu	Hawaiian hoary bat (51)	N/A
U.S. Army Kahuku Training Area Single Wind Turbine	05/05/2010- 05/09/2030	Kahuku, Oʻahu	Hawaiian hoary bat (2 adults, 2 pups)	N/A
Auwahi Wind Farm	02/24/2012– 02/23/2037	Ulupalakua, Maui	Hawaiian petrel (87) Hawaiian hoary bat (21)	Hawaiian hoary bat (140)
Kaheawa Wind Power I (KWP I)	04/30/2012[5]– 01/29/2026	Kaheawa, Maui	Hawaiian petrel (38) Hawaiian hoary bat (50)	N/A
Kaheawa Wind Power II (KWP II)	1/03/2012– 1/02/2032	Kaheawa, Maui	Hawaiian petrel (43) Hawaiian hoary bat (11)	Hawaiian hoary bat (38)
Lalamilo Wind Farm Repowering Project	No permit	Lalamilo, Hawaiʻi		Hawaiian petrels (3) Hawaiian hoary bat (6)

Name	Permit Duration	Location	Total Take Currently Authorized[1]	Total Take Pending Approval[2]
Pakini Nui Wind Farm	No permit	Ka Lae (South Point), Hawai'i		Hawaiian petrels (3) Hawaiian hoary bat (26)
Pelekane Bay Watershed Restoration Project	02/05/2010-02/04/2030	Pelekane Bay, Hawai'i	Hawaiian hoary bat (16)	N/A

1. Other species may also have incidental take authorizations not reported here. Only the Hawaiian hoary bat and Hawaiian petrel are included in this table.
2. The total take pending approval includes previously authorized take.
3. Identified in USFWS 2018.
4. 24 individuals includes 19 adults and 5 chicks.
5. Original permit issued in 2006 and amended in 2012.

4.1.1.1 Hawaiian Hoary Bat

Multiple factors contribute to cumulative effects on the Hawaiian hoary bat. Actions on O'ahu and statewide that contribute to cumulative impacts include development and land use changes resulting in habitat loss and disturbance, prey alteration, pesticide use, fire, and collisions with structures (such as power lines and wind turbines).

Throughout the state, and specifically on O'ahu, 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 (USFWS 1998, USFWS 2011). Residential and commercial developments, farming, road construction, pesticide use, and wildfire have occurred in the recent past and are expected to occur in the future and have the potential to result in further habitat loss or alteration either directly or through the introduction or spread of invasive species. Other direct impacts to bats associated with these actions may occur through collisions with structures, such as barbed wire fences, and communications towers, or disturbance at roost sites. These actions may also indirectly affect bats through the displacement of or competition for prey resources (USFWS 2011). Fatality rates from wind turbines are the only monitored source of mortality data at this time. The effect of these other actions on Hawaiian hoary bats on O'ahu, and other Hawaiian Islands, has not been quantified, making it difficult to estimate their respective contributions to direct and indirect impacts.

Authorized take at wind facilities also contribute to cumulative impacts. In addition to the Hawaiian hoary bat take authorized under the approved Project HCP, take of the Hawaiian hoary bat has been authorized on O'ahu for the Kahuku Wind Farm and Na Pua Makani Wind Project, as well as for a single wind turbine at the U.S. Army Kahuku Training Area (Table 4-1). Authorized take has also been approved for three wind projects on Maui, two of which are seeking amendments to increase the amount of authorized Hawaiian hoary bat take and has been requested for two wind projects and one restoration project on Hawai'i Island (Table 4-1). Incidental take associated with the Project's HCP Amendment would contribute to these impacts.

Movement of bats among islands is thought to be rare (USGS, pers. comm., 2015); therefore, the Project would be expected to contribute to impacts to the O'ahu population, which has not been previously identified as a conservation priority for the recovery of the species (USFWS 1998, 2011).

The primary criterion for delisting the Hawaiian hoary bat is documentation of well distributed, naturally reproducing, and stable breeding populations on the Hawai‘i, Kaua‘i, and Maui islands, which are thought to be the most substantial populations within the state (USFWS 1998, Bonaccorso 2010). On O‘ahu, where Hawaiian hoary bat movements have been studied in the northern Ko‘olau Mountains and in the vicinity of the Project, the species had an overall occupancy rate of 55 percent over 23 sites (Gorresen et al. 2015). Preliminary results from recently deployed acoustic detections on O‘ahu recorded bat activity nearly island-wide (Erica Adamczyk/WEST, pers. comm., July 2018); however, WEST unpublished data, 2018) the size of the population on O‘ahu is not known at this time.

There are uncertainties in evaluating if the Kawailoa Wind Hawaiian hoary bat take request under the HCP Amendment, in combination with other past and anticipated future actions, will result in a significant cumulative effect to the species. Efforts at estimating the population, population trends, and population viability of the Hawaiian hoary bat have been constrained due to the incomplete understanding of the life history of the species. Key components of a population model typically include the natural lifespan, reproductive rate, annual survivorship (juvenile and adult, accounts for all sources of mortality), starting population, and carrying capacity. The lifespan of the Hawaiian hoary bat has been estimated to be 10 years (DLNR 2015), but records of bat lifespan are scarce. The Hawaiian hoary bat is assumed to be reproductively active after the first year, and each female is thought to produce two offspring per year (USFWS 1998). The USFWS and DOFAW use the little brown bat juvenile survivorship of 30 percent surviving to adulthood, as a proxy for Hawaiian hoary bat juvenile survival (USFWS 2016a). The adult annual rate of survivorship is unknown. The total population of Hawaiian hoary bats is not known, nor is the carrying capacity. On O‘ahu, the Hawaiian hoary bat continues to be found in locations not previously recorded (Erica Adamczyk/WEST, pers. comm., July 2018), and studies have shown that they are able to use a wide variety of habitats (Gorresen et al. 2013, Bonaccorso et al. 2015) suggesting a large starting population may be appropriate. Given the existing data gaps, any population model developed would be subject to multiple inferences and could imply a broad range of population trends depending on what model parameters were selected. Without further research on the Hawaiian hoary bat it would be uncertain if such a model would be representative of current and future population trends specific to O‘ahu or the state population.

It is known that on Hawai‘i Island the population of Hawaiian hoary bats was found to be stable to increasing (Bonaccorso et al. 2015) while the Pakini Nui Wind Farm and the Lalamilo Wind Farm were operating. This suggests that the impacts of these wind energy projects and the older generation wind projects which preceded them do not have a significant impact on the population of bats on Hawai‘i Island. It is possible that a non-significant impact is also occurring to the O‘ahu population which currently has two operating wind facilities. The available knowledge on the Hawaiian hoary bat and the persistence of the species from the time of listing suggests the portion of the population occurring on O‘ahu is likely to be robust to low levels of impacts.

Regardless of these knowledge gaps, approved and pending authorized levels of bat take would be expected to be fully offset by USFWS- and DOFAW-approved mitigation, with the exception of the U.S. Army Kahuku Training Area, for which mitigation is a recommendation under the USFWS’s ESA Section 7 Biological Opinion. Most of the approved and pending HCPs include a combination of habitat

preservation, habitat restoration/management, and research including the mitigation for the Project HCP Amendment (see Section 7.6 for Project-specific Hawaiian hoary bat mitigation). Habitat preservation is typically accomplished through land acquisition (protection through various legal instruments) which provides protection from continued habitat loss due to development. The protection of existing habitat allows for continued use of roosting, foraging, and breeding habitat. Habitat restoration is intended to create or improve the existing quality of bat foraging and roosting habitat, or prevent the degradation of habitat, which has been identified as a major factor contributing to the inferred decline of the species (USFWS 1998). Restoration actions incorporated into the approved and pending HCPs and HCP amendments include actions taken to ensure or promote mature forest growth such as fencing and/or the removal of non-native ungulates, removal of invasive plant species, and/or planting of native trees and shrubs. Over time, these actions are anticipated to create protected high-quality native roosting and foraging habitat, benefiting bats beyond the ITP/ITL term, and thereby resulting in a net benefit to the species. Additionally, the research component of the mitigation is critical to filling information gaps and was identified by the USFWS as a priority recovery action in the Hawaiian hoary bat recovery plan (USFWS 1998). Research projects proposed in approved HCPs will target key questions designed to gain an understanding of basic life history parameters and develop effective mitigation measures for the species (DLNR 2015), which will ultimately guide future management and recovery efforts. Therefore, it is anticipated that cumulatively, there would not be a significant negative impact on the species.

4.1.1.2 Hawaiian Petrel

Multiple factors contribute to the cumulative effects on the Hawaiian petrel including predation by introduced species, ingestion of plastics, crushing of burrows by feral ungulates such as goats, loss of suitable habitat from invasive plant species, disorientation caused by unshielded lighting, collisions with power lines and other structures, and possibly climate change. In addition to these factors, take for the Hawaiian petrel is currently authorized under an ESA Section 10 ITP, HRS Chapter 195D ITL, or ESA Section 7 incidental take statements for five projects in Hawai‘i, and is pending for an additional three projects (see Table 4-1). Two additional HCPs that include the Hawaiian petrel as a Covered Species are in preparation (Kaua‘i Island Utility Cooperative Long-Term and Kaua‘i Seabird Habitat Conservation Program); however, the associated take requests are not publicly available at the time of this writing. Under the ESA, HCPs are required to avoid, minimize, and mitigate to the maximum extent practicable the remaining effects of incidental take.

Although take of Hawaiian petrels authorized under the Kawailoa Wind ITP/ITL amendment would contribute to the cumulative effects to this species, operation of the Project poses a very low risk to Hawaiian petrels. Petrel occurrence at the Project is considered rare and individuals that may occasionally transit the Project area are considered an unusual occurrence. The mitigation for the requested take of 19 adults and 5 chicks for this Project, described in Section 7.3, will contribute to funding Hawaiian petrel management at known breeding colonies and thereby offset the impacts from the requested take. Thus, no significant adverse impact to the population of Hawaiian petrels across the state are anticipated from this Project.

Hawaiian petrel take for many of the projects listed in Table 4-1 has been lower than estimated. At KWP I, seven petrel fatalities have been observed. One petrel fatality has been observed at the Auwahi Wind Farm, and no petrel fatalities have been recorded at the KWP II or Kahuku wind farms. Each of these projects has successfully implemented associated mitigation measures to provide a net benefit to the species (Kaheawa Wind Power, LLC 2017; Kaheawa Wind Power II, LLC 2017; Kahuku Wind Power, LLC 2017; Tetra Tech 2017b).

The most recent breeding population estimate for Hawaiian petrels is estimated to be about 6,000 breeding pairs based on observations at colony sites (Pyle and Pyle 2017). Surveys to date have not provided evidence that breeding colonies are present on O'ahu (Pyle and Pyle 2017; USFWS 2017; Young et al. in prep). Although the total population trend is declining, the overall impacts from the Project would be unlikely to impact the population, and the net effects including mitigation should provide a benefit to the species.

4.2 Short-Term Uses versus Long-Term Productivity

HAR § 11-200-17(J) requires a description of the relationship between local short-term uses by humans of the environment and the maintenance and enhancement of long-term productivity. This description should include a discussion on the extent to which a proposed action involves tradeoffs among short-term and long-term gains and losses, as well as whether future options are foreclosed, whether the range of beneficial uses of the environment are narrowed, and whether the proposed action poses long-term risks to health and safety.

The relationship between short-term uses and long-term productivity relative to the Project was addressed in the 2011 EIS, including a discussion of renewable energy generation, compatibility with agricultural uses, and maintenance of open space. There are no substantive changes to this information; the discussion contained in the 2011 EIS is incorporated by reference.

4.3 Irreversible and Irretrievable Commitment of Resources

HAR § 11-200-17(K) requires a description of the extent to which a proposed action makes use of non-renewable resources or irreversibly curtails the range of potential uses of the environment. Irreversible and irretrievable commitment of resources associated with the Project, particularly with respect to the use of non-renewable resources, was addressed in the 2011 EIS. There are no substantive changes to this information; the discussion contained in the 2011 EIS is incorporated by reference.

4.4 Unavoidable Impacts and Rationale for Proceeding

HAR § 11-200-17(L) requires a description of probable adverse effects which cannot be avoided and the rationale for proceeding with the proposed action. Unavoidable impacts are those effects remaining after adjusting for mitigation measures that minimize, rectify, or reduce impacts of the proposed actions.

As discussed in the 2011 EIS, Kawailoa Wind committed to avoiding or mitigating adverse effects to the extent practical. A detailed listed of the mitigation measures originally identified for the Project

are provided in the 2011 EIS; these have been and continue to be implemented as part of ongoing Project operations, as appropriate. Specific to the increased impact to Hawaiian hoary bat and Hawaiian petrel, Kawailoa Wind has developed and proposes to implement additional avoidance, minimization and mitigation measures; these measures are summarized in Section 3.5.4, with further detail provided in the Draft HCP Amendment.

There are no substantive changes to the rationale for proceeding based on the increased impact to the Hawaiian hoary bat and Hawaiian petrel. The Project continues to be an important source of renewable energy for O'ahu and is contributing to achieving the state's clean energy goals. By decreasing the consumption of fossil fuels, the Project is also helping to reduce greenhouse gas emissions and other forms of pollution. Although the Project is resulting in greater impacts to the Hawaiian hoary bat and Hawaiian petrel 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. When considered in combination with the Project impacts identified in the 2011 EIS and subsequent EA, the effects of implementing the HCP Amendment are not anticipated to result in any new significant environmental impacts.

4.5 Unresolved Issues

HAR § 11-200-17(N) requires a summary of unresolved issues and a discussion of how such issues would be resolved before commencement of a proposed action or what overriding reasons there are for proceeding without resolution of the issues. As detailed in the 2011 EIS, there were no significant issues related to the design and implementation of the Project that remained unresolved at the time the EIS was published. Site constraints and other Project-related concerns were broadly addressed through an iterative planning and siting process, as well as focused stakeholder consultation. In particular, potential conflicts with nearby military operations were addressed through a working group with the relevant stakeholders. The 2011 EIS also noted that permits and approvals needed to be obtained prior to Project implementation, but that no significant outstanding issues were known. As previously described, the permits and approvals were successfully obtained and the Project was constructed in 2012. Because Project operations have resulted in greater impacts to the Hawaiian hoary bat and Hawaiian petrel than previously anticipated, Kawailoa Wind is seeking an amendment to the HCP and ITP/ITL to increase the authorized take levels for the Hawaiian hoary bat and to add the Hawaiian Petrel as a Covered Species, as well as to implement additional minimization and mitigation measures to address the increased take of the Hawaiian hoary bat and Hawaiian petrel. 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 would authorize the increased take levels under ITP/ITL.

5.0 Consistency with Existing Land Use Plans, Policies, and Controls

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 identified 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), National Environmental Policy Act (NEPA) and the Migratory Bird Treaty Act are provided in the following sections. The discussion in the 2011 EIS relative to the Clean Air Act, Clean Water Act, and Federal Aviation Regulations does not require revision with regards to the proposed HCP Amendment and is incorporated by reference.

5.1.1 Endangered Species Act

The purpose of the ESA (16 United States Code [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 essential habitat features, regardless of whether those areas are currently occupied by the listed 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.[18] Section 10(a)(1)(B) of the ESA allows private applicants to obtain an ITP that authorizes impacts to listed species that are incidental to lawful activites and would otherwise be prohibited under Section 9(a)(1)(B). To obtain a permit, the applicant must develop an HCP that analyzes the potential impacts to the listed species and details the measures that would be implemented to mitigate those impacts. Guidance for preparation and required components of an HCP are provided in the revised 2016 Habitat Conservation Planning Handbook (USFWS and NMFS

[18] "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).

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.

In compliance with Section 10 of the ESA, Kawailoa Wind prepared an HCP and was issued an ITP from the USFWS for the Project on December 8, 2011. The original ITP and associated HCP provides authroization for incidental take of the following listed species over the 20-year permit term: Newell's shearwater, Hawaiian duck, Hawaiian stilt, Hawaiian coot, Hawaiian moorhen, Hawaiian short-eared owl, and Hawaiian hoary bat.

As detailed throughout this document, Hawaiian hoary bat take has been higher than anticipated since the start of Project operations, such that Kawailoa Wind is seeking an amendment to the HCP and an increase in the amount of Hawaiian hoary bat take authorized under the ITL. Kawailoa Wind is also requesting authorization for incidental take of the Hawaiian petrel (which was not originally covered in the HCP), given two observed fatalities at the Project and recent surveys documenting Hawaiian petrel occurrence on Oʻahu. The Draft HCP Amendment, which was prepared to address both the federal and state requirements (pursuant to the ESA and HRS Chapter 195D, respectively), was published for public review as part of the federal process in the Federal Register on April 26, 2019. Issuance of an ITP by the USFWS is a Federal action, and therefore is subject to compliance with NEPA. Compliance with NEPA is discussed further in Section 5.1.6.

5.1.2 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) of 1918, as amended (16 USC 703-712) prohibits take of migratory birds; a list of birds protected under MBTA implementing regulations is provided at 50 CFR § 10.13. Unless permitted by regulations, under the MBTA it is unlawful to pursue, hunt, take, capture or kill; attempt to take, capture or kill; possess, offer to or sell, barter, purchase, deliver or cause to be shipped, exported, imported, transported, carried or received any migratory bird, part, nest, egg or product. The USFWS does not currently have a comprehensive program under the MBTA to permit the take of migratory birds by otherwise lawful activities. On December 22, 2017, the Department of the Interior Office of the Solicitor issued a memorandum opinion concluding that the MBTA does not prohibit incidental take of migratory birds.

The bird species addressed in the HCP Amendment are also protected under the MBTA. To avoid and minimize impacts to migratory birds, the Draft HCP Amendment incorporates design and operational features based on application of the USFWS Interim Guidance on Avoiding and Minimizing Impacts to Wildlife from Wind Turbines (issued May 13, 2003). These guidelines contain materials to assist in evaluating possible wind power sites, wind turbine design and location, and pre- and post-construction research to identify and/or assess potential impacts to wildlife. Specific measures that have been adopted by the applicant to avoid and minimize the potential for adverse impacts to migratory birds are detailed in Section 5.3 of the approved HCP. The HCP also specifies that any migratory bird collisions or other impacts that occur with implementation of covered activities will be documented and reported to the USFWS.

5.1.3 Clean Air Act

There are no substantive changes in the status of compliance with the Clean Air Act. The discussion contained in the 2011 EIS is incorporated by reference.

5.1.4 Clean Water Act

There are no substantive changes in the status of compliance with the Clean Water Act. The discussion contained in the 2011 EIS is incorporated by reference.

5.1.5 Federal Aviation Regulations

There are no substantive changes in the status of compliance with Federal Aviation Regulations. The discussion contained in the 2011 EIS is incorporated by reference.

5.1.6 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 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 October 2011, the USFWS completed an Environmental Assessment (EA) that addressed the anticipated environmental effects of issuing an ITP to Kawailoa 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 signed by the USFWS on December 8, 2011.

Based on Kawailoa Wind's request for an amendment to the HCP and ITL, USFWS is responsible for 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 Kawailoa 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 amendments to existing HCPs for the Kaheawa Wind Power II Project and the Auwahi Wind Power project (both located on Maui). 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 O‘ahu. The Draft PEIS was published for public review in the Federal Register on April 26, 2019.

5.2 State of Hawai‘i

The 2011 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 Hawai‘i State Endangered Species Act (HRS Chapter 195D), Hawai‘i Environmental Impact Review Law (HRS Chapter 343), and Hawai‘i State Planning Act (HRS Chapter 226) are provided in the following sections. The discussion provided in the original EIS relative to the Hawai‘i State Energy Resources HRS Chapter 196, Hawai‘i State Environmental Policy (HRS Chapter 344), State Land Use Law (HRS Chapter 205), State Conservation District Law (HRS Chapter 183), Hawai‘i Coastal Zone Management Act (HRS Chapter 205A), 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 State Energy Resources (HRS Chapter 196)

In 2008, the State of Hawai‘i signed an MOU with the U.S. DOE that established the HCEI. A subsequent agreement (the Energy Agreement) signed in October 2008 between the State and the Hawaiian Electric companies specified that the parties would work together to help Hawaiian Electric companies achieve as much as 40 percent renewable energy by 2030. In April 2010, the HCEI Program was added to State law, as HRS Chapter 196. While additional initiatives have developed since 2011, including amendment of the Renewable Portfolio Standards (HRS Chapter 269-92) in 2015 to mandate 100 percent renewable energy in the electricity sector by 2045, and 2017 legislation expanding strategies and mechanisms to reduce greenhouse gas emissions statewide in alignment with the principles and goals adopted in the Paris agreement, there are no substantive changes in the status of compliance with the intent of the HCEI, as codified in the Hawai‘i State Energy Resources HRS Chapter 196. The discussion contained in the 2011 EIS is incorporated by reference.

5.2.2 Hawai‘i State Planning Act (HRS Chapter 226)

There are no substantive changes in the status of compliance with the Hawai‘i State Plan (HRS Chapter 226). However, the State Office of Planning has recently been requesting that environmental review documents include a discussion of compliance with all three components of the Hawai‘i State Plan, as presented in Table 5-1.

Table 5-1. 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	The Project is in compliance with this theme, particularly the following objectives and policies: (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. As discussed in the 2011 EIS, socioeconomic effects of the Project include construction employment and business activity; lease revenue for use of the Project area; revenues for the State in the form of excise taxes and property taxes; substantial fuel cost savings to HECO (which potentially translate into ratepayer savings); ongoing employment of operations and maintenance staff; and ongoing expenditures for materials and outside services.
Economy--agriculture	The Project is in compliance with this theme, particularly the following objectives and policies: (a)(3) An agriculture industry that continues to constitute a dynamic and essential component of Hawai‘i's strategic, economic, and social well-being. As described in the 2011 EIS, the Project is located almost entirely on unirrigated, fallow fields that were previously used for sugar cane cultivation but have not recently been used for agricultural purposes; the facilities were sited to avoid areas that are still used for cultivation. Although the areas within the permanent footprint of the Project facilities are not available for agricultural purposes, the Project allows Kamehameha Schools to maintain the existing agricultural uses of the Kawailoa property, consistent with their North Shore Master Plan and Strategic Agricultural Plan.
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	The Project is in compliance with this theme, particularly the following objectives and policies: (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. (b)(8) Accelerate research and development of new energy-related industries based on wind, solar, ocean, underground resources, and solid waste. As detailed in the 2011 EIS, the Project involves construction and operation of a wind energy facility to provide renewable energy to the island of O‘ahu.
Economy--information industry	This theme is not applicable to the Project.

Components of Hawai'i State Plan	Applicability to the Project
Physical environment--land-based, shoreline, and marine resources	The Project is in compliance with this theme, particularly the following objectives and policies: (b)(3) Take into account the physical attributes of areas when planning and designing activities and facilities. (b)(4) Manage natural resources and environs to encourage their beneficial and multiple use without generating costly or irreparable environmental damage. (b)(8) Pursue compatible relationships among activities, facilities, and natural resources. As detailed in the 2011 EIS, the Project is located in areas that were extensively disturbed as part of previous agricultural operations, with vegetation largely comprised of weedy species. The Project involves take of several endangered species, including the Hawaiian hoary bat, Hawaiian petrel, Newell's shearwater, Hawaiian duck, Hawaiian stilt, Hawaiian coot, Hawaiian moorhen, and Hawaiian short-eared owl. As detailed in the approved HCP and Draft HCP Amendment, compensatory mitigation has been and will continue to be implemented to fully offset the take and provide a net benefit to these species.
Physical environment--scenic, natural beauty, and historic resources	The Project is in compliance with this theme, particularly the following objectives and policies: (a)(1) Promote the preservation and restoration of significant natural and historic resources. (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. Historic sites recorded as part of the archaeological investigation of the Project area include military (World War II) and plantation era features, which have been avoided to the extent possible; in addition, archaeological monitoring was conducted during construction. With respect to visual resources, Project planning and siting was conducted in a manner so as to best integrate the wind turbines with the natural characteristics of the site to minimize visual impacts to the extent possible.
Physical environment--land, air, and water quality	The Project is in compliance with this theme, particularly the following objectives and policies: (a)(1) Maintenance and pursuit of improved quality in Hawai'i's land, air, and water resources. (b)(3) Promote effective measures to achieve desired quality in Hawai'i's surface, ground, and coastal waters. 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.
Facility systems-- solid and liquid wastes; water; transportation; telecommunications	These themes are not applicable to the Project.

Components of Hawai'i State Plan	Applicability to the Project
Facility systems--energy	The Project is in compliance with this theme, particularly the following objectives and policies: (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. (a)(3) Greater diversification of energy generation in the face of threats to Hawai'i's energy supplies and systems. (a)(4) Reduction, avoidance, or sequestration of greenhouse gas emissions from energy supply and use. The Project is a wind energy facility that provides renewable energy to the island of O'ahu. Generation and integration of wind energy into the electric grid decreases fossil fuel consumption, thereby reducing greenhouse gas emissions.
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 PLANS[1]	
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, as it allows Kamehameha Schools to maintain the existing agricultural uses of the Kawailoa property, in accordance with their North Shore Master Plan and Strategic Agricultural Plan.
Conservation Lands	The 2011 EIS identified the possibility of communication facilities in Conservation District lands on Mt. Ka'ala; however, it was subsequently determined that these facilities were not needed, and they were not constructed. 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	The purpose of the Project is to provide clean, renewable wind energy for the island of O'ahu. The Project directly contributes to the Hawai'i Clean Energy Initiative, which includes 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	As detailed in the 2011 EIS, an archaeological inventory survey was completed for the Project. Historic sites that were recorded include military (World War II) and plantation era features, which have been avoided to the extent possible; in addition, archaeological monitoring was conducted during construction.
Housing	This functional plan is not applicable to the Project.

Components of Hawai'i State Plan	Applicability to the Project
Human Services	This functional plan is not applicable to the Project.
Recreation	This functional plan is not applicable 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 GUIDELUINES	
Economic Development	The Project is in compliance with economic priority guidelines, including: (f)(1) Encourage the development, demonstration, and commercialization of renewable energy sources As detailed in the 2011 EIS, the Project is a wind energy facility that provides renewable energy to the island of O'ahu.
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	The Project is in compliance with the sustainability priority guidelines and principles, particularly the following: (1) Encouraging balanced economic, social, community, and environmental priorities. (2) Encouraging planning that respects and promotes living within the natural resources and limits of the State. As detailed in the 2011 EIS, the Project provides a source of renewable energy for the island of O'ahu, directly contributing to the state and county renewable energy goals, as well as providing an economic benefit. Adverse impacts, including those associated with take of endangered species, will be avoided and mitigated to the extent practicable. The overall intent of the Project is to balance the adverse impacts with the need for clean, renewable energy to sustain future generations.
Climate Change Adaptation	By generating renewable energy, the Project contributes to reduced 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.

1. The list of functional plans is based on the inventory and status provided in *The Hawai'i State Plan Update: Phase 1, Final Report* (State Office of Planning, 2018).

5.2.3 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 need for compliance with HRS Chapter 343. The Project originally included communication facilities on Mt. Ka'ala, which would involve two activities that are triggers for compliance with HRS Chapter 343: (1) use of State lands and (2) use of land classified as conservation district. DBEDT

was identified as the approving agency for the 2011 EIS based on their responsibility for preparation of a permit plan for a renewable energy facility under HRS Chapter 201N. An EIS was prepared for the Project; the Final EIS was published by OEQC in the *Environmental Notice* on July 8, 2011 and was accepted by DBEDT on July 20, 2011. Subsequently, an EA was prepared to evaluate the potential impacts associated with implementation of the Project's HCP; DOFAW issued a FONSI, which was published by OEQC in the *Environmental Notice* on October 8, 2011 (see Appendix A).

The Project was constructed in 2012, and Kawailoa Wind is not proposing any changes to the Project 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 and potential impacts to the Hawaiian petrel have subsequently been identified, 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*." Given their request for an SEIS, DOFAW coordinated with DBEDT as the approving agency for the 2011 EIS. In coordination with DBEDT, it was determined that DOFAW would serve as the approving agency for the SEIS (see Appendix B). On July 8, 2018, DOFAW published their determination that an SEIS is required simultaneously with an SEISPN for the Project (see Appendix C). Publication of the SEISPN initiated a 30-day public scoping period. In compliance with the requirement of HAR § 11-200-29 and 11-200-22, this Draft SEIS was published on May 8, 2019; the 45-day public comment period extends through June 24, 2019.

Moving forward, the HCP Amendment will be revised based on the comments received through the Draft HCP Amendment review process. Those revisions, as well as comments received on this Draft SEIS, will be incorporated into a Final SEIS, as appropriate. Approval of the HCP Amendment and ITL would not occur until the Final SEIS has been accepted by DOFAW.

5.2.4 Hawai'i State Environmental Policy (HRS Chapter 344)

There are no substantive changes in the status of compliance with the Hawai'i State Environmental Policy (HRS Chapter 344). The discussion contained in the 2011 EIS is incorporated by reference.

5.2.5 Renewable Energy Facility Siting Process (HRS Chapter 201N)

HRS Chapter 201N, which was enacted by Act 207 in 2008, authorized DBEDT to prepare a permit plan for proposed renewable energy facilities. The purpose of the permit plan was to identify all applicable State and County permits required for approval of the facility and facilitate timely review of those permits. Pursuant to HRS Chapter 201N-8, a permit plan application requires compliance with HRS Chapter 343, with DBEDT as the approving agency for the EIS. DBEDT assisted Kawailoa Wind with development of a permit plan for the Project, and the 2011 EIS was accepted by DBEDT. HRS Chapter 201N was subsequently repealed in 2016, and therefore is no longer applicable to the Project.

5.2.6 Hawai'i 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). The discussion contained in the 2011 EIS is incorporated by reference.

5.2.7 Conservation District (HRS Chapter 183C)

The 2011 EIS identified the possibility of communication facilities which would be located on Mt. Ka'ala, within the Conservation District. However, it was subsequently determined that these facilities were not needed. No portion of the Project is within the Conservation District; therefore, HRS Chapter 183C is not applicable to the Project.

5.2.8 Coastal Zone Management (HRS Chapter 205A)

There are no substantive changes in the status of compliance with the Hawai'i Coastal Zone Management Program (HRS Chapter 205A). The discussion contained in the 2011 EIS is incorporated by reference.

5.2.9 HRS Chapter 6E and National Historic Preservation Act

There are no substantive changes in the status of compliance with the State Historic Preservation Program (HRS Chapter 6E) or with the National Historic Preservation Act. The discussion contained in the 2011 EIS is incorporated by reference.

5.2.10 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 Chapter 195D-4. In addition, any indigenous species may be determined by DLNR to be threatened or endangered based on factors specified in HRS Chapter 195D-4(b). An ITL may be obtained from DOFAW to allow 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.

In compliance with HRS Chapter 195D, Kawailoa Wind prepared an HCP and was issued an ITL from DOFAW for the Project on January 6, 2012. The ITL and associated HCP authorize incidental take of the following listed species over the 20-year permit term: Newell's shearwater, Hawaiian duck, Hawaiian stilt, Hawaiian coot, Hawaiian moorhen, Hawaiian short-eared owl, and Hawaiian hoary bat.

However, Hawaiian hoary bat take has been higher than anticipated since the start of Project operations in November 2012. Fatality estimates indicate that the Project has exceeded the

currently authorized bat take limit, even with the implementation of additional avoidance and minimization measures. Therefore, in 2015, Kawailoa Wind initiated consultation with DOFAW regarding an amendment to the HCP and an increase in the amount of Hawaiian hoary bat take authorized under the ITL. Kawailoa Wind is also requesting authorization for incidental take of the Hawaiian petrel; this species was not originally covered in the HCP and ITL (as it was not known to occur regularly on Oʻahu), but two fatalities have been incidentally observed within the Project area and recent surveys have documented Hawaiian petrel occurrence on Oʻahu. The incidental take coverage requested by Kawailoa Wind is for an additional 205 Hawaiian hoary bats (for a total of 265 bats) and 19 Hawaiian petrel adults and 5 chicks over the 20-year permit term. The Draft HCP Amendment was published in the OEQC Environmental Notice on October 23, 2018 for a 60-day public review period. The Draft HCP was presented to the ESRC on October 25, 2019. In addition, DOFAW held a public hearing on the Draft HCP Amendment on November 29, 2018. To accommodate a required site visit by the ESRC, which was conducted on February 7, 2019, DOFAW extended the public comment period by 60 days (through February 22, 2019).

Table 5-2 lists the specific HCP approval and ITL issuance criteria as specified by HRS Chapter 195D and provides a brief summary of the extent to which each requirements or criterion has been met for the Project.

Table 5-2. 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 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) as well as proposed mitigation for the Hawaiian petrel. As detailed in Section 7 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 and the Hawaiian petrel by the available literature. Collectively, the mitigation actions are expected to result in an overall significant net benefit to both species. Mitigation measures established for the Hawaiian petrel are detailed in Section 7 of the 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 likely to jeopardize the continued existence of any endangered, threatened, proposed, or candidate species identified in the plan area. Furthermore, the HCP Amendment will provide a net conservation benefit to both the Hawaiian hoary bat and the Hawaiian petrel.

Requirement/Criteria	Discussion of Compliance
(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	Implementation of the HCP Amendment is not likely to cause any native species that are not listed at the time of submission to become threatened or endangered. The majority of species that occur within the Project area are non-native and common throughout Hawai'i. 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.
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 petrels and Hawaiian hoary bats are 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 petrel and Hawaiian hoary bat have been and continue to be implemented under the approved HCP. These include operational measures involving LWSC. The current, voluntary LWSC regime (which is proposed to be carried forward under the HCP Amendment) is based on a detailed analysis of the best available information and calculation of a cut-in speed that is the maximum extent practicable. Additional detail on the avoidance and minimization measures for the Hawaiian hoary bat is provided in Section 6B.0 of the HCP Amendment. Minimization measures for the Hawaiian petrel are detailed in Section 5.3 of the approved HCP. Mitigation measures for both species that will result in a net conservation benefit can be found in Section 7.
(2) The applicant shall guarantee that adequate funding for the HCP will be provided	Kawailoa Wind will provide funding and funding assurances for the required conservation (monitoring, minimization, and mitigation) measures in full, as discussed in Section 8.4 and Appendix 18 of the HCP Amendment. Take will not be authorized for the pending tier until funding assurances for the pending tier are in place.
(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 DLNR as a beneficiary. The letter of credit or similar financial instrument will be in place within 6 months of issuance of the ITP and ITL. Additional detail on the funding assurances is provided in Section 8.4 and Appendix 18 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 and mitigated to the maximum extent practicable, such that a net conservation benefit will be provided to the Hawaiian hoary bat and Hawaiian petrel. The proposed mitigation actions are supported as critical to the recovery of these species by the available literature. Collectively, the mitigation actions will lead to increases in current populations, resulting in an overall significant net benefit to both species. Mitigation measures established for the Hawaiian petrel are detailed in Section 7.3.2, and for the Hawaiian hoary bat in Sections 7.6.2, 7.6.3, and 7.6.4 of the 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	Section 6 of the HCP Amendment describes impacts to the Hawaiian hoary bat and Hawaiian petrel at the Project-level as well as island-wide, with cumulative impacts discussed in Section 6.4. Based on population estimates using the best available science, the cumulative impact for current, and proposed wind energy development is not expected to have a significant impact on O'ahu's Hawaiian petrels or Hawaiian hoary bats.
(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 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	As described in Section 6.4, implementation of the HCP and the HCP Amendment will not result in negative cumulative impacts to Covered Species and will provide a net environmental benefit. The additional mitigation for the Hawaiian hoary bat under the amendment would protect, manage, and enhance habitat that is suitable for foraging and roosting. The mitigation for Hawaiian petrels will fully offset the take and will provide a net benefit. Section 7.3.2 specifically evaluates the Hawaiian petrel take offset and net benefit, Section 7.6.3.3 examines the Tier 4 take offset and net benefit for the Hawaiian hoary bat, and Section 7.6.4.1 details the Tier 5 and 6 take, take offset, and net benefit.
(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	Implementation of the proposed actions presented in the HCP Amendment would not cause the loss of genetic representation of any listed plant species.

5.2.11 Mt. Ka'ala Natural Area Reserve Management Plan

The 2011 EIS identified the possibility of communication facilities which would be located on Mt. Ka'ala. However, it was subsequently determined that these facilities were not needed. No portion of the Project is located within the Mt. Ka'ala Natural Area Reserve; therefore, the Project is not required to comply with the Mt. Ka'ala Natural Area Reserve Management Plan.

5.3 County Plans and Policies

The 2011 EIS identified the county plans and policies relevant to the Project and discussed the status of compliance with each regulation. The discussion provided in the original EIS relative to the City and County of Honolulu General Plan,[19] North Shore Sustainable Communities Plan, and the

[19] Proposed revisions to the General Plan were transmitted to the City Council on April 2018. While modifications to the policies have been proposed, they are minor and do not affect Project compliance.

zoning requirements pursuant to the City & County of Honolulu Land Use Ordinance is still applicable and is incorporated by reference.

5.4 Kamehameha Schools North Shore Master Plan

As described in the 2011 EIS, Kamehameha Schools conducted a master planning effort in 2008 to develop a framework for sustainable management for all its land holdings on the north shore of O‘ahu. The resulting plan identified a range of development concepts, including outdoor education, diversified agriculture, and renewable energy, all of which were developed with community input and reflect the vision and mission of Kamehameha Schools. Seven catalyst projects were described in the Master Plan, one of which was a wind energy project on the previous Kawailoa Plantation lands (Kamehameha Schools 2008). There are no substantive changes in the status of compliance with the Kamehameha Schools North Shore Master Plan. The discussion contained in the 2011 EIS is incorporated by reference.

6.0 Required Permits

The permits and approvals required for the Project are listed in Table 6-1. The permits and approvals shown in bold typeface are those that are associated with the increased take of the Hawaiian hoary bat and addition of Hawaiian petrel as a Covered Species. The remaining permits and approvals are those that were obtained prior to construction and remain in effect as applicable for Project operation.

Table 6-1. Permits and Approvals Required for the Kawailoa Wind Farm Project

Permit/Approval	Authorizing Agency/Entity	Status
FEDERAL		
Incidental Take Permit (Endangered Species Act, Section 10(a)(1)(B)) and Habitat Conservation Plan	**USFWS**	**HCP approved, and ITP issued on December 8, 2011; HCP amendment in progress**
National Environmental Policy Act (NEPA) Compliance	**USFWS**	**FONSI issued by USFWS in October 2011; Programmatic EIS (for issuance of amended ITP) in progress**
Federal Aviation and Administration (FAA) Determination of No Hazard to Air Navigation	FAA	Determination obtained prior to construction
Federal Communications Commission (FCC) License	FCC	License obtained prior to construction
STATE OF HAWAIʻI		
Incidental Take License (HRS Chapter 195D) and Habitat Conservation Plan	**DOFAW**	**HCP approved, and ITL issued on January 6, 2012; amendment to HCP in progress**
State of Hawaiʻi Chapter 343 Compliance	**DBEDT (2011 EIS), DOFAW (SEIS)[1]**	**EIS accepted by DBEDT in July 2011 and EA subsequently accepted by DOFAW in September 2011; SEIS in progress**
Request for Use of State Lands	DLNR, Land Management Division	Approval not needed as communication facilities on Mt. Kaʻala were not constructed
Conservation District Use Permit	DLNR Office of Conservation and Coastal Lands	Permit not needed as communication facilities on Mt. Kaʻala were not constructed
Forest Reserve System Special Use Permit	DOFAW	Permit not needed as communication facilities on Mt. Kaʻala were not constructed
Noise Permit	Hawaiʻi Department of Health (HODH)	Obtained prior to construction
Coastal Zone Management Act (CZMA) Federal Consistency Determination	DBEDT, Office of Planning	Federal consistency determination determined to not be required
State Historic Preservation Division (SHPD) Notification and Review	DLNR State Historic Preservation Division (SHPD)	Concurrence obtained prior to construction

Permit/Approval	Authorizing Agency/Entity	Status
Permit to Operate or Transport Oversize and/or Overweight Vehicles and Loads	Hawai'i Department of Transportation (HDOT) Highways Division	Permit obtained prior to construction
National Pollutant Discharge Elimination System (NPDES) Construction Permit	HDOH Clean Water Branch	Permit obtained prior to construction
Power Purchase Agreement (PPA)	HECO, PUC	Agreement executed prior to construction
CITY AND COUNTY OF HONOLULU		
Conditional Use Permit (minor)	City & County of Honolulu Department of Planning and Permitting (DPP)	Permit obtained prior to construction
Conditional Use Permit (minor) for a Joint Development Agreement	DPP	Permit obtained prior to construction
Grading/Grubbing/Stockpiling/Building and Other Construction Permits	DPP	Permits obtained prior to construction
Permit for Movement of Oversize and/or Overweight Vehicles and Loads	City & County of Honolulu Dept. of Transportation Services (DTS)	Permit obtained prior to construction
OTHER		
Approval for Use of Mt. Ka'ala Access Road	Mt. Ka'ala Joint Use Coordinating Committee	Permit not needed as communication facilities on Mt. Ka'ala were not constructed

1. DBEDT was the approving agency for the 2011 EIS. Given their request for an SEIS, DOFAW coordinated with DBEDT with respect to their responsibility as the approving agency. In coordination with DBEDT, it was determined that DOFAW would serve as the approving agency for the SEIS.
2. It is currently anticipated that the proposed mitigation for the Hawaiian hoary bat and Hawaiian petrel would not require any permits based on the scope of the proposed activities. This conclusion would be confirmed prior to implementation of mitigation.

7.0 Consultation and Distribution

As described in the 2011 EIS, Kamehameha Schools conducted a broad community outreach and communication effort as part of their master planning process. This process used a community dialogue structure and provided interested stakeholders and members of the general public with multiple opportunities to learn about the plan. The master plan and the catalyst projects described as part of the plan were developed based on input and feedback obtained through the community outreach process. As one of seven catalyst projects identified in the Master Plan, development of a wind project in the Kawailoa region received broad exposure and was well supported in nearly every one of the more than 30 community meetings convened during the master planning process.

More detailed coordination and consultation with resource agencies, the community and the general public began in 2009, when the Project was first proposed by Kawailoa Wind. 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 the 2011 EIS Appendices E and F) and the subsequent EA; this information is incorporated by reference. Following is a discussion of consultation that has been conducted subsequent to the 2011 EIS and EA, specifically in support of the HCP Amendment and this SEIS process.

7.1 Consultation

Specific to the increase in estimated take of the Hawaiian hoary bat and the addition of Hawaiian petrel as a Covered Species, Kawailoa Wind initiated consultation with USFWS and DOFAW in 2015, with ongoing consultation conducted since that time. Consultation efforts have included multiple meetings with the ESRC and other opportunities for public input. 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
November 2015	USFWS, DOFAW	Meeting to discuss Kawailoa Wind's intent to pursue an amendment of HCP and ITP/ITL
December 29, 2015	USFWS, DOFAW	Kawailoa Wind provided initial Draft HCP Amendment to USFWS and DOFAW
February 1, 2016	USFWS	USFWS provided comments on initial Draft HCP Amendment
August 9, 2016	USFWS	Meeting with USFWS to discuss the HCP Amendment
October 11, 2016	USFWS	USFWS provided additional comments on initial Draft HCP Amendment
December 8, 2016	Trust for Public Lands, DLNR, ESRC	Presentation to ESRC with Trust for Public Lands and DLNR regarding proposed acquisition of Helemano Wilderness Area as Tier 4 mitigation

Date	Parties Involved	Summary of Consultation Activity
January 30, 2017	USFWS	USFWS provided a signed letter of support to Kawailoa Wind regarding Helemano Wilderness Area as mitigation
June 26, 2017	DOFAW	DOFAW provided a signed letter of support to Kawailoa Wind regarding Helemano Wilderness Area as mitigation
October 30, 2017	USFWS and DOFAW	Kawailoa Wind provided second Draft HCP Amendment to USFWS and DOFAW
January 25, 2018	DOFAW	DOFAW provided comments on second Draft HCP Amendment
January 29, 2018	USFWS Regional Office	USFWS Regional Office provided comments on second draft HCP Amendment
March 27, 2018	USFWS and DOFAW	Meeting with USFWS and DOFAW to discuss the HCP Amendment
May 1, 2018	USFWS and DOFAW	Presentation to USFWS and DOFAW on HCP Amendment
July 8, 2018	DOFAW, OEQC, public	DOFAW published SEIS Preparation Notice (SEISPN) in OEQC's *Environmental Notice,*initiating 30-day public scoping period
July 13, 2018	USFWS and DOFAW	Kawailoa Wind provided third Draft HCP Amendment to USFWS and DOFAW
August 7, 2018	USFWS	USFWS provided comments on third Draft HCP Amendment
August 10, 2018	USFWS	Meeting with USFWS to discuss critical issues on HCP Amendment
August 15, 2018	USFWS and DOFAW	Kawailoa Wind provided fourth Draft HCP Amendment to USFWS and DOFAW
August 16, 2018	DOFAW	DOFAW provided comments on fourth Draft HCP Amendment
August 29, 2018	DOFAW	Meeting with DOFAW to discuss comments on the HCP Amendment
September 1, 2018	USFWS	Kawailoa Wind provided fifth Draft HCP Amendment to USFWS
September 14, 2018	KESRP	KESRP provided a letter of support with summary of the need for funding for predator control and burrow monitoring at Hanakāpiʻai and Hanakoa breeding colonies
September 21, 2018	DOFAW	DOFAW provides a second signed letter of support to Kawailoa Wind regarding Helemano Wilderness Area as mitigation
September 26, 2018	USFWS	USFWS provides a second signed letter of support to Kawailoa Wind regarding Helemano Wilderness Area as mitigation
September 28, 2018	USFWS and DOFAW	Kawailoa Wind provided sixth Draft HCP Amendment to USFWS and DOFAW
October 23, 2018	DOFAW, OEQC, public	DOFAW published Draft HCP Amendment in OEQC's *Environmental Notice,* initiating 60-day public comment period
October 23, 2018	OEQC	Meeting with OEQC to discuss requirements for SEIS
October 25, 2018	USFWS, DOFAW, ESRC	Presentation of Draft HCP Amendment to ESRC
November 29, 2018	DOFAW	DOFAW held public hearing for Draft HCP Amendment
November 20, 2018	USFWS Regional Office	USFWS Regional Office provided comments on sixth draft HCP Amendment

Date	Parties Involved	Summary of Consultation Activity
December 23, 2018	DOFAW, OEQC, public	DOFAW re-published Draft HCP Amendment in OEQC's *Environmental Notice*, extending public comment period for an additional 60 days
February 7, 2019	DOFAW, ESRC and the public	Site visit by ESRC (open to members of the public)
March 20-21, 2019	Community members and elected officials	One-on-one meetings with north shore neighborhood board representatives and elected officials

7.2 SEISPN Distribution

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

Table 7-2. SEISPN Distribution List

Federal Agencies	Organizations, Individuals and Consulted Parties
U.S. Geological Survey, Pacific Islands Water Science Center	Kamehameha Schools
U.S. Fish and Wildlife Service	Sierra Club of Hawai'i, O'ahu Group
National Marine Fisheries Service	Sierra Club, Maui Group
National Parks Service	Hi'ipaka LLC (Waimea Valley)
National Resources Conservation Service	Hawai'i Audubon Society
U.S. Army Corps of Engineers	Keep the North Shore Country
Department of the Navy	Aha Moku O Kaupo Representative
Federal Aviation Administration	The Nature Conservancy
Federal Transit Administration	Hawai'i Wildlife Center
Federal Highways Administration	Good Shepherd Foundation
U.S. Coast Guard	Maui Tomorrow Foundation
Environmental Protection Agency	NRG-Hawai'i
State Agencies	NRG-West Region
Department of Agriculture	Kalehua Lu'uwai
Department of Accounting and General Services (DAGS)	Brandon Gurat
DAGS Archives Division	Keahi Bustamente
DBEDT	Doug McLeod
DBEDT Research Division Library	Paul Hanada
DBEDT Strategic Industries Division	James Ryan
DBEDT Office of Planning	Sally Kaye
Hawai'i Emergency Management Agency	Doug McLeod
Department of Education	Shawn Slocum
Office of Hawaiian Affairs	Paul Thurston

Federal Agencies	Organizations, Individuals and Consulted Parties
Hawai‘i State Energy Office	B P Bishop Trust Estate
City & County of Honolulu	Louis K III & Lesley H K Agard Trust
Department of Planning and Permitting	Michael & Patrice Wright
Elected Officials	Luann Casey & Gary Gunder
U.S. Senator Brian Schatz	City and County of Honolulu
U.S. Senator Mazie Hirono	B P Bishop Trust Estate
U.S. Representative Tulsi Gabbard	Gordon Saker
State Senator Gil Riviere	Steve & Lillian Watanabe
State Senator Russell E. Ruderman	**News Media**
State Representative Chris Todd	Honolulu Star Advertiser
State Representative Sean Quinlan	Hawai‘i Tribune Herald
State Representative Lei R. Learmont	West Hawai‘i Today
Mayor Kirk Caldwell	The Garden Island
Councilmember Ernest Y. Martin	Maui News
Chairperson, North Shore Neighborhood Board	Moloka‘i Dispatch
Libraries	Honolulu Civil Beat
Hawai‘i State Library, Hawai‘i Documents Center	
Kaimuki Regional Library	

7.3 Comments Received on SEISPN

Upon publication of the SEISPN in the Environmental Notice, a 30-day public comment was held (from July 8, 2018 to August 7, 2018). A total of 5 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 D.

Table 7-3. Summary of Comments Received on SEISPN

Agency or Individual	Date of Comment	Summary of Comments Provided
State of Hawai'i Department of Accounting and General Services	Letter dated July 24, 2018	Project is not expected to have an impact on DAGS' facilities. Requests coordination if there is a change in these conditions.
City & County of Honolulu Department of Planning and Permitting	Letter dated July 27, 2018	No comments at this time.
No'eau Machado	Undated letter	• Notes concern with estimated increase in take of Hawaiian hoary bat and addition of Hawaiian petrel take, especially from members of the Hawaiian community • Emphasizes endangered status and decline of Hawaiian hoary bat and Hawaiian petrel populations • Expresses support for sustainable energy sources, but stresses that such projects are still development that drives habitat loss • Requests information regarding initial take calculations, as well as reasons why Hawaiian hoary bat take must be adjusted and Hawaiian petrel were not initially included in HCP • Requests information regarding avoidance and minimization measures, as well as reasons why additional measures are not already in place • States that current authorized take amounts should be provided to community members and policy/decision makers for context
State of Hawai'i Office of Planning	Letter dated August 13, 2018	No comments at this time.

7.4 Draft SEIS Distribution

The Draft SEIS was submitted to OEQC for publication in the May 8, 2019 edition of the *Environmental Notice*. Publication of the Draft SEIS marks the beginning of a 45-day public review period, which ends on June 24, 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 hard-copy documents were provided to libraries.

Table 7-4. Draft SEIS Distribution List

Federal Agencies	Organizations, Individuals and Consulted Parties
U.S. Geological Survey	Kamehameha Schools
U.S. Fish and Wildlife Service	Sierra Club of Hawaii, Oahu Group
National Marine Fisheries Service	Sierra Club of Hawaii, Maui Group
National Parks Service	Hiʻipaka LLC (Waimea Valley)
National Resources Conservation Service	Hawaiʻi Audubon Society
U.S. Army Corps of Engineers	Keep the North Shore Country
Department of the Navy	Sunset Beach Community Association and Pupukea Seniors
Federal Aviation Administration	North Shore Chamber of Commerce
Federal Transit Administration	Aha Moku O Kaupo Representative
Federal Highways Administration	The Nature Conservancy
U.S. Coast Guard	Hawaiʻi Wildlife Center
Environmental Protection Agency	Good Shepherd Foundation
State Agencies	Maui Tomorrow Foundation
Department of Agriculture	NRG-Hawaiʻi
Department of Accounting and General Services (DAGS)	NRG-West Region
DAGS Archives Division	Noʻeau Machado
Dept. of Business, Economic Dev. and Tourism (DBEDT)	Kalehua Luʻuwai
DBEDT Research Division Library	Brandon Gurat
DBEDT Strategic Industries Division	Keahi Bustamente
DBEDT Office of Planning	Doug McLeod
Hawaiʻi Emergency Management Agency	Paul Hanada
Department of Education	James Ryan
Hawaiʻi State Energy Office	Sally Kaye
Department of Hawaiian Homelands	Doug McLeod
Department of Health, Environmental Health Administration	Shawn Slocum
Department of Land and Natural Resources	Paul Thurston
State Historic Preservation Division	B P Bishop Trust Estate
Department of Transportation	Louis K III & Lesley H K Agard Trust
University of Hawaiʻi Water Resources Research Center	Michael & Patrice Wright
University of Hawaiʻi Environmental Center	Luann Casey & Gary Gunder
Office of Hawaiian Affairs	City and County of Honolulu
City & County of Honolulu	B P Bishop Trust Estate
Board of Water Supply	Gordon Saker
Department of Design and Construction	Steve & Lillian Watanabe
Department of Environmental Services	**Libraries**
Department of Facilities Maintenance	Hawaiʻi State Library, Hawaiʻi Documents Center
Honolulu Fire Department	Kaimuki Regional Library
Department of Community Services	Kahuku Public and School Library
Department of Planning and Permitting	Waialua Public Library

Department of Parks and Recreation	University of Hawaii (UH) Thomas H. Hamilton Library
Honolulu Police Department	UH Hilo, Edwin H. Mo'okini Library
Department of Transportation Services	UH Maui College Library
Elected Officials	Kauai Community College Library
U.S. Senator Brian Schatz	Legislative Reference Bureau Library
U.S. Senator Mazie Hirono	**News Media**
U.S. Representative Tulsi Gabbard	Honolulu Star Advertiser
State Senator Gil Riviere	Hawai'i Tribune Herald
State Representative Nicole E. Lowen	West Hawai'i Today
State Representative Tina Wildberger	The Garden Island
State Senator Glenn Wakai	Maui News
State Senator Brian T. Taniguchi	Molokai Dispatch
State Senator Mike Gabbard	Honolulu Civil Beat
State Senator Russell E. Ruderman	The North Shore News
State Representative Sean Quinlan	
State Representative Amy Perruso	
Mayor Kirk Caldwell	
Councilmember Heidi Tsuneyoshi	
North Shore Neighborhood Board, Chair	

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
Karen Brimacombe, Tetra Tech	Project planner
Tiffany Agostini, Tetra Tech	Biological resources (HCP amendment)
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
Brita Woeck, Kawailoa Wind	Environmental compliance manager
Adam Young, Kawailoa Wind	Asset manager

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Appendix A. 2011 EIS and 2011 EA Acceptance and Publication Documentation

THE ENVIRONMENTAL NOTICE

A semi-monthly periodic bulletin published by the Office of Environmental Quality Control pursuant to Section 343-3, Hawai'i Revised Statutes

July 8, 2011

HAWAI'I NOTICES (HRS 343)

1. Kawaihae Road – Waiaka Bridge Replacement and Realignment of Approaches DEA 2
2. Hawai'i Experimental Tropical Forest: Laupahoehoe Construction DEA 2

MAUI NOTICE (HRS 343)

3. Easter Seals Hawai'i Maui Center for Disability Services FEA 3

O'AHU NOTICES (HRS 343)

4. Hilton Hawaiian Village Master Plan Improvements FEIS 4
5. Kalaeloa Energy Corridor FEA 4
6. Kawailoa Wind Farm FEIS 5

KAUA'I NOTICES (HRS 343)

7. Secret Beach Properties FEA 6
8. Pipeline Replacement from Kilauea to Anini DEA 7

HAR §11-200-27 DETERMINATION

Determination on Change of Ingress/Egress: Lalamilo Project
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Note: If you get a message saying that the file is damaged when you click on the link, then the file is too big to open within your web browser. To view the file, download directly to your hard drive by going to File and select Save As in your web browser.

The Environmental Notice informs the public of environmental assessments and other documents that are available for review and comment per HRS 343-3 and is issued on the 8th and 23rd of each month on the Office of Environmental Quality Control's website. If you would like to be notified when it is issued, send us your email address and we'll put you on our mailing list.

Neil Abercrombie, Governor · Gary Hooser, Director · Office of Environmental Quality Control · 235 South Beretania Street, Suite 702 · Honolulu, HI 96813
Tel: 586-4185 · Fax: 586-4186 · Email: oeqc@doh.Hawai'i.gov
Website: http://Hawai'i.gov/health/environmental/oeqc/index.html/
Toll Free: Kaua'i: 274-3141 ext. 64185 · Maui: 984-2400 ext. 64185 · Moloka'i/Lānai: 1-800-468-4644 ext. 64185 · Hawai'i: 974-4000 ext. 64185

Proposing/Determination
Agency: Hawai‘i Community Development Authority, State of Hawai‘i, 461 Cooke Street, Honolulu, Hawai‘i 96813. Contact: Tesha Malama, (808) 692-7245
Consultant: Belt Collins Hawai‘i Ltd., 2153 North King Street, Suite 200, Honolulu, Hawai‘i 96819. Contact: Glen Koyama, (808) 521-5361
Status: Finding of No Significant Impact (FONSI)

The proposed action calls for the installation of a utility duct-line along lower Fort Barrette Road and Enterprise Avenue from Kapolei Parkway to Midway Road. The new duct-line is to provide a separate utility system from the existing Navy system of the former Naval Air Station-Barbers Point to serve the non-Navy occupants in Kalaeloa. A connecting duct-line will also be installed along Saratoga Avenue from an existing electrical substation to the new duct-line along Enterprise Avenue.

The proposed duct-line will have a total length of approximately 8,400 feet and a typical section that measures 1-1/2 feet by 3 feet. It will include several encased PVC conduits to separately hold electrical cables, telephone lines, and cable TV lines. With the provision of power along Enterprise Avenue, the proposed action will also include the installation of street lighting fixtures.

The proposed duct-line will be installed predominantly under the road pavement at a depth of approximately five feet (along lower Fort Barrette Road, the duct-line will be in shoulder area). To assure no interference or disruption of existing utility services, the specific location of the duct-line within the project rights-of-way will be coordinated with the U.S. Navy and utility companies having current facilities within the affected ROWs. A traffic control plan will be implemented to accommodate through traffic during project construction. The long-term operations of the underground duct-line will not result in any significant adverse impact on the environment.

The source of funding for the project will be State of Hawai‘i monies through the Hawai‘i Community Development Authority. Construction is anticipated to begin in mid 2011 and be completed by the end of 2012.

6. Kawailoa Wind Farm Final EIS

Island: O‘ahu
District: Waialua
TMK: *Wind farm:* 61005001, 61006001, 61007001, 62011001
Traversed by existing onsite access roads: 61005003, 61005007, 61005014, 61005015, 61005016, 61005019, 61005020, 61005021, 61005022, 61008025, 62002001, 62002002, 62002025, 62009001
Communication sites: 67003024
Permits: *Wind farm:* Endangered Species Act (ESA) Section 10 Incidental Take Permit; Federal Aviation Administration (FAA) Determination of No Hazard to Air Navigation; Federal Communications Commission (FCC) License; State Endangered Species Incidental Take License; Noise Permit; Permit to Operate or Transport Oversize and/or Overweight Vehicles and Loads; Conditional Use Permit (Minor)
Communication site: Conservation District Use Permit; Request for Use of State Lands; Forest Reserve System Special Use Permit
Applicant: Kawailoa Wind, LLC, 810 Richards Street, Suite 650, Honolulu, Hawai‘i 96813. Contact: Wren Wescoatt, (808) 695-3300
Approving Agency: State of Hawai‘i, Department of Business, Economic Development and Tourism (DBEDT), P.O. Box 2359, Honolulu, Hawai‘i 96804. Contact: Ms. Malama Minn, (808) 587-9000
Consultant: CH2M HILL, Inc., 1132 Bishop Street, Suite 1100, Honolulu, Hawai‘i 96813. Contact: Paul Luersen; Phone: (808) 943-1133
Status: Accepted by the Approving Agency

The Proposed Action is to construct and operate a 70-megawatt wind farm on Kamehameha Schools' Kawailoa Plantation lands. In addition to wind turbine generators and appurtenant facilities at the wind farm site, the project would require installation of communication equipment on existing structures at existing communication sites on Mt. Ka'ala. The Final EIS evaluates the ecological, aesthetic, historic, cultural, military training, economic, social, and health effects that could result from the Proposed Action and its alternatives. This evaluation indicates that the adverse impacts would be relatively small in comparison to the benefits provided by the generation of additional renewable energy for O'ahu consumers. To the extent possible, the Proposed Action has been developed so as to avoid or minimize potential adverse impacts; in those cases where impacts cannot be avoided or minimized, mitigation measures have been identified. The Proposed Action has the potential for incidental take of six federally and/or State listed threatened or endangered species. The cumulative effects of other existing and proposed wind farms on O'ahu's North Shore were considered in the analysis of potential take. The proposed mitigation is expected to more than offset the anticipated take and provide a net benefit to the listed species.

KAUA'I NOTICES (HRS 343)

7. Secret Beach Properties Final EA (FONSI)

Island: Kaua'i
District: Hanalei
TMK: (4) 5-2-005:036
Permits: Conservation District Use Permit, Special Management Area Minor Permit, and Shoreline Setback Determination
Applicant: Secret Beach Properties, LLC, P.O. Box 781, Kilauea, Hawai'i 96754. Contact: Michele and Justin Hughes, (808) 639-0904
Approving Agency: Department of Land and Natural Resources, Office of Conservation and Coastal Lands, Kalanimoku Building, 1151 Punchbowl Street, Honolulu, Hawai'i 96813. Contact: Mr. Samuel Lemmo, (808) 587-0377
Consultant: SSFM International, Inc., 501 Sumner Street, Suite 620, Honolulu, Hawai'i 96817. Contact: Ms. Robyn Loudermilk, (808) 531-1308
Status: Finding of No Significant Impact (FONSI)

Secret Beach Properties, LLC will obtain a number of after-the-fact permits for approximately two (2) miles of trails and associated improvements across the width of the 23.803 acres property as well as two mauka-makai trails from the top of the coastal bluff to the shoreline area. These trails are required to access and maintain the property.

Additionally, Secret Beach Properties, LLC will seek approval for the removal of unwanted vegetation, including trees, subject to plans to be submitted to and approved by the Department of Land and Natural Resources Office of Conservation and Coastal Lands.

Lastly, Secret Beach Properties, LLC will also seek approval for the installation of a mauka boundary fence should illegal activities continue to occur on the property. These improvements are required for access and management of these lands.

Maintenance activities associated with the proposed action may directly result in short term impacts related to air and noise quality. Construction activities associated with the mauka boundary fence may also result in short term impacts to air and noise quality. However, these impacts will be localized and not affect surrounding properties. Air and noise quality will be mitigated through the use of appropriate best management practices.

Secondary impacts are not expected due to the size and location of the proposed action.

Cumulative impacts of the proposed action are neutral to positive. The existing improvements will remain in place and continue to be compatible with the natural characteristics of the Property. Proposed

COPY

NEIL ABERCROMBIE
GOVERNOR

RICHARD C. LIM
DIRECTOR

MARY ALICE EVANS
DEPUTY DIRECTOR

DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM

No. 1 Capitol District Building, 250 South Hotel Street, 5th Floor, Honolulu, Hawaii 96813
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804
Web site: www.hawaii.gov/dbedt

Telephone: (808) 586-2355
Fax: (808) 586-2377

2011:0720091659

July 20, 2011

Mr. Wren Wescoatt
Development Manager
First Wind, LLC
810 Richards Street, Suite 650
Honolulu, Hawai'i 96813

RECEIVED
'11 JUL 27 A10:14
OFC. OF ENVIRONMENTAL QUALITY CONTROL

Subject: Acceptance of Kawailoa Wind Farm Project Final Environmental Impact Statement

Dear Mr. Wescoatt:

On behalf of the Hawai'i Department of Business, Economic Development & Tourism (DBEDT), I hereby accept the Final Environmental Impact Statement (FEIS) for the Kawailoa Wind Farm Project, as satisfactory fulfillment of the requirements of Chapter 343, Hawai'i Revised Statutes. The environmental, economic, and social impacts which will likely occur should this project be built are adequately described in the Statement. The analysis, together with the comments made by reviewers, provides useful information to decision-makers and the public.

Acceptance of the Statement is an affirmation of the adequacy of said Statement under the applicable laws. DBEDT finds that the mitigation measures proposed in the FEIS will minimize the potential negative impacts of the project.

In implementing this project, I hereby direct First Wind, LLC and/or its agent(s) to perform these or comparable mitigation measures at the discretion of the permitting agencies. The mitigation measures identified in the FEIS are described in the attached document.

Sincerely,

Richard C. Lim

Attachment

cc: Office of Environmental Quality Control
Mr. Paul Luerson, CH2M Hill

NEIL ABERCROMBIE
GOVERNOR

RICHARD C. LIM
DIRECTOR

MARY ALICE EVANS
DEPUTY DIRECTOR

DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM

No. 1 Capitol District Building, 250 South Hotel Street, 5th Floor, Honolulu, Hawaii 96813
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804
Web site: www.hawaii.gov/dbedt

Telephone: (808) 586-2355
Fax: (808) 586-2377

July 20, 2011

Mr. Gary Hooser, Director
Office of Environmental Quality Control
State of Hawaii Department of Health
235 South Beretania Street, Suite 702
Honolulu, Hawai`i 96813

RECEIVED
'11 JUL 27 A10:04

Dear Mr. Hooser:

Subject:	ACCEPTANCE REPORT Chapter 343, Hawaii Revised Statutes Final Environmental Impact Statement
Project:	Kawailoa Wind Farm Project
Applicant:	First Wind, LLC (dba Kawailoa Wind, LLC)
Agent:	CH2MHill
Location:	Wind Farm: Kawailoa Plantation, North Shore, Island of O'ahu Communication Site: Mt. Ka'ala, Waianae, Island of O'ahu
TMK:	Wind farm: 61005001, 61006001, 61007001, 62011001 Traversed by existing onsite access roads: 61005003, 61005007, 61005014, 61005015, 61005016, 61005019, 61005020, 61005021, 61005022, 61008025, 62002001, 62002002, 62002025, 62009001 Communication site: 67003024

A. BACKGROUND

The Proposed Action is to construct and operate a 70-megawatt wind farm on Kamehameha Schools' Kawailoa Plantation lands. In addition to wind turbine generators and appurtenant facilities at the wind farm site, the project will require installation of communication equipment on existing structures at existing communication sites on Mt. Ka'ala. The Final EIS discloses and evaluates the ecological, aesthetic, historic, cultural, military training, economic, social, and health effects that could result from the Proposed Action and its alternatives. This evaluation indicates that the adverse impacts will be relatively small in comparison to the benefits provided by the generation of additional renewable energy for Oahu consumers. To the extent possible, the Proposed Action has been developed so as to avoid or minimize potential adverse impacts; in those cases where impacts cannot be avoided or minimized, mitigation measures have been

identified. The Proposed Action has the potential for incidental take of six Federally and/or State listed threatened or endangered species. The cumulative effects of other existing and proposed wind farms on O'ahu's North Shore were considered in the analysis of potential take. The proposed mitigation is expected to more than offset the anticipated take and provide a net benefit to the listed species.

B. PROCEDURE

1. An EIS Preparation Notice (EISPN) for this project was published in the September 23, 2010, issue of The Environmental Notice.
2. The 30-day consultation period for this project expired on October 30, 2010. During this period, 7 letters were received which offered comments. The substantive comment letters as well as the responses to them are included in the Final EIS.
3. The Draft EIS for this project was published in the February 23, 2011, issue of The Environmental Notice.
4. The 45-day review period for this project expired on April 9, 2011. The Applicant responded to 27 comment letters. These letters and the responses are included in the Final EIS.
5. The Final EIS for this project was published in the July 9, 2011 issue of The Environmental Notice.

C. AGENCY & PUBLIC CONSULTATION

Over an 18-month period beginning in 2007, Kamehameha Schools (landowner) conducted a broad community outreach and communication effort as part of their master planning process. This process used a community dialogue structure and provided interested stakeholders and members of the general public with multiple opportunities to learn about the Plan. The structure was based on a variety of meeting formats, including small-group stakeholder meetings (6 to 12 stakeholders), community liaison meetings (with recognized community leaders), large-group public meetings, neighborhood board presentations, and briefings with elected officials. They consulted with more than 30 small and large community groups that included *kūpuna* (elders), local farmers, business owners, community associations, schools and churches. The Master Plan and the catalyst project described therein were developed based on input and feedback obtained through the community outreach process. The Plan received significant community support by virtue of the transparent methodology used in its development and its responsive integration of community values into an overall framework of regional sustainability. As one of the seven catalyst projects identified in the Master Plan, development of a wind project in the Kawailoa region has received broad exposure and was well supported in nearly every one of the more than 30 community meetings convened during the master planning process.

Subsequent to purchasing the rights to the project, Kawailoa Wind began consultations with a variety of agencies, public entities and community members. The purpose of the consultations was to provide information about the status of the project and request input on project development. The list of parties consulted to date is presented below.

Agencies and Other Parties Consulted To Date

Agency/Entity	Contact Name	Date of Consultation
US Fish and Wildlife Service, Pacific Islands Fish and Wildlife Office	Mr. James Kwon	June 2009
	Mr. Aaron Nadig Ms. Megan Laut	October 4, 2010 October 13, 2010 January 20, 2011 March 4, 2011 April 20, 2011 June 7, 2011
State of Hawai'i Department of Land and Natural Resources, Office of Coastal and Conservation Lands	Ms. Tiger Mills, Planner	June 24, 2010
	Mr. Sam Lemmo, Administrator	July 15, 2010
State of Hawai'i, DLNR, Division of Forestry and Wildlife (DOFAW)	Ms. Lauren Goodmiller	July 2010
	Ms. Sandee Hufana	August 12, 2010 October 4, 2010 January 20, 2011 March 4, 2011 April 20, 2011 June 7, 2011
State of Hawai'i Department of Business and Economic Development and Tourism	Ms. Malama Minn Mr. Cameron Black	January 21, 2010 August 16, 2010 September 9, 2010 March 29, 2011
	Mr. Josh Strickler	September 14, 2010
Outdoor Circle	Mr. Robert Leinau	September 13, 2010 February 8, 2011
Sierra Club	Robert Harris, Executive Director	April 14, 2011
Endangered Species Recovery Committee (ESRC)	ESRC members	September 23, 2010 December 6, 2010 December 7, 2010
North Shore Neighborhood Board	Mr. Mike Lyons, Chair	Februray 23, 2010 October 26, 2010 February 22, 2011
Office of Deputy Assistant Secretary of the Army	Mr. Howard Killian, Hawai'i Environmental and Sustainability Coordinator	July 29, 2010 October 22, 2010
Aviation Operations Planning Board	Mr. Howard Killian, Hawai'i Environmental and Sustainability Coordinator	October 27, 2010

Agencies and Other Parties Consulted To Date

Agency/Entity	Contact Name	Date of Consultation
Regional Mission Compatibility Review Team (RMCRT)	Mr. Howard Killian Representatives of affected DoD services (including the Army, Marine Corps, Navy and Air Force)	November 10, 2010 December 15, 2010 January 24, 2011 March 4, 2011 April 15, 2011 June 2, 2011
U.S. Army Garrison, PACOM and Hawai'i Army National Guard	COL Douglas Mulbury	October 1, 2010 October 15, 2010 October 29, 2010
North Shore Chamber of Commerce	Ms. Antya Miller	November 16, 2010
Waimea Valley (Hi'ipaka LLC)	Ms. Gail Ann Chew, Executive Director	January 5, 2011 April 8, 2011 May 18, 2011
State of Hawai'i Department of Transportation	Mr. George Abcede Mr. Scott Naleimaile	January 24, 2011
City and County of Honolulu, Department of Planning and Permitting (DPP)	Mr. Jamie Peirson	January 25, 2011 June 9, 2011
State of Hawai'i Land Use Commission	Mr. Dan Davidson Mr. Scott Derrickson	January 31, 2011
State of Hawai'i Department of Health, Office of Environmental Quality Control (OEQC)	Mr. Gary Hooser	March 22, 2011
	Mr. Leslie Segundo Mr. Herman Tuiolosega	January 31, 2011
	Ms. Kathy Kealoha	August 13, 2010
State of Hawai'i Department of Business, Economic Development, and Tourism (DBEDT) Office of Planning	Ms. Mary Lou Kobayashi Ms. Mary Alice Evans Ms. Ruby Edwards Mr. Shichao Lii	February 7, 2011
	Mr. Jesse Souki Ms. Mary Alice Evans	March 22, 2011
State of Hawai'i Department of Agriculture	Mr. Russell Kokubun	April 5, 2011
Office of Hawaiian Affairs	Ms. Esther Kia'aina, Chief Advocate	April 29, 2011
Friends of Waialua	Ms. Kathleen Pahinui, Chair	February 9, 2011
Office of U.S. Senator Daniel Inouye	Mr. Alan Yamamoto, Aide	February 15, 2011
Kōkua Hawai'i Foundation	Ms. Natalie McKinney, Director of Program Development	May 1, 2011
Kamehameha Schools (Community Open House, attended by many members of North Shore community)	Mr. Kalani Fronda, Land Manager	February 12, 2011
Sunset Beach Community Association and Pūpūkea Seniors	Ms. Jeanne Martinson	April 19, 2011

Accepting Agency, the Department of Business, Economic Development and Tourism (DBEDT), has determined that this document is in compliance with the filing requirements in accordance with Chapter 200 of Title 11, Administrative Rules, Environmental Impact Statement Rules and with Chapter 343, Hawaii Revised Statutes.

D. EIS CONTENT

The Final EIS consists of two volumes, the Final Environmental Impact Statement and Appendices. These documents contain, as required:

1. Summary sheet (Summary of Proposed Project & an Executive Summary)
2. Table of contents
3. Statement of purpose and need for action
4. Project description
5. Discussion of known alternatives to the proposed action
6. Description of the environmental setting
7. A statement of the proposed action's relationship to the land use plans, policies, and controls for the affected area(s)
8. A statement of probable impact on the environment
9. Relationship between local short-term uses and enhancement of long-term productivity
10. Disclosure of all irreversible and irretrievable commitments of resources
11. Addresses all probable unavoidable adverse environmental effects
12. Description of mitigation measures to minimize impacts
13. A summary of unresolved issues
14. List of organizations and individuals consulted in preparation of the Environmental Impact Statement
15. Reproduction of all substantive comments and responses made during the consultation process
16. A list of organizations and individuals commenting on the Draft EIS
17. Reproductions of all substantive comments and responses made during the EIS review period

Accepting Agency, DBEDT, has determined that the content requirements of the EIS, as specified in Section 11-200-17 of the EIS Rules, have been met.

E. RESPONSES TO COMMENTS

The Applicant has responded to all significant comments made during the review period of the Draft EIS. These comments and responses are included in the Final EIS. DBEDT has determined

that this EIS has fulfilled the public review requirement in accordance with Chapter 200 of Title 11, Hawaii Administrative Rules, Department of Health, Environmental Impact Statement Rules.

F. UNRESOLVED ISSUES

In general, there are no significant issues related to the design and implementation of the Kawailoa wind farm project that remain unresolved. Site constraints and other project-related concerns have been broadly addressed through an iterative planning and siting process, as well as focused stakeholder consultations.

- Military Operations
  In particular, potential conflicts with military operations are being addressed through the Regional Mission Compatibility Review Team (RMCRT), a working group comprised of affected Department of Defense (DoD) services, First Wind, and Kamehameha Schools. Discussions by RMCRT have resulted in modifications to the project layout, including the relocation of wind turbines away from the training areas and the undergrounding of proposed electrical lines to avoid and minimize potential impacts to flight and ground training. Other specific mitigation measures are being developed through ongoing coordination with the RMCRT. Permits and approvals must still be obtained from various agencies and it is possible issues may arise during the processing of applications. However, ongoing consultations with agencies and stakeholders as well as the technical evaluations of potential impacts have not identified issues that cannot be resolved.
- Habitat Conservation Plan
  The Applicant is preparing a Habitat Conservation Plan and an application for an Incidental Take Permit and Incidental Take License from the U.S. Fish and Wildlife Service (USFWS) and the State Department of Land and Natural Resources-Division of Forestry and Wildlife (DOFAW), respectively. The applicant has been in on-going consultation with the aforementioned agencies prior to the publication of the EIS Preparation Notice. The USFWS and DOFAW will ultimately determine what specific mitigation measures will be required of the applicant; therefore, for the purpose of this EIS, the applicant has provided for several robust alternatives in order to mitigate the taking of threatened and endangered species that would each satisfy the requirements of Chapter 343, Hawaii Revised Statutes and Chapter 200 of Title 11 of the Administrative Rules.

G. PERMITS REQUIRED

Federal

- Incidental Take Permit (Endangered Species Act, Section 10(a)(1)(B))
- Federal Aviation Administration (FAA) Determination of No Hazard to Air Navigation
- Federal Communications Commission (FCC) License
- National Environmental Policy Act (NEPA) Compliance

State

- Endangered Species Incidental Take License and Habitat Conservation Plan
- Request for Use of State Lands
- Conservation District Use Permit
- Forest Reserve System Special Use Permit (possible)
- Noise Permit (possible)
- Coastal Zone Management Act (CZMA) Federal Consistency Determination
- State Historic Preservation Division (SHPD) Notification and Review
- Permit to Operate or Transport Oversize and/or Overweight Vehicles and Loads
- National Pollutant Discharge Elimination System (NPDES) Construction Permit
- Power Purchase Agreement (PPA)

City and County of Honolulu

- Conditional Use Permit (minor)
- Conditional Use Permit (minor) for a Joint Development Agreement
- Grading/Grubbing/Stockpiling/Building and Other Construction Permits
- Permit for Movement of Oversize and/or Overweight Vehicles and Loads

Other

- Approval for Use of Mt. Ka'ala Access Road

H. DETERMINATION

DBEDT has determined this Final EIS to be acceptable under the procedures and requirements established in Chapter 343, Hawaii Revised Statutes. A report on the mitigation measures associated with this project is attached for your reference.

Should you have questions, please contact Malama Minn at 808-587-9000 or the Renewable Energy Branch at 808-587-3991.

Sincerely,

Richard C. Lim

Attachment

FILE COPY

OCT 0 8 2011

NEIL ABERCROMBIE
GOVERNOR OF HAWAII

WILLIAM J. AILA, JR.
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

GUY H. KAULUKUKUI
FIRST DEPUTY

WILLIAM M. TAM
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF FORESTRY AND WILDLIFE
1151 PUNCHBOWL STREET, ROOM 325
HONOLULU, HAWAII 96813

RECEIVED
'11 SEP 28 P3:13
OFC. OF ENVIRONMENTAL
QUALITY CONTROL

September 27, 2011

TO: Gary Hooser, Director
Office of Environmental Quality Control

FROM: Paul Conry, Administrator
Department of Land and Natural Resources

SUBJECT: Request for Publication of Finding of No Significant Impact for the Proposed Activities Related to the Habitat Conservation Plan Associated with Kawailoa Wind Power, Oahu, Hawaii, in the October 8, 2011, Environmental Notice

The State of Hawai'i Department of Land and Natural Resources, Division of Forestry and Wildlife (DOFAW) has reviewed the Final Environmental Assessment and comments received on the Draft Environmental Assessment during the 30-day public comment period which ended on September 6, 2011.

DOFAW has determined that this project will not have significant environmental impacts and has issued a Finding of No Significant Impact (FONSI). Please publish a notice of the FONSI in the October 8, 2011 OEQC Environmental Notice.

We have enclosed a completed OEQC Publication Form, one (1) copy of the document in PDF format on a CD, and one (1) hardcopy of the Final EA. Please contact Sandee Hufana, DOFAW Habitat Conservation Plan Coordinator, at (808) 587-4148 or by email at Sandee.K.Hufana@hawaii.gov, if you have any questions.

THE ENVIRONMENTAL NOTICE

A semi-monthly periodic bulletin published by the Office of Environmental Quality Control pursuant to Section 343-3, Hawai`i Revised Statutes

October 8, 2011

SUBMITTAL REQUIREMENTS FOR CHAPTER 343, HRS DOCUMENTS 2

HAWAIʻI (HRS 343)

1. High Altitude Mountain Environment Training FEA 2

MAUI (HRS 343)

2. Fedele Residence Addition DEA 3

MOLOKAʻI (HRS 343)

3. Kainalu Mesic Forest Restoration FEA 3

OʻAHU (HRS 343)

4. Borsa Shoreline Setback Variance FEA 4
5. Hale Kipa Residential Variance DEA/NEPA 4
6. Kawailoa Wind Power Facility Habitat Conservation Plan FEA 5
7. Haleiwa Commercial Redevelopment FEA 5

KAUAʻI (HRS 343)

8. Stanley Single-Family Residence and After the Fact Culvert Crossing DEA 6
9. Pipeline Replacement from Kilauea to Anini FEA 7
10. Pipeline Replacement Along Kuamoʻo and Wailua Roads, Ohana and Anolani Streets and Lehia Lane DEA 7

NEPA NOTICES

11. Navy Region Hawaiʻi Fiscal Year 2011 Demolition Plan 8

POLLUTION CONTROL PERMITS 9

COASTAL ZONE MANAGEMENT NOTICES

Special Management Area Minor Permits 9

SHORELINE NOTICES

Certification Applications 10
Certifications and Rejections 11

CONSERVATION NOTICES 11

ENVIRONMENTAL COUNCIL NOTICE 12

NOTICE OF VOLUNTARY RESPONSE PROGRAM APPLICATION 12

FEDERAL NOTICES 13

Glossary 18

Note: If you get a message saying that the file is damaged when you click on the link, then the file is too big to open within your web browser. To view the file, download directly to your hard drive by going to File and select Save As in your web browser.

The Environmental Notice informs the public of environmental assessments and other documents that are available for review and comment per HRS 343-3 and is issued on the 8th and 23rd of each month on the Office of Environmental Quality Control's website. If you would like to be notified when it is issued, send us your email address and we'll put you on our mailing list.

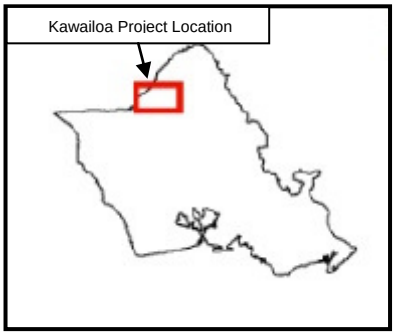
Neil Abercrombie, Governor · Gary Hooser, Director · Office of Environmental Quality Control · 235 South Beretania Street, Suite 702 · Honolulu, HI 96813
Tel: 586-4185 · Fax: 586-4186 · Email: oeqc@doh.Hawaii.gov · Website: http://Hawaii.gov/health/environmental/oeqc/index.html/
Toll Free: Kauaʻi: 274-3141 ext. 64185 · Maui: 984-2400 ext. 64185 · Molokaʻi/Lānaʻi: 1-800-468-4644 ext. 64185
Hawaiʻi: 974-4000 ext. 64185

The site comprises 4.26 acres abutting old Fort Weaver Road. The project involves the construction of three 2,450 square foot, eight-bed, ADA-compliant residential shelters that will replace existing facilities, a 4,000 square foot educational facility, and a 12,600 square foot services center consolidating programs, services and administration. This project will enhance services to clients, provide an integrative and collaborative environment for staff/volunteers, include a training center for staff/foster families, and significantly reduce overhead relating to leases and maintenance. Consolidation of services will create economies of scale for the organization.

This EA addresses the potential for anticipated environmental impacts and considers the alternatives to the proposed action with appropriate mitigation measures to address and minimize the potential for impacts. The Department of Community Services has preliminarily determined that the project will not have a significant environmental impact and is prepared to issue a Finding of No Significant Impact (FONSI) in accordance with NEPA and Chapter 343, HRS.

6. Kawailoa Wind Power Facility Habitat Conservation Plan Final EA (FONSI)

Island: O‘ahu
District: Waialua
TMK: 6-1-005:001, 6-1-006:001, 6-1-007:001, 6-2-009:001, 6-2-011:001
Permits: Incidental Take License and Habitat Conservation Plan (HCP)
Applicant: First Wind; Kawailoa Wind Power LLC, 810 Richards St., #650, Honolulu, HI 96813-4714. Contact: (808) 695-3300
Approving Agency: Department of Land and Natural Resources, Division of Forestry and Wildlife (DOFAW), 1151 Punchbowl Street, Room 325, Honolulu, HI 96815. Contact: (808) 587-0166
Consultant: SWCA Environmental Consultants, 201 Merchant Street Suite 2310, Honolulu, HI 96813. Contact: (808) 548-7922
Status: Finding of No Significant Impact (FONSI) determination



Kawailoa Wind Power LLC (or the “Applicant”) proposes to implement a HCP to mitigate impacts to threatened and endangered species from the construction and operation of a new 70-megawatt (MW), 30-turbine commercial wind energy generation facility at Kawailoa in the northern portion of the Island of O‘ahu, Hawai‘i.

A FEA was developed for the activities proposed in the project’s HCP. The HCP project will mitigate the take of six federally threatened and endangered species; the Hawaiian stilt or ae‘o (*Himantopus mexicanus knudseni*), Hawaiian coot or ‘alae ke‘oke‘o (*Fulica alai*), Hawaiian duck or koloa maoli (*Anas wyvilliana*), Hawaiian moorhen or ‘alae ‘ula (*Gallinula chloropus sandvicensis*), Newell’s shearwater or ‘a’o (*Puffinus auricularis newelli*), and Hawaiian hoary bat or ‘ope’ape’a (*Lasiurus cinereus semotus*); and one State listed endangered species, the Hawaiian short-eared owl or pueo (*Asio flammeus sandwichensis*). The mitigation actions include development and testing of cat self-resetting traps and efficiency testing and implementation at a Newell’s shearwater colony on Kaua’i for seabird mitigation; predator control, fencing, and vegetation maintenance at ‘Uko‘a Pond or other site for five years for water bird mitigation; a contribution of $12,500 up to a maximum of $25,000 for research and rehabilitation for pu‘eo mitigation; and restoration of wetland or forest habitat for bat mitigation. DOFAW has determined that implementation of the HCP will not have significant environmental impacts and has issued a Finding of No Significant Impact (FONSI) notice for the FEA.

7. Haleiwa Commercial Redevelopment Final EA (FONSI)

Island: O‘ahu
District: Waialua
TMK: TMK (1) 6-6-004:013-19, 27, 28, and 32
Permits: Zone Change, Haleiwa Special District, Consolidation and Subdivision of Parcels, Conditional Use Permit (CUP), and Joint Development Agreement (JDA)

Appendix B. Letter from the Department of Business, Economic Development, and Tourism

DAVID Y. IGE
GOVERNOR OF HAWAII

RECEIVED
DEC 14 2016
STATE OF HAWAII
DBEDT - DIRECTOR'S OFFICE

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

KEKOA KALUHIWA
FIRST DEPUTY

JEFFREY T. PEARSON, P.E.
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
POST OFFICE BOX 621
HONOLULU, HAWAII 96809

DEC 12 2016

MEMORANDUM

TO: LUIS P. SALAVERIA, DIRECTOR
Department of Business, Economic Development, and Tourism

FROM: SUZANNE D. CASE, Chairperson

SUBJECT: KAWAILOA WIND POWER HABITAT CONSERVATION PLAN AND INCIDENTAL TAKE LICENSE, SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT DETERMINATION

The Kawailoa Wind Energy Facility holds an Incidental Take License (ITL-14) that was issued by the Board of Land and Natural Resources (BLNR) on January 6, 2012 under authority of HRS Chapter 195D. The Final Environmental Impact Statement (FEIS) supporting the issuance of that ITL was approved by the Department of Business, Economic Development, and Tourism (DBEDT) via a July 20, 2011 letter to the then ITL holder First Wind, LLC and a July 20, 2011 memo to the Office of Environmental Quality Control.

Kawailoa Wind Power, LLC is now requesting a major amendment to their ITL to increase the take level of the Hawaiian hoary bat. The facility will be preparing a Supplemental EIS (SEIS) to address potential impacts under HRS Chapter 343 associated with the amendment. Given the purpose of the Supplemental EIS, DLNR, with the approval of DBEDT, is proposing to assume the responsibility of Approving Agency for the SEIS.

Please respond with your approval or disapproval of this request. Should you need more information, she can be reach at (808) 587-4148 or email @ Katherine.Cullison@hawaii.gov.

☑ APPROVED ☐ DISAPPROVED

LUIS P. SALAVERIA, Director

1/4/17
DATE

Appendix C. Supplemental EIS Determination

DAVID Y. IGE
GOVERNOR OF
HAWAI'I

FILE COPY

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

ROBERT K. MASUDA
FIRST DEPUTY

JEFFREY T. PEARSON, P.E.
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
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HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

JUL 08 2018

STATE OF HAWAI'I
DEPARTMENT OF LAND AND NATURAL RESOURCES

POST OFFICE BOX 621
HONOLULU, HAWAI'I 96809

June 22, 2018

RECEIVED
'18 JUN 26 P3:19
OFC. OF ENVIRONMENTAL
QUALITY CONTROL

TO: Scott Glenn, Director
Office of Environmental Quality Control

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

SUBJECT: Request for Publication of DLNR's Determination that a Supplemental Environmental Impact Statement is Required Prior to Major Amendment to the Kawailoa Wind Habitat Conservation Plan and Incidental Take License, O'ahu Island

We respectfully request publication of the subject Determination in the next Environmental Notice. A completed Office of Environmental Quality Control Publication Form is included in this submittal which we are providing via email to oeqc@doh.hawaii.gov.

Please contact Glenn Metzler, Protected Species Habitat Conservation Planning Associate at the Division of Forestry and Wildlife at glenn.m.metzler@hawaii.gov or 808-587-4149 with any questions.

cc: Brita Woeck, Kawailoa Wind, LLC

Attachment: (1) Completed OEQC Publication form for Kawailoa Wind SEIS Determination

18-699

APPLICANT
PUBLICATION FORM

Project Name:	Kawailoa Wind Project Supplemental EIS
Project Short Name:	Kawailoa Wind Project Supplemental EIS
HRS §343-5 Trigger(s):	Substantive changes in size, scope, location, intensity, use, or timing. Original trigger for EIS: use of State Lands; Conservation District Use Permit
Island(s):	O'ahu
Judicial District(s):	City and County of Honolulu
TMK(s):	(1) 6-1-005:001, (1) 6-1-006:001, (1) 6-1-007:001, (1) 6-2-011:001
Permit(s)/Approval(s):	State Incidental Take License
Approving Agency:	State of Hawai'i Department of Land and Natural Resources
Contact Name, Email, Telephone, Address	Glenn Metzler, Habitat Conservation Planning Associate Glenn.M.Metzler@hawaii.gov, (808) 587-4149 Department of Land and Natural Resources Division of Forestry and Wildlife 1151 Punchbowl Street, Room 325, Honolulu, HI 96813 Honolulu, HI 96813
Applicant:	Kawailoa Wind, LLC
Contact Name, Email, Telephone, Address	Brita Woeck, bwoeck@dwwind.com, (206) 949-5228, 61-488 Kamehameha Highway, Haleiwa, HI 96712
Consultant:	SWCA Environmental Consultants
Contact Name, Email, Telephone, Address	Amanda Childs, achilds@swca.com, (503) 224-0333, 1220 SW Morrison, Suite 700, Portland, OR 97205

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

18-699

____ 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.
__X_ 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.

Decision and Explanation

The Hawai'i Department of Land and Natural Resources (DLNR) has determined that a Supplemental Environmental Impact Statement (EIS) **is required** to evaluate impacts from the Habitat Conservation Plan Amendment for the Kawailoa Wind Project. Kawailoa Wind, LLC operates a 69-megawatt wind energy generation facility near Hale'iwa on O'ahu, Hawai'i. The effects of the construction and operation of the project were initially analyzed and described in an environmental impact statement (EIS) approved by the Hawai'i Department of Business, Economic Development, and Tourism (DBEDT) on July 20, 2011. Although no new construction or change in operations is planned, Kawailoa Wind is requesting an increase in the amount of authorized Hawaiian hoary bat take to cover the remaining years of the permit term, and requesting incidental take authorization for the Hawaiian petrel, a new covered species. Kawailoa Wind is preparing an HCP amendment to support their request. The determination of the need for a supplemental EIS was made because of the request for an increase in the amount of authorized Hawaiian hoary bat take which will have the potential for an increased intensity of impact, and because of the new request for authorized take for the Hawaiian petrel.

Appendix D. SEISPN Comments and Responses

DAVID Y. IGE
GOVERNOR

RODERICK K. BECKER
COMPTROLLER

AUDREY HIDANO
DEPUTY COMPTROLLER

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810-0119

(P)1491.8

JUL 24 2018

Received
JUL 31 2018
SWCA Portland

Ms. Amanda Childs
SWCA Environmental Consultants
1220 SW Morrison, Suite 700
Portland, OR 97205

Dear Ms. Childs:

Subject: Kawailoa Wind Environmental Impact Statement Preparation Notice (EISPN)
Waialua, Oahu, Various TMKs

Thank you for the opportunity to provide comments on the subject project. The Supplemental Environmental Impact Statement is proposed to evaluate the impacts of issuing an amended Incidental Take License and Habitat Conservation Plan.

The State of Hawaii, Department of Accounting and General Services (DAGS) previously commented that it operates and maintains an existing communication facility, for use by the State and other government agencies only, at the summit of Mount Ka'ala. We understand that no new construction or change in operations is planned, therefore, we do not anticipate your project to have an impact on our facility. Should this change, we ask that you coordinate the planning and design of your project with DAGS to ensure no conflict develops.

If you have any questions, your staff may call Mr. David DePonte of the Public Works Division at 586-0492.

Sincerely,

RODERICK K. BECKER
Comptroller

c: Mr. Glenn Metzler - DLNR, DOFAW HCP Program

Kawailoa Wind, LLC

1166 Avenue of the Americas
Ninth Floor
New York, NY 10036
(212) 478-0000
FAX (212) 478-0100

April 29, 2019

Mr. Roderick K. Becker, Comptroller
State of Hawaii, Department of Accounting and General Services
P.O. Box 119
Honolulu, HI 96810

RE: Response to Comment Letter on the Supplemental Environmental Impact Statement Preparation Notice (SEISPN) for the Kawailoa Wind Project; Waialua District, Oahu

Dear Mr. Becker:

Thank you for your comment letter dated July 24, 2018 in response to the Supplemental Environmental Impact Statement Preparation Notice (SEISPN) for the Kawailoa Wind Project. We appreciate your response and understand that you do not anticipate that the Project will impact your facility at the summit of Mt. Ka‘ala. 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 Brita Woeck at (206) 949-5228 or bwoeck@dwwind.com.

Sincerely,

Kawailoa Wind, LLC

Bryan Martin

Authorized Signatory

cc: Glenn Metzler, Department of Land and Natural Resources Division of Forestry and Wildlife

DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 7TH FLOOR • HONOLULU, HAWAII 96813
PHONE: (808) 768-8000 • FAX: (808) 768-6041
DEPT. WEB SITE: www.honoluludpp.org • CITY WEB SITE: www.honolulu.gov

KIRK CALDWELL
MAYOR

KATHY K. SOKUGAWA
ACTING DIRECTOR

TIMOTHY F. T. HIU
DEPUTY DIRECTOR

EUGENE H. TAKAHASHI
DEPUTY DIRECTOR

Received
JUL 31 2018
SWCA Portland

July 27, 2018 2018/ELOG-1342(WA)

Ms. Amanda Childs
SWCA Environmental Consultants
1220 SW Morrison Street, Suite 700
Portland, Oregon 97205

Dear Ms. Childs:

SUBJECT: Environmental Impact Statement Preparation Notice (EISPN)
Kawailoa Wind Project - Incidental License and Habitat Conservation Plan
62-350 Kawailoa Drive and
61-488 Kamehameha Highway - Haleiwa
Tax Map Keys 6-1-005: 001; 6-1-006: 001; 6-1-007: 001; and 6-2-001: 001

This is in response to your letter received July 9, 2018, regarding the EISPN for the above-mentioned Project. We have no comments at this time.

Should you have any further questions on this matter, please contact William Ammons, of our Urban Design Branch, at 768-8025 or wammons@honolulu.gov.

Very truly yours,

FOR Kathy K. Sokugawa
Acting Director

Doc 1619502

Kawailoa Wind, LLC

1166 Avenue of the Americas
Ninth Floor
New York, NY 10036
(212) 478-0000
FAX (212) 478-0100

April 29, 2019

Ms. Kathy Sokugawa, Acting Director
City & County of Honolulu
Department of Planning and Permitting
650 South King Street, 7th Floor
Honolulu, HI 96813

RE: Response to Comment Letter on the Supplemental Environmental Impact Statement Preparation Notice (SEISPN) for the Kawailoa Wind Project; Waialua District, Oahu

Dear Ms. Sokugawa:

Thank you for your comment letter dated July 27, 2018 in response to the Supplemental Environmental Impact Statement Preparation Notice (SEISPN) for the Kawailoa 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 Brita Woeck at (206) 949-5228 or bwoeck@dwwind.com.

Sincerely,

Kawailoa Wind, LLC

Bryan Martin

Authorized Signatory

cc: Glenn Metzler, Department of Land and Natural Resources Division of Forestry and Wildlife

To: Department of Land and Natural Resources, State of Hawaii
Glenn Metzler, Habitat Conservation Planning Associate
1151 Punchbowl St., Room 325, Honolulu, HI 96813

From: No'eau Machado

Subject: Review of "Request for Publication of the Environmental Impact Statement Preparation Notice (EISPN) for Kawailoa Wind Habitat Conservation Plan and Incidental Take License, O'ahu Island"
Kawailoa Wind Project EISPN

Aloha,

My name is No'eau Machado. I am writing this review through the lens of an environmental planning student at UH Manoa, a life-long resident of O'ahu with a cultural and ancestral connection to this place, and as someone who cares for the native species of Hawai'i. I am also interested in this project and EISPN as an environmental science student with a passion and educational focus on sustainability in Hawai'i and sustainable energy projects such as Kawailoa Wind Farm.

As a student new to environmental planning and regulation, it is to my findings that this document meets the content requirement listed in HAR §11-200.

I believe there are members of the Hawaiian community, especially those with ties to the native and endangered species of the state, who would be concerned with an increase in the amount of authorized Hawaiian hoary bat and Hawaiian petrel take for this Kawailoa Wind project.

As I'm sure you are well aware, the Hawaiian hoary bat or ōpe'ape'a is listed as an endangered species under the Endangered Species Act of 1973 and is the only land mammal endemic to the state of Hawai'i. Fossil records indicate that the Hawaiian hoary bat was once found on the islands of Hawai'i, Moloka'i, Maui, O'ahu, and Kaua'i. However, over the course of the 19th century due primary to habitat loss caused by increased human population, this native species has seen its numbers be greatly reduced, especially on O'ahu. It is because of the dwindling population size of this endangered and unique native species that I am skeptical when I read about a proposed increase in the amount of authorized Hawaiian hoary bat take for this Kawailoa Wind project.

I was also skeptical when reading about a proposed take authorization for the Hawaiian petrel or ‘ua’u as a new covered species for this project. Also listed as an endangered species, the Hawaiian petrel has endured a similar plight as the Hawaiian hoary bat. Many native species such as the hoary bat and petrel have seen massive habitat loss due to human development.

Although I am in favor of sustainable energy sources in the state of Hawai’i, they are also included in this system of human development that drives habitat loss for species that may be native and endangered.

With this proposed plan for increasing authorized take of two endangered native species, I am curious as to how the initial amount of authorized take for the Hawaiian hoary bat was calculated, and why that number needs to be adjusted? Were there possibly mistakes made upon initial calculations? I am also curious as to why it is being proposed for the Hawaiian petrel to be added now, and not at the beginning of this project in the initial EIS?

Although skeptical about the potential increase in the amount of authorized take for two endangered native species, I do believe the habitat conservation plan proposed for this project is a very good starting point. My primary concern with this plan could be the vague wording the first listed change/provision: “additional measures to avoid and minimize Hawaiian hoary bat take;”. I would be interested to know what these measures would be and how they would be implemented? I’m sure there are already measures in place to avoid and minimize take for all species and was curious as to why these additional measures were not already in place upon the initial EIS for this project. I would also be interested to know what mitigation processes would be put into place to avoid and minimize Hawaiian petrel take, should they be added as a covered species under this project.

Regarding the request for an increase in the amount of authorized take for the Hawaiian hoary bat and addition of authorized take of the Hawaiian petrel, I believe it would be beneficial to give the current authorized take amount of the Hawaiian hoary bat to give community members and policy/decision makers context on the proposition of increasing this amount.

Mahalo,
No‘eau Machado

Kawailoa Wind, LLC

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New York, NY 10036
(212) 478-0000
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April 29, 2019

Mr. No‘eau Machado
Via email: noeaumac@hawaii.edu

RE: Response to Comment Letter on the Supplemental Environmental Impact Statement Preparation Notice (SEISPN) for the Kawailoa Wind Project; Waialua District, Oahu

Dear Mr. Machado:

Thank you for your comment letter in response to the Supplemental Environmental Impact Statement Preparation Notice (SEISPN) for the Kawailoa Wind Project. We appreciate you taking the time to review the SEISPN and to submit your comments.

We share your concern for the continued welfare of the Hawaiian hoary bat and the Hawaiian petrel and are committed to reducing take of these species to the extent practicable. In response to your requests for further information, the Draft Supplemental Environmental Impact Statement (SEIS) will include the following information with additional detail provided in the Draft Habitat Conservation Plan (HCP) Amendment:

- A discussion of how the original take estimate for the Hawaiian hoary bat was calculated, and the reasons the take estimate needs to be adjusted;
- Identification of the current authorized take levels for the Hawaiian hoary bat and the requested increase in take levels;
- A discussion of the Hawaiian petrel and the reasons why take authorization is now being requested for this species (and the reasons it was not included in the original take authorization request); and
- Identification of the avoidance, minimization and mitigation measures for the Hawaiian hoary bat and Hawaiian petrel, and discussion of how these measures would be implemented.

Again, 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 Brita Woeck at (206) 949-5228 or bwoeck@dwwind.com.

Sincerely,

Kawailoa Wind, LLC

Bryan Martin

Authorized Signatory

cc: Glenn Metzler, Department of Land and Natural Resources Division of Forestry and Wildlife

OFFICE OF PLANNING
STATE OF HAWAII

DAVID Y. IGE
GOVERNOR

LEO R. ASUNCION
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DTS201808130911BE

August 13, 2018

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

From: Leo R. Asuncion, Director
Office of Planning

Attention: Glenn Metzler
Division of Forestry and Wildlife

Subject: Supplemental Environmental Impact Statement Preparation Notice for the Kawailoa Wind Project, Haleiwa, Waialua District, Oahu

Thank you for the opportunity to provide comments on this Supplemental Environmental Impact Statement Preparation Notice (SEISPN) for the Kawailoa Wind Project. Notification of the SEISPN was transmitted to our office via letter dated July 8, 2018.

It is our understanding that the applicant, Kawailoa Wind, LLC, is not proposing any substantive changes to the existing project or its operation including to its size, scope, or location. The applicant is requesting an increase in the amount of authorized Hawaiian hoary bat take to cover the remaining of the permit term, and requesting take authorization for the Hawaiian petrel as a new covered species. The State Department of Land and Natural Resources has determined that a Supplemental Environmental Impact Statement (SEIS) is warranted per Hawaii Administrative Rules § 11-200-27.

Based on the limited information provided in the SEISPN, the Office of Planning reserves comment until we are able to review the forthcoming SEIS. If you have any questions regarding this comment letter, please contact Joshua Hekekia of our office at (808) 587-2845.

c: Ms. Amanda Childs, SWCA Environmental Consultants

Kawailoa Wind, LLC

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Ninth Floor
New York, NY 10036
(212) 478-0000
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April 29, 2019

Mr. Leo R. Asuncion, Director
State of Hawaii, Office of Planning
P.O. Box 2359
Honolulu, HI 96804

RE: Response to Comment Letter on the Supplemental Environmental Impact Statement Preparation Notice (SEISPN) for the Kawailoa Wind Project; Waialua District, Oahu

Dear Mr. Asuncion:

Thank you for your comment letter dated August 13, 2018 in response to the Supplemental Environmental Impact Statement Preparation Notice (SEISPN) for the Kawailoa 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 Brita Woeck at (206) 949-5228 or bwoeck@dwwind.com.

Sincerely,

Kawailoa Wind, LLC

Bryan Martin

Authorized Signatory

cc: Glenn Metzler, Department of Land and Natural Resources Division of Forestry and Wildlife