

State of Hawai'i  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
Division of Forestry and Wildlife  
Honolulu, Hawaii 96813

June 19, 2019 Meeting

Endangered Species Recovery Committee  
State of Hawai'i  
Honolulu, Hawai'i

Committee Members:

SUBJECT: AUWAHI WIND HCP AMENDMENT APPLICANT SUBMITTALS:  
LETTER TO DAVID SMITH, COMMENT RESPONSE MATRIX,  
AND HRS 195D EVALUATION

Auwahi Wind Energy, LLC (Auwahi Wind) provided the attached submittals for consideration in your review of the Auwahi Wind HCP Amendment at the June 19, 2019 meeting.

**BACKGROUND:**

Auwahi Wind operates an 8-turbine, 21-megawatt wind energy generation facility on Ulupalakua Ranch in the southern half of Auwahi Ahupaua'a on Maui, Hawai'i. Auwahi Wind was issued an Incidental Take License (ITL) designated ITL-17 in February 2012 for incidental take including the Hawaiian Hoary Bat (HHB, *Lasiurus cinereus semotus*). The bat take authorized was 19 adults and 8 juveniles over the course of the 25-year permit term and later converting juvenile bats to adults, resulting in an adjusted approved take permit for 21 bats. In June 2016, model estimates showed that the calculated bat take limit of 21 had been reached. Auwahi Wind has requested an amended HCP and amended ITL to address impacts to the bats and increase the incidental take for this species over the remainder of the 25-year permit term. Low wind speed curtailment is proposed as an impact minimization measure for the bats. Auwahi Wind proposes no changes to the approved HCP and ITL for the incidental take and mitigation of Hawaiian Petrels, Nene, or Blackburn's Sphinx Moths. As of the end of 2018, the take of HHB by the project is estimated with 80% confidence to be at or below 46. Two additional bat fatalities have been observed in calendar year 2019 as of May 28, 2019.

**INCIDENTAL TAKE AND MITIGATION PROPOSED:**

The project has the potential to result in additional incidental take of species listed under the Federal Endangered Species Act and State Endangered Species Statute. Incidental take is determined from direct take and indirect take because it is possible that the death of a listed adult during the breeding season could result in loss of eggs or dependent young. Auwahi Wind has requested the addition of Tiers 4, 5, and 6 to the Hawaiian





May 17, 2019

David Smith  
DLNR, DOFAW Administrator  
Kalanimoku Building  
1151 Punchbowl St. Room 325  
Honolulu, HI 96813

**RE: Auwahi Wind HCP Amendment**

Dear Mr. Smith:

Auwahi Wind Energy, LLC (Auwahi Wind) is submitting the attached Auwahi Wind Farm (Project) Final Habitat Conservation Plan (HCP) Amendment for review, and to obtain a recommendation for approval by the Endangered Species Recovery Committee (ESRC) as part of the state incidental take permitting process. Throughout the HCP Amendment process which began in February 2015, Auwahi Wind has worked extensively with the U.S. Fish and Wildlife Service (USFWS), Hawaii Department of Land and Natural Resources (DLNR)/ Division of Forestry and Wildlife (DOFAW), and the ESRC to develop a site-specific, science-based HCP Amendment based on the best available information that meets both USFWS and DLNR issuance criteria as set forth in section 10(a)(2)(B) of the Endangered Species Act (ESA) and Hawaii Revised Statutes (HRS) Chapter 195D-21(b)(2), respectively.

The Draft HCP Amendment was made available for public comment as part of the state and federal review processes. As part of the State process, the Office of Environmental Quality Control published the Draft HCP Amendment for public review and comment on December 8, 2018. DOFAW held a public hearing on Maui on February 15, 2019. Auwahi Wind also presented the published draft to the ESRC at a meeting on October 25, 2018. On the federal side, the USFWS published a Notice of Availability of the Draft HCP Amendment in the Federal Register on April 26, 2019, and public comments are being accepted until June 10.

Over the last several months, Auwahi Wind has worked closely with the USFWS and DOFAW to make certain changes to the HCP Amendment based on comments received from the ESRC, USFWS, DOFAW, and the public, and to meet regulatory requirements and issuance criteria. Several central comments were made by ESRC members, USFWS and DOFAW regarding avoidance and minimization measures, adaptive management of minimization measures, population and cumulative impacts assessments, and mitigation. Comments received from the ESRC and the public are summarized in the attached spreadsheet. To facilitate ESRC review of the Final HCP Amendment, these comments are summarized below along with Auwahi Wind's associated approach to resolving these in the Final HCP Amendment.

## 1.0 Avoidance and Minimization Measures

### Comments Summary

Several comments from ESRC members focused on the avoidance and minimization measures described in the Draft HCP Amendment, and suggested changes to these minimization measures and to the requested amount of authorized bat take. Most of the suggested minimization approaches had already been evaluated and summarized in the Alternatives Section (Section 8) of the Draft HCP Amendment. Additionally, the ESRC requested the following:

- Evaluate alternatives such as amending the Power Purchase Agreement (PPA); and
- Explain why the Low Wind Speed Curtailment cut-in speed of 6.9 meters per second (m/s) is not applied outside of the period from August through October.

### Response

Auwahi Wind is committed to reducing the risk of bat fatalities at the Project and to mitigating impacts to the maximum extent practicable (Section 4.2.7 and Sections 6.2.4 and 6.2.5, respectively, of the Final HCP Amendment). Auwahi Wind proposed the most stringent Low Wind Speed Curtailment (LWSC) regime of any operating or proposed wind farm in Hawaii, a regime based on five years of project-specific monitoring data. Modifying the PPA with Maui Electric Company (MECO) to reduce power production requirements is not an option for Auwahi Wind, as the PPA is the binding contract between the two parties, which is effective throughout construction, operation, and decommissioning. The PPA imposes obligations on both parties, which provided certainty to MECO in terms of renewable energy production, and certainty to Auwahi by justifying the investment necessary to develop the Project. Amending the PPA 7 years after construction is not practicable, and would jeopardize Auwahi's prioritization for delivering power to MECO and the continued economic viability of the Project.

Auwahi Wind focused its LWSC program on the periods of greatest risk to the bats present at the Project, based on site-specific monitoring data, to minimize impacts of incidental take to the maximum extent practicable. Auwahi Wind determined that it can implement a LWSC regime of 6.9 m/s during the 3 months (August through October) of highest bat fatalities at the Project, based on the 5 years of post-construction monitoring, and apply an LWSC regime of 5.0 m/s the remainder of months (November through July), when risk is lower. Adding curtailment nights to periods where bats are not present or where the risk of bat collisions is not significant will not have an appreciable benefit to the Hawaiian hoary bat, but it would significantly impair the ability of the Project to meet its energy output obligations and operate in an economically reasonable manner, and would reduce the generation of nighttime clean energy on Maui which is principally derived from wind energy. This location-specific, data-driven approach to minimization through LWSC allows Auwahi Wind to both minimize risk to and impacts on bats, and meet its PPA requirements. LWSC is a proven, effective minimization measure for

reducing risk to bats; in contrast, there are no commercially available bat deterrent systems, proven to be effective in Hawaii.

## **2.0 Adaptive Management of Minimization Measures**

### **Comments Summary**

Auwahi Wind received comments on the adaptive management measures described in Section 7.4 of the Draft HCP Amendment, along with suggestions for other actions to consider. The use of a reversion trigger and the lack of commitment to use bat deterrents were the primary comments.

### **Response**

The use of a reversion trigger is part of several mainland bat HCP adaptive management strategies which strikes a balance between minimization and operational needs. Auwahi Wind has removed the option for a reversion trigger to alleviate concerns expressed by the ESRC, and provide additional assurances that the minimization measures will maintain the effectiveness described in the HCP Amendment.

The use of acoustic bat deterrents has been tested on the mainland; however, no studies have been conducted in Hawaii. Should LWSC adaptive management strategies not be effective in minimizing impacts to bats, deterrents or similar technologies will be a priority. The first testing of deterrents at a wind project in Hawaii will be occurring in summer 2019. Hawaiian hoary bats may have different responses to acoustic deterrents than mainland species, and there are still questions to be answered about the interaction of LWSC and deterrents, as well as the potential for long term habituation to deterrents. Additionally, it is important to consider the potential impacts of acoustic deterrents on other endangered species in Hawai'i. To address the suggestion to incorporate deterrents in the HCP Amendment, Auwahi Wind revised Section 7.4.1 of the Final HCP Amendment to provide a commitment to incorporate acoustic deterrents as a minimization measure through the adaptive management process. Deterrent technology will be incorporated in the adaptive management measures described in the Adaptive Management Plan (AMP) with the proposed measures provided to USFWS and DOFAW for review and approval.

Additionally, Section 7 of the Final HCP Amendment was revised to incorporate the results of ongoing studies in the development of an AMP. The AMP will address site-specific risk to bats based on the results of ongoing acoustic and thermal monitoring, and will use compliance monitoring data and clearly defined calculations to indicate if adaptive management should be triggered. The AMP will be based on managing curtailment nights and will outline actions that would allow the project to further refine minimization measures. This approach will allow Auwahi Wind to immediately implement minimization to the maximum extent practicable, while allowing flexibility in implementation.

## 3.0 Population, Population-Level Impacts and Cumulative Effects

### Comments Summary

Auwahi Wind received feedback on its approach to assessing population-level and cumulative impacts, including the appropriate parameters or approach to assess bat population size, population-level impacts, and cumulative effects in relation to the requested take. Some of the comments included:

- Whether there is insufficient information on bat ecology or population to assess impacts;
- The selection of life history parameter values that were used in the modeling exercise; and
- Assumptions about the bat core use area and its relationship to the population used in the model.

### Response

Auwahi Wind revised the summary of the Hawaiian hoary bat's life history parameters in Section 3.8.1 of the Final HCP Amendment, as well as the population-level and cumulative effects analyses in Section 5.1. Peer-reviewed literature on the Hawaiian hoary bat provides insights into the life history, and known risk factors (which are largely absent) of the Hawaiian hoary bat, and indicates that the species is highly resilient. Current peer-reviewed literature has been incorporated to revise the population estimate exercise to better understand the potential impacts of the requested take. Additionally, as requested by ESRC and USFWS, the population estimate exercise has been updated to provide a range of likely estimates with the model parameters revised according to USFWS, DOFAW, and ESRC feedback. Although the exercise for Maui is based on the best available science, it is limited by the available monitoring methods. The Final HCP Amendment illustrates there is a small proportion of bats on Maui that have the potential to be impacted by the Project. Finally, the cumulative effects are reviewed in the context of other known impacts to bats, both positive and negative, on Maui and statewide. Based on the best scientific data currently available, the Project is unlikely to cause adverse impacts to the species on a local, island-wide or statewide level or impact its recovery potential. The HCP Amendment complies fully with HRS Chapter 195D and the ESA.

## 4.0 Mitigation

### Comments Summary

Auwahi Wind received a variety of comments from the ESRC, USFWS, and DOFAW on the Tier 4, 5, and 6 mitigation described in Section 6.2 of the previous Draft HCP Amendment. These comments addressed the amount of mitigation acreage proposed to offset take, specifics on the mitigation actions, and the associated monitoring proposed, including:

- The proposed mitigation acreage relative to suggestions in the 2015 ESRC bat guidance;

- Whether water troughs increase mosquitoes, and thus the risk to birds from avian malaria;
- Sufficient baseline monitoring of the existing habitat;
- Only using feeding buzzes as a monitoring success criteria is insufficient;
- A power analysis should be included as part of the success criteria; and
- Tier 5 and 6 mitigation measures require more detail, including a specific site, current features, bat monitoring, and restoration targets.

## **Response**

Auwahi Wind revised the mitigation measures for Tiers 4, 5 and 6 (Section 6.2 of the Final HCP Amendment) in response to the ESRC and agency comments. The mitigation provided in the Final HCP Amendment is scientifically sound, meets state and federal issuance criteria, and provides species-specific and site-specific means to increase the abundance of Hawaiian hoary bats on Maui. The responses to the comments about ESRC Guidance, Tier 4 actions, and Tier 5 and 6 mitigation are provided below.

### ***ESRC Guidance***

The Auwahi Wind HCP Amendment has incorporated the guidance of the ESRC Hawaiian Hoary Bat Guidance Document (DOFAW 2015) in numerous ways. The location selected for mitigation avoids close proximity to impacts and occurs on the island where take is occurring. Over 300 acres of native tree and understory species will be planted, two ponds will be created, and water troughs will be retrofit with egress structures, to create a 1,750 acre bat foraging habitat for Tier 4 providing net environmental benefits for the Hawaiian hoary bat and other species. The monitoring for mitigation includes acoustic, thermal monitoring, and insect monitoring at a scale beyond similar research projects; as well as reporting on the statistical power with which a change in bat activity can be detected. The mitigation includes monitoring baseline conditions in the first year for a comparison to subsequent years. Additionally, the ESRC guidance recommends that the "estimated cost for mitigating take of one bat is \$50,000" which matches closely the costs estimated for Auwahi Wind's mitigation. The HCP Amendment follows these important aspects of the ESRC guidance.

One of the primary ESRC and DOFAW comments involved the basis for establishing the appropriate amount of mitigation acreage. All tiers of mitigation are based on using the bat median core use area (20.3 acres) as the basis to offset the take of one bat. Auwahi Wind selected this metric because the use of 20.3 acres per bat is based on peer-reviewed, published literature and represents the best available science (Bonaccorso et al. 2015, DOFAW 2015). The ESRC guidance suggests doubling the median core use area to assess the mitigation acreage for the offset of one bat. Both the USFWS and DOFAW have confirmed and supported the use of 20.3 acres per bat as a suitable metric for mitigation, as detailed in their recent correspondence regarding the Kawaiiloa Wind Farm HCP Amendment Tier 4 mitigation on

Oahu. In those letters, both agencies state that habitat preservation of 20.3 acres per bat take fully offsets such take. (USFWS 26 September, 2018, DOFAW 21 September, 2018)

Deputy Attorney General Linda Chow confirmed in a recent ESRC meeting that the ESRC 2015 Hawaiian hoary bat guidance document is indeed just guidance, and is neither a regulation nor a requirement (Linda Chow, personal communication, 6 November 2018). She has further explained that applicants such as Auwahi must demonstrate that their proposed mitigation is based on the best available science, and that it satisfies the Chapter 195D requirements. The Auwahi Wind Final HCP Amendment bases the foundation of its conservation plan on numerous publications to select actions that will best benefit the species. The Tier 4, 5, and 6 mitigation revisions in the Final HCP Amendment demonstrate the sufficiency of the revised mitigation measures:

- The mitigation acreage is conservative in favor of the species:
  - Mitigates at approximately 30 acres per bat for Tier 4 mitigation which exceeds the minimum acreage offset of 20.3 acres per bat by close to 50 percent to ensure fully offsetting take;
  - Targets foraging resources, which overlap;
  - Benefits other native plant and animal species; and
  - Creates habitat designed to benefit bats, which is likely to support a higher density of bats.
- The Tier 4 mitigation not only preserves bat habitat in perpetuity through a conservation easement, which protects the lands specifically for bats, it also includes substantial habitat restoration and enhancement actions on that preserved land. The existing agricultural easement does not protect the entire parcel, prevent the removal of trees, prevent the use of barbed wire fence or other activities known to have adverse impacts on bats.
- Studies show that additional edge habitat serves as a predictor of increased bat activity (Jantzen 2012, Duff and Morrell 2007) and increased activity is positively correlated with increased abundance (Frick 2013, Sutter 2017). The revised Tier 4 mitigation proposal provides over 38,000 meters of additional edge habitat.
- The mitigation will benefit multiple generations of bats over time.
- The overall benefits of a conservation easement increase the value of the land for the Hawaiian hoary bat and other native species.
- The mitigation measures reduce risks to bats from drowning and fires.
- Actual take will likely be less than predicted take, hence the fixed amount of Tier 4 (and later, Tier 5 and 6, if necessary) mitigation will likely turn out to have an even greater benefit relative to the amount of take which occurs.



The mitigation provided by the Auwahi Wind HCP Amendment largely coincides with the ESRC guidance. The Tier 4 - 6 mitigation providing a minimum of 20.3 acres per bat, is supported by peer-reviewed literature as well as USFWS and DOFAW. The mitigation will provide a net recovery benefit as required by HRS Chapter 195D.

### ***Tier 4 Mitigation Actions***

Several elements of the Tier 4 mitigation program have been revised to address agency comments. To address concerns regarding the establishment of mosquitoes in water troughs, Auwahi Wind removed the requirement for troughs to be filled year-round. Additional baseline monitoring for Tier 4 will more fully demonstrate the existing, pre-mitigation baseline conditions of the habitat in the Mitigation Area. Acoustic monitoring originally focused on the analysis of feeding buzzes to monitor the increase in foraging activity. Based on comments from the ESRC and recent literature, the monitoring has been updated and will include the analysis of all calls, rather than feeding buzzes alone, due to the relative infrequency of feeding buzz detection. The Tier 4 mitigation reporting requirements also provide ESRC members with more certainty in the data analysis to be completed and add the statistical power with which a change in bat activity is detected.


### ***Tier 5-6 Mitigation***

Mitigation for Tier 5 and 6 has been revised to specify a particular land parcel in which the mitigation will occur: the Kamehamehenui Forest, in Kula on Maui. DOFAW requested that a site be identified for Tiers 5 and 6, and specifically recommended that Auwahi Wind consider conducting mitigation actions in the Kamehamehenui Forest. The Kamehamehenui Forest, current features, bat monitoring, and restoration targets are now described in the Final HCP Amendment. The Final HCP Amendment also incorporates implementation flexibility to allow for potential changes to the site, the scientific understanding of the species, and the mitigation and monitoring targets based on new information from ongoing mitigation and research. The mitigation actions will complement and build upon DLNR's intended conservation actions at Kamehamehenui Forest. The adaptive management section for mitigation has also been updated to reflect the selection of the Kamehamehenui Forest as the mitigation site.

## 5.0 Summary

In summary, Auwahi Wind has used the best scientific literature available, the regulatory requirements of HRC Chapter 195D and the ESA, as well as the recommendations of the USFWS, DOFAW, and the ESRC to develop the Final HCP amendment. Auwahi Wind is confident it has resolved the outstanding comments from the ESRC, the agencies, and the public, and that the Final HCP Amendment meets HRS Chapter 195D requirements and issuance criteria. Auwahi Wind looks forward to discussing the Final HCP Amendment with the ESRC and obtaining a recommendation for approval for the BLNR.

Sincerely,

A handwritten signature in cursive script that reads "Marie VanZandt".

Environmental Permitting and Safety Manager  
MLVANZANDT@AEPES.COM | 808.495.5234  
655 W BROADWAY, SUITE 950, SAN DIEGO, CA 92101

**Auwahi Wind HCP Amendment**  
**ESRC Comment Matrix (October 25, 2018 Meeting)**

<b>Member</b>	<b>Comment</b>	<b>Response</b>
Scott Fretz	This draft HCP address the statutory requirement to ascertain with reasonable certainty the population and cumulative impacts of the project by asserting that mitigation will fully offset take. I am not reasonably certain that this is the case	Revised population and cumulative impacts analysis can be found in Section 5.1. and associated mitigation in Section 6.2.
Scott Fretz	It is not clear how the draft HCP complies with §195D-4(g)(1), which requires that the applicant, to the maximum extent practicable, minimize and mitigate the impacts of the take because it does not provide a commitment to include effective research, development, or deployment of deterrents.	Revised discussion of deterrent installation can be found in Section 7.4.1.6.
Scott Fretz	Until that research provides better information to guide planning, I recommend that the draft HCP be amended to request a lower level of authorized take, and to include the deployment of deterrent devices on all turbines immediately	Revised discussion of deterrent installation can be found in Section 7.4.1.6.
Scott Fretz	20 acres per bat is not consistent with guidance.	Peer-reviewed published literature supports a core use area of 20.3 acres per bat. Linda Chow verified during an ESRC meeting that the ESRC Hawaiian Hoary Bat Guidance Document is guidance and should be differentiated from rules.
Scott Fretz	Appreciate the use of 6.9 for 3 months. Did not explain why this is not used in other months and whether further LWSC is practicable.	The selection of LWSC is described in Section 4.2.7. Alternatives are described in Section 8.
Scott Fretz	Statement that HHB has persisted with no direct intervention to preserve or protect the species is misleading. Conservation agencies and partners have been supporting research and management actions to benefit HHB for decades, including research and habitat protection measures that have included land acquisition, management, and restoration of hundreds of thousands of acres of native forests, including restoration efforts that have planted more than 250,000 native trees	Revised population and cumulative impacts analysis can be found in Section 5.1. and associated mitigation in Section 6.2.
Scott Fretz	Claims that ongoing take demonstrates the project is not impacting the population. This conclusion is not warranted. Similar observations would result if the project is a sink that is impacting the population	Revised population and cumulative impacts analysis can be found in Section 5.1.
Scott Fretz	Assumes the bat population on Maui is 7300 and declares that requested take will not impact a population of that size. It is not scientifically justified to assume the population is 7300 bats	Revised population and cumulative impacts analysis can be found in Section 5.1.
Scott Fretz	Tier 4. Not likely to offset take. See notes from August 30, 2018 ESRC meeting. Mitigation project should be revised to provide justification that this mitigation will offset take and provide recovery benefits.	The revised description of Tier 4 offset is provided in Section 6.2.4.3.
Scott Fretz	Tier 5-6. Mitigation is not specified. Mitigation for tiers 5-6 are only discussed in concept as a suite of conservation measured on an undetermined acreage. It is not possible to determine that they will serve to offset take or comply with statute or guidance. As written, they constitute a request for approval of an unknown future project in concept. Details are needed on the exact site, the current features of the site, HHB monitoring before and after, restoration targets in terms of biological objectives, etc.  Scott said that Tier 5/6 does not provide sufficient detail to ensure it is consistent with guidance.	See section 6.2 for revisions to the Tier 5/6 Mitigation. The revised mitigation plan was reviewed with USFWS and DOFAW.

**Auwahi Wind HCP Amendment**  
**ESRC Comment Matrix (October 25, 2018 Meeting)**

<b>Member</b>	<b>Comment</b>	<b>Response</b>
Scott Fretz	States that full night time curtailment cannot be done because it would reduce power. Cites the PPA and implies HECO would not agree to an amendment to the PPA. Staff should confirm with HECO if this is the case and if so consider whether this makes HECO responsible for take	Auwahi Wind has committed to minimize (Section 4.2.7) and mitigate impacts (6.2.4 and 6.2.5) to the maximum extent practicable. It has proposed the most stringent Low Wind Speed Curtailment regime of any project in the state. Auwahi Wind has not sought or implied it will seek to amend its PPA with MECO. The PPA is the binding contract Auwahi Wind was designed and constructed in reliance on (construction, operation and decommissioning). The PPA imposes obligations on both parties, which provided certainty to MECO in terms of renewable energy production, and certainty to Auwahi which justified the investment necessary to develop the project. Amending the PPA seven years after construction is not practicable, and would jeopardize Auwahi's prioritization for delivering power to MECO and the economic viability of the project.
Scott Fretz	States that alternatives would generate insufficient power. Applicant should provide additional information to indicate the minimum power production needed for viability in order to inform determination of the maximum practicable extent of minimization.	Auwahi Wind has committed to minimize (Section 4.2.7) and mitigate impacts (6.2.4 and 6.2.5) to the maximum extent practicable. It has proposed the most stringent Low Wind Speed Curtailment regime of any project in the state. Auwahi Wind has not sought or implied it will seek to amend its PPA with MECO. The PPA is the binding contract Auwahi Wind was designed and constructed in reliance on (construction, operation and decommissioning). The PPA imposes obligations on both parties, which provided certainty to MECO in terms of renewable energy production, and certainty to Auwahi which justified the investment necessary to develop the project. Amending the PPA seven years after construction is not practicable, and would jeopardize Auwahi's prioritization for delivering power to MECO and the economic viability of the project.
Scott Fretz	Triggers and actions are general only and vague. The triggers as written do not provide a clear and effective action that is likely to reduce take	See Section 7.4 for the revised Adaptive Management section.
Scott Fretz	Reversion. This section appears to have the intent to relax minimization and would therefore defeat the purpose of the tiers and be inconsistent with requirements to minimize take to the maximum extent practicable. This practice should not be employed and his section should be deleted from the draft.	The reversion trigger was removed from the HCP Amendment.
Scott Fretz, Kawika Winters	Kawika Winters, Scott Fretz referenced the guidance of 40 acres per bat.	Peer-reviewed published literature supports a core use area of 20.3 acres per bat. Linda Chow verified during an ESRC meeting that the ESRC Hawaiian Hoary Bat Guidance Document is guidance and should be differentiated from rules.
Kawika Winters	Recommended a higher species diversity in hedgerows to protect against loss of a single species, loss of 95% diversity currently	Koa and a'ali'i are noted as preferred given their insect association and suitability for the site. Other species will be evaluated for inclusion and may be incorporated in the plan as written.
Loyal Merhoff	The amount of restoration to be accomplished though falls short of recommendations in guidance documents, with no explanation of why a reduction is appropriate	Peer-reviewed published literature supports a core use area of 20.3 acres per bat. Linda Chow verified during an ESRC meeting that the ESRC Hawaiian Hoary Bat Guidance Document is guidance and should be differentiated from rules.
Loyal Merhoff	I have concerns about how the applicant hopes to reduce minimization actions if they prove successful.	The intent of this comment is unclear.
Loyal Merhoff	Linking tiers of take to the effectiveness of proposed minimization efforts may be appropriate, but a discussion of why those thresholds were selected would help understand the likelihood of reaching the tiers.	The discussion of how Tiers are calculated is provided in Section 5.1.4.
Loyal Merhoff	Provides calculations that suggest more take is expected than is outlined in the HCP Amendment.	The take estimates in the HCP amendment are based on monitoring at the Project and extrapolation using the agency approved EoA software. Estimates of the impact of LWSC are based on literature review. It appears the analysis contained in the comments comes from a misunderstanding of the literature or turbine operations.
Loyal Merhoff	Take estimate is logical, but I could not get the numbers to work out as presented in the HCP. It would be helpful if the take was calculate step by step with real numbers. Also, it is not possible to verify EOA analyses until all inputs have been provided.	The inputs for EoA are provided in Appendix H.
Loyal Merhoff	Actual average wind speeds should be provided.	Average Wind speeds are provided in Section 3.8.1.3.
Loyal Merhoff	This project is a dry grassland/shrubland with grazing. Grazing seems to lead to increased risk of bat take.	The correlation between grazing and observed fatalities is provided in Section 3.8.1.3

**Auwahi Wind HCP Amendment**  
**ESRC Comment Matrix (October 25, 2018 Meeting)**

<b>Member</b>	<b>Comment</b>	<b>Response</b>
Loyal Merhoff	Rotor size has been shown to affect bat take. Larger rotors like the ones used in this project (101 m) are associated with higher rates of bat take (61% increase in take, Table 2). Larger rotors also have been shown to have reduced effectiveness when LWSC is applied (in this case a 42% reduction in benefits, Table 3).	The take estimates in the HCP amendment are based on monitoring at the Project and extrapolation using the agency approved EoA software. Estimates of the impact of LWSC are based on literature review. It appears the analysis contained in the comments comes from a misunderstanding of the literature or turbine operations.
Loyal Merhoff	Some studies have shown height to be correlated with take, with higher towers more likely to have increased take. It is unclear if this would be logically true in Hawaii.	The take estimates in the HCP amendment are based on monitoring at the Project and extrapolation using the agency approved EoA software. Estimates of the impact of LWSC are based on literature review. It appears the analysis contained in the comments comes from a misunderstanding of the literature or turbine operations. Zimmerling et al. 2016 states "There was no relationship between bat mortality/turbine and height of wind turbines ( Fig. 1)."
Loyal Merhoff	This project uses turbine monitoring of wind for LWSC. Expect 81% increase in take compared to use of met tower data. Recent study showed turbine meters overestimated wind speeds by 1.0 m/s and had an 81% increase in take.	The take estimates in the HCP amendment are based on monitoring at the Project and extrapolation using the agency approved EoA software. Estimates of the impact of LWSC are based on literature review. It appears the analysis contained in the comments comes from a misunderstanding of the literature or turbine operations. Zimmerling et al. 2016 states "There was no relationship between bat mortality/turbine and height of wind turbines ( Fig. 1)."
Loyal Merhoff	I would suggest discussing the addition of 20 minute rolling averages from met tower data for LWSC and looking at your data to see if your met tower and 5 nacelle monitors are showing the same concurrent wind speeds. If so, then you may not need to correct for generally higher nacelle values.	Schirmacher et al. 2018 found no difference in observed fatalities between a 10-minute and 20-minute average.
Loyal Merhoff	The strategy is generally good. Use of Ranch lands is also good, because the area is of high conservation value to many threatened and endangered species.	This is consistent with the Mitigation proposed in the HCP Amendment.
Loyal Merhoff	ESRC guidance for mitigation is 40 acres per bat, not 20 acres per bat.	Peer-reviewed published literature supports a core use area of 20.3 acres per bat. Linda Chow verified during an ESRC meeting that the ESRC Hawaiian Hoary Bat Guidance Document is guidance and should be differentiated from rules.
Loyal Merhoff	A commitment letter from the landowner is needed.	Commitment from Sumner has been provided in the form of personal communication with Scott Fretz. Additionally, Ulupalakua Ranch has reviewed and approved the plan as outlined in the HCP Amendment.
Loyal Merhoff	Mitigation monitoring. Specific monitoring protocols OK. Need to also monitor activity at the Project site to compare with mitigation areas.	Monitoring at the Project is addressed in Section 7.4.1.3
Loyal Merhoff	Please provide a table with annual take expected and annual offsetting bat numbers showing take and offset.	The take of Hawaiian hoary bats is discrete and calculable, while the estimation of offset is discerned through the relative abundance of acoustic detections. The acoustic detections do not provide a count of individuals so we do not have a count of individuals that are produced at the mitigation site. We have used the best available science, and additional mitigation measures to ensure a net benefit to the species over the permit term.
Loyal Merhoff	Discuss how the above offset table shows that the impacts will, indeed, be offset. If there is a shortfall in offsets, please describe how that will be rectified.	The take of Hawaiian hoary bats is discrete and calculable, while the estimation of offset is discerned through the relative abundance of acoustic detections. The acoustic detections do not provide a count of individuals so we do not have a count of individuals that are produced at the mitigation site. We have used the best available science, and additional mitigation measures to ensure a net benefit to the species over the permit term.
Loyal Merhoff	Mandatory actions for take thresholds: This section is explicit, but does not result in any additional operational constraints if the take authorization is exceed or expected to be exceeded. This needs to be rectified.	Adaptive management is addressed in Section 7.4.1.
Loyal Merhoff	Mandatory actions for take thresholds: This section is explicit, but does not result in any additional operational constraints if the take authorization is exceed or expected to be exceeded. This needs to be rectified.	Adaptive management of minimization is addressed in Section 7.4.1. Full-nighttime shutdown is addressed in Section 8.
Loyal Merhoff	The HCP needs to commit to specific actions if take is expected to exceed warning thresholds. Those actions should be more substantive, like if bat take reaches 75% of authorization, the project will implement a LWSC of 6.9 m/s on all turbines until agreement on interim operations is reached with DOFAW.	Adaptive management of minimization is addressed in Section 7.4.1

**Auwahi Wind HCP Amendment**  
**ESRC Comment Matrix (October 25, 2018 Meeting)**

<b>Member</b>	<b>Comment</b>	<b>Response</b>
Loyal Merhoff	Mandatory actions for mitigation thresholds: i. Mitigation failure is addressed in the HCP. ii. Pre-failure thresholds. Trigger points need to be added to help adaptive management efforts ensure that the mitigation effort is successful and to start “plan B” if they appear to be unsuccessful.	Adaptive management of mitigation is addressed in Section 6.2.4.7
Loyal Merhoff	Update the EOA graph, to include take estimates and thresholds for the entire project duration should be provided annually (and in the HCP amendment so that the public and readers can better understand the situation. A similar graph needs to be provided that shows how offsets to take progress over the 20 years of the permit.	Annual reports include full inputs of EoA and can be found on the ESRC website ( <a href="http://dlnr.hawaii.gov/wildlife/hcp/approved-hcps/">http://dlnr.hawaii.gov/wildlife/hcp/approved-hcps/</a> )
Loyal Merhoff	Annual bat activity at site needs to be provided in order to both get an understanding of bat activity over time as well as to help understand when take is most likely to occur. iii. Annual take at site, with associated data on the take is expected to be in annual reports. iv. Annual results of mitigation monitoring efforts should be reported annually. v. Annual discussion of adaptive management efforts should be provided.	Annual reports include full inputs of EoA and can be found on the ESRC website ( <a href="http://dlnr.hawaii.gov/wildlife/hcp/approved-hcps/">http://dlnr.hawaii.gov/wildlife/hcp/approved-hcps/</a> )
Loyal Merhoff	The proposed mitigation uses a 20 acre per bat offset. ESRC has recommended 40 acres per bat. Mitigation at the 20 acre level is probably not adequate.	Peer-reviewed published literature supports a core use area of 20.3 acres per bat. Linda Chow verified during an ESRC meeting that the ESRC Hawaiian Hoary Bat Guidance Document is guidance and should be differentiated from rules.
Loyal Merhoff	If revised somewhat, the project could be generally consistent with the intent of bat recovery	See revised Tier 4 - 6 mitigation provided in Section 6.2.
Loyal Merhoff	All negative impacts are minimized or mitigated. Impacts on the bat may be adequately minimized, but need to be validated and additional mitigation provided.	See revised take and mitigation sections in Section 5.1 and 6.2.
Loyal Merhoff	I do think that habitat restoration or preservation may be a viable option for offsetting bat take.	This is consistent with the Mitigation proposed in the HCP Amendment.
Loyal Merhoff	Since bats have been observed using both native and non-native forests as habitat, mitigation could involve the creation/enhancement of native or non-native forests.	This is consistent with the Mitigation proposed in the HCP Amendment.
Loyal Merhoff	The restoration/protection of native forests requires the control of key invasive species, including ungulates (e.g., pigs, goats, deer, and cows). Consequently, when mitigation aims to create, restore, or protect native forests the control/eradication of ungulates should be a requirement. Ungulate control would not necessarily need to be undertaken when non-native forests are the goal of habitat creation for bats. Some data shows that grazing by cows (an ungulate) is correlated with increased bat activity.	This is consistent with the Mitigation proposed in the HCP Amendment.
Loyal Merhoff	I feel that native forests are a better option for bat-related restoration because they are the forests these bats evolved with and, additionally, native forests provide habitat for other endangered species that are dependent upon native forests. When habitat restoration/protection occurs in endangered species critical habitat (or areas where critical habitat was not designated because of landowner conservation efforts) the end target should be native habitat restoration, not the creation or perpetuation of non-native forests.	This is consistent with the Mitigation proposed in the HCP Amendment.
Kim Burnett	should the cost of higher tiers be proportional to mitigation costs of previous tiers as stated (in this case, tier 4?) I would imagine that mitigation may become increasingly expensive as take increases, since would probably do the conservation easements, water trough modifications, plantings, fencing, etc. in lowest cost areas first. If this is not the case, maybe provide reasoning for why increased mitigation would be a similar cost as previous levels of mitigation	The cost of later tiers is based on the current costs and expected to be modified by inflation as outlined in Section 9.4.
Jim Jacobi	Overall, I like the direction they are proposing for mitigation with mixed habitat landscape management.	This is consistent with the Mitigation proposed in the HCP Amendment.

**Auwahi Wind HCP Amendment**  
**ESRC Comment Matrix (October 25, 2018 Meeting)**

<i><b>Member</b></i>	<i><b>Comment</b></i>	<i><b>Response</b></i>
Jim Jacobi	However, I feel that the mitigation management response monitoring, relative to bats, is rather weak. I am concerned that the proposed use of acoustic monitoring, specifically focusing on feeding buzzes, will likely result in data that will be difficult to analyze and not yield results that can adequately detect change response to the management actions. A new paper has just been published that demonstrates the value of a multi-state occupancy analysis that incorporates both acoustic and thermal detection, coupled with results from insect biomass sampling, to assess change in bat response.	Tier 4 monitoring has been updated to incorporate all calls instead of only feeding buzzes.  Gorresen et al 2018 showed that acoustic monitoring is auto correlated with insect biomass, therefore collecting both types of data would be redundant. Acoustic sampling provides a better assessment of bat utilization of a site relative to the assessment of thermal video as video likely also captures bats traversing the site.
Jim Jacobi	Suggest Mitigation focus on Maui, rather than Maui Nui	See Section 6.2.5 for revised Tier 5/6 mitigation.
Jim Jacobi	Population estimate is not a logical conclusion based on questionable assumptions about CUA and how that relates to the bat population	Revised population and cumulative impacts analysis can be found in Section 5.1.
Jim Jacobi	It is not clear that water sources are really a limiting factor for bats in the area.	The goal of Tier 4 is to provide a mix of habitat features that are positively associated with bat occurrence and a robust adaptive management strategy to respond to monitoring as described in Section 6.2.4.
Jim Jacobi	Tier 4 mitigation needs to clarify the language "Corresponds to the beginning of the first peak in mainland hoary bat utilization"	See Section 6.2.4 for the revised Tier 4 mitigation plan.
Jim Jacobi	Tier 4 mitigation More diversity in understory and overstory species are recommended including native species such as mamane, mamaki, pilo, and akala	Koa and a'ali'i are noted as preferred given their insect association and suitability for the site. Other species will be evaluated for inclusion and may be incorporated in the plan as written.
Jim Jacobi	Are fence replacement costs included in [the tier 4] budget?	Fencing is primarily intended for tree establishment. Installation and repair will be performed as necessary to achieve the success criteria of 20% forest cover.
Jim Jacobi	50 years is a huge underestimate for the age of koa.	It is agreed that 50 years is an underestimate of the potential age of Koa, but 50 years is supported by available literature and an conservative estimate of the timeframe so as not to overestimate the benefit to bats.
Jim Jacobi	The tier 4 calculation of current bat use of the habitat is not based on much evidence.	Baseline monitoring for Tier 4 mitigation is proposed in Section 6.2.4.5
Jim Jacobi	" The existing benefit to bats will be significantly increased as a result of the increased connectivity provided by virtue of the Mitigation Area's location" change "will" to "is expected to" since it is not clear how many bats are currently found using this area and how the mitigation actions will increase their numbers.	Baseline monitoring for Tier 4 mitigation is provided in Section 6.2.4.5
Jim Jacobi	Guidance is 40 acres per bat for mitigation offset.  Jim Jacobi was supportive of Auwahi's move away from assuming 40 acres of trees equals 1 bat, and Auwahi having a responsive adaptive management strategy.	Peer-reviewed published literature supports a core use area of 20.3 acres per bat. Linda Chow verified during an ESRC meeting that the ESRC Hawaiian Hoary Bat Guidance Document is guidance and should be differentiated from rules.
Jim Jacobi	Feeding buzzes are recorded very infrequently which greatly reduces the sensitivity of the monitoring scheme. Better to incorporate a multi-variate occupancy sampling design utilizing acoustic and thermal detections, coupled with insect biomass sampling.	Tier 4 monitoring has been updated to incorporate all calls instead of only feeding buzzes.
Jim Jacobi	Be consistent with english/metric units. Tier 4 references 100x100m cells.	Noted
Jim Jacobi	Mitigation - Jim suggested the need for additional monitoring both for acquisition and for management in the use of Tier 5/6.	Additional monitoring is noted in the updated Tier 5/6 which has been provided to DOFAW.
Jim Jacobi	External detectors: I thought these sites were expected to provide a control (no management) comparison; and if they will be used that way there appears to be some problems with sampling design.	The exterior detectors will therefore be used for reference but will not be used to evaluate success criteria
Jim Jacobi	It is not clear if the data will be analyzed for each month of the year, seasonally, or the data for the whole year pooled. Need to clarify this since it will definitely relate to the power calculation which will drive the design for future monitoring.	Additional monitoring details are provided in the revised Tier 5/6 mitigation in Section 6.2.5.

**Auwahi Wind HCP Amendment**  
**ESRC Comment Matrix (October 25, 2018 Meeting)**

<b>Member</b>	<b>Comment</b>	<b>Response</b>
Jim Jacobi	Sampling Metrics for Tier 4: These analyses seem to be pretty limited in being able to relate management to increased number of bats. Again feeding buzzes are not regularly recorded and the audio detectors have limited vertical range. A more comprehensive monitoring scheme that includes audial and thermal detection, combined with insect biomass sampling would be more productive.	Tier 4 monitoring has been updated to incorporate all calls instead of only feeding buzzes.  Gorresen et al 2018 showed that acoustic monitoring is auto correlated with insect biomass, therefore collecting both types of data would be redundant. Acoustic sampling provides a better assessment of bat utilization of a site relative to the assessment of thermal video as video likely also captures bats traversing the site.
Jim Jacobi	Sample size will likely be an issue with analysis co-variates for Tier 4 analysis.	Co-variates will only be used to analyze the impacts of specific features should adaptive management prove necessary.
Jim Jacobi	Thermal video of Tier 4: Will this data be used for any type of a change analysis related to management? These cameras will be useful to document use of the water source but probably better utilized as a part of the monitoring scheme.	The use of thermal cameras is described in Section 6.2.4.5.
Jim Jacobi	Insect monitoring: Again there is better use of this sampling as a part of the regular monitoring.	The use of insect monitoring is described in Section 6.2.4.5 and 6.2.4.7.
Jim Jacobi	Adaptive management triggering: I presume this is based on a probability analysis. If you don't find a statistical difference you need to check the power for that analysis regardless if the mean value increased or decreased	Power analysis is identified in Section 6.2.4.4 and 6.2.4.5
Jim Jacobi	You need to check how call abundance and call detectability are correlated.	See the revised mitigation and monitoring plan for Tiers 4 - 6 in Sections 6.2.
Jim Jacobi	How will you chose which adaptive management action to implement if needed for Tier 4?	Selection of adaptive management actions is described in Section 6.2.4.7
Jim Jacobi	I don't feel that the proposed mitigation management area has been adequately shown to be poor quality habitat. This will come out in the baseline monitoring. The area around the current Auwahi Wind farm ProJet was also considered to be low quality habitat but there is much more bat activity there than ever expected based on initial evaluation of habitat characteristics.	Baseline monitoring for Tier 4 mitigation is provided in Section 6.2.4.5
Jim Jacobi	I feel that [Tier 5 and 6 measures of success and monitoring] generally sounds like a good strategy but it really depends on how well the tier 4 management progresses and if the monitoring can detect any change as a result of these management actions	Revisions to the Tier 5/6 Mitigation are provided in Section 6.2.5. The assessment of the current literature and mitigation is noted as important when developing a specific plan for Tier 5 or 6.
Lisa Spain	Lisa Spain noted that if used 40 acres per bat, would need 2400 acres, Tier 4"only" about 600 acres off. Scott Fretz noted that guidance may be revisited.	Peer-reviewed published literature supports a core use area of 20.3 acres per bat. Linda Chow verified during an ESRC meeting that the ESRC Hawaiian Hoary Bat Guidance Document is guidance and should be differentiated from rules.
Michelle Bogardus	States 20 acres ok per bat, and that "guidance is just guidance"	Peer-reviewed published literature supports a core use area of 20.3 acres per bat. Linda Chow verified during an ESRC meeting that the ESRC Hawaiian Hoary Bat Guidance Document is guidance and should be differentiated from rules.
Michelle Bogardus	Take request, deterrents - Michelle Bogardus expressed a concern that the effectiveness of deterrents is unknown.	Revised discussion of deterrent installation can be found in Section 7.4.1.6.
All	Monitoring: 1) ESRC members discussed the difficulty of assessing the bat population using the existing monitoring tools. ESRC members note that Auwahi Wind is using the available tools: thermal videography, insect assessment, and acoustic monitoring.	Monitoring for Tier 4 mitigation is addressed in Section 6.2.4.5
All	Monitoring: 2) ESRC members requested more detail on the metrics of success and requested a power analysis be included in the reporting to determine confidence in monitoring results.	Tier 4 has been updated to include reporting requirements (Section 6.2.4.6) and power analysis (Section 6.2.4.4 and 6.2.4.5).
All	Population and cumulative impacts: ESRC expressed concern regarding the population size suggested in the HCP Amendment. ESRC was ok with the method provided but expressed that the analysis needed to be more quantitative and needed to include a population range. ESRC members noted that the Bat Task Force had difficulty determining an acceptable population model.	Revised population and cumulative impacts analysis can be found in Section 5.1.



**Auwahi Wind HCP Amendment**  
**ESRC Comment Matrix (October 25, 2018 Meeting)**

<i><b>Member</b></i>	<i><b>Comment</b></i>	<i><b>Response</b></i>
All	Take request, deterrents - Differences were noted between DOFAW and USFWS on the acceptability of reduced take requests. DOFAW noted the incentive to stay within permit, USFWS noted the inability to permit a take level that they anticipate to be exceeded.	Revised discussion of deterrent installation can be found in Section 7.4.1.6.
All	Take request, deterrents - ESRC evaluation of the HCP Amendment concluded that deterrents may or may not be implemented.	Revised discussion of deterrent installation can be found in Section 7.4.1.6.
All	Take request - ESRC members expressed concerns over the concept of a reversion trigger, implying that if reversion is implemented the maximum impact would be realized.	The reversion trigger was removed from the HCP Amendment.

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# Auwahi Wind Draft HCP Amendment

Public Comments during the HCP State public comment period published in OEQC Dec 23, 2018 - Feb 21, 2019

Name	Date of Comment	Summary of Comments Provided	Response	Notes
Randy Conrads	12/21/2018	1. Request additional information regarding the loss of electricity proposed with operational changes related to LWSC.	The HCP includes data on monthly average wind speed in Section 3.8.1.3. Energy production data is proprietary.	
Randy Conrads	12/21/2018	2. Request location of the Draft EIS.	N/A	
Randy Conrads	12/21/2018	3. Estimates that \$750,000 lost and 1,000 tons of gas put into the atmosphere per bat saved.	AWEA has provided a general assessment of the carbon offset of the wind industry at: <a href="https://www.awea.org/wind-101/benefits-of-wind/environmental-benefits">https://www.awea.org/wind-101/benefits-of-wind/environmental-benefits</a>	
Christopher Carafino	12/15/2018	1. "Some study should have been undertaken or should be noted for future projects to determine if native Hawaiian birds and bats use a consistent flight path lane where wind turbines may be erected."	Preconstruction surveys are described in the approved HCP. Additional, pre-construction surveys are outside of the scope of this analysis.	
Christopher Carafino	12/15/2018	2. I am also curious if the Hawaiian bats are dying in higher numbers during certain months or seasons than any other times and if the bats are striking all the turbines or only a specific area of turbines?	The known information on fatalities is described in Section 3.8.1.3 of the HCP amendment and documented in annual reports.	
Christopher Carafino	12/15/2018	3. Thermal imagery to monitor for bats should be included as a permit condition.	PCMM is described in Section 7.1. Additional monitoring including thermal imagery is described in Section 7.4.1.2.	
Christopher Carafino	12/15/2018	4. The acoustic bat deterrent may have detrimental effects on other species.	The impact of acoustic deterrents on other species has not been documented. The potential impacts of acoustic deterrents on other species is continuing to be assessed as deterrents are tested.	
Christopher Carafino	12/15/2018	5. "I am also concerned with the wind farms projected fatality estimation decreasing as time goes on, as one may believe the longer the blades spin, the more bats die, the likelihood of the Hawaiian bat population decreases to extinction. "	The available information on the Hawaiian hoary bat "points to a species that is well adapted to a range of environments and resilient to small-scale changes in habitat condition and available resources" as described the USFWS. Although there are certain aspects of the Hawaiian hoary bat ecology that are not fully understood, the available data provides sufficient information to determine that the project is unlikely to have population impacts. The discussion of the impacts to the bat population in Section 5.1.3.1 and 5.1.3.2 has been revised based on input from USFWS, DOFAW, and the ESRC.	
Janna Swanson	1/22/2019	1. Concerned about impacts of wind in Iowa and the MidAmerican HCP.	Impacts of facilities in other states is outside of the scope of the analysis of the HCP.	
Janna Swanson	1/22/2019	2. "Please ask the wind companies how much CO2 is being avoided with industrial wind. "	AWEA has provided a general assessment of the carbon offset of the wind industry at: <a href="https://www.awea.org/wind-101/benefits-of-wind/environmental-benefits">https://www.awea.org/wind-101/benefits-of-wind/environmental-benefits</a>	
Janna Swanson	1/22/2019	3. Concerned that "industrial wind is not the right direction".	Impacts of facilities in other states and the wind industry overall is outside of the scope of the analysis of the HCP.	
Keahi Bustamente	2/15/2019	1. I disapprove of the change to increase the take mostly because there's too many unknowns.	The available information on the Hawaiian hoary bat "points to a species that is well adapted to a range of environments and resilient to small-scale changes in habitat condition and available resources" as described the USFWS. Although there are certain aspects of the Hawaiian hoary bat ecology that are not fully understood, the available data provides sufficient information to determine that the project is unlikely to have population impacts. The discussion of the impacts to the bat population in Section 5.1.3.1 and 5.1.3.2 has been revised based on input from USFWS, DOFAW, and ESRC.	Public Hearing
Cody Tuivent	2/15/2019	2. Does not believe that LWSC is likely to reduce the take rate.	The efficacy of LWSC is discussed in Section 4.2.7 of the HCP Amendment.	Public Hearing
Cody Tuivent	2/15/2019	3. It is unknown how many bats remain	The available information on the Hawaiian hoary bat "points to a species that is well adapted to a range of environments and resilient to small-scale changes in habitat condition and available resources" as described the USFWS. Although there are certain aspects of the Hawaiian hoary bat ecology that are not fully understood, the available data provides sufficient information to determine that the project is unlikely to have population impacts. The discussion of the impacts to the bat population in Section 5.1.3.1 and 5.1.3.2 has been revised based on input from USFWS, DOFAW, and ESRC.	Public Hearing
Cody Tuivent	2/15/2019	4. Views the removal of native plants as take.	The HCP Amendment does not propose take of native plant species.	Public Hearing
Kaniloa Kamaunu	2/15/2019	5. The land and species are family to native Hawaiians and take impacts family.	The cultural impacts of the HCP are described in the SEIS and PEIS.	Public Hearing

# Auwahi Wind Draft HCP Amendment

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<i>Name</i>	<i>Date of Comment</i>	<i>Summary of Comments Provided</i>	<i>Response</i>	<i>Notes</i>
Kaniloa Kamaunu	2/15/2019	6. Requesting a high take amount because there is insufficient information.	The take estimates are based on 5 years of project specific monitoring and a review of the best available science to predict the effects of minimization measures.	Public Hearing
Kaniloa Kamaunu	2/15/2019	7. Suggest mitigation for all take that has occurred prior to requesting an amendment.	Mitigation for all take proposed in the HCP and HCP Amendment is outlined in Section 6 of the HCP Amendment. Mitigation will fully offset and provide a net benefit for the species.	Public Hearing
Kaniloa Kamaunu	2/15/2019	8. Suggests there is insufficient information about the Hawaiian hoary bat	The available information on the Hawaiian hoary bat "points to a species that is well adapted to a range of environments and resilient to small-scale changes in habitat condition and available resources" as described the USFWS. Although there are certain aspects of the Hawaiian hoary bat ecology that are not fully understood, the available data provides sufficient information to determine that the project is unlikely to have population impacts. The discussion of the impacts to the bat population in Section 5.1.3.1 and 5.1.3.2 has been revised based on input from USFWS, DOFAW, and ESRC.	Public Hearing
Keoki Raymond	2/15/2019	9. Suggests the term take should be replaced with the term kill	Take is defined by the ESA and HRS-195D.	Public Hearing
Keoki Raymond	2/15/2019	10. Opposes wind energy	Preferences regarding the HCP Amendment are noted for consideration but do not warrant revisions to the HCP Amendment.	Public Hearing
Keoki Raymond	2/15/2019	11. "jacking up the numbers of take.. is not achieving anything other than just justifying these guys... killing more animals and it's wrong."	The take license process is provided by HRS 195D, review of the process is outside of the scope of the HCP Amendment.	Public Hearing
Brad Yuen	2/15/2019	12. I am concerned for the species, that's the reason why I want to do research on the species.	The Project also shares concern for the species as indicated by the minimization measures and mitigation described in the HCP. Compliance with HRS and ESA result in a benefit to the species, despite incidental take.	Public Hearing
Brad Yuen	2/15/2019	13. bats also produce drinking buzzes that look something like feeding buzzes, but actually are different when they're drinking on the wing.	The HCP amendment is updated to incorporate all calls into the analysis of impacts for Tier 4. Differentiating drinking and feeding buzzes may be a means of differentiating the impacts of management actions but is subject to analysis of collected data.	Public Hearing
Kekaula Campbell	2/15/2019	14. Requests discussion of cultural significance in the HCP amendment	The cultural impacts of the HCP are described in the SEIS and PEIS.	Public Hearing
Kekaula Campbell	2/15/2019	15. "you can take the bat and then it's gone and then it's gone forever."	The available information on the Hawaiian hoary bat "points to a species that is well adapted to a range of environments and resilient to small-scale changes in habitat condition and available resources" as described the USFWS. Although there are certain aspects of the Hawaiian hoary bat ecology that are not fully understood, the available data provides sufficient information to determine that the project is unlikely to have population impacts. The discussion of the impacts to the bat population in Section 5.1.3.1 and 5.1.3.2 has been revised based on input from USFWS, DOFAW, and ESRC.	Public Hearing
Kekaula Campbell	2/15/2019	16. "And you can always turn off the wind farm, you know, you can always turn off -- turn them off at night, cut the wind speed down, you know, learn more about the bat."	This alternative was considered in Section 8.3 of the HCP Amendment.	Public Hearing
Kekaula Campbell	2/15/2019	17. "if they're not going to be held accountable for the first 5 years and the mistakes they made already, what's to stop them in the future from just adding tiers, making more amendments, and just taking all the native species out of existence?"	Mitigation for all take proposed in the HCP and HCP Amendment is outlined in Section 6 of the HCP Amendment. Mitigation will fully offset and provide a net benefit for the species.	Public Hearing
Kekaula Campbell	2/15/2019	18. Suggests the process does not comply with the ESA.	The take license process is provided by HRS 195D, review of the process is outside of the scope of the HCP Amendment.	Public Hearing
Kekaula Campbell	2/15/2019	19. Opposes all amendments	The take license process is provided by HRS 195D, review of the process is outside of the scope of the HCP Amendment.	Public Hearing
John Comwich	2/15/2019	20. Need to reduce the dependence on oil and coal.	This is recognized as an important driver for the Project being constructed.	Public Hearing
John Comwich	2/15/2019	21. Wind farms are an eyesore but supply energy locally	This is recognized as an important driver for the Project being constructed.	Public Hearing

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John Comwich	2/15/2019	22. Mitigation provides benefits to covered species as well as other species	The benefits of mitigation are outlined in Section 6.2.4 and 6.2.5.	Public Hearing
John Comwich	2/15/2019	23. The HCP Amendment is a "Win-win", producing green energy and restoring pasture land	Preferences regarding the HCP Amendment are noted for consideration but do not warrant revisions to the HCP Amendment.	Public Hearing
Laura Berthold	2/15/2019	24. We are not quantifying the impacts of climate change to the species	This is more appropriate discussion for the PEIS.	Public Hearing
Laura Berthold	2/15/2019	25. There is a need for local and green energy	This is recognized as an important driver for the Project being constructed.	Public Hearing
Laura Berthold	2/15/2019	26. In addition to the climate benefits the habitat restoration will benefit many species.	The benefits of mitigation are outlined in Section 6.2.4 and 6.2.5.	Public Hearing
Hanna Mounce	2/15/2019	27. Many things go un-mitigated so mitigation is increasingly important. The mitigation already implemented by Auwahi Wind will benefit many species	The benefits of mitigation are outlined in Section 6.2.4 and 6.2.5.	Public Hearing
Hanna Mounce	2/15/2019	28. The inability to quantify the impacts to bats means the impacts of mitigation is uncertain.	The uncertainty of mitigation is addressed in Section 6.2.4.3. The success criteria for mitigation focus on increasing bat activity as monitored through acoustic activity at the mitigation site. Although there is uncertainty about the scale of impacts of the mitigation, mitigation for Tier 1 has been shown to increase bat activity. Additionally, the activity of bats in the area is higher than anticipated. The Project is using the industry standard for monitoring of solitary tree roosting bat species, which is the best information available.	Public Hearing
Hanna Mounce	2/15/2019	29. We don't know that the bat population can withstand the additional take requested, thus it would be irresponsible to increase their take.	The available information on the Hawaiian hoary bat "points to a species that is well adapted to a range of environments and resilient to small-scale changes in habitat condition and available resources" as described the USFWS. Although there are certain aspects of the Hawaiian hoary bat ecology that are not fully understood, the available data provides sufficient information to determine that the project is unlikely to have population impacts. The discussion of the impacts to the bat population in Section 5.1.3.1 and 5.1.3.2 has been revised based on input from USFWS, DOFAW, and ESRC.	Public Hearing
Laura Berthold	2/21/2019	1. The take of 7 bats per year would not lead to a decline in the bat population.	The available information on the Hawaiian hoary bat "points to a species that is well adapted to a range of environments and resilient to small-scale changes in habitat condition and available resources" as described the USFWS. Although there are certain aspects of the Hawaiian hoary bat ecology that are not fully understood, the available data provides sufficient information to determine that the project is unlikely to have population impacts. The discussion of the impacts to the bat population in Section 5.1.3.1 and 5.1.3.2 has been revised based on input from USFWS, DOFAW, and ESRC.	
Laura Berthold	2/21/2019	2. Mitigation and mitigation monitoring are essential and included in the HCP Amendment.	The benefit of mitigation and monitoring are incorporated in the HCP amendment Section 6.2.4. This comment does not alter the HCP Amendment.	
Laura Berthold	2/21/2019	3. Suggest supplemental feeding in the mitigation area prior to forest establishment.	The Project appreciates the description of supplemental feeding as an alternative mitigation measure. This method of mitigation is incorporated through the development of water features. Other methods for implementing supplemental feeding have not been documented for aerial hawking insectivorous bats, but may be evaluated.	
Laura Berthold	2/21/2019	4. Drowning in troughs has been documented in other avian species	Wildlife egress structures are suggested in Section 6.2.4.2	
Laura Berthold	2/21/2019	5. The estimate of population and the estimates for mitigation offset are inconsistent metrics	Substantial revision to the impacts to bat population, Section 5.1.3.1 and Section 5.1.3.2 have incorporated updates that include ranges for estimates and use the same metrics identified in the mitigation.	
Laura Berthold	2/21/2019	6. "If any technology comes up that would better or additionally deter than slowing down the blade, then that should be implemented."	The installation of deterrents is addressed in the HCP Amendment, Section 7.4.1.4 "Future Technologies". The project will continue to monitor the status and viability of commercially available bat deterrents.	
Laura Berthold	2/21/2019	7. There is a lack of public awareness of bats, energy, and the wind industry	This comment is outside of the scope of the analysis for the HCP amendment.	

# Auwahi Wind Draft HCP Amendment

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<i>Name</i>	<i>Date of Comment</i>	<i>Summary of Comments Provided</i>	<i>Response</i>	<i>Notes</i>
Krystal Vasquez	1/31/2019	1. "Please stop killing these bats"	The take license process is provided by HRS 195D, review of the process is outside of the scope of the HCP Amendment.	No project or document identified
Diana Crow	2/21/2019	1. "I am writing in support of the Auwahi Wind HCP Amendment."	Preferences regarding the HCP Amendment are noted for consideration but do not warrant revisions to the HCP Amendment.	
Diana Crow	2/21/2019	2. There are negative consequences to native species from not using renewable energy	This is more appropriate discussion for the PEIS.	
Diana Crow	2/21/2019	3. Wind energy is an important to meet Maui energy needs.	This is recognized as an important driver for the Project being constructed.	
Diana Crow	2/21/2019	4. Bat deterrents are likely to be available soon.	The installation of deterrents is addressed in the HCP Amendment, Section 7.4.1.4 "Future Technologies". The project will continue to monitor the status and viability of commercially available bat deterrents.	
Diana Crow	2/21/2019	5. The risk of the project is small compared to the land area of Maui.	The available information on the Hawaiian hoary bat "points to a species that is well adapted to a range of environments and resilient to small-scale changes in habitat condition and available resources" as described the USFWS. Although there are certain aspects of the Hawaiian hoary bat ecology that are not fully understood, the available data provides sufficient information to determine that the project is unlikely to have population impacts. The discussion of the impacts to the bat population in Section 5.1.3.1 and 5.1.3.2 has been revised based on input from USFWS, DOFAW, and ESRC.	
Diana Crow	2/21/2019	6. The mitigation will benefit a multitude of native species of plants, birds, and insects in addition to the bats.	The benefits of mitigation are outlined in Section 6.2.4 and 6.2.5.	
Diana Crow	2/21/2019	7. The research conducted by Auwahi helps Hawaii know more about bats.	The benefit of research is important for the species as outlined by the USFWS Hawaiian Hoary Bat Recovery Plan and the DOFAW Hawaiian Hoary Bat Guidance Document. This comment does not alter the HCP Amendment.	
Hanna Mounce	NA	1. "There is no evidence that the current HCP for Auwahi Wind has provided a net benefit to the population."	The uncertainty of mitigation is addressed in Section 6.2.4.3. The success criteria for mitigation focus on increasing bat activity as monitored through acoustic activity at the mitigation site. Although there is uncertainty about the scale of impacts of the mitigation, mitigation for Tier 1 has been shown to increase bat activity. Additionally, the activity of bats in the area is higher than anticipated. The Project is using the industry standard for monitoring of solitary tree roosting bat species, which is the best information available.	Written comment from Public hearing
Hanna Mounce	NA	2. "To allow additional take when we have no proven mitigation success and no idea what proportion of population we are killing is grossly irresponsible."	The available information on the Hawaiian hoary bat "points to a species that is well adapted to a range of environments and resilient to small-scale changes in habitat condition and available resources" as described the USFWS. Although there are certain aspects of the Hawaiian hoary bat ecology that are not fully understood, the available data provides sufficient information to determine that the project is unlikely to have population impacts. The discussion of the impacts to the bat population in Section 5.1.3.1 and 5.1.3.2 has been revised based on input from USFWS, DOFAW, and ESRC.	Written comment from Public hearing
Tristen See	NA	1. Oppose the increase in incidental take authorization.	The take license process is provided by HRS 195D, review of the process is outside of the scope of the HCP Amendment.	Written comment from Public hearing
Tristen See	NA	2. Suggest the process does not comply with the ESA.	The take license process is provided by HRS 195D, review of the process is outside of the scope of the HCP Amendment.	Written comment from Public hearing
Tristen See	NA	3. "This could create irreparable harm to 'ope'ape'a population (a) and to the food chain, insect populations, etc., that is difficult to predict(b).	The available information on the Hawaiian hoary bat "points to a species that is well adapted to a range of environments and resilient to small-scale changes in habitat condition and available resources" as described the USFWS. Although there are certain aspects of the Hawaiian hoary bat ecology that are not fully understood, the available data provides sufficient information to determine that the project is unlikely to have population impacts. The discussion of the impacts to the bat population in Section 5.1.3.1 and 5.1.3.2 has been revised based on input from USFWS, DOFAW, and ESRC.	Written comment from Public hearing

# Auwahi Wind Draft HCP Amendment

Public Comments during the HCP State public comment period published in OEQC Dec 23, 2018 - Feb 21, 2019

<i>Name</i>	<i>Date of Comment</i>	<i>Summary of Comments Provided</i>	<i>Response</i>	<i>Notes</i>
Jayne Kanoholam(spellin g? Writing illegible)	NA	1. Oppose the increase in incidental take authorization.	The take license process is provided by HRS 195D, review of the process is outside of the scope of the HCP Amendment.	Written comment from Public hearing
Jayne Kanoholam (spelling? Writing illegible)	NA	2. The Hawaiian hoary bat is culturally significant	The cultural impacts of the HCP are described in the SEIS and PEIS.	Written comment from Public hearing
Kosianya Mosi (spelling? Writing illegible)	NA	1. Oppose the increase in incidental take authorization.	The take license process is provided by HRS 195D, review of the process is outside of the scope of the HCP Amendment.	Written comment from Public hearing
Alexis Rosete	NA	1. Oppose the increase in incidental take authorization.	The take license process is provided by HRS 195D, review of the process is outside of the scope of the HCP Amendment.	Written comment from Public hearing
Jordan Holokai-Jacinto	NA	1. Oppose the increase in incidental take authorization.	The take license process is provided by HRS 195D, review of the process is outside of the scope of the HCP Amendment.	Written comment from Public hearing
Makana Gomes	NA	1. Oppose the increase in incidental take authorization.	The take license process is provided by HRS 195D, review of the process is outside of the scope of the HCP Amendment.	Written comment from Public hearing
Makana Gomes	NA	2. The Hawaiian hoary bat is culturally significant	The cultural impacts of the HCP are described in the SEIS and PEIS.	Written comment from Public hearing
Eli Reinhardt	NA	1. Oppose the increase in incidental take authorization.	The take license process is provided by HRS 195D, review of the process is outside of the scope of the HCP Amendment.	Written comment from Public hearing
Seth Navas	NA	1. Oppose the increase in incidental take authorization.	The take license process is provided by HRS 195D, review of the process is outside of the scope of the HCP Amendment.	Written comment from Public hearing
Jade HK	NA	1. Oppose the increase in incidental take authorization.	The take license process is provided by HRS 195D, review of the process is outside of the scope of the HCP Amendment.	Written comment from Public hearing
Makana Remilla	NA	1. "I am not in favor of the mitigation efforts that have been put in place"	Opposition to prior approved mitigation is outside of the scope of this analysis. Opposition to mitigation proposed in the HCP amendment cannot be incorporated without specific concerns to address.	Written comment from Public hearing
Brandon Sado	NA	1. Oppose the increase in incidental take authorization.	The take license process is provided by HRS 195D, review of the process is outside of the scope of the HCP Amendment.	Written comment from Public hearing
Joel Curcio	NA	1. "Solar isn't killing bats, so you don't have too!"	The project is already developed, therefore alternate project specifications are outside of the scope of this analysis.	Written comment from Public hearing
Tehilles (Spelling? Writing illegible)	NA	1. Oppose the increase in incidental take authorization.	The take license process is provided by HRS 195D, review of the process is outside of the scope of the HCP Amendment.	Written comment from Public hearing
Shayra Mae Dodoit-Cabon (Spelling?)	NA	1. Oppose the increase in incidental take authorization.	The take license process is provided by HRS 195D, review of the process is outside of the scope of the HCP Amendment.	Written comment from Public hearing
Linernlu Patniy (Spelling?)	NA	1. Oppose the increase in incidental take authorization.	The take license process is provided by HRS 195D, review of the process is outside of the scope of the HCP Amendment.	Written comment from Public hearing
Judy Buettner	2/19/2019	1. "Does anyone know how many Hi bats exist now? What if allowing more deaths puts them over the edge for extinction? "	The available information on the Hawaiian hoary bat "points to a species that is well adapted to a range of environments and resilient to small-scale changes in habitat condition and available resources" as described the USFWS. Although there are certain aspects of the Hawaiian hoary bat ecology that are not fully understood, the available data provides sufficient information to determine that the project is unlikely to have population impacts. The discussion of the impacts to the bat population in Section 5.1.3.1 and 5.1.3.2 has been revised based on input from USFWS, DOFAW, and ESRC.	
Judy Buettner	2/19/2019	2. Are there permit limits for other species of the HCP?	The approved HCP provides a comprehensive list of species covered by the HCP, including plants and animals in Section 3.8. The HCP Amendment only addresses the changes from the original HCP.	
Judy Buettner	2/19/2019	3. Oppose the increase in incidental take authorization.	The take license process is provided by HRS 195D, review of the process is outside of the scope of the HCP Amendment.	

# Auwahi Wind Draft HCP Amendment

Public Comments during the HCP State public comment period published in OEQC Dec 23, 2018 - Feb 21, 2019

Name	Date of Comment	Summary of Comments Provided	Response	Notes
Judy Buettner	2/19/2019	4. "What is the point of having something on the endangered list and still being able to kill it?"	The take license process is provided by HRS 195D, review of the process is outside of the scope of the HCP Amendment.	
Joe Herzog	2/8/2019	1. "I hope the wind farms and the DLNR will do all they can to reduce the "take" of our flying wildlife"	Minimization to the Maximum Extent Practicable is described in Section 4.2.7 and Section 8 of the HCP Amendment.	
Joe Herzog	2/8/2019	2. "As I have written in the past, the killing of bats and Nene disqualifies wind farms as producers of "clean energy.""	The characterization of the project as 'clean energy' is not the focus of the HCP amendment and will therefore not be addressed.	
Joe Herzog	2/8/2019	3. "I hope that the wind farms will do more than the minimum to protect the birds and bats that are looking for airspace that won't kill them."	Minimization to the Maximum Extent Practicable is described in Section 4.2.7 and Section 8 of the HCP Amendment. The benefits of mitigation are outlined in Section 6.2.4 and 6.2.5	
Joe Herzog	2/8/2019	4. "Corporate donations of money for land to preserve bat habitat is wonderful [a], but not when it is done so that more bats can be killed by the wind turbines[b]."	The take license process is provided by HRS 195D, review of the process is outside of the scope of the HCP Amendment.	
Erin Starr	12/27/2018	1. "The wind farms should turn off before dusk and during the night, while the bats feed."	This alternative was considered in Section 8.3 of the HCP Amendment.	No project or document specified
Joe Imhoff	2/21/2019	1. The total population estimate of 'ope'ape'a is unknown.	The available information on the Hawaiian hoary bat "points to a species that is well adapted to a range of environments and resilient to small-scale changes in habitat condition and available resources" as described the USFWS. Although there are certain aspects of the Hawaiian hoary bat ecology that are not fully understood, the available data provides sufficient information to determine that the project is unlikely to have population impacts. The discussion of the impacts to the bat population in Section 5.1.3.1 and 5.1.3.2 has been revised based on input from USFWS, DOFAW, and ESRC.	
Joe Imhoff	2/21/2019	2. The original estimate of "take" was drastically miscalculated.	The take estimates are based on 5 years of project specific monitoring and a review of the best available science to predict the impacts of minimization measures.	
Joe Imhoff	2/21/2019	3. The breakdown of mitigation money that is provided by the private company to increase the population of bats was not communicated at the public hearing.	The public hearing was held by the Division of Forestry and Wildlife. Auwahi Wind has made the Draft HCP amendment available to the public through publication in the OEQC.	
Joe Imhoff	2/21/2019	4. The mitigation money increase due to the "take" increase request was not communicated at the public hearing.	The public hearing was held by the Division of Forestry and Wildlife. Auwahi Wind has made the Draft HCP amendment available to the public through publication in the OEQC.	
Joe Imhoff	2/21/2019	5. The proximity of the in-house mitigation site is less than 5 miles distance to the windmills. It is unknown if this is too close and could pose as a danger for the potential new population of 'ope'ape'a .	The mitigation site selection criteria are described in Section 6.2.4.1.	
Joe Imhoff	2/21/2019	6. It is unknown if mitigation efforts to date have produced any new bats.	The uncertainty of mitigation is addressed in Section 6.2.4.3. The success criteria for mitigation focus on increasing bat activity as monitored through acoustic activity at the mitigation site. Although there is uncertainty about the scale of impacts of the mitigation, mitigation for Tier 1 has been shown to increase bat activity. Additionally, the activity of bats in the area is higher than anticipated. The Project is using the industry standard for monitoring of solitary tree roosting bat species, which is the best information available.	
Joe Imhoff	2/21/2019	7. it is unknown if the plants that have been installed are increasing native insect populations for 'ope'ape'a to feed.	The uncertainty of mitigation is addressed in Section 6.2.4.3. The success criteria for mitigation focus on increasing bat activity as monitored through acoustic activity at the mitigation site. Although there is uncertainty about the scale of impacts of the mitigation, mitigation for Tier 1 has been shown to increase bat activity. Additionally, the activity of bats in the area is higher than anticipated. The Project is using the industry standard for monitoring of solitary tree roosting bat species, which is the best information available.	



# Auwahi Wind Draft HCP Amendment

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<i>Name</i>	<i>Date of Comment</i>	<i>Summary of Comments Provided</i>	<i>Response</i>	<i>Notes</i>
Joe Imhoff	2/21/2019	8. it is unknown if increasing the "take" will wipe out the localized population of 'ʻpeʻapeʻa completely.	The available information on the Hawaiian hoary bat "points to a species that is well adapted to a range of environments and resilient to small-scale changes in habitat condition and available resources" as described the USFWS. Although there are certain aspects of the Hawaiian hoary bat ecology that are not fully understood, the available data provides sufficient information to determine that the project is unlikely to have population impacts. The discussion of the impacts to the bat population in Section 5.1.3.1 and 5.1.3.2 has been revised based on input from USFWS, DOFAW, and ESRC.	
Joe Imhoff	2/21/2019	9. it is unknown if current and proposed mitigation efforts will prove to be enough to assure a net benefit by effectively increasing population density of 'ʻpeʻapeʻa .	The uncertainty of mitigation is addressed in Section 6.2.4.3. The success criteria for mitigation focus on increasing bat activity as monitored through acoustic activity at the mitigation site. Although there is uncertainty about the scale of impacts of the mitigation, mitigation for Tier 1 has been shown to increase bat activity. Additionally, the activity of bats in the area is higher than anticipated. The Project is using the industry standard for monitoring of solitary tree roosting bat species, which is the best information available.	
Joe Imhoff	2/21/2019	10. It is unknown if increasing the "take" of this endangered species would set a dangerous precedent for other private companies to be allowed to "take" an endangered species with so many unknown variables.	The take license process is provided by HRS 195D, review of the process is outside of the scope of the HCP Amendment.	

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**Auwahi Wind HCP Amendment**  
**ESRC Site Visit (February 15, 2019) - Comment Matrix**

<i>Commenter</i>	<i>Agency, Group</i>	<i>Comment</i>	<i>Response (during site visit)</i>	<i>Response HCP, if applicable.</i>
LAURA BERTHOLD	Other, public	LAURA BERTHOLD: I did want to point out that earlier when we were at the restoration site that there are Hawaiian Honeycreepers there. I know it's not mitigation that's for them but there's an 'I'iwi, Maui 'Alauahio, 'Apapane, and 'Amakihi, which is a plus side.	Acknowledged	Acknowledged
ETHAN ROMANCHAK	Other, public	ETHAN ROMANCHAK: My last one is it was brought up once over there but also the idea of these trees creeping into the Tier 4 mitigation area that's been thought through. I know there will be more hedgerows but we all know that Tropical Ash is moving. I've watched that green turn into dotted dark green. So it sounds like it's been addressed but I did want to make the comment that in my mind, 20 year from now, the Ashs will beat Koas in shading the canopy so it should be an active measure if Ash is identified as an invasive. I don't know if anyone has an answer, I'm just saying in my mind Tropical Ash is going to be one of the game changers. Nature, bats last, kind of thing.	GEORGE AKAU: We don't cut during the pupping season so a lot of stands you see over there, bats could be roosting.	None required
ETHAN ROMANCHAK	Other, public	ETHAN ROMANCHAK: I imagine the cows are a great tool between the hedgerow areas.	Acknowledged	None required

**Auwahi Wind HCP Amendment**  
**ESRC Site Visit (February 15, 2019) - Comment Matrix**

<i>Commenter</i>	<i>Agency, Group</i>	<i>Comment</i>	<i>Response (during site visit)</i>	<i>Response HCP, if applicable.</i>
KAIMI KONAIHELE	Other	KAIMI KONAIHELE: It will actually be somewhat of a symbiotic relationship because the fencing will help us be better managing of that area. ... If we were to go back in the with more fencing, more intensive, and the numbers of the Ash were actually knocked back, it would be advantageous for the cattle to then go in there and stomp/break/eat, whatever they do. They are a good tool against the Wattle for sure. Part of the reason we have so much Wattle on the other side now is because we used to have four cow herds and we combined them down to two. The good news of that is our pastures get more rest, get more growth, and they're more healthy. The bad news is the pastures get more rest so now everything benefits. Wattle comes up, Blackberry comes up. As long as the cattle get back to the Wattle while it's still relatively young they can eat it, but if it gets too tall for them they'll start to fall off, they won't eat as much.	Acknowledged	None required
KAIMI KONAIHELE	Other	KAIMI KONAIHELE: I think in that respect getting rid of the Ash, it's a balance where if you go and wipe them all out you're taking away some of the natural habitat they've been making use of, the trees which are an invasive species. But I think if you were to bring up something in replacement that would be a benefit. But if you wipe one out and expect another to come up right quick, I think you'll be losing there.	Acknowledged	None required

# Auwahi Wind HCP Amendment

## HRS Chapter 195D Requirements and Issuance Criteria

### (May 2019)

(\*\*note: for topics that were addressed in the original, approved HCP and have not changed since that time, the Amendment just cross-references relevant sections of the original HCP document – see HCP Amendment, Section 1.1, last paragraph\*\*) )

<b>Requirement/Criteria</b>	<b>Auwahi HCP Amendment Provision(s)</b>
<b>A. HCP Document requirements</b> (195D-21(b)(2)). Each HCP shall:	
(A) Identify the geographic area encompassed by the plan, the ecosystems, natural communities, or habitat types within the plan area that are the focus of the plan; and the species reasonably expected to be present	Chapter 1: Project description; maps in Section 1.1 depict project and mitigation locations Chapter 3: regional location, land use, topography and geology, soils, hydrology and water resources, terrestrial flora, non-listed wildlife, listed wildlife (Amendment provides extensive updated information on Hawaiian hoary bat in Section 3.8.1), other resources Chapter 6: Tier 4, 5 and 6 mitigation locations are discussed in Sections 6.2.4 and 6.2.5
(B) Describe the activities to be undertaken with sufficient detail to allow DLNR to evaluate the impact on the particular ecosystems, natural communities, or habitat types	Chapter 1: project description Chapter 3: extensive updated discussion of Hawaiian hoary bat, including impacts of wind turbine operations Chapter 4: operational avoidance and minimization measures (Low Wind Speed Curtailment regime) (Section 4.2.7) Chapter 5: assessment of direct take of bats, indirect take, requested increase in amount of authorized take, potential for population-level impacts, cumulative effects (Section 5.1) Chapter 6: description of Tier 4, 5 and 6 mitigation (Sections 6.2.4 and 6.2.5)
(C) Identify the steps that will be taken to minimize and mitigate all negative impacts, including without limitation the impact of any authorized incidental take, with consideration of the full range of the species on the island so that cumulative impacts associated with the take can be adequately assessed; and the funding that will be available to implement those steps	Minimization: low wind speed curtailment regime (Section 4.2.7)  Mitigation: description of tiers of take (Section 5.1.4); tier 4 mitigation (protection and enhancement of 1,752 acres on Ulupalakua Ranch, Section 6.2.4); tier 5 and 6 mitigation (enhancement of 690 and 508 acres, respectively, on Kamehamenui Forest/Von Tempsky parcel, Section 6.2.5)  Full range of species on the island, and cumulative impacts: potential for population-level impacts, and

	<p>cumulative effects (Sections 5.1.3.1 and 5.1.3.2)</p> <p>Funding: dollar amounts, and form of financial assurance (Sections 6.2.7 and 9.4, and Appendix I)</p>
<p>(D) Identify those measures or actions to be undertaken to protect, maintain, restore or enhance the ecosystems, natural communities, or habitat types within the plan area; a schedule for implementation of the measures or actions; and an adequate funding source</p>	<p>Minimization measures: operational avoidance and minimization measures (Low Wind Speed Curtailment regime) (Section 4.2.7)</p> <p>Mitigation measures: Sections 5.1.4, 6.2.4 and 6.2.5 (summarized above)</p> <p>Schedule: Sections 6.2.4 and 6.2.5</p> <p>Funding: Sections 6.2.7 and 9.4, and Appendix I</p>
<p>(E) Be consistent with the goals and objectives of any approved recovery plan</p>	<p>Addressed in original HCP (see 1.4.1, 4.1.1, 6.2). Mitigation in the Amendment for tiers 4, 5 and 6 was informed by the Recovery Plan (Section 6.2).</p>
<p>(F) Provide reasonable certainty that the ecosystems, natural communities, or habitat types will be maintained in the plan area throughout the life of the plan, in sufficient quality, distribution, and extent to support within the plan area those species typically associated with the ecosystems, natural communities, or habitat types</p>	<p>The Amendment's conservation program is based on the best scientific information available, and includes detailed minimization measures (Section 4.2.7), mitigation measures (Sections 5.1.4, 6.2.4 and 6.2.5), monitoring (Sections 7.1 and 7.2), and adaptive management requirements based on monitoring results (Section 7.4).</p> <p>The mitigation measures provide:</p> <ul style="list-style-type: none"> <li>• substantially more acreage for permanent protection and enhancement (29.2 acres per bat) than the bat core use area (20.3 acres) which DOFAW (and USFWS) have determined constitutes adequate mitigation;</li> <li>• increased length of edge habitat;</li> <li>• permanent legal protection and durable forest restoration which will benefit multiple generations of bats beyond the permit term;</li> <li>• egress structures from water troughs to prevent drowning; and</li> <li>• ponds which can be used for fire fighting to protect both the mitigation lands and adjacent bat habitat (Section 6.2.4.3).</li> </ul> <p>Financial assurances (Sections 6.2.7 and 9.4, and Appendix I) ensure implementation of the above. Collectively, these provide reasonable certainty.</p>

<p>(G) Contain objective, measureable goals, the achievement of which will contribute significantly to the protection, maintenance, restoration, or enhancement of the ecosystems, natural communities, or habitat types; time frames within which the goals are to be achieved; provisions for monitoring, including periodic monitoring by representatives of DLNR or the ESRC or both; and provisions for evaluating progress in achieving the goals quantitatively and qualitatively</p>	<p>Objective, measureable goals:</p> <ul style="list-style-type: none"> <li>• Minimization: low wind speed curtailment minimization regime, consisting of specific, numeric wind cut-in speeds and timeframes (Section 4.2.7)</li> <li>• Mitigation: specific locations of on-ground mitigation actions; specific acreage amounts for each mitigation tier; specific on-ground mitigation measures (e.g., type and amounts of reforestation, water feature enhancements, installation of new ponds); specific success criteria (Tier 4 - Section 6.2.4; Tier 5 and 6 - Section 6.2.5)</li> </ul> <p>Time frames: for low wind speed curtailment regime for minimization (Section 4.2.7); for mitigation for Tier 4 (6.2.4.8) and Tier 5 (Sections 6.2.5 and 6.2.6)</p> <p>Monitoring: Monitoring of Tier 4 mitigation (acoustic, percent forest cover, thermal videography, insect, pond operation) (Section 6.2.4.5) and Tier 5 and 6 mitigation (Section 6.2.5); monitoring of direct and indirect take (Section 7.1), non-fatality monitoring (Section 7.2); DLNR compliance monitoring (Section 9.4 and Appendix I)</p> <p>Evaluation of progress: monitoring (see above) combined with adaptive management requirements (Section 7.4.1 for minimization measures, and Sections 6.2.4 and 6.2.5 for mitigation measures; <u>see also</u> Section 7.4.2 re mitigation measures)</p>
<p>(H) Provide for an adaptive management strategy that specifies the actions to be taken periodically if the plan is not achieving its goals</p>	<p>For minimization measures, adaptive management strategy includes criteria, monitoring, risk analysis, response measures, and time deadlines (Section 7.4.1). For Tier 4, 5 and 6 mitigation, adaptive management strategy includes success criteria, multiple forms of monitoring, response measures, and time deadlines (Sections 6.2.4 and 6.2.5)</p>
<p><b>B. Incidental Take License issuance criteria</b></p>	
<p>(1) The take is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity (195D-4(g))</p>	<p>Take is incidental to operation of a lawful wind energy facility (Section 1.1)</p>
<p>(2) The applicant shall minimize and mitigate the impacts of the take to the</p>	<p>Minimization: low wind speed curtailment regime (Section 4.2.7); demonstration of maximum extent</p>

maximum extent practicable (195D-4(g)(1))	<p>practicable is provided by analysis of full nighttime shutdown and year-round curtailment alternatives (Sections 8.1, 8.2 and 8.3)</p> <p>Mitigation: on-ground habitat protection and enhancement in specified locations and acreage amounts, for Tier 4 (Section 6.2.4) and Tiers 5 and 6 (Section 6.2.5); demonstration of maximum extent practicable is provided by demonstration of take offset and net benefit (Tier 4 - Section 6.2.4.3 ; Tiers 5 and 6 - Section 6.2.5; see also the analysis of potential for population-level impacts, and cumulative effects - Sections 5.1.3.1 and 5.1.3.2); also, the estimated cost of Tier 4, 5 and 6 mitigation is \$66,884 per bat, which exceeds by 34% the ESRC appropriate estimated cost for bat mitigation (ESRC Hawaiian Hoary Bat Guidance Document (2015), pp. 18-19: “appropriate estimated cost for mitigating take of one bat is \$50,000”)(Section 9.4 and Appendix I)</p>
(3) The applicant shall guarantee that adequate funding for the HCP will be provided (195D-4(g)(2))	Calculation of required dollar amounts, and form of financial assurance (Sections 6.2.7 and 9.4, and Appendix I)
(4) The applicant shall post a bond, irrevocable 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 (195D-4(g)(3))	Calculation of required dollar amounts, and form of financial assurance (Sections 6.2.7 and 9.4, and Appendix I)
(5) The HCP shall increase the likelihood that the species will survive and recover (195D-4(g)(4) and (195D-21(b)(1)(B))	The project, including its minimization and mitigation measures (summarized above), will result in a net benefit to the species, and will increase the likelihood that the species will survive and recover ( <u>see</u> Section 5.1.3.1 re potential for population-level impacts; Section 5.1.3.2 re cumulative effects; Sections 6.2.4 and 6.2.5 re net benefit of Tier 4, 5 and 6 mitigation measures which include success criteria, monitoring and adaptive management requirements; and Section 6.2.4.3 re demonstrating reasonable certainty).
(6) 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 (195D-4(g)(5))	The Amendment analyzes Hawaiian hoary bat distribution and population, including the full range of the species on Maui, in Section 3.8.1.1. It then assesses both direct take and indirect take from the project (Sections 5.1.1 and 5.1.2), and analyzes the potential for



	population-level impacts and cumulative effects, both on Maui and statewide (Sections 5.1.3.1 and 5.1.3.2).
(7) 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 (195D-4(g)(6))	<u>See above</u> re 195D-21(b) requirements. Auwahi Wind has consulted extensively with DLNR in the preparation of this HCP Amendment and in so doing has provided the assurances which DLNR has required.
(8) The activity does not involve the use of submerged lands, mining or blasting (195D-4(g)(7))	N/A
(9) The cumulative impact of the activity provides net environmental benefits (195D-4(g)(8) and 195D-21(c))	<u>See</u> Section 5.1.3.2 (cumulative effects; conclusion of net benefit). <u>See also</u> Sections 6.2.4 and 6.2.5 (analyses of net benefit of the Tier 4, 5 and 6 mitigation programs)
(10) 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 (195D-4(g)(9))	The small amount of take relative to extremely conservative estimates of the localized and Maui populations show that the project is not likely to cause the loss of genetic representation (Section 5.1.3.1)
(11) The HCP will further the purposes of 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 (195D-21(b)(1)(A))	The mitigation programs for Tier 4 (Section 6.2.4) and Tiers 5 and 6 (Section 6.2.5) will protect, maintain, restore and enhance bat habitats in specific locations on Maui and in specific amounts. In addition, other native species (which include endangered, threatened, proposed or candidate species) will also benefit from the proposed habitat protection and restoration actions (Section 6.2.4.2 Reforestation of Hedgerows, and Section 6.2.5.1, Site Description)
(12) 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 (195D-21(c)(1))	Addressed in the analysis of potential for population-level impacts (Section 5.1.3.1) and cumulative effects (5.1.3.2)
(13) 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 (195D-21(c)(2))	Not applicable as no unlisted native species will be adversely affected by the project
(14) The HCP shall be designed to result in an overall net gain in the recovery of Hawaii's threatened and endangered species (195D-30)	"Recovery" is defined in relation to the number of individuals of a species (195D-2). The project will result in a net benefit to the species and an increase in the number of individuals, and will increase the likelihood that the species will survive and recover (see Section 5.1.3.1 re potential for population-level impacts; Section 5.1.3.2 re cumulative effects; Sections 6.2.4 and 6.2.5 re net benefit of Tier 4, 5 and 6 mitigation measures).