

ATTACHMENT

RESPONSES TO COMMENTS ON THE PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT ADDRESSING THE ISSUANCE OF INCIDENTAL TAKE PERMITS FOR FOUR WIND ENERGY PROJECTS IN HAWAI'I.

Response to Public Comments

on the

Programmatic Environmental Impact Statement Addressing the Issuance of Incidental Take Permits for Four Wind Energy Projects in Hawai‘i

U.S. Department of the Interior

U.S. Fish and Wildlife Service

Pacific Islands Fish and Wildlife Office

1 Introduction

The U.S. Fish and Wildlife Service (Service) is required to assess and consider all public comments in preparing a final environmental impact statement, in accordance with the implementing regulations for the National Environmental Policy Act of 1969 (NEPA; 42 U.S.C. 4371 *et seq.*). The Service is required to respond by one or more of the means listed below, stating its response in the final statement (NEPA Implementing Regulations 40 C.F.R. § 1503.4). Possible responses are to:

- Modify alternatives including the proposed action.
- Develop and evaluate alternatives not previously given serious consideration by the agency.
- Supplement, improve, or modify its analyses.
- Make factual corrections.
- Explain why the comments do not warrant further agency response, citing the sources, authorities, or reasons which support the agency's position and, if appropriate, indicate those circumstances which would trigger agency reappraisal or further response.

All substantive comments received on the draft statement (or summaries thereof where the response has been exceptionally voluminous), will be attached to the final statement whether or not the comment is thought to merit individual discussion by the agency in the text of the statement (40 C.F.R. § 1503.4(b)).

In accordance with NEPA, the Service published the Notice of Availability (NOA) on April 26, 2019 (84 Federal Register 17875) to announce the availability of the following four draft habitat conservation plan (HCP) or amendments to existing HCPs in support of requests for new or amended incidental take permits (ITPs), under section 10 of the Endangered Species Act (ESA; 16 U.S.C. 1539): (1) *Draft HCP for the Pakini Nui Wind Farm*; (2) *Draft Amendment to the Auwahi Wind Farm HCP*; (3) *Kaheawa Wind Power II Draft HCP, Amended*; and the (4) *Kawailoa Wind Power Draft HCP Amendment*.

The Service also announced the availability of the *Draft Programmatic Environmental Impact Statement Addressing the Issuance of Incidental Take Permits for Four Wind Energy Projects in Hawai'i* (Draft PEIS), which was prepared in response to these four applications. The NOA began the 45-day public comment period on the Draft HCP and draft HCP amendments, and the Draft PEIS. Public comments were accepted through June 10, 2019. This appendix summarizes and responds to the substantive comments received during the public comment period.

Public comments were accepted through the following four methods:

1. U.S. Mail: Field Supervisor, U.S. Fish and Wildlife Service, Pacific Islands Fish and Wildlife Office, 300 Ala Moana Boulevard, Room 3-122, Honolulu, Hawaii 96850.
2. Email: HIwindPEIS@fws.gov
3. Fax: 808-792-9580, Attn: Field Supervisor.
4. Attend a public meeting and submit a written comment.

Three public meetings took place, one each on O'ahu, Maui, and Hawai'i Island. Meeting format was structured as an open house with poster stations set-up to summarize chapters of the

PEIS and individual Applicant HCPs. Service staff and Applicant representatives were available to answer any technical or process related questions. Each public meeting included a 40 minute presentation summarizing the Draft PEIS, including an overview of issues identified during the scoping period, alternatives carried forward for further analysis, and a summary of affected resources. Only written comments were accepted. **Table 1** lists all three public meeting dates, time, locations, and number of attendees for the public comment period.

Table 1. Details for meetings held seeking public comments on the draft PEIS, draft HCP and draft HCP amendments.

Island	Date/Time	Address	Attendees		
			Service	Applicants	Public
O'ahu	May 21, 2019 6 to 8 p.m.	Waialua Elementary School 67-020 Waialua Beach Rd Waialua, HI 96791	4	4	11
Maui	May 22, 2019 6 to 8 p.m.	Kula Elementary School 5000 Kula Hwy Kula, HI 96790	4	3	15
Hawai'i	May 23, 2019 6 to 8 p.m.	Na'ālehu Community Center 95-5635 Mamalahoa Hwy, Na'alehu, HI 96722	4	3	3

2 Draft PEIS Comment Period Summary

The Service received a total of 45 comment letters, emails, or faxes, including two from a Federal agency (Department of the Army, U.S. Army Garrison Hawaii; and U.S. Environmental Protection Agency, Region 9), two from State of Hawai'i Senators (Senator Gil Riviere, District 23; Senator Glenn Wakai, District 15), three from environmental organizations (Sierra Club of Maui, Center for Biological Diversity, and American Bird Conservancy), one from a business (Ka'u Realty), and 37 from the general public.

All comment letters, emails, and faxes were carefully reviewed and individual substantive comments were grouped thematically. **Table 2** lists all comment letters, emails, or faxes received and individually identified. Each letter is identified by commenter type with the following nomenclature: CIT= public citizen; BUS=business; ELE=elected official; ENV=environmental organization; and FED=Federal agency. **Table 3** lists a summary of each individual substantive comment with a corresponding Service response.

Table 2. List of Commenter ID and File name. Commenter type: CIT= public citizen; BUS=business; ELE=elected official; ENV=environmental organization; FED=Federal agency.

No.	Commenter Type - ID	File name
1	CIT-1	20190427 0902 eMail Farnel.pdf
2	CIT-2	20190520 1104 eMail Ching.pdf
3	CIT-3	20190520 1905 eMail Suzuki.pdf
4	CIT-4	20190523 1307 eMail Nhipali.pdf
5	CIT-5	20190523 1406 eMail Floyd.pdf
6	CIT-6	20190523 1455 eMail Paresa.pdf
7	CIT-7	20190527 1241 eMail Quinlan.pdf
8	CIT-8	20190527 1456 eMail Demoruelle.pdf 20190527 1456 eMail Attachment Demoruelle.pdf
9	CIT-9	20190527 1729 eMail Demoruelle.pdf 20190527 1729 eMail Attachment Demoruelle.pdf
10	CIT-10	20190528 0000 Mail Cole.pdf
11	BUS-1	20190528 1022 Fax Kau Realty Bashrum.pdf
12	CIT-11	20190559 1312 Fax Tuttle.pdf
13	CIT-12	20190603 0000 Mail McDowell.pdf
14	CIT-13	20190604 2339 eMail Tuivaiti.pdf
15	CIT-14	20190606 0519 eMail Dangle.pdf
16	ELE-1	20190606 1704 eMail Senator Riviere.pdf 20190606 1704 eMail Attachment Senator Riviere .pdf
17	FED-1	20190607 1416 eMail US Army Garrison HI.pdf 20190607 1416 eMail Attachment US Army Garrison HI.pdf
18	ENV-1	20190607 1958 eMail Sierra Club Maui.pdf
19	CIT-15	20190608 2020 eMail Berg.pdf 20190608 2020 eMail Attachment Berg.pdf 20190608 2020 eMail Attachment2 Berg.docx
20	CIT-16	20190609 1300 eMail Bruns.pdf 20190609 1300 eMail Attachment Bruns.pdf 20190609 1300 eMail Attachment2 Bruns.xlsx
21	CIT-17	20190609 2028 eMail Lee.pdf 20190609 2028 eMail Attachment Lee.pdf 20190609 2028 eMail Attachment2 Lee.docx
22	CIT-18	20190609 2216 eMail Harden.pdf
23	FED-2	20190610 0000 Mail EPA.pdf
24	CIT-19	20190610 0534 eMail Subiono.pdf 20190610 0534 eMail Attachment Subiono.pdf
25	CIT-20	20190610 0800 eMail Among.pdf
26	CIT-21	20190610 0804 eMail Thompson.pdf
27	CIT-22	20190610 1238 eMail Jonasson.pdf
28	ENV-2	20190610 1322 eMail Center for Biological Diversity.pdf 20190610 1322 eMail Attachment Center for Biological Diversity.pdf
29	ENV-3	20190610 1331 eMail American Bird Conservancy.pdf 20190610 1331 eMail Attachment American Bird Conservancy.pdf 20190610 1331 eMail Attachment2 American Bird Conservancy.pdf
30	CIT-23	20190610 2024 eMail Jenkins.pdf
31	CIT-24	20190610 2244 eMail Yuen.pdf
32	CIT-25	20190611 2414 eMail Huntemer.pdf

		20190611 2414 eMail Attachment Huntemer.docx
33	CIT-26	20190610 0000 Mail Campbell.pdf
34	CIT-27	20190610 0000 Mail Dubiel.pdf
35	CIT-28	20190610 0000 Mail Kaili.pdf
36	CIT-29	20190610 0000 Mail Kapu.pdf
37	CIT-30	20190610 0000 Mail Mellor.pdf
38	CIT-31	20190610 0000 Mail Onaga.pdf
39	CIT-32	20190610 0000 Mail Oury.pdf
40	CIT-33	20190610 0000 Mail Paresa.pdf
41	CIT-34	20190610 0000 Mail Philips.pdf
42	CIT-35	20190610 0000 Mail Puu.pdf
43	CIT-36	20190610 0000 Mail Rosenbloom.pdf
44	CIT-37	20190610 0000 Mail Young.pdf
45	ELE-2	20190617 0000 Mail Senator Wakai.pdf

Table 3. Service responses to substantive public comments.

Commenter ID	Substantive Comment	Service Response	Refer to revisions in PEIS or HCPs
<i>Relating to Hawaiian hoary bat take levels.</i>			
CIT-2	Take levels were determined by a thoughtful, science-based process that took into account the health and sustainability of endangered species. Just because the farms are now unable to meet the conditions of their operating permits is NOT a good reason to change the take limits.	Estimating and projecting incidental take of the Hawaiian hoary bat at wind project sites have dramatically improved in the last 4 years, due in part to advancements in modelling methods developed by the U.S. Geological Survey. The amount of incidental take includes observed and unobserved fatalities (projections) as well as dependent young. Advancements have been made in how fatality rates are estimated to appropriately account for imperfect detection and unobserved fatalities that may have occurred. The Service has adopted a conservative standard for estimating take and has rigorous compliance monitoring standards. When the original approved HCPs were prepared for these three projects (Auwahi Wind, Kaheawa Wind II, and Kawailoa Wind), post-construction monitoring data from Hawai'i wind farms were limited. Estimates of take were based on the best available monitoring data from one operating wind farm in Hawai'i and general comparisons of bat acoustic activity between sites, which underestimated collision risk for bats. Advancements in acoustic monitoring and thermal imaging have shown that prior analyses under-reported the presence of the Hawaiian hoary bat (See appendix G for further discussion).	No major changes made. Commenters are referred to Sections 3.8, 5.3 of the FPEIS, Appendix C, and Appendix G.
CIT-2	Dramatically altering hoary bat take limits in this situation amounts to a dangerous precedent of moving the line in the sand.		
CIT-31	These wind farms need to be accountable for the original contracts that they sign. They didn't do proper research which created false reports and decisions were made based on these false reports.		
CIT-36	It was already appalling to let them kill 60. Now that they are approaching that (documented) number, it would be an insult and a mockery to increase the limit by any amount, let alone more than fourfold.		
ENV-2	The use of "tiers of take" is not appropriate. There is over a decade of detailed information on endangered species mortality associated with Hawaiian wind projects. Tiers appear to be used primarily as a cost savings feature by facility operators, rather than as the only option to address the uncertainty of take levels. The HCP Incidental Take Permits ("ITP") should not incorporate "tiers of take" and the DPEIS should not rely on this framing in its analysis of impacts.	Even as the level of uncertainty decreases based on new monitoring data and other information, Applicants are still requesting tiered take to help plan for the highest estimated take levels without requiring further HCP amendments, or committing to more mitigation than may be required if take is lower. Thus, the value of using the tier system also includes phasing in the mitigation requirements, as a	None. Refer to Section 2.4.3 in the FPEIS

		project's take cumulatively increases. Take tiering, along with adequate adaptive management measures, allows an Applicant to effectively plan for mitigation projects when it is apparent that the next tier will be triggered. Under the ITP, the take authorization for the next tier is not in place until funding assurances for the next tier have been provided.	
<i>Relating to the Hawaiian hoary bat population.</i>			
CIT-15	The numbers as provided as "take" in the Draft PEIS for the Hoary Bat will extirpate the species from its territorial range.	The Service acknowledges the commenters concerns about the increase in take of the bat by the wind facilities. At the time the original permits were issued, the Service used the best available information on the bat to estimate the amount of take that would occur during the full permit terms. Since the issuance of the original permits, we have gained additional information on bat biology and site-specific fatality monitoring is being used to better inform the take prediction model. The current take estimates are based on each facility's proposed HCP or Amendment and we are using the current best available science for take estimation and in making our determination of whether the HCPs meet the ESA Section 10 issuance criteria. As part of the ESA Section 7 consultation process, USFWS will also be preparing biological opinions to determine whether each HCP or HCP Amendment would jeopardize the continued existence of the covered species.	None. No scientific data or reference was provided by the commenters.
CIT-13	Who is to really say how many bats are even left, but they want to raise the "Take"?		
CIT-4	How could we possibly justify higher KILL rates when these Native species are already at such critical levels?		
CIT-16	Persistence of the Oahu bat population is compromised by further night-time operation of this Kawaihoa Wind Farm.		

ELE-1	<p>Until the wind projects were proposed, there was limited detection of bats in many parts of the state. More monitoring is being done today than ever before. Under these circumstances, does “detections have not shown a decline” prove a stable or increasing population? How do we know that the population is not nearing a decline, or already in decline?</p>	<p>While the statement is true that there is no evidence of population decline, it is also accurate to say that we do not have sufficient evidence to prove an increasing population trend. This has now been clarified in Section 3.8 of the PEIS.</p> <p>Due to the lack of a state-wide population estimate (as described in Chapter 3.8 of the PEIS), the Service looks at all available information to determine the impacts of take to bat populations. Long-term acoustic monitoring at the wind facilities has shown no decline in bat detections at those sites over time. While bat detection information cannot confirm that the species’ population is stable or increasing, it does indicate that in the areas sampled the species is resilient to the current levels of take.</p>	None.
CIT-5	<p>There are hardly any bats left to see in the Kahuku, Oahu area, due to previous wind farm operations.</p>	<p>See Section 3.8 of the PEIS. Current research on the island of Oahu is using acoustic monitoring at 87 randomly selected sites across the entire island. During the first year of monitoring, bat detections have been observed at approximately 65% of the monitoring sites, including monitoring sites in the Kahuku area. While not providing a population estimate, this indicates bats are widespread across the island of Oahu, including in the Kahuku and broader North Shore area.</p>	None.
CIT-16	<p>Unpublished estimates of the size of the Oahu bat population appear to be available for your analysis – should this information indicate the bat population numbers fewer than a few hundred bats, take of 55 bats can’t be permitted because it would reduce appreciably the likelihood of the survival and recovery of the endangered bat on Oahu, a population that is likely to be genetically and morphologically divergent from the bats on the other islands. This unpublished bat population information will be available to the judge if this bat take permit is authorized.</p>	<p>The comment does not identify the unpublished estimates to which it refers. The Service is aware of Tomich 1974 [who also references Altom 1960 and Tomich 1969], but a numeric population estimate is not provided that has reasonable confidence levels. The Hawaiian hoary bat is known to be broadly distributed across all of the main Hawaiian Islands. Due to their solitary nature, large foraging ranges, and a lack of population monitoring techniques, there is currently no accurate method available to estimate the bat population in Hawai‘i. Please also</p>	None

		review Appendix G and the literature cited in that appendix for a further understanding about occupancy, distribution, and the hybridization between the genetic clades. As part of the ESA Section 7 consultation process, USFWS will also be preparing biological opinions to determine whether each HCP or HCP amendment would jeopardize the continued existence of the covered species.	
ELE-1	<p>In Section 3.8, Hawaiian Hoary Bat, the median core use area for a male bat is calculated as 20.3 acres. The report then makes various assumptions and posits an estimate of 14,500 bats throughout the state, and 11,400 bats on Oahu, Maui and Hawaii islands.</p> <p>It is mentioned elsewhere that the population is unknown. Is the Service establishing the existing bat population in Hawaii based on these assumptions? At a January 2019 meeting of the Endangered Species Recovery Committee, a much larger area per bat was discussed. How would the much larger area per bat affect these calculations? How many bats exist on each island?</p>	<p>The Service is not providing a population estimate. The Service removed the example after it was identified as confusing. The intent of the example was to illustrate the dynamics of a carrying capacity based on roosting resource size. The core use areas determined by Bonaccorso et al. (2015) and by Johnston et al. (2019) are summarized in Appendix G. Neither of these studies were exclusionary of other bats in the area. Foraging ranges did overlap. Core use areas are typically the areas that a bat would exhibit the strongest territoriality to other conspecifics. The factors that influence a foraging range include resource availability, environmental conditions, age, and time of year, among others.</p>	<p>The example used in the PEIS has been removed in the FPEIS. Appendix G has been expanded to include a Table showing core use areas based on the Bonaccorso et al. (2015) raw data.</p>
CIT-22	<p>In numerous discussions with landowners, I have heard that observations of bats at dusk have precipitously declined in the past ~25 years. They recollect seeing “dozens” of bats in the evening but haven’t observed any for years. What makes this observation particularly interesting is that the majority of these locals are unaware of any conflict between bats and wind energy and do not know what to ascribe these declines to. This does suggest that there were factors negatively affecting Hawaiian hoary prior to wind energy.</p>	<p>On January 22, 2018 the Service announced the initiation of five-year status reviews for 12 federally listed species in Hawai‘i (83 FR 3014), including the Hawaiian hoary bat. The Service also requested any information from the public to help in preparing the species five-year status reviews. While we asked that new information be submitted no later than March 23, 2018, we continue to accept new information about any listed species at any time. In conducting these reviews, we consider the best scientific and commercial data that have become available since the listing determination or most recent status review. We anticipate the Hawaiian hoary bat five-year status review to be completed and publicly available by January 2020.</p>	<p>None.</p>

		<p>Overall, we have heard anecdotal accounts of landowners in some areas seeing less bats than they previously recall seeing, whereas in other areas, landowners and the general public report seeing higher levels of bats, or in some cases, bats are reported for the first time. Hawaiian hoary bats are cryptic by nature, occur over wide areas, and move regularly based on resource availability. Without a systematic approach to documenting the frequency of bat activity at an island or State-wide level, there is no way to use anecdotal observations to indicate an occupancy trend.</p>	
CIT-22	<p>DPEIS Section 2.3, page 67-68 – This paragraph makes numerous assumptions that are not based on data – that bats occupy all forested regions, that occupancy of these regions is at 20% on all islands and uses these assumptions to estimate the population. It is highly concerning that this thought experiment does not clearly state its subsumption and could be later confused as an accurate estimate of the population of Hawaiian hoary bats.</p>	<p>The following text has been deleted from the DPEIS, page 67: “If we assume that the forests that provide suitable bat habitat are at 20% of their carrying capacity, then about 14,500 bats would occur across the islands. On O‘ahu, Maui, and Hawai‘i, we would expect about 11,400 bats. The Hawaiian hoary bat populations on Kaua‘i, Lana‘i, and Moloka‘i, where wind energy is not currently in development, would</p>	<p>PEIS Section 3.8 (page 67-68) has been revised for clarification and accuracy. The Commenters are also referred to Appendix G.</p>

CIT-24	<p>DPEIS Section 2.3, page 67, “The lifespan of the...” –The calculation essentially results in a population estimate across all Hawaiian islands, and for O‘ahu, Maui, and Hawai‘i Island produced simply by dividing total forest acreage by half of the median core use area for a male bat in a productive region of Hawai‘i Island, and then multiplying by 20%. Several additional assumptions are made to come to an estimate of pups surviving to adulthood each year. There are a number of issues with the calculation, especially arbitrarily assuming 20% percent carrying capacity and that 50% of the population breeds each year. However, the main issue with this calculation is that the starting point for the calculation is all forest cover across the Hawaiian islands, whereas Hawaiian hoary bats are even described in the preceding paragraph as using forest edges rather than the forest interior. Because of the difficulty of foraging in cluttered environments, the vast majority of the 1,475,000 acres of forest habitat across the Hawaiian islands used as the basis for the calculation is most likely not "suitable bat habitat."</p>	<p>not be affected. If we assume 50% of the population is female (5,700) and 50% of that population breeds each year (2,850), than approximately 1,425 pups would be expected to survive to adulthood each year if the carrying capacity was at 20%.” While we acknowledged in the draft PEIS that the calculations were based on many assumptions and was not intended to be an estimate of the bat population, both the public and the Applicants were confused by the calculation. Section 3.8 of the PEIS includes information on the amount of forested roosting habitat available across the main Hawaiian islands and indicates that roosting habitat is likely not a limiting factor for the bat.</p>	
CIT-24	<p>A population estimate for the species would be extremely helpful and useful, but it should be done scientifically and any assumptions must have proper justifications.</p>		
CIT-22	<p>DPEIS treats the Hawaiian hoary bat as a single population that freely moves between islands, this seems unlikely (Appendix G: “Interisland movement is thought to be low”). The requested take is greatest on the island Oahu, which has the least presumed habitat. Impacts to the Hawaiian hoary bat on Oahu would lead to extirpation more rapidly than this thought experiment implies.</p>	<p>The Hawaiian hoary bat was listed as a subspecies in the State of Hawai‘i (USFWS 1998). Genetic studies by Pinzari suggest movement between islands is infrequent. Refer to Appendix G and FPEIS section 3.8. Recent studies released in the past few years (Russell et al. 2015, Baird et al. 2015, Baird et al. 2017), indicate two genetically distinct groups or clades of hoary bats exist within Hawai‘i, based on multiple founders arriving to Hawai‘i from the North American continent, between 1.3 million to 800 years ago. The two clades have been found on O‘ahu and Maui, but the Maui/North America clade that includes <i>L. c. cinereus</i>, has not been found on the other islands as of yet. This information suggests</p>	<p>FPEIS Section 3.8 and Appendix G.</p>

		<p>there is some degree of migration between O‘ahu and Maui and putative hybrids between the North American subspecies of hoary bat and the Hawaiian subspecies of hoary bat. Very few samples have been tested from Kaua‘i, and no results for bats from Moloka‘i, Lāna‘i, or Kaho‘olawe have been published. Based on best available scientific information, recovery actions should focus on protection and conservation of the Hawaiian hoary bat statewide while recognizing the need to maintain the genetic diversity that each islands population represents. As of now, the taxon is considered as one unit statewide and the status is evaluated accordingly.</p> <p>The Hawaiian hoary bat is recognized by the Service as one population statewide, not as populations on each island. However, the USFWS includes the annual rate of take per island for all wind farms and from other sources in its cumulative analysis. As part of the ESA Section 7 consultation process, USFWS will also be preparing biological opinions to determine whether each HCP or HCP amendment would jeopardize the continued existence of the covered species.</p> <p>Current research on the island of Oahu is using acoustic monitoring at 87 randomly selected sites across the entire island. During the first year of monitoring, bat detections have been observed at approximately 65% of the monitoring sites. While not providing a population estimate, this indicates bats are widespread across the island of Oahu.</p>	
<i>Relating to Hawaiian hoary bat home range/core use area.</i>			
ENV-2	The DPEIS does not provide adequate information regarding the median core use area for a male Hawaiian hoary bat. See	Refer to Appendix G. The link provided in the comment refers to a research project on Maui	None. The Commenter is

	https://dlnr.hawaii.gov/wildlife/files/2019/01/ESRC-HTHarvey-24-Jan-2019.pdf .	examining Hawaiian hoary bat home ranges, seasonal movements, habitat utilization, diet, and prey availability (H.T. Harvey & Associates 2016). Results indicate Hawaiian hoary bat home range averages about 1,200 hectares (2,967 acres) and can range from 1,200-26,000 hectares (3,000-64,000 acres) (Johnston et al. 2019). These values represent the average foraging range of 11 Hawaiian hoary bats. Bonaccorso et al. (2015) found that Hawaiian hoary bats on the island of Hawai‘i had a mean core use area that was 11.1% of the foraging range. This information is also cited in Section 3.8 of the FPEIS.	referred to Appendix G.
CIT-24	The median core use area for a male Hawaiian hoary bat as calculated by Bonaccorso et al. 2015 was 40 acres (not 20), and the mean was just over 63 acres. As these core use areas were all from hot spots of bat activity on Northeast Hawai‘i Island, they are probably not representative of home range sizes for Hawaiian hoary bats on other islands or habitat types.	The Service refers the reader to Appendix G in addition to Section 3.8 in the FPEIS. Bonaccorso et al. (2015) also looked at the mean core use area (the area that the bat used intensively for 50% of the time while it was radio-tracked) and found it averaged 25.5 ± 6.9 hectares (63.0 ± 17.1 ac) ($n = 28$ bats) or about 11% of the mean foraging range. One subadult male had an unusually large core use area of 176 hectares (435 ac). Statistical tests supported exclusion of this outlier and resulted in a mean core use area of 19.9 hectares (49.2 ac) ($n = 27$ bats). While this study was conducted on Hawai‘i island, it is the best available information available to-date and the 40-acre median has been used by DOFAW and the ESRC as the standard bat core use area since the study was completed. As new and updated information about Hawaiian hoary bat core use areas becomes available, it will be incorporated into mitigation planning and implementation through each Applicant’s Adaptive Management Plans.	Appendix G, has been revised with a Table added for clarification.
<i>Relating to Native Hawaiian cultural concerns.</i>			
CIT-6	I am a lineal descendent of Maui, my family and I do not support any further developments or plans to build wind farms/turbines here on Maui due to the extremely negative impact on our wildlife/habitat/natural resources. The bats and birds are our aumakua and I am referencing Article 12 of the	The Service acknowledges and respects Native Hawaiian cultural practices and seeks to work with the community to protect and conserve threatened and endangered species in Hawai‘i. In the PEIS Executive Summary, in Section 3.11.7, and in	None.

	U.S. Hawaii constitution that states you shall protect our cultural practices!	several other locations in the PEIS we acknowledge that Hawaiian hoary bats are a cultural resource (aumakua) for native Hawaiians. However, when making our permitting decision, we are required to identify whether the HCP meets the ESA section 10 issuance criteria, and if it does, we must issue the Applicant an ITP.	
CIT-28	I oppose this move by Kawaiiloa Wind Power to kill more of Hawaii's native bats, 'Ōpe'ape'a. Hawaii's native bats, 'Ōpe'ape'a, have been in Hawai'i for 10,000 years. The Kumulipo, Hawaiian Creation chant, identifies the birth of bats in the 7th Wā, Period. Bats are also kinolau (body forms) of Kanaloa (Tangaloa).		
CIT-29	I disagree with giving these windmills more rights than our kanaka species and our people. We are the people of the land and should not be moved or evicted from our homelands. I feel that our kanaka species should have all rights to fly all over these mountains for they were here first and it should be a main priority to protect and not destroy these 'Ōpe'ape'a for they hold a big part of our ecosystem in Hawaii. Save our 'Ōpe'ape'a. Eo kanaka, Eo 'Ōpe'ape'a.		
CIT-13	The term "Take" is a term of genocide to the ecosystem of Hawai'i. Why are we moving so fast, that we cannot take the time to step back, slow down and learn more about the 'Āina and our place in it.	Under section 10(a)(1)(B) of the Endangered Species Act, the Service is required to process and review applications from non-Federal entities requesting permits for the incidental take of endangered and threatened species. The Service does not have the discretion to slow down the process to wait for new information to become available. We must base our permitting decision on the best available science at the time we process the permit application.	None.
CIT-13	I am against the amendments and a new HCP with a higher "Take" for our 'Ōpe'ape'a. I volunteered a while back to help monitor the 'Ōpe'ape'a in the district of Kula Uka. I was able to take some notes and learn much about them. It is very important that we know our native species so that we can not only protect them, but in the process, protect our Moku also.	The Service recognizes that Hawaiian endemic species are cultural resources that are celebrated in ancient stories and songs. Fostering those relationships is important to the Native Hawaiian culture.	None
CIT-19	It has come to my attention you are making a wind farm in Auwahi. I am a claimant to lands owned by David Nahuewai, and Puupuu in upper Kanaio. I am not only an heir, I represent my family whom are the konohiki of lower Kahikinui and Kanaio. Auwahi is my great grandfather's gathering area. I	The four wind facilities, which are the subject of the PEIS, including the Auwahi Wind Farm, are already constructed and in operation. None of the wind facilities, including Auwahi, propose new construction as part of their HCPs. The land	None.

	oppose your wind farm which harms the environment for these reasons: irresponsible and shameful eyesores on the community; electric bills go up; hazardous equipment and chemical (oils and pesticide use); restricted access to my family's gathering areas and burials of our family; degradation of our forest and water table.	ownership mentioned by the commenter is outside of the regulatory purview of the Service and cannot be considered in our permitting decision. However, our permit is conditioned so that all actions related to the HCP must be otherwise legal in relation to all other laws and regulations.	
<i>Relating to Hawaiian hoary bat deterrent systems.</i>			
CIT-2	Why only now that take limits have been exceeded are deterrent systems and operational adjustment measures being taken? Shouldn't the operator have realized sooner that they were needed?	Operational adjustments were made as described in Appendix D in advance to take being exceeded by three projects seeking amended take. The use of deterrents, which are intended to deter bats from flying in the immediate vicinity of spinning turbines, at the time were, and still are, under development. Effectiveness has been highly variable and the rarity of take events make statistical-based evaluation of experimental technology in Hawaii largely unfeasible. In response to the need to reduce take, Kawailoa Wind installed NRG bat deterrents on all 30 turbines during the public comment period of the PEIS. The effectiveness of the deterrents in Hawaii will be need to be evaluated. The only definitive approach to avoiding take of the Hawaiian hoary bat is to fully curtail all turbines on all islands from dusk to dawn. This strategy, while effective, is not considered a long-term strategy for existing wind facilities.	The commenter is referred to Appendix D and Appendix F. Section 2 addresses the operational minimization and avoidance of each project.

CIT-16	Conduct Bat Deterrent Research in a safe place where bats won't be killed by spinning turbine blades. I suppose if Kawaioloa bat mortality monitoring was done daily and turbines were completely off most nights, the night-image cameras could be used to study bat behavior/avoidance of the turbines with the deterrent turned on versus turned off.	During the development of the PEIS, Kawaioloa Wind installed a bat deterrent system on one turbine. After the draft PEIS published, the Kawaioloa Wind Farm installed bat deterrents at all turbines at their facility. The Service has recommended to all wind industry facilities in Hawai'i to voluntarily conduct deterrent research to safeguard Hawai'i's endangered wildlife. As deterrents become available and are shown to be effective for the Hawaiian hoary bat they will be implemented by the HCPs in accordance with the Adaptive Management proposals in each HCP.	New text has been added to FPEIS, section 2., Appendix D and Appendix F regarding the use of deterrents and deterrent research
<i>Relating to low wind speed curtailment.</i>			
CIT-3	I represent Bird, Inc. who sells BroadBand Pro-Programmable sonic/ultrasonic species-species repeller, which addresses the take of endangered nene and Hawaiian petrels. We do agree, turning off turbines, during low wind speeds and at night, when bats are most active, to minimize fatalities.	Both the No Action Alternative and the Increased Curtailment Alternative evaluated in the PEIS address complete shutdown of the turbines at night or during the breeding season, respectively. All 3 Applicants requesting amendments have increased their LWSC from their previous HCPs.	None.
ELE-1	<p>Auwahi proposes 6.9 m/s LWSC from August through October, and 5.0 m/s otherwise. Kawaioloa proposes to continue with 5.0 m/s year-round, with a 5.2 m/s renewal cut-in speed. KWP II proposes 5.5 m/s cut-in from February 15 through December 15. Pakini Nui proposes a 5.5 m/s cut-in and 5.0 m/s cut-out.</p> <p>How do these different LWSC plans affect the estimated take for each of the projects? It would be helpful to review a table comparing the estimated reduced take for each project at each of the various wind speeds. If the purpose of LWSC is to minimize bat take to the maximum extent practical, why is each project allowed a different cut-in speed? If the reason for diverse LWSC is financial, please provide the financial impact for each project at each wind speed.</p>	Refer to Appendix D. It has not been possible to confidently calculate the reductions in Hawaiian hoary bat fatalities in Hawai'i that have resulted from the local implementation of LWSC. Variability in fatality rates between facilities, location, turbine design, and the limitation of using observed bat fatalities, do not provide a statistically robust sample from which to draw conclusions. Instead, the Service relies on studies conducted on the U.S. mainland and abroad that have included hoary bats, where possible, to make informed recommendations. The perceived reductions in bat fatalities from the implementation of low wind speed curtailment have shown promise at some projects in Hawai'i, though evidence is largely anecdotal because of the lack of a simultaneous control against which to compare, and the lack of a robust sample size. Use of low wind speed curtailment has not indicated the same level of	None.

		take reduction at other facilities in Hawai‘i. It is unclear what site-specific factors play in a role in how effective LWSC regimes between sites. Currently, the only definitive way to fully avoid take of Hawaiian hoary bats is full nighttime curtailment, which is the basis for the analysis in both Alternative 1 and Alternative 3.	
CIT-3	Turning turbines off from summer to late fall during low-wind conditions-when bats are most active-is the single most promising option to protect them, according to Ed Inert, a pioneer of bat and wind energy research efforts. In tests at the Casselman Wind Power Project in Pennsylvania, small changes to turbine operations reduced bat mortality significantly. During nights from July to October 2008 and 2009, operators shut down the turbines when wind speeds were below 6.5 meters per second. As a result, bat deaths were reduced by 44 to 93 percent, with less than 1 percent annual power loss.	Refer to PEIS section 2.3, Alternative 3, which analyzes the increased curtailment alternative of shutting down all turbines during nighttime hours from April 15 through September 15.	None. The commenter is referred also to Appendix D and F for more detailed discussions of low wind speed curtailment and nighttime curtailment.
<i>Relating to Alternative 3, Increased Curtailment.</i>			
ELE-1	Alternative 3, Increased Curtailment, would prohibit all nighttime operations between April 15 and September 15, “when Hawaiian hoary bats are observed to be rearing young and are most active. The cessation of operations during this timeframe would result in minimization of the take of adult Hawaiian hoary bats and eliminate indirect take of juvenile bats.” Appendix G, Timber Harvesting, says “The Service recommends to not cutting trees above 15 ft between June 1 and September 15 to avoid impact to dependent (non-volant) bat pups.” Why does the Service contemplate two different beginning dates to limit activities that impact bat pupping and rearing? Should the timber harvesting restriction date be moved to April 15?	The Service uses April 15 through September 15 for assessing indirect take associated with female Hawaiian hoary bat fatalities that are observed during the pregnancy and pup rearing periods. Wind energy direct take is of the adults. To be conservative on the side of the species, the Service assumes all females taken between April 15 and September 15 may have been pregnant or rearing young and indirect take is added. Timber harvest can directly impact dependent pups that may be hanging in a tree at the time of harvest. The Service recognizes the pupping period as June 1 through September 15.	None. The reader is referred to Appendix E for a discussion on how indirect take is calculated for the Hawaiian hoary bat associated with wind energy and the rationale.
CIT-18	Of the alternatives evaluated, I support # 3 since it results in the lowest mortality for endangered species.	Thank you for your comment. The No Action Alternative represents the lowest endangered species mortality at all four of the wind facilities.	None.
<i>Relating to the no action alternative.</i>			

CIT-22	How are “daytime hours” defined? The bats are often very active in the hour prior to sunset (personal visual observations). This hour could potentially have more bat activity than during the middle of the night. If turbines are turned off at night, then the time window needs to be carefully defined using acoustic monitoring from the appropriate sites and seasons.	Refer to PEIS Section 2.2 and Appendix D for each projects LWSC period which varies from one hour to 30 minutes prior to and after civil sunset depending on the Project. Under the no action alternative in Section 2.1 the Service expects Applicants would shut-down their turbines at night one hour before sunset and resume turbine operations one hour after sunrise.	None.
<i>Relating to minimizing and mitigating to the maximum extent practicable.</i>			
CIT-16	The wind developers must fund a US Fish and Wildlife Service-supervised audit of the wind farms ’financial books – each wind farm’s financial ability to shut down at night will differ (the Alternative 3, April 15 – September 15 night-time shut down will certainly extend to year-round for Kawaihoa and Kaheawa II, whereas the April 15-September 15 may or may not be financially affordable to Auwahi Wind Farm.	The Service has no authority to require an Applicant to open their financial books for an audit. We can require that an Applicant demonstrate that they have sufficient funds to fully implement their HCP. The alternatives that include nighttime turbine shutdown are related to minimization or avoidance of take, not related to financial concerns of the Applicants. The wind profiles and power purchase agreements are different for each Project. The outputs from Arc Versa studies that evaluated the wind profiles and power production have been conducted and are presented in the Kawaihoa Wind HCP Amendment.	None.
ENV-2	Each project should implement nighttime shut down and low wind speed curtailment at a minimum cut-in speed of 6.9 m/s to minimize bat take to the maximum extent practicable. An independent audit supervised by the wildlife agencies and funded by the developer could easily demonstrate the feasibility of these minimization measures.	The Service’s regulations do not prioritize minimization before compensatory mitigation. They are evaluated as a package. If the project, including its combination of minimization and compensatory mitigation, meets the section 10(a)(1)(B) issuance criteria, the Service is required to issue the permit based on the proposed action as provided by the Applicant.	None.
<i>Relating to Applicant-proposed habitat mitigation measures.</i>			
ELE-1	The mitigation actions listed for the proposed final tiers use terms like “based on the best available science and agency guidance...” and include general guidelines for land acquisition and protection. The minimum expectations appear vague and susceptible to financial haggling. Is there a minimum commitment of land to be acquired or money to be invested if/when the final tiers are reached? What happens if the best available science indicates a certain amount	The criteria for the later tiers and potential projects are provided in each the HCP Amendments that have tiers. Budgets for those tiers are included and are not legally capped. In addition, Funding Assurances are required to be in place prior to a tier being authorized. Triggers for planning are clearly identified in each HCP Amendment that contains tiers. The Success criteria will be based on the	None.

	<p>of land acquisition and the project claims it cannot afford to acquire that much land? Negotiations should not be subject to claims of poverty, such that the project continues to operate without adequately meeting its obligation to species protection.</p>	<p>newest information provided from ongoing research and Hawaiian hoary bat scientists.</p> <p>The process to develop an HCP under section 10(a)(1)(B) of the ESA, requires the applicant to describe the possible effects of a proposed project and document how the Applicant will minimize and mitigate the potential for impacts to any threatened or endangered species. This process is driven by the Applicant, with the Service providing technical assistance and recommendations as the HCP is developed. The statutory requirements that must be met in order for an ITP to be issued is listed in section 10(a)(2)(B) of the ESA. One of those requirements is that the Applicant mitigate their take to the maximum extent practicable. The Service will evaluate whether each Applicant's mitigation proposal, including adaptive management options, will meet that requirement before making any permit decisions.</p>	
ENV-1	<p>Putting all habitat restoration efforts into one or two areas means that a major wildfire could wipe out most of the bats. Bats on Maui forage up to 12 miles from their roosting area. The following can be done collectively by the Maui wind farms (i.e. not a condition on each wind farm):</p> <ul style="list-style-type: none"> - Habitat restoration and maintenance for at least three non-contiguous areas for roosting. - Habitat restoration and maintenance for at least three known/potential non-contiguous foraging areas. 	<p>The Service cannot require the Applicants to split their mitigation between multiple locations. Our responsibility is to evaluate each Applicant's mitigation proposal to determine if it fully offsets their proposed take, or in certain circumstances, if it mitigates the take to the maximum extent practicable. If this standard is reached, we must complete our evaluation based on the Applicant's proposal.</p> <p>Each applicant is required to address the potential for catastrophic environmental impacts, such as hurricanes, severe storms, and fire, as part of the Changed Circumstances sections of their HCPs. Should a fire destroy a mitigation area, each applicant is still required to meet the identified success criteria unless the HCP is amended.</p>	None.
CIT-16	<p>Because evidence does not support the effectiveness of any proposed compensatory mitigation for the bat will help the bat,</p>		None.

	compensatory mitigation must not be funded – any funding that would have gone toward compensatory mitigation must be put toward avoidance – additional night-time shutdown.	<p>The Commenter is referred to Appendix G. To offset take that cannot be avoided, wind facilities operating under an ITP implement a variety of conservation projects, including land purchase and protection, forest or wetland restoration. The implementation of such projects would be anticipated to fully offset impacts, resulting in a “no net loss” for the species. Another mitigation option would be the funding of targeted research projects for the Hawaiian hoary bat. In this case, the mitigation would not fully offset the impacts of the taking, but may be considered mitigation to the maximum extent practicable if the Service determines the research results would aid in future implementation of adaptive management or provide substantial biological knowledge of the species to aid in the recovery of the species. However, given the limited information on basic life history needs and difficulty in tying land-based mitigation projects to a specific increase in bat numbers or fecundity, significant uncertainty remains regarding the effectiveness of land-based mitigation projects for the Hawaiian hoary bat. Compensatory mitigation projects currently rely on adaptive management programs to ensure measures of success are met and take is effectively offset. The targeted research projects in the long-term should contribute to our collective understanding of the species’ needs and life history parameters. These research needs are considered some of the highest priority recovery actions for Hawaiian hoary bat in the Recovery Plan (USFWS 1998). In addition, the proposed mitigation provide a range of strategies to benefit the various needs of the Hawaiian hoary bat including protecting and restoring day and night roosting habitat, developing and expanding foraging and water resources, and funding new research to help direct and refine mitigation. The success criteria and adaptive management triggers allow for a project to be adapted to serve the needs of the bat</p>
ELE-1	Where is the evidence that bats will be replaced by any of the proposed mitigation measures?	
ENV-2	The DPEIS does not provide adequate information regarding effectiveness of Hawaiian hoary bat compensatory mitigation.	
CIT-8	Moving to scientifically unsupported habitat mitigation without any knowledge of baseline Hawaiian hoary bat populations in Ka’u is placing the cart before the horse.	
CIT-16	Because the best available science now indicates the endangered bats prefer foraging in grazed land and low-intensity developed areas rather than native forest, the proposed set-aside of native forest (protecting native forest from grazing and low-intensity development), fails to increase the bat population above what it would have been in the absence of the proposed action. Because research has not yet elucidated what (other than wind turbines) is limiting the survival or reproduction of the species, it is not reasonable to base an incidental take permit on an Applicant’s compensatory mitigation.	
CIT-16	Research will only help bats if the wind farm implements the results of the research – research in and of itself does not benefit even one bat.	
CIT-22	While the addition of native trees is likely good for many species, it is unlikely to increase survival of the Hawaiian hoary bat. This is because foliage-roosting bats are very unlikely to be limited by roosting habitat. Foliage roosts are by their nature ephemeral, and bats switch between them more frequently than more stable roosts, i.e. tree cavities or caves. There is not currently any evidence that native trees provide better roosts than non-native trees for Hawaiian hoary bats. As stated in Appendix G “roosting habitat is not believed to be a limiting factor for the species”. Therefore, additional roosting habitat will likely provide no appreciable benefit to the species and would not be appropriate for mitigation.	
ENV-2	Compensatory mitigation for endangered species should be consistent with the U.S. Fish and Wildlife Service’s policy on compensatory mitigation for endangered species. Special	

	attention should be given to ensuring that impacts are fully mitigated, the mitigation is additive and not subsidized by Federal or state agencies, and monitoring confirms that expected benefits are achieved during the permit period.	<p>as more information is acquired. The Project is financially responsible for meeting the success criteria.</p> <p>The Service's 1981 Mitigation Policy, which is still in effect, states specifically that it does not apply to threatened and endangered species. Mitigation for ESA Section 10 permits is one of the permit issuance criteria, which requires the applicant to minimize and mitigate the impacts of the taking to the maximum extent practicable.</p> <p>For mitigation actions occurring on State of Federal lands, we have supporting documentation in the Administrative Record that the mitigation proposed by the Applicants on State or Federal lands is additive.</p>	
CIT-17	The USFWS should use its scientific protocols to establish evidence the Habitat Conservation Plan has served as an expansion of the population distribution of the endangered species in surveys and in the event the species has not relocated or inhabited the area in numbers as stated in the ITP for the project, the ITP issued for the project shall be terminated.	<p>Mitigation projects under the four HCPs rely on adaptive management, monitoring, and verification by the wildlife agencies during the course of HCP implementation in order to ensure measures of success are met and HCP continues to be conducted as planned. Acoustic detectors, although not 100 percent reliable, are used to evaluate bat presence or absence at mitigation sites, along with other indices such as thermal images, prey abundance, and surrogate measures such as canopy height and outplanting diversity and composition. Baseline data is collected prior to the actions and compared to the monitoring occurring and following implementation to ensure success criteria are met. For the Hawaiian goose and Hawaiian petrel production and offset is monitored and measured and the mitigation is not considered complete until the success criteria are fulfilled. Progress is reported in the annual reports and quarterly coordination meetings with each Project.</p>	None.
CIT-16	There should be meaningful measures to determine whether the mitigation measures are successful in contributing to the survival and recovery of the Covered Species.		
ENV-2	Criteria for measuring the success of mitigation efforts must include a demonstration that the required numbers of birds and bats are actually produced to offset the project's take of endangered species.		
ENV-2	Mitigation should occur on the same island the proposed take will occur to ensure stability of localized populations. For	The Service must complete our evaluations based on the range of the listed entity. While we urge permit	None.

	example, Kawailoa’s Hawaiian Petrel mitigation should occur on O’ahu.	Applicants to conduct their mitigation on the same island as the impacts will occur, we cannot require it, and in some cases it is more beneficial to the species for the mitigation to be done in the area that will provide the maximum benefit, regardless of where that is located. Based on Young et al. (2019) Hawaiian petrels were detected on one location on O’ahu, however it is unclear if the detection included a breeding pair or prospecting birds traversing the area. Until a breeding population and/or habitat can be determined on O’ahu, the greatest potential for mitigation work for Hawaiian petrels remains on Kauai. Other proposed land-based mitigation is conducted on the island of the take.	
ENV-3	We believe that compensatory mitigation should primarily be targeted at the geographic location from which impacts are taking individuals (same island). Ideally, the Service will describe which mitigation is possible on the island-population which is experiencing impacts, or at minimum, the most genetically related population. Again, this idea of supporting island-specific actions when possible is supported by the Service’s draft recovery criteria, which would ensure recovery across “all main Hawaiian Islands” for both Hawaiian Petrel and Newell’s Shearwater.		
CIT-12	The Pakini plan to just restore the HVNP land is doomed unless you know that bats need that habitat. Otherwise, with no guarantee that the bats will ever use the restored habitat, you are wasting money on a project with no scientific reason to do it.	The mitigation is expected to add resources to the degraded pastureland area that are not present. This is not limited to day roosting or night roosting. The restoration will also add foraging edges and the heterogeneity that can support prey resources for foraging. As stated in the HCP, bats have been detected in the area of the proposed mitigation area. HAVO has determined that restoration of this habitat will be beneficial to the bat and have stated that management of this portion of the park would not be done without the financial support from Pakini Nui.	None.
ELE-1	Section 4.6.5, page 101, second paragraph, states “The habitat improvement would be expected to provide foraging sufficient to support a minimum of 85 bats if we assume bats use an average 20.3 acres for their core use area.” Can you point to a specific 1,700 acre parcel, or similar, anywhere in Hawaii that has a documented population of 85 bats? A “minimum of 85 bats” indicates a conservative calculation and some certainty. How many bats are present in that area today? Assuming the numbers would increase to a minimum of 85, how many additional bats would relocate from other areas, and how many will be born in this area as a result of the improved foraging?	All land-based actions have an acreage associated with them, but the acreage is not used as a sole determinate for the mitigation value of a project. The core use information is provided only as a reference point for how many bats would reasonably be expected to be supported once the actual mitigation actions are added. The amount of acreage needed to support a bat is dependent upon on the amount of resources available within that acreage. The raw data provided by Bonaccorso et al. (2015) provides a snapshot in time between August and October. The core use areas of some bats were quite small (around 6 ac) while others were over 100 ac. Johnston et al.	None

		<p>(2019) tracked bats that had foraging ranges in the thousands of acres.</p> <p>In the case of Auwahi’s proposed mitigation, the additive value of the habitat enhancement, including the establishment of hedgerows, is expected to provide added foraging resources into perpetuity (many bats generations to come). The proposed mitigation has specific success criteria and adaptive management triggers to assess the usage of the site prior to improvement and at incremental periods for the duration of the project. The mitigation is expected to provide resources not previously present into perpetuity as a condition of the conservation easement. Based on the core use area finding by Bonaccorso et al (2015), the fact that the Applicant will be restoring and improving the habitat, and the conservation easement protecting the value of the site for bats into perpetuity, the 20.3-ac median was used as a surrogate for determining a reasonable size of the area to be mitigated per bat taken. We recognize that other factors could push for smaller or larger areas, however given the circumstances, we believe the best available evidence supports the use of the 20.3 acre median for this HCP.</p>	
CIT-16	<p>The DPEIS doesn’t seem to include new information that became publicly available in January 2019, by Kristin Jonasson and Dave Johnston (H.T. Harvey bat biologists). Their radio telemetry bat tracking indicates the average core area used by a male Hawaiian hoary bat (the 50% kernel where the male bat spent 50% of the time) is 2,967.5 acres. Kawailoa Wind Farm’s HCP proposes to offset take of 55 bats (Tier 4) by contributing to one sixth the purchase price for the purchase of approximately 3,000 acres of grazed land (zoned agricultural) and native forest (zoned preservation). Further, their data indicates the bats fly over/traverse native forest tracts to forage preferentially in grazed, low-density developed, and gulch lands. We understand your staff have recently received the updated information – and it should be incorporated into the</p>	<p>The Service includes the reference to the H.T. Harvey work conducted on Maui and funded by Hawaiian hoary bat mitigation dollars in the FPEIS Section 3.8 and Appendix G. We considered this new information, in addition to previous information available about the bats core use area, in our analysis. That analysis indicated that over the lifetime of the remaining permit term, the conservation of the Helemano Wilderness Area would provide benefits the bat sufficient to offset the impacts of the take of 55 additional bats.</p>	None.

	EIS – in Appendix G, and into the analysis in the body of the document.		
FED-2	The DPEIS indicates that, for the Kaheawa Wind Power II Tier 3 take for the Hawaiian goose and Hawaiian hoary bat, proposed mitigation actions include predator control via broadcasting rodenticide (pgs. 26, 43). However, per our discussion with the Service, rodenticide application will not be broadcast, and will instead be implemented with bait boxes using the rodenticide diphacinone (Ramik). If rodenticides are needed, we encourage the use of the least toxic method and application, i.e. bait stations rather than broadcasting (scattering), and use of the less toxic rodenticide diphacinone over the more toxic and persistent brodifacoum.	Rodenticide use has been removed as a mitigation action.	Rodenticide actions have been removed from the FPEIS and the KWP II HCP Amendment
FED-2	Specify that rodenticide will be used to control rodents only. Indicate, in the FPEIS, that all applications or rodenticide would follow label requirements as approved by the U.S. Environmental Protection Agency pursuant to the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). Controlling non-rodents with rodenticide would be in violation of FIRRA.	No rodenticide will be used.	Rodenticide actions have been removed from the FPEIS and the KWP II HCP Amendment
<i>Relating to Applicant's post construction monitoring protocols (PCMP)</i>			
ELE-1	The Auwahi Wind PCMP includes systematic searches at all turbines inside the 328-ft radius surrounding the tower base. Kawailoa searches all 30 turbines within a 115-ft radius. Auwahi turbines are 428 ft tall, while Kawailoa turbines are 493 ft tall. Why do these two projects have such different search radii? Why is this difference allowed, particularly in light of the Kawailoa's bat take? A 5 oz. baseball can travel over 400 feet after leaving a baseball bat at 100 mph. How far can a Hawaiian hoary bat travel when struck by a wind turbine blade spinning much faster? Is a 115-ft, or even a 328-ft, search radius considered prudent?	The commenter is referred to Appendix C. The Service has worked with all of the Applicants to standardize fatality monitoring. However, each site has its own unique set of characteristics that can affect parameter values used in the model. Specific details for each projects' fatality monitoring are included in the Auwahi, Kaheawa Wind Phase II, and Kawailoa HCP amendments and Pakini Nui HCP. The length between searches is driven by length of carcass retention at a specific Project and may vary across seasons. Carcass retention trials are conducted throughout the year to measure the length and variability which is modelled. Search interval can change throughout the year based on carcass retention and is taken into account in the detection probability. Search areas also consider the density weighted fallout area for the different species and the height of the turbine. Search is determined by a	None.
ELE-1	KWP II and Pakini Nui PCMP both include searches at all 14 turbines every seven days, the former within a radius of 229.7-ft radius, and the latter within a radius of 197-ft to 295-ft. Auwahi and Kawailoa search approximately twice a week. KWP II and Pakini Nui towers are 328-ft tall.		

	<p>Why is it appropriate for KWP II and Pakini Nui to search half as often as the other two projects? What is the likelihood a bat found at three days would also be found at seven days? Why do KWP II and Pakini Nui have wider search areas than Kawaihoa and narrower search areas than Auwahi? How does KWP II search the cliffs?</p>	<p>density weighted average of the fatality carcass size (mass) and takes into account the height of the turbine and blade tip and the maximum throw. There are established physics equations that can be used for a carcass mass. Additional considerations are also included as described in Appendix C and in the Evidence of Absence software manual.</p>	
ENV-1	<p>The quantitative threat to recovery of the Hawaiian Hoary Bat by decisions around operation of the wind farms cannot be determined with reliability due to the lack of substantiated numbers of bats present on Maui but also due to uncertainty around the effects of wind farm operations on the bats. It is important to find and count as many as possible of the victims of the wind farms so appropriate decisions and action can be taken.</p> <p>We support the proposal of the wildlife agencies to expand the radius by 20% to increase the certainty of the reported numbers beyond 80%. The wildlife agencies recommend an additional buffer zone of 20% be added to account for the wind effect on carcass fallout and uncertainty until adequate data is gathered for a site. The additional 20% buffer zone would need to be included in the routine searches. The buffer should be located on the down-wind side of the project if the wind is predominantly from one direction.”</p>	<p>The commenter is referred to Appendix C. The search areas and the density weighted average of the fatality fallout area of each Projects are accounted for in the Evidence of Absence modeling and the respective detection probabilities. The possible fallout area for a carcass of a given mass is based on physics. Increasing the radius does not increase the certainty if it is beyond fallout area of a carcass of a given mass. The Commenter is referred to the technical basis of a Bayesian distribution and the Evidence of Absence software manual for more details.</p> <p>The 20% increased radius is a recommendation for <u>new</u> facilities when the effect of specific site characteristics such as wind velocity or directionality in combination with the cut in speed have not yet been established. As more mainland and international data sets become available to inform density weighted average zones around turbines of various heights, blade lengths, and cut in speeds, the 20% may become unnecessary. Data sets from Hawaii are extremely limited because fatalities are rarely observed. The four wind facilities included in this PEIS have already conducted multiple years of expanded monitoring, therefore, the 20% recommendation is not applicable or appropriate for these HCPs. One of the projects has an adjusted search area based on the prevalent strong winds. These results currently factor into each facility’s detection probability and take estimation.</p>	None

ENV-1	<p>In order to increase the certainty of the take numbers, the frequency of searches should be increased to once every two days for at least a year. If no statistically relevant differences can be found compared to earlier numbers, the search frequency may be reduced to the current frequency after that time.</p>	<p>The Commenter is referred to Appendix C. More frequent searches of all search areas and all turbines could reduce an amount of uncertainty in the modeled estimated take. The decreased search interval (shortening the period between searches) would not reduce the actual number of fatalities that occur, but it would increase the detection probability and decrease modeled unobserved take and indirect take. The amount of uncertainty removed would be based on the difference between the existing probability and the new probability that (1) a carcass remained until the next search and (2) the chances of it being found (lasting in a form that can be found visually or by scent). Search intervals are based on the carcass removal trials and are not averages, but a curve of probability that the carcass remains based on the existing environmental conditions. Increasing searcher frequency would likely improve the detection probability, but only to a point. Other factors also contribute to the uncertainty. These include searchable area and accompanied expected fall out rate for that area and searcher efficiency. It is important to understand that reducing the uncertainty is based on a specific sites characteristics. The EoA model has such a feature that allows for different scenarios to be input with the specific search parameters and provides a detection probability.</p>	None.
<i>Relating to permit compliance.</i>			
ELE-1	<p>Why is any project allowed to operate after exceeding its allowable take? Is that not operating outside the law and subject to penalty for the non-permitted take? Why are they not bound to immediate nighttime curtailment whenever they fail to meet a tier commitment or exceed the take permit for bats? Why not make that clear in the amended permits and in future plans?</p>	<p>The three projects with existing ITPs applied for their permit amendments prior to exceeding their authorized take. They were allowed to continue operating as long as they were making a good faith effort to amend their ITPs as quickly as feasible. Pakini Nui did not think take would occur at their facility and began operation without a permit. They proceeded with the development of an HCP once their first take occurred. While the Service has recommended the facilities further curtail during nighttime hours until their permit or amendment is</p>	None.

		issued, we cannot force them to cease operation without law enforcement action. Because all four Applicants were working proactively to come into compliance, the Service exercised its prosecutorial discretion in favor of the development of a compliance plan over an enforcement action.	
<i>Relating to adaptive management.</i>			
ELE-1	I am concerned that these wind projects will not adequately minimize and mitigate their take of the endangered Ope‘ape‘a, the Hawaiian hoary bat, to the maximum extent practical. Adaptive management should include full nighttime curtailment or seasonal nighttime curtailment.	Adaptive management triggers and responses are provided in the HCP amendments. Each of the Applicants have proposed increases in their LWSC during portions or all of the year. None of the Applicants have proposed full nighttime curtailment as an Adaptive Management measure because the Applicant contend that full nighttime curtailment would not allow them to meet their Power Purchase Agreement requirements with the Public Utilities Commission.	None.
ENV-1	The PEIS should have clear requirements for follow-up reporting and actions if the cut-in threshold changes do not reduce the annual take at each wind farm (as measured with the enhanced search radius and search frequency) by 50% from that estimated for the average of the last three years before new cut-in thresholds were applied.	Annual and semiannual reports are required and the contents of such reports are provided in the HCPs and HCP Amendments. The reporting requirements are also described in the Terms and Conditions of a permit should a decision be made to issue a permit to one or more of the projects. Adaptive management actions are described in the HCP if the implementation of LWSC regimes does not keep take below projected levels. However, we cannot require that the take be reduced by 50% from the average of the last three years before new cut-in thresholds were applied	None.
<i>Relating to cumulative impacts.</i>			
CIT-16	Cumulative impacts of authorizing take of 55 bats on Oahu by the Kawailoa Wind Farm, seems impossible pursuant to the endangered species act. Authorizing the take of these additional 55 bats (when there may not even be that many bats left on Oahu) seems as obvious an example of a permit that would “jeopardize the continued existence of the species” as you might ever, in your career, consider.	The Hawaiian hoary bat is recognized by the Service as one population statewide, not as populations on each island. However, the USFWS includes the annual rate of take per island for all wind farms and from other sources in its cumulative analysis. As part of the ESA Section 7 consultation process, USFWS will also be preparing biological opinions to determine whether each HCP or HCP amendment	None.
ELE-1	Although a section called cumulative impacts is included in this report, there is no discussion on the cumulative take of bats per		

	island, or the state, by all wind projects and other hazards. How many bats exist on each island, how much is the annual take, what is the annual rate of reproduction? If these numbers cannot be calculated, how can there be certainty?	would jeopardize the continued existence of the covered species. While the Service does not have bat population estimates on Oahu, or any of the Hawaiian islands, presence/absence surveys indicate that Hawaiian hoary bats are widespread across Oahu. The take of the bats would be spread across the remainder of the permit term and we believe the proposed mitigation actions will result in sufficient benefits to the bat to make up for the take that occurs, resulting in no or minimal local population reduction.	
CIT-18	Analyze combined impacts from all wind farms in the Hawaiian Islands.	Cumulative effects include all past, present and reasonably foreseeable future effects to the bat and other resources. This includes all wind facilities in the Hawaiian Islands. The cumulative totals and impacts are presented in the FPEIS Section 5.8 and Appendix G.	None.
ENV-2	The DPEIS does not adequately assess the impacts to endangered and threatened species on both island-by-island and range-wide scales. Federal law requires a range-wide assessment of impacts and Hawai'i Revised Statutes ("HRS"), Chapter 195-D requires island specific analyses of impacts. The DPEIS should produce valid population viability analyses for each covered species. In addition, cumulative population viability analyses should be completed that include all operational and anticipated wind projects in Hawai'i.	The Service is not responsible for compliance with HRS 195-D. The USFWS recognizes the Hawaiian hoary bat as one population statewide. Annual rate of estimated take by island is included in the FPEIS Sections 4.8 and 5.8 and Appendix G and will be considered in the Service's decision.	None.
ENV-3	We are highly concerned with the cumulative impacts of these wind projects to the endangered Hawaiian petrel. Recent information from Raine et al. (2017) demonstrated a 78% decline for Hawaiian Petrel on Kaua'i. The population is split predominantly between Maui, Kauai and Lanai, and has distinct genetic sub-units (sub-populations) on the different Hawaiian Islands, and mitigation should be implemented in such a way as to compensate all the subpopulations affected by the proposed actions. Given the Hawaiian petrel precipitous decline, and that few colony data are available for other islands, a precautionary approach is needed to minimize take from the combined wind infrastructure across all sites.	Cumulative impacts to the Hawaiian petrel are analyzed in Chapter 5 of the FPEIS. Mitigation for the requested take of Hawaiian petrel for the Projects will fully offset the anticipated take and is also expected to benefit other seabirds in the mitigation areas. Typically, the Service recommends that all mitigation occur on the island on which the take is occurring to ensure that beneficial effects are more likely to offset local impacts. Therefore, the Hawaiian petrel mitigation for the Pakini Nui wind	None.

		facility is proposed for the petrel colony on the slope of Mauna Loa. Since there is no documented breeding colony on the island of Oahu that can be managed, the Kawailoa wind facility worked with the Service and DOFAW to identify a mitigation project that would best meet the highest priority needs of the species.	
<i>Relating to consideration of additional alternatives.</i>			
FED-2	In order to reduce take of the Hawaiian hoary bat, EPA recommends either implementing Alternative 3, or refining Alternative 2 to incorporate seasonal nighttime curtailments for specific wind turbines associated with the highest take.	The Service agrees that Alternative 3 would result in less take than the Applicants' proposed HCPs (Alternative 2). However, if the Applicants' HCPs meet Section 10 permit issuance criteria, we cannot require them to implement a different alternative.	None.
ENV-2	NEPA requires that in those instances where complete data is unavailable, the PEIS must contain an analysis of the worst-case scenario resulting from the proposed project.	The 1986 amendment to NEPA Regulations at 40 C.F.R. § 1502.22 removed the requirement to include a worst-case scenario. However, the worst-case scenario would be a variation of the No Action Alternative where the Service did not issue an ITP and the applicant continued to operate their wind turbines without section 10 coverage. In this case, if take occurred the applicants would likely be in violation of the section 9 take prohibition and would be subject to law enforcement action. As part of our NEPA analysis, the Service would not recommend the appropriateness of this alternative for implementation.	
CIT-16	One alternatives not considered further (DPEIS pages 52 and 53), low wind speed curtailment of 8.0 m/s – as mentioned in Appendix D, p 11-12, Gorresen 2015 – there are high wind speeds, rainfall, and humidity conditions when the endangered bats are not flying around the turbines so there would be zero bat take.	Curtailment at 8.0 m/s would result in the project not operating based on the wind profile of the site. The Goressen (2015) study was conducted at a site where the wind speeds were almost always below 8.0 m/s and thus it does not exclude the fact that bats can and do fly at wind speeds above 8.0 m/s. The Service agrees with the commenter that higher cut in speeds may reduce bat fatalities, but we do not know if that reduction would be due to the higher wind speed or the increased period of no operation that actually may reduce the chance of a fatality occurring.	None.

ENV-1	<p>The only operational modification known to reduce bat take in the Maui wind farms is to raise the cut-in threshold wind speed. The effect on take drops off above 6 meters/second with little additional reported benefit above 6.9 meters/second. Auwahi is proposing 5.0 meters/second November through July and 6.9 meters/second from August to December. Kaheawa II is proposing 5.5 meters/second from February 15 through December 15.</p> <p>Sierra Club proposes: Cut-in threshold of 6.9 meters/second for all sites from 30 minutes before sunset to 30 minutes after sunrise year round.</p>	<p>The Commenter is referred to Appendix D. It has not been possible to confidently calculate the reductions in Hawaiian hoary bat fatalities in Hawai'i that have resulted from the local implementation of low wind speed curtailment (operational minimizations). Variability in fatality rates between facilities, location, turbine design, and the limitation of using observed bat fatalities, do not provide a statistically robust sample from which to draw conclusions. Instead, the Service relies on studies conducted on the U.S. mainland and abroad that have included hoary bats, where possible, to make informed recommendations. The perceived reductions in bat fatalities from the implementation of low wind speed curtailment have shown promise at some projects in Hawai'i, though evidence is largely anecdotal because of the lack of a simultaneous control against which to compare, and the lack of a robust sample size.</p>	None.
CIT-18	<p>For a complete analysis, include two more alternatives. For each, calculate the expected take of endangered species, the energy output, and whether companies can afford to follow the alternative.</p> <p>Alternative 1 – generate the most energy possible without worrying about impacts to endangered species.</p> <p>Alternative 2 – operate so there is no take at all.</p>	<p>Alternative 1, as presented by the commenter, would not meet the purpose and need of the Service and therefore would not be carried further for analysis. The Commenter's Alternative 2 is represented as the no action alternative in the PEIS, whereby the Applicants would not operate their wind turbines at night resulting in no take of the Hawaiian hoary bat.</p>	None.
CIT-15	<p>Why hasn't the Applicant sought to relocate the windfarms to a location where species of concern are not placed in jeopardy?</p>	<p>The four wind facilities are already constructed and in operation, relocation of the facilities is outside the scope of the proposed permit action. The Service does not have the regulatory authority to require the projects to relocate to different sites.</p>	None.
CIT-17	<p>Relocate the project to sites where endangered species would not be impacted. If the relocation is unattainable, then the project be rendered idle unless: Sonar technology used as a repellent renders the turbines as safe to wildlife.</p>		
CIT-15	<p>The Hawaii State Legislature has a mechanism to fund public-private-partnerships for energy projects using Special Purpose Revenue Bonds that if applied correctly, could render the pursuit for windfarms where harmful to wildlife as obsolete. The State can extend Special Purpose Revenue Bonds to the establishment of harvesting ocean waves as an energy</p>	<p>Actions by the State of Hawaii, such as funding partnerships for ocean wave energy, are outside the decision-making authority of the Service.</p>	None.

	alternative that meets the goals of the Hawaii Clean Energy Initiative (HCEI) – but has failed to act.		
CIT-21	Wind farms in Hawaii should be required to turn off the windmills before dusk and install devices that are environmentally-friendly and uses chemical-free ultrasonic sounds to electronically repel bats, to keep them safe. WE moved into their home!	Bat deterrent technology has had varied results on the U.S. mainland. The technology is still relatively new and works better with some species than others. The bat must be using echolocation within a given frequency range in order to be deterred. A bat using micro-calls or flying silent may not be deterred. The bat deterrent technology has not been evaluated in Hawai‘i because the take levels are below the level needed to compare treatments. However, Kawaiiloa Wind has installed bat deterrents on all turbines in May –June of 2019. This is the first evaluation in Hawai‘i.	Refer to Appendix D and G.
ENV-3	We highly recommend that the Service consider PEIS alternatives that not only compensate for take due to the cumulative wind impacts, but also serve to increase knowledge about species occurrence around project and restoration sites (acoustic surveys), and ultimately lead to recovery-based goals. Under the Draft Recovery Plans for Newell’s and Hawaiian Petrel, the Service noted the need for building resilience in these populations, and suggest rigorous, long-term (i.e., 30 year) population-level recovery criteria.	Under section 10(a)1(B) of the ESA, the role of the Applicant or a Permittee’s proposed compensatory mitigation is to offset the take associated with their action. The Service provides the Applicant technical assistance in order to ensure the proposed mitigation is consistent with the conservation needs of the species. The process to develop an HCP under section 10(a)(1)(B) of the ESA, requires the Applicant to describe the possible effects of a proposed project and document how the Applicant will minimize and mitigate the potential for impacts to any threatened or endangered species. This process is driven by the Applicant, with the Service providing technical assistance and recommendations as the HCP is developed. The statutory requirements that must be met in order for an ITP to be issued is listed in section 10(a)(2)(B) of the ESA.	None
<i>Relating to affected resources.</i>			
CIT-16	The EIS analyzes the effect of the proposed action, no-action alternative, and increased curtailment alternatives to “geology”, “hydrology/flooding/wildfire”, and “vegetation” while failing to disclose the very significant effects of night-time noise, air turbulence disturbance to offshore winds on the North Shore, and increased night-time temperatures to residents of	Refer to PEIS, section 1.7.	None.

	downwind Haleiwa and Waialua under the proposed alternative.		
CIT-25	My family have a property in Pupukea and have been disturbed by the noise of the turbines at night. Please have the wind farm owners complete a noise assessment.		
CIT-26	The Hawaiian hoary bat is the premiere night time insect predator. If there are no ‘Ōpe‘ape‘a, the impact on our ecosystem is unknown.	The Service recognizes the important ecological role of the Hawaiian hoary bat and continues to recommend compensatory mitigation projects which the Service believes will protect and conserve Hawaiian hoary bats and their habitat.	None.
<i>Relating to renewable energy projects.</i>			
CIT-1	Clean energy is as important to our ecosystem as conservation of endangered species. I applaud the attempt to provide clean energy with minimal impact on native Hawaiian species.	None.	None.
CIT-15	If the Federal Government were to take a stand and adhere to the principles that it's not prudent to use windmills where birds collide, the private sector would respond and advance alternative means to generate electricity.	None.	None.
CIT-17	Hawaii's own Green New Deal has forced renewable energy projects upon the landscape in haste that are causing fatalities called "takings" of endangered species.	None.	None.
CIT-20	Hawaii's Endangered Species are once again being denied protection by our government for the Hawaii Clean Energy Initiative.	As required by NEPA (43 C.F.R. § 46.420(a)(2)), the Service considered the goals and the needs of the four Applicants, as well as the public interest; however, it is the Service's purpose and need for the action that informed the range of alternatives considered in this PEIS and that will serve as the eventual basis for the selection of an alternative. Refer to PEIS, section 1.2.1.	None.
CIT-4	Why are we giving such leeway for Land based Wind Energy Projects that thus far have proven to be more bluster than energy boom?		
CIT-15	To approve of the Draft PEIS and allow the wind turbines to continue operations would be in conflict with Title 16 U.S. Code § 1531 Section (c) (1), and legitimize the false narrative that Hawaii cannot meet its Hawaii Clean Energy Initiative (HCEI) without the addition of wind turbines (see Draft PEIS Section 1.2.1)- and thus, endangered bats and other wildlife must be sacrificed to some degree.		
ELE-2	I have a keen interest in the timely approval of renewable energy projects that will move us more quickly toward fulfilling the mandate of the landmark legislation passed by the state Legislature four years ago to power the grid of every island with 100 percent renewable energy by 2045 (HB623	None.	None.

	HD2 SD2 CD1; enacted as Act 97, SLH 2015). We must be mindful of the regulatory oversight that your agency provides to ensure the impacts associated with renewable energy development are properly mitigated.		
<i>Relating to utility power company.</i>			
CIT-7	By continuing to buy power from a source that kills bats, HECO is equally responsible for the kill and should share in the cost of stopping the kill.	The Service continues to reach out to HECO and urge HECO to proactively work with the Service as their capacity allows, in order to help avoid adverse impacts to threatened and endangered species well before a wind facility begins construction.	None.
<i>Relating to Kawaiiloa Wind Farm.</i>			
CIT-16	Kawaiiloa Wind Farm’s proposal and Alternative 3 (Increased Curtailment, with night-time shut down April 15 – September 15) in the DPEIS do not meet ESA Section 10 incidental take permit issuance criteria because these actions 1.) Do not minimize and mitigate bat take to the maximum extent practicable as required by ESA section 10(a)(2)(B)(ii) and 2.) Implementation of either alternative, killing of even 55 more bats, would jeopardize the continued existence of the endangered bat species by appreciably reducing the likelihood of the bat’s survival in the wild in a significant part of its range (Oahu).	The Service’s regulations do not prioritize minimization over compensatory mitigation. Mitigation proposals are evaluated as a package. The process to develop an HCP under section 10(a)(1)(B) of the ESA, requires the Applicant to describe the possible effects of a proposed project and document how the Applicant will minimize and mitigate the potential for impacts to any threatened or endangered species. This process is driven by the Applicant, with the Service providing technical assistance and recommendations as the HCP is developed. The statutory requirements that must be met in order for an ITP to be issued is listed in section 10(a)(2)(B) of the ESA.	None.
CIT-16	Kawaiiloa Wind Farm was constructed on the most favored bat habitat on the whole island on land bisected by the largest gulches on Oahu, with the highest rates of bat detection on the island. Bat data collected in 2018 indicates gulches, ungulate grazed areas, and low-density developed land – like the land within and surrounding the wind farm – are prime bat foraging habitat. The Hawaiian hoary bat appears to be territorial – presumably there are fewer than 50 bats left on Oahu (they are very rare and have only been seen in a few places, including Pupukea, near the wind farm) and the wind farm is located on prime bat habitat, we won’t know we’ve killed the last bat on Oahu until we kill the last bat on Oahu.	The Service cannot dictate to an Applicant where they must construct their facility. There is no data that suggests the location of the Kawaiiloa Wind facility is the most favored bat habitat on the island of Oahu. Current ongoing presence/absence research indicates there are several hot spots on Oahu that have high bat detection rates, with the general vicinity of the Kawaiiloa project being one of those areas. The original permit for Kawaiiloa Wind was issued before the 2018 data became available. We agree that the 2018 research indicates that gulches and grazed areas provide high quality foraging areas for	None.

		<p>bats. However, just because an area is considered good for foraging does not indicate that bats are more likely to occur in the area. Other factors, such as distance to roosting habitat, factor into the probability of bat presence and habitat use.</p> <p>There are no reliable population estimates for the bat on Oahu or any other Hawaiian island and no currently known methods to obtain a population estimate. There is no scientific information available to indicate that the current population on Oahu is less than 50 bats.</p>	
CIT-16	The proposed mitigation site is approximately four miles from the wind farm – the home range of a bat at the mitigation site would likely overlap with the wind farm site. As bats are killed at the wind farm they would be replaced by adjacent bats moving in to the desired gulch habitat, until there are no more.	The proposed mitigation site is within somewhat close proximity of the Kawaiiloa wind facility. However, there is no information available on how vacant niches are filled after a bat fatality.	None.
CIT-16	The Kawaiiloa Wind Farm’s irretrievable and irreversible commitment of funding to needlessly waste money contributing to a land transfer at Helemano is very unfortunate and another sad failure of your trust responsibilities for this endangered animal. As much as the DLNR and US Fish and Wildlife Service appear to love using these wind farms as funding mechanisms for desired forest bird and native plant conservation projects, these actions can’t be accounted for as benefits to the endangered bat.	The Kawaiiloa Wind Farm’s commitment of funding to assist the State of Hawaii in the Helemano Wilderness Area land acquisition was done independent of the Service. Kawaiiloa Wind Farm’s funding commitment does not guarantee that an ITP would be issued.	None.
CIT-16	Require Kawaiiloa Wind Farm to shut down at night when winds are 8 m/s (18 mph) or lower to avoid killing bats until research by the wind farms or other funders enables development of a method to measurably boost bat survival or reproduction to offset bat take.	The portion of the time that winds speeds are above 8 m/s at this site would result in significantly reduced power production and violation of the power purchase agreement. In addition, an 8.0 /s wind speed does not preclude bats from being present. The study conducted by Gorresen et al (2015) did observe a decrease in bat occurrence at higher wind speeds, but the time period when winds were at that speed or greater was also significantly small, and so it cannot be concluded that bats will not fly in stronger winds. According to Gorresen (2015), bat behaviors, including close approaches to turbine monopole, blades, and nacelle, occur across	See Appendix G for wind speed and bat flight and the Kawaiiloa HCP Amendment for deterrent installation.
CIT-30	Please do not authorize Kawaiiloa Wind Farm to operate at night – production of less than 1% of Oahu’s energy is not worth risking extinction of Oahu’s endangered bats.		

		a range of wind speeds typically from 0–9.6 m/s, though occasionally 12-15 m/s. In general, bats were detected more frequently at low blade-rotation speeds (<1.0 m/s) and less frequently at intermediate (1-10 m/s) and high speeds above 10 m/s, though the amount of time the winds were at the higher speeds was very limited (Gorresen et al 2015). Kawailoa Wind recently installed bat deterrents on all 30 turbines during the public comment period for the PEIS. The deterrents are operational and tied in with the SCADA system. The deterrents went into operation in May-June 2019. This is the first facility-wide test of its kind in Hawaii to evaluate the deterrents effectiveness during nighttime operation of the turbines.	
ENV-3	New study demonstrates that the Hawaiian Petrel and Newell’s Shearwater likely breed on Oahu Island (Young et al. 2019). However, more acoustic work is needed to determine breeding area. We urge Service to consider including Newell’s Shearwater as “Covered Species”, and address monitoring and/or mitigation appropriate to this island site.	The HCP process, under section 10 of the ESA, is an Applicant-driven process, and in this case the Kawailoa Wind Farm already has incidental take coverage for Newell’s shearwater in their existing ITP. According to Young et al. (2019), Newell’s shearwaters were detected at two sites on O’ahu (one on the leeward slopes of Mount Ka’ala in the Waianae Mountains and another at Poamoho in the Koolau Mountains). However, it is unclear if these detections represent breeding birds or prospecting birds traversing the area. If more information reveals a Newell’s shearwater breeding colony exists on O’ahu, the Service can take necessary steps to work with the Applicant, in accordance with their HCP, to address likely take of Newell’s shearwater in the future.	None.
ENV-3	Given that 36 individual endangered seabirds have been grounded on Oahu during 1990-2003 (Pyle and Pyle 2017), consider mitigation to support rescue program for protected species by state-certified and permitted wildlife rehabilitators for care of downed birds (such as Hawaii Wildlife Center).	Mitigation for proposed listed species impacts are an Applicant-driven process. Several ITPs that include take of listed seabirds do support rescue operations, such as Save Our Shearwaters (SOS). However, the Service cannot require an Applicant to implement specific mitigation actions. We evaluate the Applicant’s proposal to determine if they have fully	

		mitigated for their anticipated take, or under certain circumstances, mitigated to the maximum extent practicable.	
CIT-26	Kawailoa proposes tiers “four,” “five,” and “six” levels of endangered bat take. None of these “tiers” of take should be authorized until a proven mitigation method is developed. The wind farm must shut down at night to avoid bat take until the mitigation method is developed. The wind farm has the option to conduct research to inform development of a mitigation method – this research in itself is not mitigation. Once a mitigation method is confirmed, the wind farm can resubmit their application for license to kill the bats. To avoid uncertainty, mitigation benefits should be required to accrue prior to taking.	The Service’s regulations do not prioritize minimization over compensatory mitigation. Mitigation proposals are evaluated as a package. The process to develop an HCP under section 10(a)(1)(B) of the ESA, requires the Applicant to describe the possible effects of a proposed project and document how the Applicant will minimize and mitigate the potential for impacts to any threatened or endangered species. This process is driven by the Applicant, with the Service providing technical assistance and recommendations as the HCP is developed. The statutory requirements that must be met in order for an ITP to be issued is listed in section 10(a)(2)(B) of the ESA.	None.
<i>Relating to Pakini Nui Farm.</i>			
CIT-8	Do bats really like a solid forest canopy as shown in the 8 th year after planting picture in the Pakini Nui HCP page 50, Figure 6.3? According to scientific evidence, the answer is, no. Nor do Hawaiian hoary bats care if the forest has invasive species.	The Hawaiian hoary bat forages in open and more cluttered edges than its counterpart on the mainland. The Laupahoehoe Forest NAR is an example of a forest that has a dense canopy and also has one of the highest detection rates for the Hawaiian hoary bat. Gorresen et al. (2013) found a significant association between Hawaiian hoary bat occupancy and the prevalence of mature forest cover at montane elevations in Laupahoehoe on Hawaii island.	None.
CIT-8	The Pakini Nui HCP should have tiered mitigation wherein there are 5 years of monitoring the entire Ka’u area to determine the Hawaiian hoary bat habitat availability and the species limiting factors of predators, pesticides and disease. Just monitoring that particular small site (1,200 acres) being planted will not contribute to the body of knowledge being developed with other wind farm funded Hawaiian hoary bat mitigation-supported research (by researchers with the USGS and UH-Hilo Hawaii Cooperative Studies Unit).	The goal of the Pakini Nui HCP is to minimize and mitigate the effects of take of the covered species related to its wind farm operations, to the maximum extent practicable; rather than to conduct research to determine the limiting factors of the Hawaiian hoary bat. The Project’s land-based mitigation focuses on restoring a degraded, lowland ‘ōhi‘a wet mesic forest that will provide foraging edges and structural heterogeneity for Hawaiian hoary bats in perpetuity. While research on pesticides and predators is a need, those topics were not selected as priorities when the	None.
BUS-1	I am concerned with the Pakini Nui Wind Farm and the way it is harming the local Hawaiian hoary bats. From my own experience I can tell you that the state of the environment		

	matters to people buying property in Ka‘u. Without a good basic knowledge of the bat population affected by the Ka‘u wind farm, you are in danger of wiping out our endangered bats! Please make Pakini Nui do the required bat population research before doing any habitat restoration.	Hawaiian hoary bat Request For Proposals was released in 2016 by DLNR DOFAW.	
CIT-11	I do not think it is a good idea to use the Hawaii Volcanoes National Park project to mitigate for the loss of Hawaiian bats already taken and which will be taken for the next ten years by the South Point wind farm. I hope Pacific Islands Fish and Wildlife Office will make Pakini Nui Wind Farm change their mitigation plan to provide research so we will get to know more about how to really help conserve our bats!		
CIT-9	I am concerned with the Hawaii Volcanoes National Park 1,200 acre rehabilitation project as a Hawaiian hoary bat mitigation measure because there is absolutely no guarantee a single bat will come to these new trees.	The composition of plants proposed for the Pakini Nui mitigation restoration are expected to support a wide range of prey for the bat that are not currently present in the degraded pastureland. As the restoration matures, it will also provide roosting habitat. Bats have been detected in the area of proposed work. Because the bat is highly mobile, it can adapt to fragmented landscapes and forage across a wide range of habitat. With this in mind we believe that the creation of additional foraging opportunity will improve the bats’ welfare. The restoration project is expected to provide foraging resources to bats that traverse through the area.	None.
CIT-9	Please encourage Pakini Nui to change their mitigation plan to provide research that would justify the need to rehabilitate the HVNP land before spending money on it.		
CIT-12	I think a research project that involves the family in spotting local bats would be a terrific idea. I know we always look for bats when driving at sunset and at dawn throughout Ka‘u. I would be happy to provide help with this project.		
CIT-8	The Pakini Nui Wind Farm mitigation measure of monitoring and research of the Ka‘u Hawaiian hoary bat population and habitat suitability can offer a golden opportunity to work with the Ka‘u community to expand awareness of this endangered bat species and to obtain the community’s cooperation in raising additional matching funding to expand conservation activities. A monitoring research project that involves participation by our local school, especially, would really help the next generation become aware of the need to conserve and preserve our bats.	The Service encourages community involvement in reporting observations of endangered species. While the Service does not lead any community monitoring projects, existing projects in the State do contribute to the knowledge of several listed species and encourage local awareness and management actions.	None.

ENV-3	Consider including Band-rumped and Newell’s Shearwater as “Covered Species” given their nocturnal habits and vulnerability to wind and collisions elsewhere. Recommend acoustic monitoring at project site for all three nocturnal seabirds during breeding season (HAPE, NESH, BNSP).	The HCP process, under section 10 of the ESA, is an Applicant-driven process, and in this case the Pakini Nui Wind Farm chose not to apply for incidental take of the Newell’s shearwater and Band-rumped storm petrel. The Applicant is liable for any take of ESA-listed species not covered by the HCP. The HCP does include a section on the band-rumped storm petrel in its consideration. If more information reveals that take of these species is likely, the Service will notify the Applicant and take necessary steps to work with the Applicant, in accordance with their HCP, to address the potential for likely take in the future. Risks of collision were also assessed in the three existing HCPs for the other projects. The Commenter is referred to the original HCPs of Auwahi, KWP II, and Kawaihoa. Acoustic monitoring and flight assessments were done at the time the projects were constructed and the risk of collision assessed. One of the Projects also has existing coverage for Newell’s shearwater for which no observed take has occurred. Mitigation for Hawaiian petrel would be expected to provide benefits for other seabird species, though no legal coverage would be provided.	See Project HCPs.
ENV-3	Recommend acoustic monitoring at potential mitigation site for all three nocturnal seabirds during breeding season (HAPE, NESH, BNSP).	The mitigation sites for the Hawaiian petrel are at established colonies. A variety of monitoring including productivity is conducted at those colonies.	None.
ENV-3	The endangered Band-rumped Storm petrel (<i>Oceanodroma castro</i>) is potentially at risk from the Pakini Nui Wind Farm. Until flyway corridors are studied and described, we must presume that these endangered birds flying from the sea to inland nesting habitat are at risk from collisions with wind infrastructure: turbines, lights and power lines. We highly recommend the inclusion of acoustic monitors at all sites to detect and monitor the risk of these projects to this species.	The HCP process, under section 10 of the ESA, is an Applicant-driven process, and in this case, the Pakini Nui Wind Farm chose not to apply for incidental take of the Newell’s shearwater and Band-rumped storm petrel. The Applicant is liable for any take of ESA-listed species not covered by the HCP. The HCP does include a section on the band-rumped storm petrel in its consideration. If more information reveals that take of these species is likely, the Service will notify the Applicant and take necessary steps to work with the Applicant, in accordance with	None. Collision risk is presented in Section 4.4 of the Applicant’s HCPs.

		their HCP, to address the potential for likely take in the future. Section 4.4 of the Applicants HCP addresses the collision risk of band-rumped storm petrel.	
<i>Relating to Kaheawa Wind II</i>			
ENV-3	For Kaheawa Wind II, consider including Newell’s Shearwater as a “Covered Species” given their nocturnal habits and vulnerability to wind farms and collisions elsewhere.	Kaheawa Wind Power II has authorized take for Newell’s shearwater in their HCP and ITP approved in 2012. The project has not reported take of Newell’s shearwater but is still conducting mitigation for the species.	None.
ENV-3	Given the rigorous recovery criteria proposed for the Newell’s Shearwater as drafted by the Service (January 2019), we would like to see a greater justification of take levels and no change in take with reference to a model used and with respect to the recovery criteria.	The HCP process, under section 10 of the ESA, is an Applicant-driven process. If the collision risks and flight surveys indicate the chance of collision is negligible, seeking coverage for a species is at the discretion of the Applicant. The Applicant would be legally responsible should a fatality occur. Kawailoa and KWP II have existing incidental take coverage for Newell’s shearwater.	None.
<i>Relating to Auwahi Wind Farm</i>			
CIT-23	I support the HCP amendment proposed by Auwahi Wind for an expansion of their mitigation efforts. The scope and breadth of their already-established reforestation project has been impressive, and is already having an impact on Maui’s landscape and environment.	Comment noted.	None.
<i>Relating to uncertainty.</i>			
CIT-10	I believe the four HCP’s accurately describe the impacts of take and the ways to minimize what seems inevitable with any industrial installation of these sizes. The PEIS appears accurate as well, given all the “unknowns” in assessment of complex biological systems. I would like to see the permits for these four projects approved. In my regard, any mitigation of take is better than no mitigation and it will make an impact on preserving bio-diversity.	Comment noted.	None.
<i>Relating to other.</i>			
FED-2	Describe, in the FPEIS, mitigation measures to improve the adaptability and resilience of the covered species and their ecosystems in response to changes in temperature and precipitation patterns that may affect species.	The mitigation actions proposed include improving foraging resources and insect abundance at elevations that will remain important in the foreseeable future. The adaptive management and	FPEIS Sections 4 and 5.

		triggers allow for the response to new information that could result in modification to the mitigation. The Service also considered the mobility and adaptability of the Hawaiian hoary bat in its analysis of the impacts of climate change. The mitigation offset for Hawaiian petrel and Hawaiian goose were also considered in the context of climate change.	
FED-2	While the DPEIS discusses reasonably foreseeable and unforeseen circumstances, it is unclear whether the Service considered changes in climate and its effects on the ability of the proposed mitigation measures to offset the requested increased take. In addition, it is unclear whether the added stressor of a changing ecosystem and the ability of a covered species to adapt to these changes was considered in the increased number of authorized take.	The mitigation actions proposed include improving foraging resources and insect abundance at elevations that will remain important in the foreseeable future. The Service also considered the mobility and adaptability of the Hawaiian hoary bat in its analysis of the impacts of climate change. The mitigation offset for Hawaiian petrel and Hawaiian goose were also considered in the context of climate change.	None.
CIT-13	It was also brought to my attention at the public meeting, that endemic plants would be removed to lower the amount of birds frequenting the area. Removing their natural habitat is another form of “take” and it was compared to removing of wetlands from the birds to prevent them from nesting and feeding.	At the KWPII wind facility, vegetation underneath turbines is managed to reduce the attractiveness to Hawaiian geese. This habitat management occurs under the wind facility’s existing HCP, adaptive management protocol, and associated Incidental Take Permit. The Service and DOFAW recommended habitat management at this site to minimize the likelihood that Hawaiian geese that would be attracted to both the native and non-native vegetation would be taken at the wind facility. Take of Hawaiian geese under the KWPII HCP Amendment would include habitat management and predator control at one or more protected breeding locations on Maui.	None.
CIT-15	If the Secretary of the Interior were to adhere to Title 16 U.S. Code § 1531 Section (c) (1), which states “all Federal departments and agencies shall seek to conserve endangered species and threatened species and shall utilize their authorities in furtherance of the purpose of this chapter,” the Secretary would have to revoke the application for these ITPs on the grounds the Applicants have abused the ITP process.	Comment noted.	None
FED-1	As members of the Ko‘olau Mountains Watershed Partnership, the Army supports the fencing and removal of ungulates,	The Service has included the Army’s activities in our analysis of cumulative impacts to the Hawaiian	FPEIS section 2.2.2

	<p>invasive vegetation removal and planting of native forest trees proposed as mitigation for hoary bat take at the Kawailoa Wind Farm. I am concerned that an additional take of 377 total for all islands and 205 additional bats for Kawailoa Wind Farm is a significantly large increase. I am concerned that the increase in authorization may restrict the Army's training flexibility on both O'ahu and Hawai'i islands. Two draft Programmatic Biological Assessments are under preparation for Oahu training areas and the Pohakuloa Training Area on Hawai'i Island. The Army's authorized take will be reassessed and could be more conservative. I would like to ask that the Service work in partnership with the Army to help us maintain training flexibility in light of the additional stressors on endangered species, should the wind farms be granted an increase in take.</p>	<p>hoary bat. The Service will continue to work with the DoD to avoid and minimize impacts to listed species.</p> <p>Because the mitigation proposed in the wind facility HCPs are expected to offset the impact of their taking, there is not anticipated to be a reduction in the baseline condition of the species; therefore, there would be no effect on future section 7 consultations with the Army.</p>	
CIT-18	<p>Correct typos and missing text: At the time of the initial proposal to construct the Pakini Nui Wind facility, compliance with State laws or regulations did not trigger, Apollo Energy requested an environmental assessment exemption from the County Of Hawai'i for the transmission lines occurring in an easement, and did Pakini Nui Wind did not seek state or Federal incidental take authorizations for the above listed species. DPEIS p. 10</p>	<p>Typos have been corrected in the FPEIS.</p>	<p>Various.</p>
FED-2	<p>If rodenticide will be used and would be applied via hand or aerially broadcast, we recommend the Service consider assessing the impacts of rodenticide through future project-level NEPA analysis and include measures to reduce potential impacts. This is particularly important because in addition to being persistent and toxic with possible non-target mortality risks, rodenticides are cited as being one of the threats to Hawaiian hoary bat (p. 67) and "trace amounts of rodenticide residues have been detected in carcass tissues from 2/21 Hawaiian hoary bat carcasses examined" (Appendix G).</p>	<p>The PEIS has been updated in Section 2.2.3 and the Kaheawa Wind Power II HCP has been updated. No rodenticide use will occur in association with mitigation actions for the Hawaiian goose.</p>	<p>FPEIS Section 2.2.3 and Final Kaheawa Wind Power II HCP Amendment.</p>
CIT-22	<p>Dramatic declines in insect abundance are widespread and of concern. The loss of insects has been tied to the declines of insectivorous birds around the world. To what extent are insect declines in Hawaii being investigated? And to what extent have pesticide practices been implicated in this? What bat mitigation projects are underway that measure increases in prey abundance directly?</p>	<p>There are ongoing insect compositional studies that are briefly detailed in Appendix G. In addition, the ongoing mitigation and proposed mitigation projects do include insect compositional studies. In addition, prey usage by the bats is being evaluated in the mist net capture research projects via analysis of fecal pellets. There is a sharing of the data across projects.</p>	<p>None.</p>

ENV-2	<p>The DPEIS does not provide adequate information regarding Date, location, and other available information (such as wind speed, curtailment, gender, Etc.) for all observed bat and bird deaths at each site.</p>	<p>Information on observed downed wildlife is provided in the Downed Wildlife Reports required by the Service and DOFAW each time a fatality is found. The requirements of the report can be found in the “Standard Protocol for State of Hawaii Incidental Take License and U.S. Fish and Wildlife Service Incidental Take Permit Holders Responding to Dead or Injured Wildlife Including Threatened and Endangered Species and MBTA Species” incorporated into each HCP and HCP Amendment. Summary information is also included in the Semiannual and Annual reports provided by each of the Projects seeking an amendment. The curtailment regime operating at the time is also provided in the annual reports and is provided in Appendix D of the PEIS. The actual operational status of a turbine rotor at the time of a fatality is not known for any of the downed wildlife because the precise time of impact is unknown. For instance, a rotor may be curtailed and only spin when the wind speed average based on 10 minutes is above a cut in speed, but the actual wind speed at the time of impact would not be known because we do not have a means of detecting precisely when the collision occurred.</p>	<p>Appendix D discusses curtailment regimes of each Project. Appendix C includes information on the Hawaiian hoary bat death timing. Annual Reports for each Project are incorporated by reference.</p>
ENV-2	<p>The DPEIS does not provide adequate information regarding limitations of acoustic monitoring as it relates to demonstrating bat abundance and decline.</p>	<p>The section on Hawaiian hoary bat detection and the limitations and strengths of the tools available is provided in Appendix G. Detectability refers to the ability to detect an animal if it is present. Acoustic and video findings from a study by Gorresen et al. (2015) show that Hawaiian hoary bat can be acoustically cryptic (8% chance of detection on a given night if it was present during the study when compared to thermal imaging). Multiple instances were observed in which bats flew close to microphones but were not recorded (Gorresen et al. 2015). They also noted a lack of recorded feeding calls despite concurrent video evidence of frequent foraging-like behavior, thus demonstrating acoustic detection is limited at detecting bat presence.</p>	<p>See Section 3.8 of the FPEIS and Appendix G for further discussion.</p>

		Acoustic detectors are currently the most widely deployed mode of detection and can be used for occupancy studies which are statistically designed temporal comparisons. In addition, see the section on micro-calls.	
ENV-3	We applaud the Service’s efforts to address multi-project impacts through the Hawaii Wind PEIS, as it goes a long way in simplifying the process and public input.	The Service appreciates this acknowledgement at the use of programmatic evaluation to benefit the public review process.	None.
ENV-3	The endangered Band-rumped Storm petrel (<i>Oceanodroma castro</i>) is potentially at risk from the Pakini Nui Wind Farm. Until flyway corridors are studied and described, we must presume that these endangered birds flying from the sea to inland nesting habitat are at risk from collisions with wind infrastructure: turbines, lights and power lines. We highly recommend the inclusion of acoustic monitors at all sites to detect and monitor the risk of these projects to this species.	The HCP process, under section 10 of the ESA, is an Applicant-driven process, and in this case, the Pakini Nui Wind Farm chose not to apply for incidental take of the Newell’s shearwater and Band-rumped storm petrel. The Applicant is liable for any take of ESA-listed species not covered by the HCP. The HCP does include a section on the band-rumped storm petrel in its consideration. If more information reveals that take of these species is likely, the Service will notify the Applicant and take necessary steps to work with the Applicant, in accordance with their HCP, to address the potential for likely take in the future. Section 4.4 of the Applicants HCP addresses the collision risk of band-rumped storm petrel.	None.
ENV-3	The threatened Newell’s shearwater (<i>Puffinus auricularis newelli</i>) continues to exhibit a population-level decline (Raine et al. 2017). Based on this documented decline, and take that is ongoing and significant by Kauai Island Utility Company (HCP in progress) and Kauai light attraction (HCP in progress), the species was recently up-listed globally to Critically Endangered (IUCN 2018). In January 2019, the Service provided draft recovery guidelines for Newell’s Shearwater, which suggested that recovery will require conservation across “seven of the eight main Hawaiian Islands” (84 FR 790 795). We support alternative actions to monitor this species at all potential sites, and minimize risk through nocturnal curtailment and predator control.	Predator control measures conducted by all of the projects in their existing or new HCP or HCP amendment would be expected to benefit Newell’s shearwater as well as other seabird species. To date no Newell’s shearwater fatalities have been observed at any of the operating wind energy farms, though several have incidental take coverage and are conducting mitigation actions. Monitoring is conducted for seabird take.	None.
ENV-3	There are species mentioned for which no compensation is proposed - White-tailed tropicbirds and frigatebirds. Because we were unable to access the numbers of MBTA-birds reported	These species are not listed under the ESA and we cannot require mitigation for their impact. Recent Department of the Interior policy guidance regarding	None.

	take is not clear. Request Service consider mitigation of these MBTA-protected nesting seabirds through colony restoration.	the MBTA has clarified that non-intentional impacts to migratory birds are not a violation of the MBTA.	
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