

EXHIBIT "E-9"

**Endangered Species Recommendations for the Lāwaʻi
Solar and Storage Project, (TMK # por. 2-6-003:001),
Kōloa District, Island of Kauaʻi, Hawaiʻi**



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Introduction and Background

AES Distributed Energy (AESDE) is proposing to install a set of solar arrays and a storage system on an approximately 250-acre parcel contained within a larger 1,062-acre property identified as TMK # por. 2-6-003:001 (Site Plan - Figure 1). This power generation system will be connected to the existing KIUC Substation (Site Plan - Figure 1).

We were tasked with reviewing the Biological Resources Survey Report for Lāwa'i Solar and Storage Project, Island of Kaua'i prepared by SWCA Environmental Consultants (2017) and following, that to conduct a site visit with the Project manager and two engineers to investigate which of three potential routes currently being studied to install the electrical connection between the north and south section of the solar arrays would be the most practical to build, maintain and could be best designed to minimize impacts to avian and mammalian species currently listed under the federal and State of Hawaii endangered species statutes to the maximum extent practicable. The federal and State of Hawai'i listed species status follows species identified in the following referenced documents, (Department of Land and Natural Resources (DLNR) 1998, U. S. Fish & Wildlife Service (USFWS) 2016). Fieldwork was conducted on July 19, 2017.

Site Description

The habitats present on the proposed project site can be divided into three general categories: Pastureland, mixed alien secondary forest and ruderal plant communities. There are also two reservoirs, Aeopoua and Aeopoua located within the project site (Site Plan - Figure 1). The site has been heavily used for various agricultural activities for over a century. It was formerly used for sugar cane production, more recently the site has predominately been used for cattle grazing and horse pasturage. During the biological surveys conducted of the site, 93% of the plant species recorded were non-native to the Hawaiian Islands (SWCA 2017). They recorded six native plant species all of which are indigenous and none are considered rare or are listed as a protected species under federal or State of Hawaii endangered Species Statutes.

Results

The field team physically inspected the northern solar array site and the three proposed routes to run the electrical connection between the northern and southern solar arrays on foot (Site Plan - Figure 1). The three routes investigated are crosshatched in white on Figure 1. It was determined that the connection can be undergrounded between the northern array and the selected crossover route between the reservoirs. However, due to the physical condition of the earthen dam berms undergrounding the conductors within them is not feasible - the span across the berm will need to be an aerial one. Once the berm is crossed the lines can once again be run underground from that point to their connection point with the southern array.

We considered all of the potential ways to configure the small run of aerial connectors so as to minimize potential impacts to nocturnally flying listed seabirds, and in such a way as to minimize maintenance issues and potential liabilities to the delivery of the generated power. Each potential route is analyzed below. The route selected will have a single cross-arm with a horizontal array of lines to reduce the number of vertical arrays, and reduce potential impacts to listed seabirds.

Northern Route

This route is located below Aepeo reservoir and between it and Aepeoalua reservoir (Site Plan - Figure 1). This route runs over very uneven terrain, which is covered with a dense secondary forest, a large portion of which is made up of Moluccan albezia (*Falcataria moluccana*). Not only would this route require the clearing of a very large swatch of forest, albezia trees are fairly fragile trees and break easily under high wind - not a good tree to have growing close to power lines. Due to the height and proximity of the forest the above ground lines would need to be higher than the other two options explored. This route also would require an approximately 950-foot above ground conductor run and multiple towers to support the conductors, the longest above ground span of lines of the three routes investigated.

Central Route

This route is located between Aepeoalua and Aepeokolu reservoirs (Figure 1, 2 and 3). This route is over level ground with a slight rise on either end of the run (Figure 1, 2 and 3). This would be the easiest route to build, with the least amount of vegetation clearing. It is also the shortest of the routes investigated requiring an approximately 600 foot above ground conductor span which could be accommodated on two structures, one on either side of the spillway (Figures , 2 and 3). The conductors on this route would be below the height of the upslope trees (Figure 3); and would attach to the towers at approximately 29-feet above ground and will sag lower than that in the middle of the span. From the potential of nocturnally flying seabirds this route would provide the least exposure of the above ground conductors above surrounding tree cover.

Southern Route

This route is located below Aepeokolu reservoir (Figure 1). This route is through relatively dense vegetation and would require an approximately 850 foot above span of conductors mounted on three towers. This is arguably the least optimal route as it would require multiple towers the second longest one of above ground conductors and from a seabird perspective is in a location where the topography drops off rapidly below this route



Figure 2 – Central route spanning the dam berm below Aepoekolu reservoir

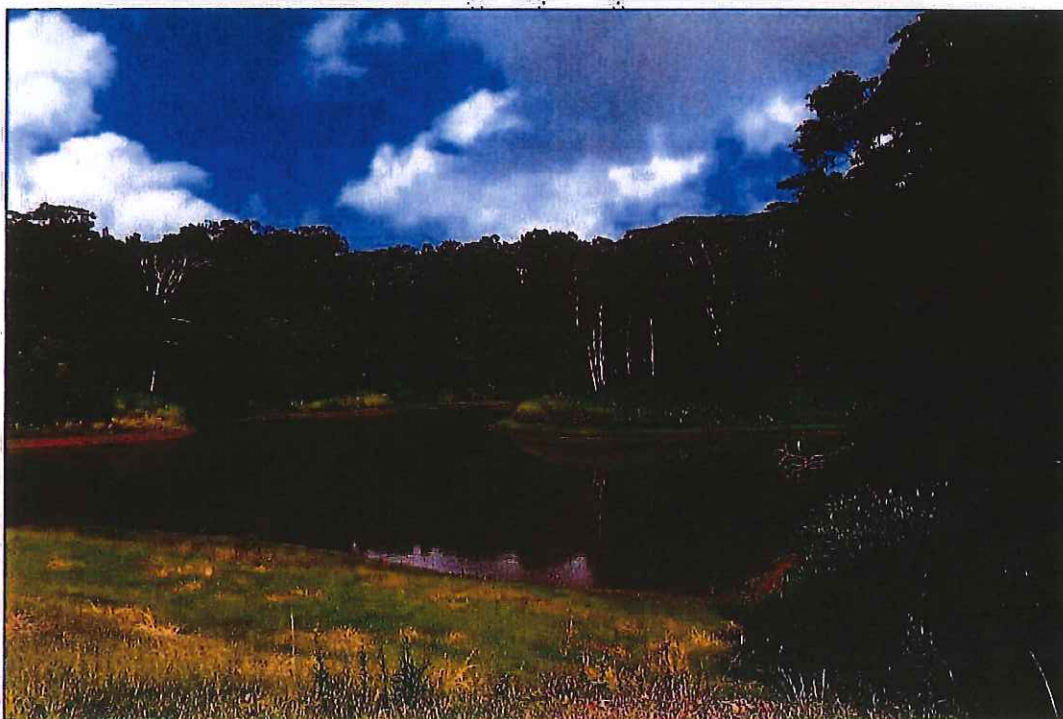


Figure 3 – Central route looking upslope of the proposed line route showing the tree cover upslope of the route

Allowing sea-bound birds to drop in altitude very close to this route, which could raise the collision risk between birds and electrical lines if this route were to be selected.

Recommendations

From a biological perspective the central route is the most biological benign of the three potential options investigated. This route would require the least amount of woody vegetation removal, good from an impact to potential roosting habitat for Hawaiian hoary bats. It would allow the least number of support towers, and would also allow the shortest height above ground of the conductors of the routes studied, essentially the above ground conductors would be below the tree canopy upslope of the route, the direction that fledgling seabirds fly to sea from for the first time. We offer the following specific recommendations that would further reduce the potential for interactions between construction personnel and activities and following build out, operation of the solar facility and endangered avian and mammalian species that potentially use resources in the general project area.

Construction

During the construction phase of the project we recommend the following minimization measures and training be implemented to ensure that construction activities do not result in deleterious impacts to the listed faunal species that may be encountered during construction. No nighttime construction activities will occur, so no special recommendations are needed to address those unique potential issues.

- Develop an endangered species awareness training module in which information on the endangered species in the general project area are addressed as are the legal protections afforded these species under the endangered species act and the state equivalent statute, as well as emergency response protocols that will be followed in the unlikely event an issues arises during the construction phase with an endangered species.
- All construction workers should undergo endangered species awareness training prior to starting work on the project.
- If streetlights or exterior facility lighting is installed in conjunction with the project, it is recommended that the lights be shielded to reduce the potential for interactions of nocturnally flying seabirds with external lights and man-made structures (Reed et al., 1985; Telfer et al., 1987).
- Woody vegetation taller than 4.6 meters (15-feet) will not be removed between June 1 and September 15, the period in which bats are potentially at risk from vegetation clearing.

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- Barbed wire should not be used on the top of any fencing installed on the site, as this can potentially snag foraging bats.

Post Construction and Operation

- Develop an endangered species awareness training and emergency response protocol. That will become company policy.
- All managers, and operating personnel shall undergo endangered species awareness training prior to starting work on the project, and once a year after that to ensure that all policies are being followed.

Critical Habitat

There is no federally delineated Critical Habitat for any species present on, or adjacent to the project area. Thus the development and operation of the proposed project will not result in impacts to federally designated Critical Habitat. There is no equivalent statute under State law.

Literature Cited

Department of Land and Natural Resources (DLNR). 1998. Indigenous Wildlife, Endangered And Threatened Wildlife And Plants, And Introduced Wild Birds. Department of Land and Natural Resources. State of Hawaii. Administrative Rule §13-134-1 through §13-134-10, dated March 02, 1998.

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