STATE OF HAWAIʻI
DEPARTMENT OF LAND AND NATURAL RESOURCES
Land Division
Honolulu, HI 96813

December 19, 2022

Chairperson of the Board
of Land and Natural Resources
State of Hawaiʻi
Honolulu, Hawaiʻi

Ref: WKEP

KAUAʻI

Issuance of a Finding of No Significant Impact (FONSI) for the West Kauaʻi Energy Project, Located at Waimea, Kauaʻi
Tax Map Keys: (4) 1-2-001: 003, 007; 1-2-001: 016, 018, 019, 023, 999; 1-4-001: 002, 003, 013; 1-4-002: 008, 035, 036, 048, 066-068, 085

APPLICANT:

Kauaʻi Island Utility Cooperative and AES West Kauai Energy Project, LLC, a foreign limited liability company

LEGAL REFERENCE:

Hawaii Revised Statutes (HRS) Section 343-5(a) and Hawaiʻi Administrative Rules (HAR) Section 11-200.1-22

(1) Propose the use of state or county lands or the use of state or county funds.

(2) Propose any use within any land classified as a conservation district by the state land use commission under chapter 205.

LOCATION:

The proposed project site is located approximately four miles north of Kekaha and six miles northwest of Waimea on the island of Kauaʻi. The project site is further identified as Tax Map Keys: (4) 1-2-001: 003, 007; 1-2-001: 016, 018, 019, 023, 999; 1-4-001: 002, 003, 013; 1-4-002: 008, 035, 036, 048, 066-068, 085

ZONING:

State Land Use District: Conservation and Agriculture

County of Kauaʻi Zoning: Conservation, Agriculture, and Open

CHARACTER OF USE:

Use of State surface water for hydropower generation and irrigation purposes, along with access to and use of lands adjacent to Waiakōali and Kawaikōī Diversions, lands adjacent to Kauaʻikinanā and Kōkeʻe diversions, lands adjacent to Kōkeʻe Ditch including land between Puʻu Lua, and Puʻu Moe, access to roads and diversions on State lands, Puʻu Lua Reservoir and areas around reservoir, lands around the Puʻu Moe Divide intake, lands near the upper portion of Penstock Corridor and potion of Trail 1 Road above DHHL gate, and portion of Trail 1 Road from Waimea Canyon Road to DHHL gate.

DESCRIPTION OF PROJECT:

The Kauaʻi Island Utility Cooperative (KIUC) and AES West Kauai Energy Project, LLC, herein referenced as the Applicant, is proposing to construct and operate a renewable energy and irrigation project. The proposed project would utilize the existing Kōkeʻe Ditch Irrigation System and the Puʻu Lua, Puʻu ʻŌpae, and Mānā Reservoirs, and includes both rehabilitation of existing State infrastructure and pairing of a hydropower facility with solar photovoltaic (PV) and battery energy storage. The proposed project is expected to improve grid performance with long-duration storage capability, stabilize and lower energy rates, and deliver irrigation water to adjacent lands.

The Applicant will request a long-term, 65-year water lease from the Board of Land and Natural Resources to divert a multi-year rolling average of 11 million gallons per day (MGD) of water into the Kōkeʻe Ditch Irrigation System from the Waiakōali, Kawaikōī, Kauaʻikinanā, and Kōkeʻe Streams combined. Diversion operations would be continuous, but the diversion volume into Kōkeʻe Ditch at each stream would be based on multiple considerations including volume of water in the stream after the interim instream flow standard (IIFS) is left in the stream, capacity of the ditch to deliver water to Puʻu Lua Reservoir, capacity of Puʻu Lua Reservoir to store water, and capacity of project to use the water for beneficial uses (identified as renewable energy and/or agriculture by the Applicant per the Waimea Mediation Agreement). Continuous real-time monitoring of stream and ditch flow and automatic gates would control the diversions and ensure that the IIFS is maintained. Water that cannot be used would flow over the diversion and remain in the streams.

The diverted water would be delivered via the existing Kōkeʻe Ditch System to Puʻu Lua Reservoir where up to 200 million gallons of water would be stored. During non-solar hours water would be released from Puʻu Lua Reservoir at a variable rate between 2 MGD and up to 26 MGD based on the availability of water in Puʻu Lua Reservoir into the existing section of open ditch between Puʻu Lua Reservoir and Puʻu Moe Divide. The Division of State Parks (SP) would take approximately 20,000 gallons per day (GPD) from the open ditch section between Puʻu Lua Reservoir and Puʻu Moe Divide to supply water the Department's park restrooms. At Puʻu Moe Divide, up to 1.3 MGD would be released into an existing open ditch that runs south along Kōkeʻe Highway for the Department of

Hawaiian Homelands (DHHL) and Agribusiness Development Corporation (ADC) uses on the mauka lands near Kitano Reservoir. After this irrigation release, the remaining volume of water in Kōkeʻe Ditch would enter a new buried pipeline, the Upper Penstock, which would run between Puʻu Moe Divide and Puʻu ʻŌpae Reservoir. At the DHHL boundary, an irrigation delivery of up to 500,000 GPD would be made directly from the pipeline to a new 10,000-gallon storage tank for agricultural needs at the DHHL pastoral lots.

After this irrigation release, the remaining volume of water in the ditch (up to 24.18 MGD) would be delivered via the Upper Penstock to a new four megawatt (MW) hydroelectric turbine for energy generation at the new Puʻu ʻŌpae Powerhouse. After being used for energy generation, all water that entered to turbine (up to 24.18 MGD) would be discharged into Puʻu ʻŌpae Reservoir where it would be available to DHHL who would take the remainder of the DHHL water reservation (5.63 MGD at Puʻu Ōpae).

After irrigation uses are withdrawn from Puʻu ʻŌpae Reservoir, the remaining water (up to 18.55 MGD) would be delivered to Mānā Reservoir via buried pipeline, the Lower Penstock, to a new 20 MW hydroelectric turbine for energy generation at the new Mānā Powerhouse. After being used for energy generation, all the water that entered the turbine (up to18.55 MGD) would be discharged into Mānā Reservoir where it would be available for agricultural uses on Mānā Plain. Discharge from Mānā Reservoir may also be delivered through Kekaha Agriculture Association's (KAA) irrigation system to open floodable spaces being developed by KAA near Nohili. KIUC and AES are working with ADC and KAA in the exploration of other beneficial uses of Project discharge from Mānā Reservoir. Explorations into other beneficial uses of Project discharge include the potential for KAA to use Project discharge to refill smaller reservoirs to increase storage on Mānā Plain in other areas of Mānā Plain.

In addition, other water needs would be withdrawn from the 11 MGD multi-year rolling average. These uses include refilling of reservoirs and some minimal ditch losses on sections of open ditch. It is expected that reservoir levels will drop during dry times and be refilled during rainy periods.

STANDARD FOR EVALUATING THE FINAL EA AND ISSUANCE OF A FONSI:

Pursuant to Hawaiʻi Administrative Rules (HAR), §11-200.1-22 *Notice of determination for final environmental assessments*, the approving agency can issue a notice of a Finding of No Significant Impact (FONSI) following:

1. Preparation of a Final Environmental Assessment (EA);
2. Review of public and agency comment; and
3. Applying the significance criteria pursuant to §11-200.1-13, HAR.

Pursuant to HAR §11-200.1-2,

> "Finding of no significant impact" or "FONSI" means a determination by an agency based on an EA that an action not otherwise exempt will not have a significant effect on the environment and therefore does not require the preparation of an EIS.

In accordance with the Board of Land Natural Resource's approval on September 25, 2015, Item D-17, authority was delegated to the Chairperson to approve an issue a FONSI.

Accordingly, the Chairperson's decision regarding the issuance of a FONSI is *distinct* from any management decisions that the Land Division, the Department, or the Board of Land and Natural Resources (Board) may make in the future regarding the issuance of any long-term water lease, including the Applicant's proposed project requested by this EA.

OBJECTIVE OF THE FINAL EA:

The objective of the Final EA and issuance of the FONSI is to comply with applicable law and provide information to the Board for when it considers whether to issue a long-term water lease via public auction and to allow the lessee to enter upon lands owned by the State of Hawaiʻi in order to construct and operate portions of the proposed project.

ALTERNATIVES CONSIDERD:

The Final EA for the West Kauaʻi Energy Project considered the following alternatives (see Attachment A for the Final EA):

1. **No Action Alternative**
   Under the no action alternative, the proposed project would not be constructed. This would lead to difficulty in reaching the State mandate of 100% renewable energy and would likely result in the continued reliance on fossil fuel generation. Limiting KIUC to only solar plus battery options would result in decreased system reliability, the increased likelihood of outages during extended cloudy and rainy periods, and increased costs to members for alternative storage solutions.

   The Phase One IIFS would remain in effect and any modification required would be completed by KIUC after all permits, approvals, and necessary land easements are received. Water needs along Kōkeʻe Ditch would remain consistent with current uses, more water on average would remain in the Waiakōali, Kawaikōī, Kauaʻikinanā, and Kōkeʻe Streams than during the West Kauaʻi Energy Project operation. It should be noted that the Phase One IIFS was set based on current water needs along Kōkeʻe Ditch at the time of CWRM approval in April 2017 and did not account for DHHL's water reservation of 6.93 MGD. This flow left in the four streams under current conditions provides an overall average increase of stream flow into Poʻomau and Waiahulu Streams upstream of the Waiahulu Diversion. This increase in available stream flow also results in an increase to available stream flow for diversion into Kekaha Ditch.

The Phase One IIFS modifications would improve the diversions to increase reliability of implementation of the IIFS at the diversion rather than being diverted into the ditch and then returned to the stream a few hundred feet downstream of the diversion. Manual operations for the Kōkeʻe Ditch Irrigation System diversions would continue and be required to meet the Phase One IIFS. Site access would have limitations during rain and/or storm events that affect road conditions and ford crossings, and limitations to site access would result in delays to gate and pani board adjustments. This could result in short-term periods where the Phase One IIFS would not be met at the point of diversion until after gate and/or pani board adjustments could be made. The exception to this is Kōkeʻe Stream, which would retain all-natural flow due to the Phase One IIFS modifications.

Monitoring of stream flow and ditch flow would be limited to monitoring devices installed through the Phase One IIFS modifications. Also, there would be no stream flow gage installed on Kōkeʻe Stream.

Under the no action alternative there may be small improvements over time to native stream habitat between the Kōkeʻe diversions and Waiahulu Diversion, however, those improvement are anticipated to be minimal given the results of the Hawaiian Stream Habitat Evaluation Procedure (HSHEP) model. The potential impacts to suitable habitat downstream of Waiahulu Diversion for aquatic species of concern would be entirely dependent on Kekaha Ditch operations. An IIFS has been set for the Kekaha Ditch diversions and Waimea River below Kekaha Ditch diversions. Under the No-Action Alternative, current average flow in Waiahulu Stream is expected to continue unless there is a change in water needs along the Kōkeʻe Ditch Irrigation System.

Existing infrastructure that would be repaired, utilized, and funded by the West Kauai Energy Project (WKEP) is currently owned and managed by three separate State agencies: DLNR, DHHL, and ADC. If WKEP is not constructed, it would be up to these three State agencies to determine whether long-term operations of the existing infrastructure would occur and, if so, how that would be funded. Another possibility is the existing infrastructure would be decommissioned. The fact that portions of the system are managed by different State agencies complicates current operations and would further complicate what would happen in the absence of West Kauaʻi Energy Project. Staff notes that DLNR would pursue decommissioning of Puʻu Lua if the project does not occur.

Future opportunities and potential for diversified agriculture on the west side of Kauaʻi would be negatively impacted without the Proposed Action's financial, managerial, and operational contributions.

- Necessary road repairs would not be completed, and future road repairs and maintenance would remain the responsibility of the State.

- The cost of necessary improvements to the Kōkeʻe Ditch Irrigation System and the three state-owned reservoirs would be borne by the state and would likely be passed on in whole or in part to agricultural tenants.

- Enhanced fire suppression capabilities would not be realized if the rehabilitation of Puʻu ʻŌpae and Mānā Reservoirs was not otherwise undertaken.

Under the No-Action Alternative, the implementation of water delivery, repair of roads, and installation of an electrical line to DHHL mauka lands would likely not occur, leaving the lands not viable for the foreseeable future and implementation of the Puʻu ʻŌpae Kuleana Homestead Settlement Plan unlikely. While it may be possible that DHHL may in the future decide to fund and implement these improvements at Puʻu ʻŌpae, they are not part of DHHL's 20-year plan.

2. Alternative Projects

KIUC looked at alternative technologies however, these alternative technologies were dismissed for the following reasons:

Geothermal energy has played a role in Hawaii's firm energy supply for many years. However, geothermal power production requires groundwater temperatures of 225 to 662 degrees Fahrenheit (°F), which are commonly understood to only be available on Hawaiʻi island and possibly Maui. USGS drilled six groundwater monitoring wells near Līhuʻe in 1996 and discovered water temperatures between 75°F and 80°F, which is inadequate for geothermal power production. Therefore, geothermal would not be a possible alternative on Kauaʻi.

Wind energy has become a leading low-cost renewable power generation option in much of the world, however, Federally-listed endangered seabirds are present on Kauaʻi making the use of wind power infeasible at this point in time, and the cost of a wind project of similar size does not compare favorably to the proposed project therefore this alternative was dismissed.

Solar and Solar-plus-storage remains KIUC's favored option for its low cost and more flexible siting. The batteries provide rapid response but, because of their short duration, are only able to support the grid for four to five hours. For this reason, intermittent renewables such as solar now need to be paired with long-duration bulk storage to maintain grid reliability through extended periods of rainy weather or generating unit breakdowns. While batteries could be over-built to provide long-duration bulk-storage, the cost of delivered energy would be more than the proposed project, and it would not provide the same level of grid support due to relying solely on inverters to deliver the energy (whereas the proposed project relies primarily on synchronous generators to deliver the energy to the grid).

Hydroelectric power is the oldest source of energy on Kauaʻi, and it is renewable. However, the primary challenge with hydroelectric power is resource availability and siting concerns. While Kauaʻi has ideal conditions for hydroelectric energy, the island is small and other uses or environmental concerns limit the number of viable sites and greatly extend the timeframe required to permit and construct a hydroelectric facility.

3. Alternative Fuels

Three common alternative fuels to generate power were reviewed for Kauaʻi: biofuels, biomass, and liquefied natural gas (LNG). Use of any of these would result in greenhouse gas (GHG) emissions, although production of certain biofuels and biomass could offset those GHG emissions.

For biofuels, KIUC conducted an RFP in 2014 for alternative fuels including green fuels such as biogas and biodiesel. Regionally produced biodiesel was the most compelling. However, the pricing was notably more expensive than KIUC's naphtha and diesel sources, and the logistics required to meet KIUC's fuel needs proved challenging. Additionally, market and production risks did little to reduce KIUC's exposure to fuel cost volatility. Ultimately, switching to biofuels proved to be less attractive than continuing to use diesel and naphtha while seeking renewable energy projects such as solar and hydroelectric. It should be noted, however, that KIUC is currently conducting another RFP, specifically for biodiesel, as of date of publication of this Final EA.

For biomass, Kauaʻi has one biomass power plant: the Green Energy Team facility located near Kōloa. It operates thousands of acres of tree plantations across the island, harvesting and chipping the trees for transport to the power plant, where the wood chips are burned in a boiler to generate steam which drives a turbine to generate electricity. Approximately 10% of Kauai's annual electricity is produced by the Green Energy Team facility.

Historically, biomass-to-energy was the largest and most common form of renewable energy in Hawaiʻi, with the sugar mill's combustion of bagasse as a source of steam for both process heat and power generation. After the downturn of the Hawaiian sugar industry, both the agricultural source of biomass and the systems to utilize it went away. As a byproduct fuel, bagasse made sense for the sugar mills, but if power generation is the primary purpose, dedicated agricultural crops are typically an expensive fuel because they require substantial labor to grow and transport the fuel to the biomass power plant. The Green Energy Team facility is the highest cost source of renewable energy on the KIUC system.

For LNG, though not a renewable technology, LNG has long been acknowledged as a viable clean "bridge" fuel to help transition from dirtier fossil fuels to fully renewable options. KIUC's pursuit of LNG was dropped after the State committed to 100% renewable energy by 2045.

4. Alternative Layouts

Two alternative layouts were examined: Kitano and Hāʻeleʻele Ridge.

The Kitano Alternative layout is a two-powerhouse layout that extends south from Puʻu Moe Divide to Kitano Reservoir and then from Kitano down to Menehune. Ultimately the layout was not chosen because it would not deliver water to DHHL to the point of planned use as identified in DHHL's water reservation and the Puʻu ʻŌpae Kuleana Homestead Settlement Plan. The Kitano Alternative would only have the capacity to serve irrigation needs on ADC and KAA mauka lands, ADC and KAA land on the Mānā Plain, and one small use on DHHL's land for Mauka Village. In addition, the Kitano Alternative conflicts with the Waimea Mediation Agreement in that it is not the project described in the agreement and would not be delivering DHHL's water reservation.

The Hāʻeleʻele Ridge layout was identified as an alternative that had both technical advantages, such as steep pipe gradient, and the ability to incorporate pumped storage and on-site solar power. This configuration extended west from Puʻu Lua Reservoir to Polihale. While technically and economically favorable, the layout was ultimately not chosen because of construction risk in the lower section of pipeline and the inability to directly serve DHHL lands with water used for generation. In addition, the Hāʻeleʻele Ridge Alternative conflicts with the Waimea Mediation Agreement in that it is not the Project described in the agreement and would not be delivering DHHL's water reservation.

5. Closed Loop Pump Storage

A closed loop pumped storage was also considered. The closed loop variation did not include portions of the proposed project above Puʻu ʻŌpae Reservoir so there was no use of the Kōkeʻe Ditch Irrigation System or Puʻu Lua Reservoir, no irrigation delivery, and no store-and-release hydroelectric power generation. This alternative would be pumped storage only utilizing Mānā and Puʻu ʻŌpae Reservoirs, with the same Lower Penstock alignment and Mānā Powerhouse and solar array location as the proposed project. Water use would be limited to moving the same volume of water back and forth each day for energy storage, hence the title "closed loop", and would depend on either the Kekaha Ditch Irrigation System or new wells for makeup water due to evaporation losses.

This pumped storage only alternative is technically feasible but was not selected for the following reasons:

- The pumped storage only alternative is more expensive on a per/kWh basis without the additional generation from the store-and-release hydroelectric portion.

- This alternative would use DHHL land and Puʻu ʻŌpae Reservoir but would not provide the delivery of DHHL's water reservation or associated infrastructure improvements, would not involve the same level of road improvements, would not deliver electricity to Puʻu ʻŌpae Reservoir, and would not be in alignment with DHHL's land planning and future uses at Puʻu ʻŌpae.

- As outlined in the Waimea Mediation Agreement the proposed project would deliver DHHL's water reservation and water for irrigation to other entities and points of use along the Project flowline. However, the store and release water from Kōkeʻe diversions would not be part of the closed loop alternative. Therefore, the closed loop alternative would not be able to deliver DHHL's water reservation or other irrigation needs and would therefore be in conflict with the Waimea Mediation Agreement.

- The closed loop system alternative would not include repairs and maintenance of the Kōkeʻe Ditch Irrigation System or rehabilitation and maintenance of Puʻu Lua Reservoir. These structures would remain the responsibility of ADC and DLNR respectively as would any improvements or rehabilitation necessary to continue operations.

DISCUSSION:

The Applicant published the Draft Environmental Assessment (EA) for the subject project in the August 23, 2021 edition of *The Environmental Notice.* Comments received on the Draft EA indicated that it was unclear whether significant impacts would result due to the proposed project. Specifically, Staff had noted a problematic comment letter from the US Fish and Wildlife Service (USFWS)[1] which indicated that there was a potential for adverse effects on several endangered species and habitat and an inconclusive Archaeological Literature Review and Field Inspection (LRFI) which stated, "*it is possible that potential archaeological and architectural historic properties are located within the study area."* Therefore, the Applicant prepared a 2nd Draft EA to clear up any misunderstandings from the first Draft, as well as provide updated and additional studies to support their determination that the proposed project would not result in significant impacts to the environment. The 2nd Draft EA was published in the September 8, 2022 edition of *The Environmental Notice.*

As stated earlier, pursuant to Hawaiʻi Administrative Rules (HAR), §11-200.1-22 *Notice of determination for final environmental assessments*, the approving agency can issue a notice of a Finding of No Significant Impact (FONSI) following:

1. Preparation of a Final Environmental Assessment (EA);
2. Review of public and agency comment; and
3. Applying the significance criteria pursuant to §11-200.1-13, HAR.

[1] Staff and the Applicant met with USFWS on January 25, 2022 as there was confusion on the project footprint. The Applicant was able to clarify the necessary information with USFWS who then stated that they did not foresee any problems with the project and that they would respond accordingly when the 2nd Draft EA was published. No comment letter was received from USFWS on the 2nd Draft EA.

Staff has reviewed the subject Final EA, which was submitted to the Department on December 6, 2022, and has determined that it is in compliance with §11-200.1-21, HAR which dictates the contents of a final environmental assessment.

Staff has reviewed all public and agency comments as well as the Applicant's responses which have been determined by Staff to be in compliance with §11-200.1-20, HAR which dictates public review and response requirements for draft environmental assessments. Staff notes that majority of the comments from the public requested that an Environmental Impact Statement (EIS) be prepared for the proposed project due to the use of water and impacts to the Waimea watershed. It should be noted that the nexus for the preparation of an EIS would be if significant impacts were found during the EA process, which in this case, none were.

Staff has reviewed the significance criteria pursuant to §11-200.1-13, HAR, and has determined the following[2]:

SIGNIFICANCE CRITERIA:

1. *Irrevocably commit a natural, cultural, or historic resource;*

   Discussion: While the proposed project proposes to use a rolling average of 11 MGD of water, the water is used for other purposes than just the store and release hydroelectric operation component. The water will be used for additional beneficial uses such as for providing water to DHHL and for agriculture uses by ADC and KAA. It should be noted that the proposed water amount was determined in the Waimea Mediation Agreement and based on the Interim Instream Flow Standards (IIFS) that were determined by the Commission on Water Resource Management (CWRM) through their *Instream Flow Standard Assessment Report (IFSAR) for the Island of Kauai Hydraulic Unit 20360, Waimea* (IFSAR).

   Concerns have been expressed regarding the discharge of water from Mānā Reservoir and that it is wasteful to let it just be discharged into the Mānā plain storm drain system. However, the Final EA states that discharge would be delivered directly to fields adjacent to Mānā reservoir or piped into KAA's irrigation system, or both. Discharge may also be delivered through KAA's irrigation system to open floodable spaces being developed by KAA near Nohili. The Applicant is also working with ADC and KAA to explore other beneficial uses of the Project discharge. Potential uses include the potential for KAA to use discharge to refill smaller reservoirs to increase storage on Mānā Plain in other areas on Mānā Plain. The Final EA also states that the quality of the water being discharged will be clean and filtered and will not convey sediment into the storm drain system.

[2] Staff notes that the Applicant has included a discussion on the Significance Criteria in Chapter 7 of the Final EA document, however, the analysis provided in this memorandum is based on Staff's own application of the significance criteria on the project as presented within the Final EA.

Some have also expressed concerns regarding the discharge affecting the nearshore water environment. Staff notes that the Mānā Plain storm drain system has been in operation since 1907 and as the quality of the water that will be discharged from the project will be clean and filtered and will not convey sediment into the storm drain system, it may actually dilute some of the pesticide runoff from the adjacent agriculture lands (service by the storm drain system) that many commentors have claimed would be an impact of the project.

Most impacts to natural resources as a result of this project would be construction related and temporary in nature. Further, all short-term impacts will be mitigated through implementation of Best Management Practices (BMPs) and appropriate biological surveys will be conducted prior to construction activities as well as monitoring conducted during construction. However, it is noted that there is a potential for impacts associated with the installation of the new Interconnection line and fiber optic line as they would consist of overhead lines that have been shown to impact three species of threatened and endangered seabirds including Newell's shearwater, Hawaiian Petrel, and band-rumped storm petrel, and five threatened and endangered species of waterbirds including Hawaiian goose, Hawaiian duck, Hawaiian coot, Hawaiian stilt, and Hawaiian common gallinule. Potential impacts to these species that cannot be minimized or avoided through project specific avoidance measures would be mitigated through KIUC's Habitat Conservation Plan (HCP). It should be noted that the current HCP has expired, and a new long-term HCP is currently being prepared which is anticipated to include a Federal Incidental Take Permit and State Incidental Take License In addition, the new Interconnection Line would be monitored, and initial monitoring would be for the purpose of determining the level of risk introduced by the new overhead line, if the minimization if effective, and whether other minimization methods may be appropriate.

Staff notes that concerns have been raised regarding the PV solar array and its potential impacts to seabirds. However, according to the Applicant, KIUC has been developing utility scale solar PV projects since 2010. Notably, there are 140 acres of PV that are located within the Pacific Missile Range Facility (PMRF) which is located slightly closer to the Kawaiele Waterbird Sanctuary than the proposed WKEP panels. All PV sites have been routinely monitored, and the PMRF site has had focused biological monitoring of the solar array since 2019. Currently, to the Applicant's knowledge, there have been no known incidences of seabirds or the Hawaiian hoary bat colliding into solar panels at any of the facilities. Therefore, no impacts on avifauna or the Hawaiian hoary bat are anticipated as a result of the proposed solar array.

Comments also expressed concern over the health of the Waimea watershed in general. The Applicant has expressed that it is their belief that protection of the Waimea watershed is the basis of the Waimea Mediation Agreement. Further, as a part of the water leasing process, the Applicant will need to work with the Division of Forestry and Wildlife to develop a watershed management plan.

Based on the proposed mitigation measures, Staff believes that there would be no irrevocable commitment of natural resources.

Regarding cultural resources, a Cultural Impact Assessment (CIA) was prepared for the proposed project and found the following:

- That there are Native Hawaiian cultural resources, beliefs, and ongoing practices associated with the proposed project area and immediate vicinity;

- Previous archaeological surveys situated within and around the project region have recognized historical sites including pre-contact habitation terraces, burials heiau, and cultural deposits; and

- During community consultation, the Kamaʻāina interview with Mr. Eben Manini identified one potential impact to his ongoing traditional practice of mālama ʻāina. He and his son continue in the preservation of the native plants within the native forest of a small puʻu within the project area.

Based on the findings of the report, the Applicant will continue working with community members to minimize any potential impacts to cultural practices within and in the vicinity of the project area. All staff associated with the project will be provided cultural sensitivity training which will include the identification of know culturally sensitive locations and sites. If any human remains or burials are identified, all earth-moving activities would be suspended, the area cordoned off, and the State Historic Preservation Division (SHPD), DHHL, and the Police Department would be notified pursuant to §13-300-40, HAR.

Regarding the practice of Mālama ʻāina, the Applicant is currently in discussion with the practitioners and adjustments have been made to the Upper Penstock alignment and the associated construction area to minimize and avoid potential practices in the area.

Based on the proposed mitigation measures, Staff believes that there would be no irrevocable commitment of cultural resources.

Regarding historic resources, an Archaeological Literature Review and Field Inspection (LRFI) was initially prepared for the project. During the LRFI field inspection, 14 potential historic properties were identified. These potential historic properties included historic ranching walls, possible hearths, reservoirs, ditches, and associated infrastructure. Many of the potential historic properties were mostly related to former plantation irrigation systems and were found to be distributed fairly evenly throughout the study area, with generally better preservation on the upslope portions of the Kōkeʻe Ditch System. Based on the findings and given that it was possible that potential archaeological and architectural historic properties could be located within the study area, the LRFI recommended that an AIS and an architectural survey (either

a Reconnaissance Level Survey (RLS) or an Intensive Level Survey (ILS)) be prepared for the proposed project.

DLNR requested that the Applicant follow through with the recommendations of the LRFI prior to making any determinations regarding the issuance of a Final EA/ FONSI as not enough information was provided to ensure that there would be no significant impacts on historic and archaeological resources. The Applicant subsequently had an AIS and RLS prepared for the project. It should be noted that the assessment for significance, pursuant to HAR §13-284-6[3], is covered in the AIS for archeological historic properties and in the RLS for architectural historic properties.

Given the large size of the project area, the AIS divided the project area into four arbitrary, distinct zones. Zone 1 spanned from Waiakōali to Puʻu Lua Reservoir; Zone 2 spanned from the Puʻu Moe Divide to Puʻu ʻŌpae; Zone 3 spanned from the former sugarcane lands near the Puʻu ʻŌpae Reservoir, and Zone 4 included the area makai of Kekaha Ditch, including the PV solar array area. The AIS identified 12 historic properties within the project area. They are as follows:

SIHP # 30-30-02-2417 consists of the Kōkeʻe Ditch Irrigation System, which is assessed as significant pursuant to HAR §13-284-6 under Criterion a and d. It retains diminished but sufficient integrity of location, design, setting, materials, workmanship, feeling, and association for which it is significant. Modern modifications and repairs, abandonment and disuse, and minimal maintenance of the ditch has greatly diminished its integrity in several areas, especially the portion within the project area. The proposed project will impact the four in-use diversions and Puʻu Lua Reservoir. The proposed project will also impact the western segment of the Kōkeʻe Ditch Irrigation System primarily through abandonment. Puʻu ʻŌpae Reservoir is currently abandoned and will be rehabilitated by the proposed project. It should be noted that mitigation recommendations for this site were addressed in the RLS.

[3] HAR §13-284-6(b):
To be significant, a historic property shall possess integrity of location, design, setting, materials, workmanship, feeling, and association, and shall meet one or more of the following criteria:

(1) Criterion "a". Be associated with events that have made an important contribution to the broad patterns of our history;
(2) Criterion "b". Be associated with the lives of persons important in our past;
(3) Criterion "c". Embody the distinctive characteristics of a type, period, or method of construction; represent the work of a master; or possess high artistic value;
(4) Criterion "d". Have yielded, or is likely to yield, information important for research on prehistory or history; or
(5) Criterion "e". Have an important value to the native Hawaiian people or to another ethnic group of the state due to associations with cultural practices once carried out, or still carried out, at the property or due to association with traditional beliefs, events or oral account – these associations being important to the groupʻs history and cultural identity.

SIHP # 50-30-05-2107 consists of a portion of Mānā Road which was determined to be associated with historic road alignments previously identified. This feature was previously assessed for significance under the National Register of Historic Places (NRHP) and the Hawaiʻi Register of Historic Places (HRHP) under Criterion D for its information potential, however, this historic property is not listed on either register nor was it assessed for significance pursuant to HAR §13-284-6. Therefore, the site was assessed in this AIS as significant under Criterion d based on its potential to provide information regarding historic roads related to former historic land use. The roads retain sufficient integrity of location, design, materials, workmanship, and setting. However, this feature and its three associated bridges and culverts are not anticipated to be affected by the project.

SIHP # 50-30-05-2113 consists of a former house site located makai of Mānā Reservoir and consists of various terraces and retaining walls, a concrete foundation, a corral, a cesspool, and two earthen ditches. The makai portion of the site appears to be within the area of impact for the Mānā Reservoir rehabilitation and associated drainage ditch. SIHP # -2113 was also previously assessed for significance under the NRHP and HRHP (uses the criteria set forth in 36 CFR, Section 800.5[4]) under Criterion D for its information potential, however, this historic property is not listed on either register nor was it assessed for significance pursuant to HAR §13-284-6. Therefore, this site was assessed in this AIS as significant under Criterion d based on its potential to provide information regarding historic structures related to the development of Mānā and the Kekaha Ditch Irrigation System. The house site retains sufficient integrity of location and setting, and diminished integrity of design, materials, and workmanship. The AIS proposes that the documentation of the site in the AIS be considered sufficient mitigation.

CSH 1 consists of three historic buildings/structures that supported the Kekaha Sugar Company operation of the Puʻu Lua Reservoir. The buildings/structures include a house (CSH 1 Feature A), a detached garage or workshop (CSH 1 Feature B), and a small rectangular shed (CSH 1 Feature C). The project is not anticipated to affect Feature A or B, however, Feature C is partially within the area of temporary disturbance proposed by the project. While the AIS recommends that this Feature be avoided during project construction and interim protection measures be used to prevent accidental disturbance, the AIS notes that this is considered an architectural historic property that will be assessed for significance in the RLS.

CSH 2 consists of an abandoned road in remnant condition located on the northwest side of Kōkeʻe Ditch, near Puʻu ʻŌpae Ranch. This road has been assessed as significant under Criterion d based on its potential to provide information regarding historic roads related to former historic land use. The road retains diminished integrity of location, design, materials and setting. The AIS proposes the documentation of the site in the AIS be considered as sufficient mitigation.

[4] The criteria as described within 36 CFR, Section 800.5 is the same criteria found in §13-284-6 except uppercase letters are used to differentiate the Federal criteria from the State criteria.

CSH 3 consists of four hearths on unknown age and origin located along the upper penstock alignment near Puʻu ʻŌpae Ranch. Two of the hearths (Features A and B) are on the margins of the upper penstock area of disturbance. The other two hearths (Features C and D) are just outside of the project area. Depending on confirmation of their age, the hearths are potentially significant for their information potential. If historic, CSH 3 would be assessed as significant under criterion d as it retains sufficient integrity of location, design, materials, workmanship, and setting. Until the ages can be confirmed, the AIS recommends that the four hearths be avoided during project construction and interim protection measures be used to prevent accidental disturbance.

CSH 4 consists of Kekaha Sugar Company Field Infrastructure within the project area which would be impacted by the proposed project. CSH 4 has been assessed as significant under Criterion d based on its potential to yield additional information about the former Kekaha Sugar Company operations and land use, as well as water control in the area. CSH 4 retains sufficient, but diminished integrity of location, design, materials, workmanship, and setting.

CSH 5 consists of a basalt wall that extends mauka to makai on the talus slope just above Kekaha Ditch. The function of the wall is unknown. CSH 5 has been assessed as significant under Criterion d based on it's potential to provide information on former land use of the project area. The wall retains sufficient integrity of location, design, materials, and workmanship. The wall is located on the margins of the proposed lower penstock alignment and it is recommended that the historic property be avoided during project construction and interim protection measures be used to prevent accidental disturbance. Should avoidance not be possible, data recovery is recommended to better determine its age and function.

CSH 6 consists of a section of Kekaha Ditch which extends through the lower project area at the proposed lower penstock and at the Puʻu ʻŌpae access road. At the proposed lower penstock crossing, a 30-foot section of the 20-mile ditch will become concrete lined and therefore the project will affect a 30-foot section of the ditch. This section of the ditch has been assessed as significant under Criterion a and d as the Kekaha Ditch Irrigation System was a significant component of plantation-era commercial agricultural activities that dramatically altered the island of Kauaʻi ecologically, environmentally, culturally, and economically. The original construction and associated features have the potential to yield additional information about the former Kekaha Sugar Company and water control in the area. It retains sufficient integrity of location, design, setting, materials, workmanship, feeling and association, although modern modification of the ditch has slightly diminished its integrity. The AIS notes that mitigation will be recommended through the RLS.

CSH 7 consists of the abandoned Mānā Reservoir which will significantly be altered by the project. Mānā Reservoir has been assessed as significant under Criterion a and d as the Mānā Reservoir was a significant component of plantation-era commercial agricultural activities. The original construction and associated features have the

potential to yield additional information about the former Kekaha Sugar Company operations and water control in the area. It retains integrity of location, design, workmanship, and materials. The recent abandonment of the reservoir has diminished its integrity and the reservoir can no longer function. The AIS notes that mitigation will be recommended through the RLS.

CSH 8 consists of a small concrete slab along the access road to Mānā Reservoir but was assessed as not significant due to a lack of integrity.

CSH 9 consists of a remnant pump house located in the east corner of the proposed PV solar array area. While the AIS states that the proposed project will not affect the former pump house and therefore recommends no further work, the AIS also states that the pump house is an architectural historic property that will be assessed for significance in the RLS.

The AIS further recommends archaeological monitoring be conducted for construction activities in Zone 2 and in the lower penstock portion of the project between the crest of Niu Ridge and Kekaha Ditch in Zone 3 as there remains a possibility of additional cultural materials, deposits, and unidentified sites to be present within these portions of the project area. The AIS proposes that archaeological monitoring should mitigate any potential effect on the historic properties by the proposed project.

The RLS surveyed a total of 13 resources in the project area and evaluated against criteria set forth in 36 CFR, Section 800.5 and HAR §13-284-6. 12 of the 13 properties were evaluated as significant under Criterion A/a for their association with the development of the sugar industry on Kauaʻi, particularly in relation to the Kekaha Sugar Co. The undeveloped land for the proposed PV solar array was evaluated as not historically significant. The 13 resources are as follows:

1. Kōkeʻe Ditch
2. Waiakōali Diversion
3. Kawaikōi Diversion
4. Kauaikinanā Diversion
5. Kōkeʻe Diversion
6. Puʻu Lua Reservior
7. Kekaha Sugar Co. Puʻu Lua Structures Grouping
8. Puʻu Moe Divide
9. Puʻu ʻŌpae Reservoir
10. Mānā Reservoir
11. Undeveloped land (PV solar array site)
12. Pump House
13. Kekaha Ditch

The RLS found that the proposed action will result in an "Effect, with agreed upon mitigation commitments" (pursuant to HAR §13-284-7) for 9 of the 12 properties evaluated as historically significant. The effects are due to various changes proposed

at each resource, which in some cases results as partial or full demolitions, or other alterations that affect historic integrity. The Kekaha Sugar Co. Puʻu Lua Structures Grouping, the Puʻu Moe Divide, and the Pump House were evaluated as "No historic properties affected as these three resources will not be altered by the project. The RLS notes that common mitigation for Hawaii's historic irrigation systems includes architectural recordation in the form of Historic American Building Survey (HABS), Historic American Engineering Record (HAER), and/or Historic American Landscapes Survey (HALS) reports, with large-scale photography, or historic context studies. However, other types of mitigation may also be found appropriate in consultation with the State Historic Preservation Division (SHPD), such as educational materials or National Register Nomination forms.

The Applicant, based on the AIS and RLS, proposed the following mitigation for the above-discussed historic properties in their Final EA:

- Prepare a HAER for the Kōkeʻe Ditch Irrigation System (SIHP #50-30-02-2417), including multiple ditch features and Mānā Reservoir (CSH 7).

- The four hearths (CSH 3) and basalt wall (CSH 5) would be avoided (i.e., Preservation). If avoidance is not possible, then data recovery would be performed.

- The information provided in the AIS for the house site (SIHP #50-30-05-2113), abandoned road (CSH 2), and the Kekaha Sugar Company field infrastructure (CSH 4) should sufficient to mitigate effects on the historic properties.

- Archaeological monitoring would be conducted for Zone 2 and a portion of Zone 3 during construction. HAR §13-279-3 defines archaeological monitoring as an "identification, mitigation, or post-mitigation measure."

Given that there is still the potential to discover unknown historic and archaeological resources, the Applicant states that during construction of the Proposed Action, the following measures would be implemented to minimize potential impacts to unknown historic and archaeological resources:

- If human remains or burials are identified, all earth-moving activities in the area would stop, the area would be cordoned off, and SHPD, DHHL, and the Police Department would be notified pursuant to HAR Section 13-300-40. Burials found on DHHL lands would be further subject to the Native American Graves Protection and Repatriation Act.

- If any potential historic properties are identified during construction activities, all activities would cease and SHPD would be notified pursuant to HAR Section 13-280-3.

Staff notes that these proposed mitigation commitments may evolve as consultation with SHPD continues. In addition, while Staff recognizes that per the AIS and the RLS, that there will be effects on historic properties as a result of the proposed project, Staff recognizes that much of the effect is due to rehabilitation and bringing structures into code for safety reasons as well as complying with the Phase II IIFS which is a part of the Waimea Mediation Agreement. Therefore, Staff believes that with the proposed mitigation and with SHPD's agreement, the proposed project will not result in an irrevocable commitment of historic resources.

2. *Curtail the range of beneficial uses of the environment;*

Discussion: Comments received from the public argued that the proposed project would affect downstream uses including other agriculture uses such as taro cultivation, as well as fishing. It is Staff's understanding that downstream users will not be impacted as there are several downstream tributaries that contribute significant flow into the Waimea River, while still being up stream of the farmers located in Waimea Valley.

As stated earlier, comments also argued impacts to the nearshore environment due to the discharge from Mānā Plain. Staff notes that the Mānā Plain storm drain system has been in operation since 1907 and as the quality of the water that will be discharged from the project will be clean and filtered and will not convey sediment into the storm drain system, there is a possibility that it may actually dilute some of the pesticide runoff from the adjacent agriculture lands (serviced by the storm drain system) that many commenters have claimed would be an impact of the project.

3. *Conflict with the State's environmental policies or long-term environmental goals established by law;*

Discussion: Staff is of the belief that the project does not conflict with any of the State's environmental policies or long-term environmental goals established by law. Rather, the proposed project would assist in meeting the State's mandate to achieve 100% renewable energy by 2045.

4. *Have a substantial adverse effect on the economic welfare, social welfare, or cultural practices of the community and State;*

Discussion: The project is not anticipated to have a substantial adverse effect on the economic welfare, social welfare, or cultural practices of the community and State. Rather, the project is projected to actually save rate payers approximately $20 per month on average over the life of the project. Per the Applicant, the project would allow KIUC to spend less money to provide electricity and do so at a more fixed and stable pricing structure.

Staff notes that concerns were raised over the amount of debt that would be incurred and whether that debt would be passed down to the rate payers. According to the Applicant, no debt associated with the construction and/or operation will be assumed by either KIUC nor its members as AES would responsible for funding the project and selling the power to KIUC through a power purchase agreement (PPA).

Impacts to cultural practices of the community and State were discussed earlier. The Applicant has agreed to continue working with community members to minimize any potential impacts to cultural practices within and in the vicinity of the project area. All Staff associated with the Project will be provided cultural sensitivity training which will include the identification of know culturally sensitive locations and sites. If any human remains or burials are identified, all earth-moving activities would be suspended, the area cordoned off, and SHPD, DHHL, and the Police Department would be notified pursuant to §13-300-40, HAR.

Regarding the practice of Mālama ʻāina, the Applicant is currently in discussion with the practitioners and adjustments have been made to the Upper Penstock alignment and the associated construction area to minimize and avoid potential practices in the area.

Therefore, based on the studies and information provided within the Final EA, Staff believes that the project will not have a substantial adverse effect on the economic welfare, social welfare, or cultural practices of the community and State.

5. *Have a substantial adverse effect on public health;*

Discussion: In the short-term, there may be temporary air, noise, and water quality impacts during construction, however, implementation of BMPs, will help to minimize such impacts. No long-term adverse impacts are anticipated to public health as a result of the proposed project. In the long-term, the project may have a beneficial impact on air quality due to the reduction of fossil fuel use and associated emissions. Therefore, Staff believe that the project will not have a substantial adverse effect on public health.

6. *Involve adverse secondary impacts, such as population changes or effects of public facilities.*

Discussion: While the project will divert a rolling average of 11 MGD, it is Staff's understanding that the IIFS takes into account hydrology, instream uses (i.e. habitat, ecosystem maintenance, water quality, recreation, Hawaiian rights, etc.), and non-instream uses to ensure a balanced use of a limited resource. While commenters on the two Draft EAs have expressed belief that the proposed project would impact the Waimea watershed and downstream users, Staff believes that the IIFS was thoroughly vetted by CWRM through their own process in addition to their preparation of the IFSAR. In addition, as stated earlier, it is Staff's understanding that downstream users will not be impacted as there are several downstream tributaries that contribute

significant flow into the Waimea River, while still being up stream of the farmers located in Waimea Valley.

Further, the Applicant has assured Staff that any discharge from the project would be clean, filtered water that would directly enter the storm drain system, thus not increasing pesticide load in nearshore waters.

The proposed project also appears to have no long-term impacts on recreation or access. While there may be some temporary disturbance due to construction activities, those impacts will be mitigated as best as possible and any interruptions to recreational activities or access will be restored to normal once construction has ended.

Therefore, Staff believes that the proposed project will not involve adverse secondary impacts.

7. *Involve a substantial degradation of environmental quality;*

Discussion: As stated in the above section, while the project will divert a rolling average of 11 MGD, it is Staff's understanding that the IIFS takes into account hydrology, instream uses, and non-instream uses to ensure a balanced use of a limited resource. While commenters on the two Draft EAs have expressed belief that the proposed project would impact the Waimea watershed and nearshore waters, Staff believes that the IIFS was thoroughly vetted by CWRM through their own process in addition to their preparation of the IFSAR. In addition, it is the Applicants belief that the basis Waimea Mediation Agreement is to protect the health of the Waimea watershed. Further, the Applicant has assured Staff that any discharge from the project would be clean, filtered water that would directly enter the storm drain system, thus not increasing pesticide load in nearshore waters.

In the long-term, the project may have a beneficial impact on air quality due to the reduction of fossil fuel use and associated emissions.

Therefore, Staff believes that the proposed project will not involve a substantial degradation of environmental quality.

8. *Be individually limited but cumulatively have substantial adverse effect upon the environment or involves a commitment for larger actions;*

Discussion: While there may be a cumulative impact caused from the diversion of Waiakōali, Kawaikōī, Kauaʻikinanā, and Kōkeʻe Streams, it should be noted that CWRM has established an IIFS for all four streams which takes in to account hydrology, instream uses, and non-instream uses. The proposed project is intended to comply will the IIFS for all streams as the project would trigger the Phase Two IIFS to come online as set forth in the Waimea Mediation Agreement. The project itself would help to maintain the consistency of the IIFS as well as increase data collection on the Kōkeʻe Ditch Irrigation System. Staff notes that such data collection could help the

Department determine if and when an IIFS may need to be revisited and potentially revised.

There also may be a cumulative impact associated with the installation of the new Interconnection line and fiber optic line as they would be a part of KIUC's island-wide electrical grid system. These are overhead lines that have been shown to impact three species of threatened and endangered seabirds including Newell's shearwater, Hawaiian Petrel, and band-rumped storm petrel, and five threatened and endangered species of waterbirds including Hawaiian goose, Hawaiian duck, Hawaiian coot, Hawaiian stilt, and Hawaiian common gallinule. Potential impacts to these species may result in an overall increase of incidents on an island-wide basis, but for those impacts that cannot be minimized or avoided through project specific avoidance measures would be mitigated through KIUC's forthcoming long-term HCP which covers KIUC's island-wide electrical grid system. It should be noted that the long-term HCP is anticipated to include a Federal Incidental Take Permit and State Incidental Take License. In addition, the new Interconnection Line would be monitored, and initial monitoring would be for the purpose of determining the level of risk introduced by the new overhead line, if the minimization if effective, and whether other minimization methods may be appropriate.

Therefore, Staff believes any cumulative impact cause by the proposed project would be minimal and will therefore not cumulatively have a substantial adverse effect upon the environment, nor does it involve a commitment for larger actions.

9. *Have substantial adverse effect on a rare, threatened, or endangered species, or its habitat;*

Discussion: As discussed earlier, there may be a potential for impacts associated with the installation of the new Interconnection line and fiber optic line as they would consist of overhead lines that have been shown to impact three species of threatened and endangered seabirds including Newell's shearwater, Hawaiian Petrel, and band-rumped storm petrel, and five threatened and endangered species of waterbirds including Hawaiian goose, Hawaiian duck, Hawaiian coot, Hawaiian stilt, and Hawaiian common gallinule. Potential impacts to these species that cannot be minimized or avoided through project specific avoidance measures would be mitigated through KIUC's forthcoming long-term HCP which is anticipated to include a Federal Incidental Take Permit and State Incidental Take License. In addition, the new Interconnection Line would be monitored, and initial monitoring would be for the purpose of determining the level of risk introduced by the new overhead line, if the minimization if effective, and whether other minimization methods may be appropriate.

Also discussed earlier, Staff notes that concerns have been raised regarding the PV solar array at its potential impacts to seabirds. However, according to the Applicant, KIUC has been developing utility scale solar PV projects since 2010. Notably, there are 140 acres of PV that are located within the Pacific Missile Range Facility (PMRF)

which is located slightly closer to the Kawaiele Waterbird Sanctuary than the proposed WKEP panels. All PV sites have been routinely monitored, and the PMRF site has had focused biological monitoring of the solar array since 2019. Currently, to the Applicant's knowledge, there have been no known incidences of seabirds or the Hawaiian hoary bat colliding into solar panels at any of the facilities. Therefore, no impacts on avifauna or the Hawaiian hoary bat are anticipated as a result of the proposed solar array.

Staff believes, based on the provided biological studies and provided mitigation measures, that the project will not have a substantial adverse effect on a rare, threatened, or endangered species, or its habitat.

10. *Have substantial adverse effect on air or water quality or ambient noise levels;*

Discussion: In the short term, there may be temporary impacts to air, water quality, and ambient noise levels associated with construction, however, implementation of BMPs will help to minimize such impacts.

Based on the information provided in the Final EA, Staff believes that no long-term adverse impacts, associated with the operation of the facility, is anticipated. In the long-term, the project may have a beneficial impact on air quality due to the reduction of fossil fuel use and associated emissions.

11. *Have a substantial adverse effect on or be likely to suffer damage by being in an environmentally sensitive area such as a flood plain, tsunami zone, sea level rise exposure area, beach, erosion-prone area, geologically hazardous land, estuary, fresh water, or coastal waters;*

Discussion: The only portion of the project to be located in an environmentally sensitive area is the PV solar array which is located on Mānā Plain. The PV solar array area is located within a Sea Level Rise Exposure Area (SLR-XA) and a portion of the solar array is located in the FEMA Flood Hazard Zone A, which is an area subject to inundation by the 1% annual chance flood event, as well as located in the tsunami evacuation zone. It should be noted that the critical power infrastructure would be sited at a higher elevation in an area designated by FEMA as Flood Zone X.

The design of the proposed PV Solar Array would be compatible with being in the flood hazard zone and SLR-XA and would be able to withstand inundation during the prime lifetime of the facility. The PV panels would be designed to provide a 2-foot clearance above the anticipated 100-year flood depth when the panels are at their lowest position. It is not anticipated that sea level rise would have a material impact on the PV array during its anticipated useful life span of 25 to 30 years. The Applicant noted that they have several operating solar projects on the island and across the state in highly corrosive environments. All project components are designed to withstand corrosion and rust. The steel support piles that hold the mounting system for the solar panels are specifically rated for the environmental conditions. Increased galvanization thickness

would be used to address potential corrosiveness from salt, rust, and potential water inundation of the area surrounding the solar PV array. In addition, the Mānā Plain is protected by an extensive series of channels and pumps that were installed by the Kekaha Sugar Company in 1923 to drain the low terrain to provide land for agriculture. These channels and pumps are managed as part of the long-term agricultural operations on the Mānā Plain but are not a part of the proposed project.

Therefore, Staff does not believe that the proposed project will result in a substantial adverse effect on or be likely to suffer damage by being in an environmentally sensitive area such as a flood plain, tsunami zone, sea level rise exposure area, beach, erosion-prone area, geologically hazardous land, estuary, fresh water, or coastal waters

12. *Have a substantial adverse effect on scenic vistas and view planes, during day or night, identified in county or state plans or studies; or*

Discussion: Potential impacts to view planes are anticipated to be minimal and temporary. At most, short-term construction impacts include the presence and staging of construction equipment in within the project area. However, the construction sites are primarily located in gated areas or areas that are not visible from public viewpoints.

There is a potential that the proposed project could impact Waipoʻo falls during high streamflow events at Kōkeʻe Stream as Kōkeʻe Stream is the natural source for Waipoʻo Falls. It should be noted that the IIFS for each stream is required to be implemented at the point of diversion rather than being returned to the watershed through another stream. The Phase One IIFS for Kōkeʻe Stream is 100% natural flow and the volume of Waipoʻo Falls will be derived entirely from Kōkeʻe Stream after implementation of the Phase One IIFS structural modifications. The Phase Two IIFS for Kōkeʻe Stream is 1.2 MGD. While there are no USGS gaging records for Kōkeʻe Stream, the hydrology analysis for the project estimated typical stream flows for Kōkeʻe to range from 0.6 to 3.2 MGD with flood events up to 430 MGD. CWRM's hydrology analysis included in the Waimea IFSAR estimated a Q50 total flow range of 1.8 to 2.1 MGD and a Q50 base flow range of 1.7 to 1.9 MGD. It is expected that the proposed project would only be able to divert water from Kōkeʻe Stream during higher flow events and therefore have minimal impact on Waipoʻo Falls. At all times at least 1.2 MGD would remain in the Kōkeʻe Stream, and an estimated average of 86% of total streamflow would remain in the stream after diversion at Kōkeʻe Stream during WKEP operations.

Staff would also like to point out that some comments on the Draft EAs expressed concern for the change in Waipoʻo falls (decrease of water). However, the Applicant has stated that the primary impact currently observed at Waipoʻo Falls is actually a result of the Waimea Mediation Agreement, the establishment of an IIFS for each stream, and the resultant change of operational parameters on the Kōkeʻe Ditch System. While Kōkeʻe Stream is the natural source of Waipoʻo Falls, historically and currently, Waipoʻo Falls was/is augmented by diverted water from Waiakōali, Kawaikōī, and

Kauaʻikinanā Streams that is discharged into Kōkeʻe Stream at Kōkeʻe Diversion rather than remaining in the stream of origin or being used along the ditch system.

Staff believes any impacts to scenic vistas and view planes will be minimal and does not believe the project will have a substantial adverse effect on scenic vistas and view planes.

13. *Require substantial energy consumption or emit substantial greenhouse gases.*

Discussion: A Greenhouse Gas (GHG) emissions study was prepared for the proposed project. The study initially provided an estimate of approximately 79,726.43 metric tons of CO_2e[5] that would occur during construction as well as decommissioning of the project. The applicant also provided a revised and updated operation and lifecycle GHG emissions analysis which included the potential GHGs from transporting project equipment off-island for disposal or recycling. The revised lifecycle GHG emissions for the proposed project are 182,308 metric tons of CO_2e.

However, the Applicant estimates that that the proposed project would result in KIUC using approximately 7.8 million less gallons of naphtha fuel and 775,000 less gallons of ultra-low sulfur diesel fuel during a full year of production, which would result in an estimated annual reduction of about 80,000 tons of CO_2e. As a result, after only one year of operation, the Applicant would have caused enough of a reduction in GHG emissions from its lower fuel consumption to offset the GHG emissions from the construction, first 25 years of operation of the Proposed Action, and decommissioning of the PV/BESS Facility.

In addition, the proposed project would produce up to 110,000 MWh of renewable energy, which would reduce the need for fossil fuels that would equate to the reduction of 80,000 metric tons of GHG emissions (CO_2 equivalent) ($MTCO_2e$) each year, or an estimated net reduction in GHG emissions of approximately 2,018,487 $MTCO_2e$ for the proposed project's operation stage and 2,508,877 $MTCO_2e$ for the proposed project's lifecycle over 25 years.

Based on the proposed project's ability to decrease the amount of GHG emissions over the life span of the project and has the ability to off-set any GHGs caused by the project, Staff believes that the proposed project will not require substantial energy consumption or emit substantial greenhouse gases.

Based on the application of the Significance Criteria, Staff believes that the proposed project is not likely to have a significant effect and does not warrant the preparation of an EIS.

[5] Quantification of Carbon dioxide (CO_2), Methane (CH_4), and Nitrous oxide (N_2O) are listed in units of CO_2e

RECOMMENDATION:

Recognizing that *no decision or recommendation* on the application for a long-term water lease is being made at this time[6], the Land Division recommends that the Chairperson:

1. Determine that the Final EA complies with applicable law and adequately discloses the environmental impacts of the proposed project; and

2. Issue a FONSI for the proposed West Kaua'i Energy Project.

Respectfully Submitted,

Lauren Yasaka
Planner

APPROVED:

Suzanne D. Case, Chairperson RT

Date: Dec 22, 2022

[6] The Board will need to make a separate determination at a later date reading whether to approve the application for a water lease and any terms and conditions that may be appropriate.