

# Memo

**To:** Nexamp, Michael Billet, Director Business Development

**From:** Dennis Poma, P.E

**Date:** 1/11/2023

**Re:** Hawaiian Electric Community-Based Renewable Energy Projects (Docket No. 2015-0389)  
Environmental Compliance and Permitting Plan – **Makawao Solar**, 945 Kula Highway,  
Makawao, Hawaii

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The purpose of this memorandum is to provide a summary of the environmental and permitting plan for the proposed sites. The project consists of installing solar panels on rack systems, performing grubbing and grading, constructing access and site roads, installing fencing, completing underground or overhead electrical cables, and construction of small support slabs and buildings for equipment.

## 2.6.1 OVERALL LAND USE AND ENVIRONMENTAL PERMITS APPROVAL STRATEGY

The proposed project involves construction and operation of a solar facility in Makawao, Maui, Hawaii. A conceptual layout plan is included (Drawing PV-101) showing the proposed solar and equipment arrangement, fencing, site roads and connectivity to the power source. No known studies or assessments have been completed for the proposed project. A full file review of available studies or assessments from the landowner or agencies will be completed as part of the overall development and permitting plan.

Nexamp's overall strategy for obtaining all required approvals and permits has or will include:

- Siting the project in an area suitable for constructing the solar facility with regard to land use, zoning, and environmental setting with minimal impact to the environment.
- Collecting and reviewing information from available reports, studies and documents to acquire relevant information.
- Minimizing land disturbance, utilizing existing ground topography, and locating equipment taking into advantage existing infrastructure.
- Conducting early consultation with permitting authorities and other potential agencies to fully understand any concerns and developing any mitigation plans to address those concerns.
- Performing site visits to confirm conditions are suitable and have not changed since initial siting and selection.
- Taking into consideration surrounding property settings and impacts.
- Completing necessary site investigations and studies or assessments to minimize probability of encountering potential unknown adverse conditions during the design and construction process.

The agencies and authorities with jurisdiction of the project include:

- State of Hawaii, Department of Land and Natural Resources (DLNR), State Historic Preservation Division (SHPD)
- Maui County Planning Department and Department of Public Works
- State of Hawaii, Department of Health

No environmental studies for the project site have been conducted as part of current siting of the project. Available information from public resources, e.g., State and City and County GIS databases, Federal databased (e.g., USGS soil web survey) were reviewed to determine potential environmental or cultural/natural or historic impacts. No other studies or assessments were located or provided.

A Gantt format schedule which identifies the permitting and approval process is provided below:

Approval Process Gantt Chart				May-23	Jun-23	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24
Task Name	Duration (d)	Start	Finish										
PPA & IA signing			5/21/2023										
County Special Use Permit		7/1/2023	11/30/2023										
HRS Chapter 6E	120	7/1/2023	10/29/2023										
Grading & Grubbing Permit	120	10/1/2023	1/29/2024										
Building Permit	150	10/1/2023	2/28/2024										
DOH Stormwater General Permit	60	12/1/2023	1/30/2024										
Community Noise Permit	30	1/1/2023	1/31/2023										

Permits are generally independent of one another and can be prepared and submitted for review to agencies simultaneously. There are no limiting factors or approvals that would affect the project. Permitting appears routine for this type of project and location.

**2.6.2 ZONING AND STATE LAND USE CLASSIFICATION**

The proposed 20-acre project is planned on a portion of 163-acres of land on a parcel located off Kula Highway, Makawao, Maui, Hawaii. The parcel is zoned Agricultural (Maui County Real Property Tax Assessment Website) fswith a Land Study Bureau (LSB) Productivity Class Rating of ‘B’ (Hawaii GIS LSB Class Locator). A small portion of the southern property boundary is rated Class ‘E’ where there is a stream and not usable for the solar facility. Class B is a permissible use for Solar Facilities within the agricultural districts under HRS 205-2 and 4.5 provided it does not occupy more than ten percent of the acreage of the parcel, or twenty acres, whichever is less, unless a special permit is granted pursuant to HRS Section 205-6. The proposed project is 20 acres (12% of the acreage) and would, therefore, require a County Special Use Permit. Otherwise, the project site and interconnection route are suitable within the current zoning and land use classifications.

The Maui County zoning regulations are found in the Maui County Code (MCC) Chapter 19. Under MCC 19.30A.050, solar energy facilities are subject to the restrictions of HRS Chapter 205, unless the solar facility is less than 15 acres and occupies no more than 35 percent of the lot and compatible with existing agricultural uses. Under HRS 205-4.5, properties which are rated Class C shall be restricted to permitted uses for which a special permit is granted provided that the area occupied by the solar facility is also made available for compatible agricultural activities at a lease rate that is 50 percent below fair market rent for comparable properties. Additionally, proof of financial security to decommission the facility is provided to the satisfaction of the county. County Special Use Permits requirements are found under MCC 19-510.070 and are approved by the Planning Commission. This site otherwise meets all general and specific use standards (e.g., setbacks and height).

### 2.6.3 PERMITTING: land use, environmental and construction permits, and approvals

A summary of anticipated permits and approvals required is provided below. A Gantt chart is also provided identifying the sequencing of applications and approvals. Certain permits may be submitted and processed at the same time. Durations are based on experience from other projects and best engineering judgment.

Permit/Approval Type	Purpose	Approving Agency	Duration
Special Use Permit	Comply with County Zoning Use requirements	County of Maui, Planning Commission	4 to 5 months
Grading and Grubbing Permit	Clearing and grading of site, site roads, and erosion and sediment control	County of Maui, DPW	3 to 6 months
Building and Electrical Permit	Construction of solar equipment and pads for support facilities	County of Maui, DPW, Building Division	6 to 9 months
Storm Water General Permit for Construction Activities	Disturbance greater 1-acre for water quality protection	State of Hawaii, Clean Water Branch	2 to 4 months
Historic, Cultural and Natural Resource Review	Obtain concurrence on potential effects of cultural, natural and historic elements	DLNR, SHPD	3 to 6 months
Community Noise Permit for Construction activities	Noise exceedances greater than allowable decibels	State of Hawaii, Indoor and Radiological Health Branch	1 to 2 months

Special use permits are regulated under MCC 19.510 which specifies the application requirements including public notice and hearings, and approval.

Grading and grubbing permits are regulated under MCC 20.08. Grading or grubbing permits are required when excavating or filling earth materials, temporary storage of soil, sand, rock, and/or uprooting or clearing vegetation in excess of certain thresholds. Best Management Practices (BMPs) are required by MCC 20.08.035 and stipulates regardless of whether a permit is required, all grading, grubbing, and stockpiling activities provide BMPs to maximum extent practicable to prevent damage by sedimentation to streams, watercourses, or other areas.

Building permits are covered under MCC Title 16 and are required for construction, alteration, demolition, repair, and use of any building or structure within the county.

Storm water general permits are regulated under Hawaii Administrative Rules (HAR 11-55) and are required when more than 1-acre of land is disturbed. An applicant is required to submit the appropriate forms to the Department of Health, Clean Water Branch, for acceptance and approval. The applicant is also required to prepare a Storm Water Pollution Prevention Plan.

Since construction may involve noise exceedances during construction, the applicant will file for a Community Noise Permit, as applicable, with the DOH Indoor Radiological health Branch.

Consultation with DLNR and SHPD will occur early in the development stages to determine whether any formal review is required and whether a Cultural Impact Assessment or Archeological Inventory Survey may be necessary, for example.

## **2.6.4 PRELIMINARY ENVIRONMENTAL ASSESSMENT**

The proposed project is intended to use renewable, non-polluting solar energy devices to sell power to the public utility. The following summary of potential effects is based on available information, including publicly available environmental databases. Where possible, identifiable existing conditions are provided and the short- and long-term direct, indirect, and cumulative impacts likely to result from the development, operation and decommissioning of the project.

The project site is located on the northern mid-slopes of Haleakala volcano, in Makawao, Hawaii. Access to the site is off Kula Highway which is an improved paved road.

### **Natural Environment**

- Air quality -
  - Temporary air quality may be impacted during construction through the generation of fugitive dust while grubbing and grading. The short time between original clearing, not disturbing more than necessary, and placement of ground cover will minimize and limit impacts. Mitigation measures during construction may include watering, application, soil cement products, and erection of dust fences.
  - Operation of the proposed facility does not result in emissions that have the ability to affect air quality and thus will have no negative affect on ambient air quality.
- Biological Resources – no site flora or fauna surveys or reconnaissance was performed specific to flora and fauna. The site has been vacant land for several decades and contains a mix of sparse grass and shrublands vegetation. Past uses have included pineapple and cattle pasture. A biological survey will be conducted during development to identify any potential flora or fauna resources requiring mitigation. No native Hawaiian plants are known at this time nor the presence of listed rare or endangered species. No significant adverse impacts are anticipated as result of clearing or grubbing activities or site operation.
- Climate – There are normally two seasons, summer and winter. Summer tends to be warm, humid, windy and partly cloudy, while winter is wetter and cooler. Winds vary throughout the year, and it is mostly clear year-round. Temperatures range between a low of 61 degrees F and to 81 degrees F. The dry season lasts about 6 months from May to October while the wet season lasts almost 6 months from November to April. Monthly rainfall averages between 0.3 inches and 1.8 inches.
- Soils – According to the U.S. Department of Agricultural Soil Conservation Service, Web Soil Survey, the soil type for the site consists of Hailiimaile silty clay with 7 to 15 percent slopes. The soils type appears well suited for facility construction and will not create loss of land or risk of erosion.
- Topography – The project is located on slightly sloping land and average elevation between 1800 to 1900 feet mean sea level (msl). The site topography does not pose any construction limitation or challenges.
- Geology – According to the USGS, the East Maui volcano, known more widely as Haleakalā, is one of two volcanoes that make up the Island of Maui. West Maui is a deeply dissected volcano

5,788 feet high. The flat Isthmus connecting the two volcanoes was made by lavas from East Maui banking against the West Maui Mountains. The oldest rocks on West Maui are the very permeable primitive Wailuku basalts, which were extruded probably in Pliocene and early Pleistocene time from two rifts and from many radial fissures. The basalts form a dome about 5,600 feet high and extend an unknown distance below sea level. This sequence of flows, the Honomanu Basalt, are named after a site where the lava flows are well exposed. Risk from lava flows from Haleakalā is considered moderate. Haleakalā may erupt every 200 to 500 years, according to USGS, and this site is located in Zone 4 having the lowest flow risk.

The island of Maui is currently Seismic Design Category D and Seismic Zone 2B in accordance with State Building Code. According to record, eight magnitude 6.0 or larger events have occurred in Maui. The area most likely to experience affects would be the region with the most recent volcanic activity along the southeast and east rift zones of Haleakalā. The facility will be constructed in accordance with the UBC to withstand earthquake forces.

### **Land Regulations**

- Land Use – the project is located in the State land Use Agricultural District and Zoned Agricultural by the County of Maui. The project is generally bounded to the north by a high school, to the west and south by residential, and undeveloped agricultural land to the east. The proposed use will require a Special Use Permit to be compatible with zoning requirements but is otherwise consistent with State and local land uses.
- Flood and Tsunami – The project site is located outside the tsunami inundation zone. According to FEMA Flood Zone Maps, the solar facility is located in Zone X with minimal to no risk.
- Noise – Solar Facilities are low noise generating sources and is unlikely that conditions would exceed the 50 dBA limits at the nearest external property line. Short term noise during construction may be covered under a community noise permit if deemed necessary.
- Roadway and Traffic – the primary access to the site will be off Kula Highway, an improved paved road. Temporary construction traffic will have short term affects due to delivery of solar equipment and construction vehicles, but long-term impacts will be minimal with less than 4 vehicles per day accessing the site. This is a low-volume traffic area.
- Utilities – The proposed project does not require potable water service and would not affect existing water supplies for the adjacent properties. The facilities would plan to use Hawaiian Electric's telecommunication network to eliminate any potential burden to existing private or public telecommunications networks. Electrical export of electricity would be through underground or aboveground infrastructure interconnecting to existing power resources along an extension to Kula Ave. No disruption or impact to utilities is expected as a result of the project.

### **Socio-Economic Characteristics**

The project site is currently vacant, open space land, and with a Productivity Class rating of B. The project will replace the vacant land use with beneficial productive economic use, e.g., lease from solar facility and production of clean renewable energy to the public utility. The project will not conflict with other adjacent land uses or economic activities. The project is not intended to stimulate or otherwise promote population growth or other economic activity. Therefore, the project is not intended to have significant effect on the socio-economic environment of the area.

### **Aesthetical and Visual Resources**

The project is located in a relatively low populated area along the mid-slopes of north Haleakalā. It is gently slope upwards and equipment and structure will not exceed 8-ft in height. There are no know

public vantage points and would not be generally visible from the highway due to existing vegetation and trees. Therefore, the project would not have a significant impact on aesthetic or visual resources.

### **Solid Waste**

Day to day operations will not generate or produce large volume or unusual types of solid waste. During construction, solid waste will be generated from packaging of delivered equipment and would be considered normal commodity waste (e.g., plastic, wood, cardboard). All waste generated will be properly disposed or recycled at local permitted facilities. No adverse or significant impacts are expected on the local collection or disposal facilities.

### **Hazardous Materials**

The proposed project will not require large amounts of hazardous materials during construction or during operation. During construction, certain cleaners or corrosion protective material may be used, but in maintained in small quantities at the site. During operation of the facility, minimal amounts of cleaners for the solar panels may be present but would be non-toxic and biodegradable. No known releases of hazardous substance are known to have occurred during ranching activities. No adverse or significant impacts are expected as result of minimal use of hazardous materials.

### **Water Quality**

Besides the stream located on the northern boundary of the proposed project, there are no defined water bodies or wetlands. The site is located above a drinking water aquifer; however, the project will not inject any water into the ground. During construction, erosion and sediment control best management practices would be employed minimizing the potential for water quality impacts. Since the project does not generate any process waters or wastewaters requiring disposal, the project does not have the potential to significantly affect water quality.

### **Public Safety Services**

Solar facilities pose low risk fire hazards due to the non-combustible materials used in the equipment. However, nearby uncontrolled ground fires could pose risk to the ground cover catching fire at the facility. The facility will be designed with site access roads meeting local fire code (e.g., 20-ft wide all-weather roads) to allow firefighting apparatus access to the site.

The project will be fully fenced with a locked gate. The facility will not pose a high risk to local police resources and the facility will be remotely monitored and private security forces will be available to investigate suspicious activity.

The proposed facility does not pose significant health risk to workers. The closest medical facility is the Maui Memorial Medical Center. The project does not have significant impact to public safety services.

### **Recreational Resources**

There are limited recreational resources and attractions in Makawao. Makawao attracts tourist for its popularity of the rodeo and Hawaiian Cowboys heritage. The facility will not pose any significant impacts as result of operations.

### **Potential Cumulative and Secondary Impacts**

The proposed project supports the State's goal to produce 100% clean energy by 2045 and will help advance achievement of that goal. The potential secondary impacts as result of development of the project are minimal and will not have significant impacts to the environment or public health and welfare.

## **2.6.5 DECOMMISSIONING PLAN**

Nexamp shall remove all structures, equipment, security barriers and wires and dispose of the materials in accordance with applicable law at Nexamp's expense. At the end of the PPA, if there is no opportunity or need for Hawaiian Electric to continue to purchase power from the Facility, Nexamp would decommission the site and restore the property to the landowner's reasonable satisfaction

### **Dismantlement, Demolition, and Disposal or Recycle**

A significant portion of the components that comprise the Facility will include recyclable or re-saleable components, including copper, aluminum, galvanized steel, and modules. Due to their re-sale monetary value, these components will be dismantled, disassembled, and recycled rather than being demolished and disposed of.

Following coordination with Hawaiian Electric regarding timing and required procedures for disconnecting the Facility from the utility distribution network, all electrical connections to the system will be disconnected and all connections will be tested locally to confirm that no electric current is running through them before proceeding. All electrical connections to the PV modules will be severed at each module, and the modules will then be removed from their framework by cutting or dismantling the connections to the supports. Modules will be removed and sold to a purchaser or recycler. In the event of a total fracture of any modules, the interior materials are silicon-based and are not hazardous. Disposal of these materials at a landfill will be permissible.

The PV mounting system framework will be dismantled and recycled. The metal piles will be removed from their approximated depth of four feet and recycled. All other associated structures will be demolished and removed from the site for recycling or disposal. This will include the site fence and gates, which will likely be reclaimed or recycled.

Grade slabs will be broken and removed to a depth of one foot below grade, and clean concrete will be crushed and disposed of off-site or recycled (reused either on- or off-site).

Aboveground utility poles owned by Nexamp will be completely removed and disposed of off-site in accordance with utility best practices. Any overhead wires will be removed from the Facility and will terminate at the utility-owned connections. Hawaiian Electric will be responsible for dismantling any overhead wires and poles under its ownership. Coordination with Hawaiian Electric personnel will be conducted to facilitate Hawaiian Electric's removal of any poles and overhead wires located on the site.

A final site walkthrough will be conducted to remove debris and/or trash generated during the decommissioning process and will include removal and proper disposal of any debris that may have been wind-blown to areas outside the immediate footprint of the facility being removed. Sanitary facilities will be provided on-site for the workers performing the decommissioning of the Facility.

Nexamp is already in conversations with a firm on the mainland who deals with recycling and re-utilizing old solar modules.

### **Site Stabilization**

The areas of the Facility that are disturbed during decommissioning will be re-graded to establish a uniform slope and stabilized via hydroseeding with a ground treatment approved by the local Building Inspector. Appropriate approvals will be obtained prior to initiation of the decommissioning process.

Prior to decommissioning, Nexamp will apply for and obtain approvals for any disturbance which may occur. This would include obtaining a County grading permit and State DOH storm water general permit. The grading plan will cover any work involving re-establishment of uniform grade or slopes and

site stabilization (e.g., re-grassing), and the storm water general permit will cover erosion and sediment controls for the disturbance. A demolition/building permit will be obtained to remove the perimeter fence and equipment foundations.

Decommissioning for a typical site is estimated to take approximately eight to ten (8-10) weeks but no longer than 150 days.

## **2.7 CULTURAL RESOURCE IMPACTS**

### **2.7.1 proposal to ensure cultural sites are identified and carefully protected**

Nexamp has selected to work with PCSI, a local cultural and historic consultant familiar with the local approval process.

#### **Existing Conditions**

The site has been used for growing sugar cane and cattle grazing and most likely disturbed any above-ground historic properties, but subsurface cultural deposits are possible.

#### **Potential Impacts and Analysis Methodology**

The below discussion assumes that there is no Federal involvement that would trigger the Federal Section 106 process.

The typical historic preservation process includes requesting a Hawaii Revised Statute (HRS) 6E historic preservation review for each project area (either collectively or as separate projects) from the State Historic Preservation Division (SHPD) in order to obtain a “determination of effect” letter. The “Chapter 6E” package includes information that SHPD uses to evaluate the project. The package typically includes a letter providing an overview of the project as well as a historic preservation recommendation. SHPD will either concur with the recommendation or require additional information. In addition to the summary letter, the package will include a document justifying the recommendation (usually an Archaeological Literature Review [ALR], design or construction plans of the proposed project, as well as supporting photographs and other documents. For most projects, PCSI recommends a brief field inspection that is included in the ALR.

The recommended effects of a project will depend on the presence/absence of significant historic properties within and near the project area. The recommended effect can range from no effect with no additional historic preservation work required, to effect with additional historic preservation effort needed, such as archaeological monitoring during construction, an archaeological inventory survey prior to construction, a historic preservation plan, etc. The determination of effect will vary depending on the proposed project’s design, the location, and the presence or possible presence of significant historic properties, including human burials.

Initially, to determine if significant historic properties (not including architectural resources) are present or likely to be present within the project area, we will conduct background, archival, and land use research. Research would be conducted primarily at the following agencies and repositories:

- State Historic Preservation Division (SHPD) through their HICRIS system or in-person at the SHPD library in Kapolei;
- The Hawaii Department of Accounting and General Services (DAGS) online archives and in-person (as necessary);
- Library of Congress (online);
- The Bernice P. Bishop Museum library and archives;
- The University of Hawaii libraries and archives;



- The Hawaii State Office of Planning and Sustainable Development Environmental Review Program (formally, the Office of Environmental Quality Control) archive; and
- PCSI in-house cultural resources library

The background research would be included in the above mentioned ALR along with other information for SHPD to consider such as project footprint and extent and depth of ground-disturbance.

Understanding traditional and customary practices and rights is usually required as part of the HRS Chapter 343 (Environmental Assessments) rules and guidelines. When PCSI has been asked to be involved in EA and EIS work, we compile a Cultural Impact Assessment (CIA). The CIA typically includes the same information as an ALR, plus community consultation to determine if traditional and customary practices are or have been conducted within each project area. PCSI begins the process by contacting the SHPD to request a list of individuals with knowledge of the project areas. To cast a broader net, PCSI will also place a public notice in the Office of Hawaiian Affairs (OHA) Ka Wai Ola Newsletter. To determine if traditional and customary practices have or do occur in an area, PCSI hires an ethnographer to conduct interviews with individuals identified through the above process. If traditional and customary practices are identified, any resolution or mitigation would be dependent on the types of practices and the scope of the proposed project.

### **Mitigation Measures**

Due the lack of likely sources, archeological construction monitoring may not be necessary unless the AIS finds such requirement necessary. In addition, the following mitigation measures during construction are proposed:

- If cultural materials are discovered during construction, all earth-moving activity within and around the immediate discovery area will be diverted until a qualified archaeologist can assess the nature and significance of the find and SHPD will be notified as soon as possible.
- If human remains are discovered, Hawaii Administrative Rules Title 13, Subtitle 13, Chapter 300 states that further disturbances and activities shall cease in any area or nearby area suspected to overlie remains, and SHPD and Police Department will be contacted. If discovery occurs on Saturday, Sunday or a holiday, the Division of Conservation and Resource Enforcement will be notified.

### **Proposers Experience**

PCSI has extensive experience in compiling archaeological literature reviews and cultural impact assessments on O'ahu, Maui, and Hawai'i Island. On O'ahu, PCSI or its personnel have conducted large-scale archaeological inventory surveys in Lualualei, Waianae, and Makua valleys as well as monitoring projects in Kea'au, Waianae, and Makaha Ahupua'a. On Maui, PCSI has conducted archaeological inventory surveys in Makena and recently completed an archaeological inventory survey and monitoring for Hana Ranch. PCSI's Principal Investigator has conducted archaeological inventory survey and data recovery in Wailea. On Hawai'i Island, PCSI conducted an extensive historic preservation planning, including archaeological excavations, mapping, and preservation documentation at the 1,500-acre Shoreline Park in coastal Kealahou. PCSI personnel have conducted archaeological inventory surveys in the Waikaloa and Pohakaloa regions.