



Attachment 2

**Approval and Decision & Order –
Docket No. SP21-412
September 17, 2021**



LAND USE COMMISSION
STATE OF HAWAII

2021 SEP 17 P 12: 29

BEFORE THE LAND USE COMMISSION
OF THE STATE OF HAWAII

In the Matter of the Petition of)	DOCKET NO. SP21-412
)	
MAHI SOLAR, LLC)	FINDINGS OF FACT, CONCLUSIONS
)	OF LAW AND DECISION AND ORDER;
)	AND CERTIFICATE OF SERVICE
For a Special Use Permit to Establish)	
a Solar Energy Facility on)	
approximately 620- acres of land)	
within the State Land Use)	
Agricultural District at 'Ewa District)	
of O'ahu, Hawai'i; Tax Map Key)	
No. (1) 9-2-001:020(par.), and)	
(1) 9-2-004:003 (par.), 006 (par.), 010 (par.))	
And 012 (par.))	

**FINDINGS OF FACT, CONCLUSIONS OF
LAW AND DECISION AND ORDER**

AND

CERTIFICATE OF SERVICE

This is to certify that this is a true and correct copy of the document on file in the office of the State Land Use Commission, Honolulu, Hawai'i.

September 17, 2021 by

Executive Officer



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**FINDINGS OF FACT, CONCLUSIONS OF
LAW AND DECISION AND ORDER**

The Land Use Commission ("Commission"), having examined the complete record of the proceedings on State Special Use Permit ("SUP") SP21-412, filed by Applicant Mahi Solar, LLC ("Applicant"), to construct an approximately 120 Megawatt alternating current (Mwac) solar and energy storage facility that will also incorporate a 480 Mw-hour ("MWh") Battery Energy Storage System, and a 34.5 kilovolt ("kV") substation and accessory uses and structures ("Project"), on approximately 620 acres of land in the State Agricultural District (County AG-1 Restricted Agriculture) identified by Tax Map Key No. (1) 9-2-001:020(por.), and (1) 9-2-004:003 (por.), 006 (por.), 010 (por.) and 012 (por.) in the ‘Ewa

District of O‘ahu, Hawai‘i ("Petition Area"), and upon consideration of the matters discussed therein, hereby makes the following findings of fact, conclusions of law, and decision and order:

FINDINGS OF FACT

PROCEDURAL MATTERS

1. On April 9, 2021, the City and County of Honolulu, Department of Planning and Permitting (the “DPP”), accepted the SUP Application, pursuant to Section 205-6, Hawaii Revised Statutes (“HRS”), and Section 15-15-95 et seq., Hawaii Administrative Rules (“HAR”).

2. On June 23, 2021, the Planning Commission considered the Petition. Public testimony was received at the hearing. After due deliberation, the Planning Commission recommended approval of the Petition to the State Land Use Commission (the “LUC”), subject to certain conditions. The Land Use Commission received the Petition on August 6, 2021.

DESCRIPTION OF THE PROPERTY

3. As shown in the table below, the Project is located on portions of TMKs (1) 9-2-001:020 and (1) 9-2-004: 003, 006, 010, and 012 in Kunia, O‘ahu, Hawai‘i. The site will be developed in those certain areas identified as Areas 1, 2A, 2B, 2C, 3, 4A, 4B, 4C, and 5, across five TMK parcels, as shown on Exhibit “A” attached hereto. The site lies within the traditional moku of ‘Ewa and the ahupua‘a of Honouliuli. The Project consists of the solar energy facility (“SEF”) and ancillary support facilities located on multiple sites within the Petition Area and totals approximately 620 acres.

Land Ownership				
TMK	Project Area Number	Project Area (acres)	Total Parcel Area (acres)	Landowner
(1) 9-2-001:020	5	40.7	1,688.8	Monsanto Technology LLC
(1) 9-2-004:003	3	12.1	19.3	Hartung Brothers Hawai'i LLC
(1) 9-2-004:006	1, 2A, 2B, 2C, & 3	240.1	724.9	Hartung Brothers Hawai'i LLC
(1) 9-2-004:010	4A, 4B, & 4C	305.6	426.0	Fat Law's Farm Inc.
(1) 9-2-004: 012	1	21.5	93.3	Hartung Brothers Hawai'i LLC
Total Area:		620.0 acres	2,952.3 acres	

4. The Petition Area encompasses portions of five TMKs referred to hereinabove. The Petitioner will lease the lands from three separate landowners, Monsanto Technology, LLC (“Monsanto”), Hartung Brothers Hawai‘i LLC (“Hartung Brothers”), and Fat Law’s Farm Inc. (“Fat Law’s Farm”), for the duration of the Project.

5. A portion of the Project will be built on three parcels owned by Hartung Brothers. The Petition Area is crossing portions of these parcel boundaries, therefore a Conditional Use Permit (“CUP”) (minor) for Joint Development of TMKs (1) 9-2-004:003, 006 (por.), 012 (por.) was submitted to and approved by the DPP (File No. 2020/CUP-48). The legal lots of record are described as Lot M-9-A (19.296 acres), Lot 169 (0.693 acre), Lot 878 (432.503 acres), Lot 880 (93.117 acres), and Lot 416 (91.99 acres). These jointly developed parcels total 637.599 acres.

6. The Project is situated on lands planned for “Agriculture and Preservation” uses within both the recently adopted City and County of Honolulu Central O‘ahu Sustainable Communities Plan (“SCP”) (Ordinance 21-6) and the 2020 amended ‘Ewa Development Plan (“DP”) (Ordinance 20-46).

7. Over the course of a year, the temperature varies between 65°F to 87°F. During the hot season months of June through October the average daily high temperature is above 85°F.

During the cool season months from December to March the average daily high temperature is below 81°F. The Petition Area experiences an average rainfall of approximately 30 inches. The average hourly wind speed in the area varies significantly over the seasons, with the windier part of the year being between June to September, with average wind speeds of more than 14.4 miles per hour.

8. The Petition Area contains multiple soil classifications and groups to include the following: Helemano silty clay, 30 to 90 percent slopes (HLMG); Kawaihapai clay loam, 0 to 2 percent slopes (K1A); Kawaihapai clay loam, 2 to 6 percent slopes (K1B); Kawaihapai stony clay loam, 2 to 6 percent slopes (K1aB); Kolekole silty clay loam, 1 to 6 percent slopes (KuB); Kolekole silty clay loam, 6 to 12 percent slopes (KuC); Kolekole silty clay loam, 12 to 25 percent slopes (KuD); Kunia silty clay, 0 to 3 percent slopes (KyA); Kunia silty clay, 3 to 8 percent slopes (KyB); Kunia silty clay, 8 to 15 percent slopes (KyC); Lahaina silty clay, 7 to 15 percent slopes, severely erode (LaC3); Mahana silty clay loam, 12 to 20 percent slopes, eroded (McD2); Mahana silty clay loam, 20 to 35 percent slopes, eroded (McE2); Tropohumults-Dystrandepts association (rTP); Wahiawa silty clay, 0 to 3 percent slopes (WaA); and Water > 40 acres (W).

9. The Petition Area includes soils rated by the Land Study Bureau of the University of Hawai'i ("LSB") as Class B, C, D, and E. The Petition Area does not contain soils designated as Class A. Hawaii Revised Statutes Section 205-4.5(21) permits SEFs on land classified by LSB as Class B and C, with approval of a SUP. A SUP is not required for development for lands classified as LSB D and E.

10. Of the total 620-acre Petition Area, approximately 69.5 acres is located within lands designated as Important Agricultural Lands ("IAL"). Approximately 29.3 acres of IAL is located within Area 1 of the Project (TMK (1) 9-2-004: 012). This land was voluntarily petitioned by the

landowner, Hartung Brothers, and approved on June 1, 2018 (see LUC Docket DR18-61). Additionally, 40.2 acres of IAL are located within Area 5 of the Project (TMK (1) 9-2-001:020). The land was voluntarily petitioned by the landowner, Monsanto, and approved on November 15, 2017 (see LUC Docket DR17-59).

11. The Petition Area is bounded by agricultural land to the north, south, and east and the Honouliuli Forest Reserve, zoned as conservation land, to the west. As previously described, lands surrounding the Petition Area are used for crop production and open space. Kunia Loa Ridge Farmlands located directly adjacent to Areas 4A, 4B, and 4C is comprised of 99 lots leased to farmers and dedicated for agriculture uses, including crop production and ranching, and includes structures related to agriculture activities, including farm dwellings. The National Park Service Honouliuli National Historic Site is located near a small portion of the Petition Area to the south (Area 5).

12. Beyond the immediate surroundings of the site, the Petition Area is surrounded by residential communities including: Makakilo to the southwest; 'Ewa and Kapolei further south; Mililani Town to the northeast; and Waipahu and Royal Kunia subdivision to the southeast. Further north of the Petition Area is the Wheeler Air Force Base. Residential uses extend two to four miles away from the Petition Area.

13. Access to the Petition Area is via three established entrances from Kunia Road (approximately 3 miles north of the H-1 freeway) and an existing network of dirt access roads which are actively maintained in support of the surrounding agricultural operations. Three established access points have been designated at the following locations: Site Access #1, located at Kunia Road and Plantation Road; Site Access #2 located at Kunia Road and an unnamed private driveway into the Monsanto property, and Site Access #3 located at Kunia Road and Pālāwai Road,

which is also a private driveway. No other transportation facilities (e.g., bus stops, bicycle lanes, etc.) occur in the vicinity of the Petition Area.

DESCRIPTION OF THE PROPOSED USE

14. The Project is a 120-megawatt alternating current (“MWac”) solar and energy storage facility located in Kunia, O‘ahu. The Project includes 370,000 ground-mounted, single-axis tracking photovoltaic (“PV”) arrays, a 480 megawatt-hour (“MWh”) Battery Energy Storage System (“BESS”), and a 34.5 kilovolt (“kV”)/138 kV substation. The Project will interconnect through a new 138 kV switchyard, also called a “switching station” adjacent to the existing Kahe-Waiiau 138 kV transmission circuit west of Kunia Road. The 138kV transmission line is not currently serving other renewable projects, and no additional easements or rights of way are required.

15. Each PV panel is approximately 48 inches wide and 79 inches long, dark in color, and stands approximately 6 to 8 feet above ground level when flat (0-degree tilt). At maximum rotation or 50-degree tilt, the height of the PV panel reaches approximately 9 to 12 feet high and is approximately 1 to 3 feet off of the ground. Each PV panel is made up of thin-film Cadmium Telluride semiconductor cells or equivalent. The cells are linked together and function as a single unit.

16. The PV panels will be installed on single-axis trackers aligned in a north-south direction, which will vary in length. The single-axis trackers will rotate the panels to follow the sun during the day to maximize solar exposure to the face of the module. Trackers are supported by steel pile foundations at intervals. The PV panels may be mounted in either a portrait or landscape orientation, in single or double combination. Based on the preliminary design criteria for the Project, there will be approximately one foundation for every eight to ten panels.

Foundation spacing will be dependent upon the final chosen panel orientation. The array of approximately 370,000 ground mounted PV panels will have a combined capacity of 120MWac.

17. PV panels will be mounted on a rack with steel and aluminum construction and will be designed with a wind resistance to meet wind loading requirements per the adopted building code. There will be an approximately 9-foot wide aisle between adjacent arrays of PV panels when they are in the horizontal position or 0-degree tilt.

18. The Project's PV panels will be connected in series, referred to as a "string". The maximum string size is limited by a maximum system voltage of 1,500 volts direct current. For this Project's design, a string is a DC circuit of approximately 6 panels each. Each string is connected to a combiner box with a fused disconnect. Typically, a group of approximately 16-30 strings will be connected at the combiner boxes and are limited by the 400 amp fuse size. A group of approximately 20-30 combiner boxes are connected via DC feeders into a DC/alternating current ("AC") inverter which connects to the AC power system.

19. The AC power system consists of pad-mounted equipment, including the inverters, step up transformer and communication equipment, which increases the power from 400-600 volts to a medium voltage of approximately 34.5 kV. Each pad will tie into the 34.5 kV collector system which terminates at the high-voltage AC substation, whereby the voltage will be increased to 138 kV.

20. Power from the PV system may be stored in the BESS and may be discharged from the BESS at any time of day or night. The BESS will be located in Area 3 of the Project.

21. The BESS provides a four-hour discharge duration and storage capacity of 120 MW/480 MWh. The BESS consists of lithium-ion battery cells that are connected in series into a battery module or array. The battery modules are typically stacked and connected into vertical

racks containing several modules. The racks are then collected via cables and fed into DC to AC converters that feeds into the BESS inverter. The BESS transformer steps up the voltage from the BESS inverter from 400–600 volts to 34.5kV. The BESS will typically come equipped with controls and communications systems that integrate into the Project’s Supervisory Control and Data Acquisition system that allows for the remote monitoring and control of select facility functions. The battery racks will be stored in cabinets/enclosures and laid on top of a gravel pad. The enclosures will contain an internal thermal management system and/or Heating, Ventilation, and Air Conditioning units to support battery temperature management. The battery enclosures are also rated for outdoor use. Each BESS container is approximately 15 feet high.

22. The operational support facilities will consist of an outdoor electrical substation, switchyard, and two control enclosures. The support facilities will be located in Area 3.

23. The two control enclosures will each have an area of approximately 798 square feet, and a height of approximately 13 feet. The control enclosures will house the PV and BESS plant control systems, Hawaiian Electric Company (“HECO”) remote terminal units, communications equipment, and relays and meters. Within the control enclosures, there will be a small battery system to serve as a back-up power system for data collection.

24. The Project will also include 32 PV inverter stations. The inverter stations will be located within the PV solar array field and include inverters and medium voltage transformers. Inverters rated at 3.95-4.2 MWac will be used to convert the DC electricity from the PV modules to AC. The AC electricity will be stepped up with a medium voltage transformer at the inverter station and connected to the substation by an underground or overhead medium voltage line.

25. The total building area or lot coverage of the facilities and equipment at the Project site will be approximately 6,620,251 square feet (approximately 152 acres). The Project will be

interconnected to HECO's Kahe-Waiiau 138 kV transmission circuit located west of Kunia Road. The medium voltage collection system will transmit generation from the solar array inverters to the BESS and substation along overhead lines to be installed as part of the Project.

26. The collector lines will be installed from the solar inverters to the BESS yard and Project substation, overhead on new wooden structures, along existing roadways where required by existing land use regulations, and underground where crossing existing electrical lines.

27. The BESS and substation will be connected to the HECO-owned switchyard via an overhead bus structure. A new transmission line extension, consisting of an overhead portion and an underground portion, will connect HECO's existing Kahe-Waiiau transmission circuit to the proposed ring bus in the switchyard.

28. The Project site currently consists of actively farmed areas, undeveloped and fallow agricultural land, overgrown natural vegetation, and structures associated with farming and business operations. After construction of the Project is completed, Petitioner intends to work with local farmers and ranchers to implement multiple different agricultural activities that will be co-located at the Project. The common term for this is "agrivoltaics."

29. Agrivoltaics describes the use of the same area for both solar PV energy and agriculture. Agrivoltaic projects such as Mahi Solar are designed to share land and sunlight between agriculture and PV panels, and to study which crops, or livestock can co-produce with solar most successfully. The co-location of solar energy production and agriculture results in a more efficient use of land, which is important on O'ahu where both local farming and local clean energy are priorities, but land resources are limited.

30. Most of the Petition Area will be leased or licensed to local farmers and ranchers at a nominal cost to grow various crops or livestock beneath and between the PV panels. These

farmers will be provided with access to water (also at a nominal cost) and start-up funding. The Project's Agricultural Plan dedicates the land to long-term agricultural uses, supports the sustained growth of agriculture uses, supports the sustained growth of the agricultural industry, and meets the objectives of IAL land articulated by Section 205-42, HRS. In addition, the use of currently unused land for agrivoltaics will expand the agricultural footprint of the land by allowing farmers to explore new uses for land under the PV panels. The Agrivoltaic Program of the Project's Agricultural Plan will actually put more land into productive agriculture and food production than currently exists at the site.

31. Kunia Water Association ("KWA") provides water service to the Petition Area and surrounding agricultural lands. The design of the Project includes an onsite water supply to support the farming activities. The Project will have access to water for agriculture through its lease agreements for the property. Irrigation infrastructure will be installed as needed to support crop production.

32. There is no city storm drainage system in the Petition Area and the state storm drainage system is limited to concrete culverts crossing Kunia Road. There is no subsurface drainage system on the Petition Area. Drainage on site currently exists in the form of surface runoff on the natural topography, with rainfall and run-off eventually flowing into the various ephemeral tributaries of Honouliuli Stream. Because grading will be limited, the Project will not significantly alter existing drainage patterns.

33. The Petitioner has consulted with the Hawai'i Agricultural Research Center ("HARC"), the Hawai'i Farm Bureau, Hawai'i Agricultural Foundation, Hartung Brothers, Fat Law's Farms and several local farmers, beekeepers and ranchers to help develop an informed plan for co-locating solar photovoltaic energy generation and realistic agricultural activities together at

the site . In the initial research phase of this Agricultural Plan, HARC will conduct farming trials of different crops at an existing solar project in Mililani in a collaboration with Clearway Energy. HARC's research will happen prior to completion of the Mahi Solar project to determine what crops are economically and viably suited for cultivation at the Mahi Solar project on a large scale. After construction is complete and the solar project is operational, the Agrivoltaic Program will work with local farmers and ranchers to support commercial agricultural activities under and between the PV panels for the duration of the entire operational life of the Project.

34. While HARC's research is just beginning, crops that are anticipated to grow well at a solar project in the Kunia area are those that are shade tolerant and do not grow too tall to interfere with the panels, such as lettuce, basil, mint, sweet potato and flowering plants that support honeybees, as well as alfalfa and legumes that could be used for animal forage. Several local farmers and ranchers have already expressed interest in participating in the Agrivoltaic Program, including HARC, Hartung Brothers (alfalfa forage), O'ahu Grazers (livestock grazing), Kunia Country Farms (hydroponic lettuce), Alluvion (nursery products), Fat Law Farms (basil) and Island Bee Removals (honey production).

NEED FOR THE PROJECT

35. Hawai'i is the most petroleum-dependent state in the United States. In 2003, petroleum accounted for 90 percent of the state's energy portfolio. In response to this dependency, the State of Hawai'i created the Hawai'i Clean Energy Initiative ("HCEI") in 2008 and in 2015, set a goal of having 100 percent of electricity sales come from renewable sources by the year 2045 (Act 97). This was followed in 2018 by the passage of Act 15, which required Hawai'i to become net carbon negative "as soon as practicable, but no later than 2045".

36. While the State's petroleum dependence has gradually been reduced, in 2019, the State still imported 26.4 million barrels of crude oil and 646 million gallons of refined petroleum (Hawai'i State Energy Office ("HSEO"), 2020). The State's imports of petroleum, petroleum products, and coal were 57 percent of the total tons of cargo imports and exceeded all other products and materials imported overall (HSEO, 2020). By 2019, the State's largest electricity production source was petroleum, at 63.2 percent, followed by coal at 12 percent, for a fossil fuel total of 75.2 percent. Renewable energy sources accounted for 20.3 percent of electricity production, still far short of the state's 100 percent goal. By contrast, in 2019, 37 percent of electricity in the U.S. was generated using petroleum. Dependence on petroleum directly affects the state's citizens, who pay more than double the national average for electricity due to the fluctuations in the price of oil (HSEO, 2020).

37. Electricity for the island of O'ahu is provided by HECO. The purpose of the Project is to provide low-cost renewable energy in the form of solar electric power to HECO's existing power grid. Selected as part of HECO's competitive Request for Proposal process, Mahi Solar is one of 15 HECO Stage 2 renewable energy projects. The 620-acre Mahi Solar project is projected to generate a total of 120 MW of energy, which is enough to power approximately 37,000 O'ahu homes or 4 percent of the island's electricity annually. The Project will be capable of generating up to 271,525 MWh per year (Ramboll, 2020). Inputting this energy value into the Environmental Protection Agency's Greenhouse Gas ("GHG") Equivalencies Calculator, a GHG Analysis run for the Project produces an oil consumption equivalence of 444,472 barrels of oil per year – or over 18 million gallons of oil per year. With a constant generation of electricity, the Project is estimated to avert the consumption of 11,111,800 barrels of oil and save O'ahu consumers \$175 million over a 25-year lifespan: nearly half a billion gallons of oil use avoided over 25 years. As

such, development of the Project will move the state forward in achieving its HCEI goal while also improving Hawai'i's environment by reducing GHG emissions, dependency on foreign imports of fossil fuels and associated price variations, and the environmental risk of spills during the transport and storage of fossil fuel to the state.

IMPACTS UPON RESOURCES OF THE AREA

Agricultural Resources

38. Through the Agrivoltaic Program, local farmers and ranchers will have the opportunity to license or sub-lease plots of land at the Project site for agricultural activities. The Agrivoltaic Program is designed as a flexible system to support different business models. Land and water will be provided to farmers at a nominal cost to support these activities at a commercial scale. Petitioner will also add or upgrade agricultural infrastructure across the Project. The Agricultural Plan ensures that agricultural productivity and food production is not only retained on the land but is increased overall. Of the 620-acre proposed Project area, only 306 acres are currently in active agricultural production. Of these 306 acres, only 98.8 acres are currently for food production. A portion of Area 4B is used to grow basil, and Area 4C is used to cultivate other vegetables. Approximately 314 acres of the Petition Area consists of land that is not currently being used for agricultural activity.

39. The proposed Agricultural Plan would utilize approximately 610 acres of the solar farm (excluding the high-voltage areas of the substation/switchyard/BESS) for active agriculture, 488.9 acres of which will be cultivated for local food production for crops including but not limited to the following: alfalfa, other forage grass/legumes; hydroponic lettuce; basil, sweet potato and other vegetables; livestock grazing; and pollinator plants/honey. Agricultural activity will be

implemented throughout the Petition Area in all areas used for solar, however the land area (acres) allotted for each activity will not be finalized until after construction.

40. The Project and Agricultural Plan for the site support the state's intent for the use of agriculturally zoned lands. The Project will increase agricultural productivity on the existing land that will be used for the Project, thereby increasing the overall acreage used for agriculture in the region.

Archaeological and Cultural Resources

41. An Archaeological Inventory Survey ("AIS") for the Petition Area was completed in compliance with Section 6E-42, HRS. Fieldwork for the AIS was carried out between August 2020 and January 2021 and the report was completed in April 2021 and submitted to the State Historic Preservation Division ("SHPD") in April 2021 (Project No. 2021PR00380).

42. As a result of the fieldwork effort two sites were defined, State Inventory Historic Places ("SIHP") Site 2268 (Waiāhole Ditch) and SIHP Site 7346 (Oahu Sugar Company Irrigation features). The Waiāhole Ditch has been previously documented in other portions of O'ahu and was built between 1913 and 1916 by the Waiāhole Water Company, a subsidiary of the Oahu Sugar Company. Site 7346, a feature of which was previously recorded to the west of the Petition Area, is described in the AIS as a collection of plantation-era irrigation infrastructure features associated with commercial cultivation of the Petition Area likely beginning after 1916, a date marking the availability of water in the Petition Area brought by the Waiāhole Ditch.

43. Research and consultation were also conducted regarding the Pohakea Trail. No physical evidence of the Trail is evident in the Petition Area as it appears it was superseded by a roadway that runs along and outside the boundaries of the Petition Area.

44. SIHP Site 2268 (Waiāhole Ditch) was evaluated as significant under Criterion a and Criterion c, the significance of this site with respect to both its engineering aspects and its effects on O‘ahu’s physical and political landscapes cannot be overstated. As the Waiāhole Ditch continues to be a functioning water source for irrigation and other purposes, and as it will remain beyond the footprint of any Mahi Solar ground lease areas, per Section 13-284-8 (a)(1)(A), HAR, the recommended treatment for this site with respect to the current project was “avoidance and protection” during development activities.

45. SIHP Site 7346 (Oahu Sugar Company Irrigation infrastructure) was evaluated as significant under Criterion a as the agricultural fields that this infrastructure supported were significant in Hawaii’s plantation history. As the study of this site (both archaeologically and cartographically) has yielded information on 20th century land use practices, SIHP Site 7436 was also evaluated as significant under Criterion d. While it was the contention of the AIS that the archaeological research potential for SIHP Site 7436 within the Petition Area had likely been exhausted, the possibility (albeit remote) remains that as of yet significant undiscovered aspects of this site, or archaeological resources that predate this site, could be encountered within the Petition Area; therefore, per Section 13-284-8(a)(1)(C), HAR, the recommended treatment for this site with respect to the Project is “monitoring” during development activities.

46. As evidence indicates that the Pohakea Trail passes outside the Petition Area, no recommendations were made with respect to that resource.

47. A Ka Pa‘akai O Ka ‘Āina Cultural Practices and Resources Analysis (“Cultural Practices Analysis”) was prepared for the Petition Area. The Cultural Practices Analysis is intended to aid the Petitioner and the State of Hawai‘i and its associated agencies with addressing

preservation and protection of traditional and customary rights with respect to the Petition Area.

The Cultural Practices Analysis assesses the following:

- a. The identity and scope of “valued cultural, historical, or natural resources” in the Petition Area, including the extent to which traditional and customary native Hawaiian rights are exercised in the Petition Area;
- b. The extent to which those resources—including traditional and customary native Hawaiian rights—will be affected or impaired by the proposed action; and
- c. The feasible action, if any, to be taken by the LUC to reasonably protect native Hawaiian rights if they are found to exist.

48. The Cultural Practices Analysis relies on historical archival sources, prior cultural and archaeological studies, and consultation with community members who have genealogical ties and long-standing residency to the proposed Petition Area to identify whether any valued cultural, historical, or natural resources are present within said area.

49. The following have been identified as traditional customary practices that formerly took place within the general vicinity of the Petition Area:

- a. The Pohakea Trail is a trail that connects the lands of Honouliuli (‘Ewa) and Lualualei (Wai‘anae) via the Wai‘anae Mountains and it is referenced in both traditional literature and by consulted parties. The trail has been described as passing near the northern section of the Petition Area. The access is currently blocked by a gate that is outside the Petition Area and controlled by other parties, not the Petitioner.
- b. The following native plant regimes were referenced throughout Honouliuli: ma‘o (*Gossypium tomentosum*) blossoms, ‘ilima (*Sida fallax*), ōhai (*Sesbania tomentosa*), koai‘a (*Acacia koaia*), kukui (*Aleurites moluccanus*), wiliwili (*Erythrina*

sandwicensis), nohu (*Tribulus cistoides*), 'ōhi'a lehua (*Metrosideros polymorpha*), and kauno'a (*Cuscuta sandwichiana*), red pilipili grass (*Chrysopogon aciculatus*). The results from consultation suggest that no traditional agricultural practices nor traditional gathering of plant resources is currently taking place in the Petition Area.

c. Warfare took place in Honouliuli over centuries as warring chiefs from inter-island polities sought more land and political prestige. While warfare in the Petition Area has not taken place for many generations, the consulted individuals recognize the area as an important aspect of O'ahu's Hawaiian history and heritage. Historical records indicate that the battle occurred on the plains of Keahumoa which is located to the area north of the Petition Area. It is unlikely the proposed Project would have any direct adverse impacts to the battle site.

d. The southwestern portion of the Petition Area is situated at the base of Pu'u Ku'ua and was known for its extensive stands of sandalwood. Consultants describe a heiau atop Pu'u Ku'ua as being culturally significant. Astronomical observations also occurred in Pu'u Ku'ua and a population of kauā once lived in Pu'u Ku'ua. However, by the early 19th century, Pu'u Ku'ua and the surrounding area was sparsely populated and nearly abandoned.

e. All of the consulted parties acknowledged the history of intensive agriculture practices and its resulting impacts on the natural and cultural resources once located in the Petition Area. However, since historical agricultural practices, such as sugarcane and pineapple cultivation, were often not conducted in gulches, ravines, and ridgelines there is a possibility of finding remnant cultural sites in those areas. There is also the possibility of finding remnant subsurface features in formerly cultivated areas.

Flora and Fauna

50. With respect to flora, no threatened, endangered, or special species were seen in the Petition Area. Because the habitat observed was transformed by previous land use it is either dominated by non-native invasive species or used for cultivation of crops.

51. Within the Petition Area, there are three state listed and federally listed species that could be found foraging or using the site for breeding habitat. The Hawaiian hoary bat, 'elepaio, and Hawaiian short-eared owl (pueo) are known to be present adjacent to or at times within the site. While other state and federally listed species are present on O'ahu, none require implementation of specific study or mitigation measures.

Visual Resources

52. The Project will be developed on agricultural lands and will not be visible from distant view sheds articulated in the Central O'ahu SCP and 'Ewa DP. The Project will have a relatively low profile and will run with the existing topography of the land. At peak height, the PV panels will be no more than 12 feet above ground level.

53. The Project may be visible from some locations along Kunia Road, but, in most cases, it is blocked by existing berms and vegetation. The Project is not located near residential communities however, the Project may be slightly visible to the public from distant areas along the H-1 freeway or mauka of the Project such as Makakilo Drive and from Pearl City; however, the Project is not anticipated to substantially affect these existing distant views.

54. Landscaping will be incorporated on top of the existing 5-foot tall berm to ensure screening, particularly along Kunia Road. Landscape treatments include visual screening plants ranging in mature height from 2 to 8 feet tall, and proposed trees range in mature height from 12 to 15 feet tall.

55. Landscape treatments identified for other portions of the Project are comprised of low visual screening plants. These plants will provide appropriate landscaping that would avoid blocking necessary sunlight on the panels which is vital for generating solar power.

56. The PV panels in the Petition Area will be most visible from Pālāwai Street, which is an agricultural road used to access Kunia Loa Ridge Farmlands. However, landscaping will be integrated along the Project boundary to provide screening. Mahi Solar has conducted outreach with the existing members of the Kunia Loa Ridge Farmlands to discuss the Project.

ENVIRONMENTAL IMPACTS Chapter 343, HRS

57. The Project does not trigger the need to complete an Environmental Assessment or Environmental Impact Statement under Chapter 343, HRS.

Air Quality

58. The Project is not expected to have a substantial negative impact on air quality. There will be short-term impacts during the construction period in the form of exhaust from increased traffic and fugitive dust generated by the construction activity. A dust control management plan will be developed and effects on air quality during construction will be mitigated by compliance with provisions of Section 11-60.1-33, HAR, on Fugitive Dust. Operations at the Project site will not adversely affect air quality. No odors will be generated directly from the operation of the SEF.

Noise

59. Short-term noise impacts may result if supplemental grass trimming by mechanical means is required for maintenance of the Project. During construction, short-term noise levels and air impacts are likely to occur as a result of earth moving equipment and construction vehicles. Construction activities will comply with applicable state regulations.

Water Quality

60. Based on the Project design, no adverse effect to water resources, including Honouliuli Stream or its tributaries, is anticipated. Grading will be outside of the channel and limited to where it is needed, so the Project will not significantly alter existing drainage patterns. Stormwater runoff will be appropriately addressed through design features that incorporate temporary erosion controls and post-construction Best Management Practices (“BMPs”) to minimize the quantity and water quality impacts of the runoff. BMPs will be identified as part of a Temporary Erosion and Sediment Control Plan (“ESCP”) and Permanent Post-Construction BMP Plan, which will be prepared and submitted for approval in accordance with the requirements of Department of Health’s (“DOH”) National Pollutant Discharge Elimination System (“NPDES”) permit and DPP’s Water Quality Rules. Temporary BMPs will include minimization of soil disturbance (particularly during periods of heavy rain), erosion prevention and sediment control measures (e.g., silt fencing, sediment traps/basins, etc.), proper stabilization and stockpiling procedures, and other good housekeeping measures. Permanent BMPs will include retention, biofiltration, or filtration treatment controls. Given the relatively short duration of construction, and with implementation of BMPs as part of an approved ESCP and Post-Construction Storm Water Quality Plan, the potential for sedimentation or increased pollutants in stormwater runoff is expected to be minimal.

SOCIO-ECONOMIC IMPACTS

61. The investment of solar development in Hawai‘i will support the state’s economy by using vacant agricultural lands for a revenue generating project which will be spent in the state. The Project will result in construction spending, collection of applicable state and county taxes, and the creation of short-term construction-related jobs and long-term operational positions. The

Agricultural Plan developed for the Project will also support the state's agriculture industry. The Project will help farmers by providing land and water at a nominal cost, allowing farmers to test agricultural activities at a commercial scale. Results from Mahi Solar and HARC's data of farming practices at the site are intended to be shared so that farmers and solar developers can find new and more productive ways of using Hawai'i's agricultural land for both farming and renewable energy.

62. The Project would also create approximately 340 jobs during the peak of construction and another 2-3 long-term positions during operations, as well as supporting local farming and increasing the number of acres of LSB Class B and C land in active agricultural use.

ADEQUACY OF PUBLIC SERVICES AND FACILITIES

Roadways

63. The Project will generate a negligible amount of vehicle traffic when the Project is fully constructed and operational. The volume of traffic generated by construction of the Project is not expected to result in the need for roadway enhancements. However, the addition of vehicles, particularly large trucks, turning into and out of the site access road intersections along Kunia Road, may require temporary signage to raise driver awareness and enhance safety.

64. To minimize the potential impacts to traffic operations, particularly during construction of the Project, the following elements in the construction traffic management plan ("CTMP") will be included:

- a. Install temporary signage on mauka-bound and makai-bound Kunia Road prior to approaching the site access intersections to indicate the presence of trucks entering/exiting the roadway near each of the three site access roads.

b. Field verify available sight distance and maintain adequate sight distance for drivers exiting site access locations and turning onto Kunia Road. Maintenance may include pruning vegetation and not installing signage or other barriers that could block a driver's field of vision at the intersection.

c. Extend the painted median solid double yellow line delineating the "Do Not Pass" zone for mauka-bound vehicles at least an additional 500 feet approaching the site access intersections.

d. The trips generated by the Project once it is fully operational are negligible and no traffic improvements are required. Upon completion of the Project construction, the extension of the "Do Not Pass" zone could be maintained or eliminated at the discretion of Hawai'i Department of Transportation ("HDOT").

Water

65. No occupied facilities are planned for the Project; therefore, domestic and fire protection water service is not required. Onsite water demand is anticipated to be minimal and limited to a drip irrigation system or the use of water trucks to provide start up irrigation for screening plants. As compared to a spray irrigation system, a drip irrigation system will minimize water waste due to the reduction of overspray on roads and non-planted areas and will also reduce losses as a result of evaporation and wind drift. Runoff and soil erosion will be minimized as low volumes of water are directed towards individual plants near the soil surface. The irrigation system will be operated during the evenings or early morning hours to further lessen the water losses due to evaporation.

66. Onsite water supply for supporting the farming activities will be designed into the solar farm to ensure compatibility with the operation and maintenance activities. The Project will

have access to water for agriculture through its lease agreements for the property. Irrigation infrastructure will be installed as needed with soft-material hoses and drip feeder lines strategically located to support crop production. The site layout for the Project will be designed to minimize impacts to existing KWA water lines. If necessary, KWA water lines will be relocated to avoid conflicts and provide access for maintenance and repair.

Drainage

67. Based on the Project design, no adverse effect to water resources, including Honouliuli Stream or its tributaries, is anticipated. Grading will be outside of the channel and limited to where it is needed, so the Project will not significantly alter existing drainage patterns. Stormwater runoff will be appropriately addressed through design features that incorporate temporary erosion controls and post-construction BMPs to minimize the quantity and water quality impacts of the runoff. BMPs will be identified as part of a Temporary ESCP and Permanent Post-Construction BMP Plan, which will be prepared and submitted for approval in accordance with the requirements of DOH's NPDES permit and DPP's Water Quality Rules. Temporary BMPs will include minimization of soil disturbance (particularly during periods of heavy rain), erosion prevention and sediment control measures (e.g., silt fencing, sediment traps/basins, etc.), proper stabilization and stockpiling procedures, and other good housekeeping measures. Permanent BMPs will include retention, biofiltration, or filtration treatment controls. Given the relatively short duration of construction and with implementation of BMPs as part of an approved ESCP and Post-Construction Storm Water Quality Plan, the potential for sedimentation or increased pollutants in stormwater runoff is expected to be minimal.

Wastewater

68. The Project will be constructed on a vacant portion of the Project properties. Occupied facilities will not be located on the site, as such no wastewater facilities are required.

Solid Wastes

69. The nearest solid waste facility is the Waimānalo Gulch Sanitary Landfill, located approximately seven miles southwest of the Project site. The PVT Land Company Integrated Solid Waste Management Facility, which accepts construction and demolition waste, is also readily accessible from the Project site. Construction and operation of the Project is not anticipated to generate a significant amount of solid waste. During construction, waste will be temporarily stored onsite and periodically transported and properly disposed of at a permitted facility. Little to no waste will be generated during operation.

Police and Fire Protection

70. Impacts to the police and fire departments' operations or ability to provide adequate protection services to the surrounding community are also not anticipated. No residential use is being proposed as part of the Project, therefore, there will be no increase to the existing population in the area that will require additional public service needs.

71. Primary fire protection of the Project site is provided by the Honolulu Fire Department ("HFD") Station 12 located at 94-121 Leonui Street in Waipahu, approximately 2.7 miles south of the site. The Project is not expected to affect HFD operations or ability to provide fire protection services to the Project and surrounding area. Design of the site, structures, and fire access for the Project will be based on applicable requirements of the State Fire Code.

72. "Clear" areas which are buffers around the Project equipment area where combustible vegetation has been removed in order to slow or stop the spread of wildfire will be integrated into the Project design. A minimum clear area of 10 feet around ground-mounted solar

PV installations will be provided. Particular attention will be paid to clearing areas around transformers, under power lines, and around the BESS cabinets. Fencing will also be provided around the perimeter of PV panel areas, at the Project substation, HECO switchyard, and BESS area. Batteries will be installed in self-contained enclosures that are constructed across an open-air gravel pad. The self-contained enclosures are remotely monitored and are intended to contain/suppress fires with no active fire response necessary from HFD.

Schools

73. The Project will not require improvements to schools, as there will be no population increase with the Project's development. The Project site is located in the State Department of Education Leeward District, Campbell-Kapolei Complex Area. Educational facilities geographically located nearest to the Project site are within the Pearl-City Waipahu Complex Area and include the following:

- a. Kalei'opu'u Elementary located at 94-665 Ka'aholo Street in Waipahu.
- b. Honowai Elementary located at 94-600 Honowai Street in Waipahu.
- c. Waipahu Elementary School located at 94-465 Waipahu Street in Waipahu.
- d. Waipahu Intermediate School located at 94-455 Farrington Highway in Waipahu.
- e. Waipahu High School located at 94-1211 Farrington Highway in Waipahu.

74. No facilities associated with the Project will be occupied; therefore, the Project is not expected to adversely affect existing educational facilities or operations near the Project site.

Air Operation Areas

75. A Glare Study was completed for the Project to assess glare resulting from the SEF. The study identifies sensitive viewers near the Project, including the Kunia Loa Ridge Farmlands,

Kunia Road (State Highway Route 750), Kalaeloa Airport, and Wheeler Army Airfield. Results of the analysis determined that no potential glare will be visible from the proposed solar operations due to the orientation of the single-axis true tracking PV panels and distance from sensitive views to the Project. As such, it was determined that no glare related impacts to airport operations, nearby structures, and motorists on Kunia Road would occur as a result of the Project's development. Additionally, the heat island effect of PV panels has been studied, and there is no evidence that the presence of the SEF will raise temperatures of the area.

CONFORMANCE WITH THE COASTAL ZONE MANAGEMENT PROGRAM

76. The Coastal Zone Management Program (the "CZMP") is a comprehensive nationwide program that establishes and enforces standards and policies to guide the development of public and private lands within the coastal areas. In the State of Hawai'i, the CZMP is articulated in the State CZM Law in Chapter 205A, HRS. Virtually all subject areas relate to potential development impacts on the shoreline, near shore, and ocean area environments. The Project site is located far mauka of any coastal recreational area, therefore the Project does not directly provide for or affect coastal recreation access to the public and will not impact coastal resources of significant value.

CONFORMANCE WITH THE SUP GUIDELINES

77. Under the City and County of Honolulu Administrative Rules Part I - Rules of the Planning Commission, Section 2-45 identifies tests consisting of five guidelines to be applied to determine if a project is considered an unusual and reasonable use. These guidelines and the Project's applicability are detailed below.

- a. *The use will not be contrary to the objectives of the State Land Use Law and regulations;*

Under the State Land Use Law, SEFs on lands with soil classified by the LSB's detailed land classification as overall master productivity rating B or C, for which a SUP is granted pursuant to Section 205-6, HRS, are permitted, provided that the Project is made subject to three conditions:

"1. The area occupied by the solar energy facilities is also made available for compatible agricultural activities at a lease rate that is at least fifty percent below the fair market rent for comparable properties." The Petitioner will provide land plots and water to farmers at a nominal cost, which will be at a rate below fifty percent of the fair market rent for compatible properties, to support the cultivation and testing of agricultural activities at commercial scale. The Agricultural Plan includes an Agrivoltaic Program that will be implemented in cooperation with HARC. Plots of agricultural land located directly between and under the PV panels will be cultivated for compatible market crops, such as lettuce and basil. Livestock grazing and the establishment of nitrogen-fixing legumes such as alfalfa and perennial peanut, and high quality, low growing grasses such as bahia grass, oats, and barley are also proposed.

"2. Proof of financial security to decommission the facility is provided to the satisfaction of the appropriate county planning commission prior to the date of commencement of commercial generation." Prior to the closing of a building permit for the SEF, the Petitioner will submit to the DPP proof of financial security to decommission the Project and restore the Petition Area to substantially the same physical condition as existed prior to development of the Project. Such proof may include, but not be limited to, a posted letter of credit, performance bond, escrow

account, or similar mechanism from a creditworthy financial institution. This will be in favor of the owners of the land subject to the SUP, in the amount based on the used acreage of that landowner by the Project multiplied by the 2020 estimated rate of decommissioning established by the Petitioner's consultant, Engineering Analytics, Incorporated (\$6,830 per acre of the constructed solar project, escalated per year for inflation), which security will remain in place for the duration of the SUP.

“3. Solar energy facilities shall be decommissioned at the owner's expense according to the following requirements: a) Removal of all equipment related to the solar energy facility within twelve months of the conclusion of operation or useful life; and b) Restoration of the disturbed earth to substantially the same physical condition as existed prior to the development of the solar energy facility.” The decommissioning plan for the Project covers all of these requirements. The decommissioning activities will include the complete removal of the foundational piles and modules and all associated components to a depth of 24 inches below grade, which include any concrete foundations within 12 months of the conclusion of operation or useful life. The site will be restored to the original topography and revegetated.

b. The use would not adversely affect surrounding property;

The existing development pattern in the vicinity of the Project follows existing zoning and is consistent with the land use character and development pattern that is called for in the City and County of Honolulu's Central O'ahu SCP and the 'Ewa Development Plan DP. The proposed use of this agricultural land

for the solar project is compatible with the existing land use of the site and surrounding area.

The nearest residential areas to the Project are Royal Kunia, located approximately 1.2 miles southeast, and Waipahu, located approximately 2 miles southeast. The westernmost portion of Mililani Town is located approximately 1.9 miles to the east. A view study was conducted for the Project which found that visibility is minimal and is not expected to result in significant adverse impacts. The SEF will be developed on agricultural lands and will have a relatively low profile that will run with the existing topography of the land. Landscaping will also be integrated to provide privacy and screen distant views of the Project. Landscaping along Kunia Road will be planted on top of the existing five-foot tall berm to ensure screening.

Noise or odors are not anticipated to adversely affect surrounding properties. During construction, short-term noise levels and air impacts are likely to occur as a result of earth moving equipment and construction vehicles. Construction activities will comply with applicable county and state regulations.

Impacts relating to glare resulting from the Project are also not anticipated. A Glare Study was completed which determined no potential glare will be visible from the proposed solar operations due to the orientation of the PV panels and distance from sensitive views to the Project. As such, it was determined that no glare related impacts to airport operations, nearby structures, and motorists on Kunia Road would occur as a result of the Project's development.

Significant traffic related impacts are not anticipated to occur with the Project's development. The Project is not expected to result in the need for typical roadway capacity enhancements. However, during construction, the addition of vehicles, particularly large trucks, turning into and out of the site access road intersections along Kunia Road, may necessitate some modification of traffic control devices in the area to raise driver awareness and enhance safety. To minimize the potential for short-term traffic impacts, a CTMP will be prepared and implemented for the Project.

c. The use would not unreasonably burden public agencies to provide infrastructure (i.e., roads, wastewater, water, drainage and school improvements, police, and fire protection);

The Project will not require public agencies to provide infrastructure, including new roads, wastewater, water, and drainage to support the Project. The Project will not require improvements to schools, as there will be no population increase with the Project's development. Impacts to the police and fire departments' operations or ability to provide adequate protection services to the surrounding community are also not anticipated. No residential use is being proposed as part of the Project, therefore, there will be no increase to the existing population in the area that will require additional public service needs.

d. Trends and needs have arisen since the district boundaries and regulations were established; and

Hawai'i is the most petroleum-dependent state in the United States. In response to this dependency, the State of Hawaii created the HCEI in 2008 and in 2015, set

a goal of having 100 percent of electricity sales come from renewable sources by the year 2045 (Act 97). With this, the need for utility-scale SEFs on O‘ahu has continued to increase as the State of Hawai‘i works towards achieving energy efficiency and renewable energy.

The purpose of the Project is to provide low-cost renewable energy in the form of solar electric power to HECO’s existing power grid. Selected as part of HECO’s competitive Request for Proposal process, Mahi Solar is one of 15 HECO Stage 2 renewable energy projects. The 620-acre Petition Area is projected to generate a total of 120 MW of energy, which is enough to power approximately 37,000 O‘ahu homes or 4 percent of the island’s electricity annually.

e. The land upon which the proposed use is sought is unsuited for the uses permitted within the district.

The land upon which the Project is sought is suited for uses permitted within the Agricultural District, including agricultural cultivation and SEFs. However, the co-location of agricultural uses with SEF on LSB-rated B and C lands is allowed by Section 205-4.5, HRS only by SUP and thus considered suitable for the establishment of the Project.

78. The LUC concurs with the assessment and recommendations of Petitioner’s Archaeological Inventory Survey for the two identified historic sites, the Waiahole Ditch and the Oahu Sugar Company irrigation infrastructure.

79. The LUC concurs that based upon the record presented, 1) the identified valued cultural, historic and natural resources include, Pohakea Trail, Ali‘i battle sites, a heiau atop Pu‘u Ku‘ua, traditional agricultural practices, cultural visual corridor to Mauna Kapu, 2) the potential impacts

of the project to these valued resources include, impact of access to Pohakea Trail, access of native tenants to gather plant resources for cultural purposes, potential impacts to the cultural visual corridor to Mauna Kapu, impacts to the Waiahole Ditch, and 3) the mitigation measures to address the potential impacts shall include the Project shall not impede reasonable access to Pohakea Trail or to gather plant resources for cultural purposes, shall not adversely impact the Waiahole Ditch, and shall coordinate with knowledgeable cultural resources, including Mr. Philpot, mitigation to minimize the impact to the visual corridor to Mauna Kapu.

RULINGS ON PROPOSED FINDINGS OF FACT

Any of the proposed Findings of Fact submitted by any party not already ruled upon by the Planning Commission by adoption, or rejected by clearly contrary Findings of Fact, are hereby denied and rejected.

Any Conclusions of Law herein improperly designated as a Findings of Fact should be deemed or construed as a Conclusion of Law; and Findings of Fact herein improperly designated as a Conclusion of Law should be deemed or construed as a Findings of Fact.

CONCLUSIONS OF LAW

1. The LUC has jurisdiction over this matter pursuant to HRS §205-6, and HAR §§15-15-95 and 15-15-96.
2. Based upon the record and pursuant to HRS §205-6, HRS and HAR §15-15-95 *et seq.*, the LUC finds that the Project meets the guidelines for determining an "unusual and reasonable use" and "would promote the effectiveness and objectives" of HRS Chapter 205 within the State Land Use Agricultural District.

3. The Project constitutes an unusual and reasonable use within the agricultural district other than those for which the district is classified, and complies with §205-6(a), HRS.

4. The Project constitutes an exceptional situation where the use desired would not change the essential character of the district nor be inconsistent therewith. Save Sunset Beach Coalition v. City and County of Honolulu, 102 Haw. 465, 78 P.3d 1 (2003).

5. The Project constitutes a use that would promote the effectiveness and objectives of HRS Chapter 205, and complies with §205-6(c), HRS.

6. The Project is consistent with the "overarching purpose" of HRS Chapter 205 which is to "protect and conserve natural resources and foster intelligent, effective, and orderly land allocation and development." Kaua'i Springs v. Planning Commission, 130 Haw. 407, 312 P.3d 283 (2013).

7. The Project's Agricultural Plan dedicates the land to long-term agricultural uses, supports the sustained growth of agriculture uses, supports the sustained growth of the agricultural industry, and meets the objectives of IAL land articulated by Section 205-42, HRS.

8. Article XI, section 1, of the Hawai'i State Constitution requires the State to conserve and protect Hawai'i's natural beauty and all natural resources, including land, water, air, minerals, and energy sources, and to promote the development and utilization of these resources in a manner consistent with their conservation and in furtherance of the self-sufficiency of the State.

9. The LUC has considered Article XI, Section 1, of the Hawai'i State Constitution and finds that the Project is in compliance and non-violative therewith. Article XI, Section 1, of the Hawai'i State Constitution states that all public natural resources are held in trust by the State for the benefit of the people. When an agency is confronted with its duty to perform as a public

trustee under the public trust doctrine, it must preserve the rights of present and future generations in the waters of the State. The agency's duty and authority is to maintain the purity and flow of our waters or future generations and to assure that the waters of our land are put to reasonable and beneficial use for the public's benefit pursuant to FOF Nos. 57-75.

10. Article XI, Section 3, of the Hawai'i State Constitution requires the State to conserve and protect agricultural lands, promote diversified agriculture, increase agricultural self-sufficiency, and assure the availability of agriculturally suitable lands. The Petition Area has approximately 69.5 acres located within lands classified as Important Agricultural Land under Part III of HRS chapter 205.

11. The LUC has considered Article XI, section 3, of the Hawai'i State Constitution and finds that the Project is in compliance and non-violative therewith pursuant to FOF Nos. 76-77.

12. Article XII, Section 7, of the Hawai'i State Constitution requires the State to protect Native Hawaiian traditional and customary rights. The State reaffirms and shall protect all rights, customarily and traditionally exercised for subsistence, cultural, and religious purposes and possessed by ahupua'a tenants who are descendants of Native Hawaiians who inhabited the Hawaiian Islands prior to 1778, subject to the right of the State to regulate such rights.

13. The LUC has considered Article XII, Section 7, of the Hawai'i State Constitution and finds that the Project is in compliance and non-violative therewith pursuant to FOF Nos. 41-49 and 78-79.

14. The State, Counties and their agencies are obligated to protect the reasonable exercise of customarily and traditionally exercised Native Hawaiian rights to the extent feasible.

Public Access Shoreline Hawai'i v. Hawai'i County Planning Commission, 79 Hawai'i 425, 903,

P.2d 1246, certiorari denied, 517 U.S. 1163, 116 S.Ct. 1559, 134 L.Ed.2d 660 (1996). The LUC has considered such responsibilities and obligations and finds the Project to be consistent and non-violative therewith.

15. The LUC is empowered to preserve and protect customary and traditional rights of Native Hawaiians. *Ka Pa 'akai O Ka 'Aina v. Land Use Commission*, 94 Hawai'i 31. The LUC has considered such responsibilities and obligations and finds the Project to be consistent and non-violative therewith pursuant to FOF No.s 47-49.

16. HRS §205-4.5(a)(21), permits Solar Energy Facilities ("SEF") on lands with soil classified by the LSB's detailed land classification as overall (master) productivity rating B or C for which an SUP is granted pursuant to HRS § 205-6; provided that:

(A) The area occupied by the SEF is also made available for compatible agricultural activities at a lease rate that is at least 50 percent below the fair market rent for comparable properties;

(B) Proof of financial security to decommission the facility is provided to the satisfaction of the appropriate county planning commission prior to date of commencement of commercial generation; and

(C) SEF shall be decommissioned at the owner's expense according to the following requirements:

(i) Removal of all equipment related to the SEF within 12 months of the conclusion of operation or useful life; and

(ii) Restoration of the disturbed earth to substantially the same physical condition as existed prior to the development of the SEF.

17. The LUC finds the Project has satisfied the requirements of Section 205-4.5(a)(21), HRS pursuant to COL paragraph 16.

18. The LUC finds DPP and the Applicant have satisfied the Notice requirements contained in HRS §205-6; HAR §15-15-95(d); and Planning Commission Rules Subchapter 4.

19. The Project is consistent with the Legislature's statement of energy policy, as set forth in HRS§196-1, HRS §226-18, and the State of Hawaii's stated policy to mitigate its greenhouse gas emissions by sequestering more atmospheric carbon and greenhouse gases than the State produces as quickly as practicable, but no later than 2045 pursuant to HRS Chapter 225P, HRS§225P-1.

DECISION AND ORDER

Having duly considered the complete record in this matter and the oral arguments presented by the Petitioner in this proceeding, and a motion having been duly made and seconded at a meeting conducted on September 9, 2021, in Honolulu, Hawaii, and the motion having received the affirmative votes required by section 15-15-13, HAR, and there being good cause for the motion, the LUC hereby APPROVES the Petition for a State special Permit for the Project, consisting of approximately 620 acres of land in the State Land Use Agricultural District identified by TMK Nos. (1) 9-2-001:020 por. and (1) 9-2-004:003 por., 006 por., 010 por., and 012 por. in the AG-1 Restricted Agricultural District of O'ahu, Hawaii, and shown approximately on Exhibit "A", attached hereto and incorporated by reference herein, subject to the following conditions:

1. Usable lands of the Petition Area, as required under Section 205-4.5(a)(21)(A), HRS, shall be made available for compatible agricultural use at a lease rate that is at least 50 percent below the fair market rent for comparable properties, as long as the Project is in operation.

Compatible agricultural operations shall be established, or the Petitioner shall be actively seeking to have such operations established, within six months of the start of commercial power generation (referred to as the “initial six-month period”). Extensions to this deadline may be granted by the Director of the DPP due to unforeseen circumstances that were beyond the control of the Applicant. The Agricultural Plan, approved by the Director of the DPP, shall include the following:

a. The Agrivoltaics Program as outlined in the Petition as ‘proof-of-concept’ to determine the suitability of the to-be-determined agricultural activities to be researched and field trialed by the HARC.

b. A collaborative process establishing an organization or association between the Petitioner and the individual agricultural operators interested in and working in the Petition Area for agricultural productions including livestock, crops, or hydroponics.

c. An irrigation system proposed for future agricultural activities that may occur under and adjacent to the solar panel arrays.

d. Fencing and gating to be in place prior to full operation of the Project to prepare for the needs of the anticipated agricultural activities.

2. If at any time during the term of the SUP no compatible agricultural operations exist on the usable lands of the Petition Area for six months after the initial six-month period (referred to as the “subsequent six-month periods”), the Petitioner shall notify the Planning Commission and the Director of the DPP in writing within 30 days of the end of any subsequent six-month periods. If requested by the Planning Commission, the Petitioner shall attend a meeting of the Planning Commission and submit a report to the Planning Commission detailing the Petitioner’s actual and reasonable efforts to actively seek the establishment of compatible agricultural operations on the usable lands of the Petition Area. The Planning Commission shall

determine whether probable cause exists to re-evaluate the SUP and to hold a hearing pursuant to Section 2-49 of the Rules of the Planning Commission. Extension to any subsequent six-month period's deadlines may be granted by the Planning Commission for unforeseen extenuating circumstances.

3. This SUP operational period shall be valid for a period of 25 years plus a 10-year extension preceded by three-years of construction and 12 months of decommissioning from the date of the State LUC Decision and Order approving the SUP, subject to further extensions upon a timely request for extension filed with the Planning Commission at least 120 days prior to the SUP's 39-year expiration. Approval of time extensions shall be required from the Land Use Commission.

4. The Petitioner shall establish the Project within three years of the date of the LUC's Decision and Order approving the SUP. Requests for extension of this deadline shall be submitted to the Director of the DPP prior to the expiration of the deadline. The Land Use Commission may grant an extension to the deadline to establish the Project due to unforeseen circumstances that were beyond the control of the Petitioner.

5. Approval of the AIS from the SHPD shall be obtained prior to the issuance of building permits. Any specific required conditions of such approval may be added to the CUP or grading permit or building permit at the discretion of the Director of the DPP.

6. The Petitioner shall submit for review and obtain the approval of the following from the Director of the DPP, prior to any subdivision action or the issuance of a grading or building permit:

a. The Agricultural Plan listed in Condition No. 1 with a site plan showing the minimum land area to be made available and the types of agricultural activity proposed for compatible agricultural use.

b. A revised landscape plan showing a proposed landscape treatment to screen the Project along the southern (makai) boundary of Petition Area Number 5, adjacent to Honouliuli National Historic site. If the Project creates a negative visual impact to the Honouliuli National Historic site in the future, and vegetative visual screening is requested by the National Park Service, the Petitioner shall install such screening.

7. Upon the conclusion of Project operations, the Petitioner, its assignees, or the landowner, shall cause the decommissioning of the Project at the Petitioner's, assignee's, or owner's expense by removing all of the equipment related to the SEF by no more than 12 months of the conclusion of operation or its useful life and the restoration of the disturbed earth to substantially the same physical condition as existed prior to the development of the SEF.

8. Prior to the closing of a building permit for the SEF, the Petitioner shall submit to the DPP proof of financial security to decommission the Project and restore the Petition Area to substantially the same physical condition as existed prior to development of the Project. Such proof may include, but not be limited to, a posted letter of credit, performance bond, escrow account, or similar mechanism from a creditworthy financial institution. This shall be in favor of the owners of the land subject to the SUP, in the amount based on the used acreage of that landowner by the Project multiplied by the 2020 estimated rate of decommissioning established by the Petitioner's consultant, Engineering Analytics, Incorporated (\$6,830 per acre of the constructed Project, escalated per year for inflation), which security shall remain in place for the duration of the SUP.

9. The Petitioner shall comply with the recommendations of the State of Hawaii, Department of Land and Natural Resources, Division of Forestry and Wildlife (“DOFAW”), regarding the protection of endangered, threatened, and native flora and fauna species and their associated habitat should be monitored and observed. If identified in the Petition Area, the Petitioner shall follow the mitigation, monitoring, and avoidance measures contained in the Biological Resource Report prepared for the Project.

10. On or before December 31 of each year that the SUP is in effect, the Petitioner or its successor shall file an annual report to the DPP, the State Office of Planning and Sustainable Development, the State Department of Agriculture and the Land Use Commission that demonstrates the Petitioner’s compliance with conditions of the SUP. The annual report shall also include, but not be limited to:

- a. The total acreage per type of agricultural activity, their yields, amount sold locally and out-of-state, and revenues in aggregate for each agricultural activity.
- b. Evidence of proof of financial security for decommissioning of the Project.
- c. Detailed records of inspection of deceased wildlife as a result of natural causes or facility operations; the hours spent by specialists training operations staff in the proper response, documentation, and reporting of any downed wildlife observed; the results of the established and implemented Downed Wildlife Observation Program; the recorded fatalities of state-listed species, federally-listed species, or species protected under the Migratory Bird Treaty Act that were reported to the DOFAW and the United States Fish and Wildlife Service; and invasive species found in the Petition Area that were reported to the Oahu Invasive Species Committee.

d. Avoidance and mitigation measures conducted to protect and preserve historic, cultural, and archeological features, sites, and resources.

e. Quantities of water demand, storage, pumping, delivery, availability by source for each of the five Project Areas prior to Phase Two of the Agrivoltaics Program of the Agricultural Plan.

11. Major modifications to: (1) The Project plans, including but not limited to significant increases in the number of PV panels; (2) Amendments to the conditions of approval; (3) Significant expansions of the approved area; or (4) Change in uses stated herein, shall be subject to the review and approval of the Planning Commission and the LUC. Minor modifications including minor additions to accessory uses and structures, and new incidental uses and structures in the approved area are subject to review and approval by the Director of the DPP.

12. The Petitioner and/or landowner shall notify the Director of the DPP of:

- a. Any change or transfer of licensee on the property;
- b. Any change in uses on the property;
- c. Termination of any uses on the property; and/or
- d. Transfer in ownership of the property.

The Planning Commission, in consultation with the Director of the DPP, shall determine the disposition of this SUP, and the facilities permitted herein.

13. Enforcement of the conditions of the SUP shall be pursuant to the Rules of the Planning Commission and the Land Use Commission, including the issuance of an order to show cause as to the reason the SUP should not be revoked if the Planning Commission has reason to believe that there has been a failure to perform consistent with representations made by the Petitioner or the conditions imposed herein.

14. The Applicant shall develop and operate the facility, including the implementation of measures to mitigate potential impacts of the Project, in substantial compliance with the representations made to the Planning Commission and the LUC as reflected in this Decision and Order. Such mitigation measures include, but are not limited to, the use of temporary and permanent BMPs to ensure that the development and operation of the facility does not result in an increase in stormwater runoff that adversely impacts downstream properties. Failure to so develop the Petition Area may result in revocation of the SP.

15. In the event that historic resources, including human skeletal remains, structural remains, cultural deposits, artifacts, sand deposits, or sink holes, are identified during demolition and/or construction activities, all work shall cease in the immediate vicinity of the find, the find shall be protected from additional disturbance, and the SHPD and O'ahu Island Burial Council, as applicable, shall be contacted immediately. Without any limitation to any other condition found herein, if any burials or archaeological or historic sites are discovered during the course of construction of the facility, all construction activity in the vicinity of the discovery shall stop until the issuance of an archaeological clearance from the SHPD that mitigation measures have been implemented to its satisfaction. An Archaeological Monitoring Plan ("AMP") that satisfies the requirements of HAR section 13-279-4, shall be prepared to guide monitoring and be reviewed and accepted by SHPD before work begins.

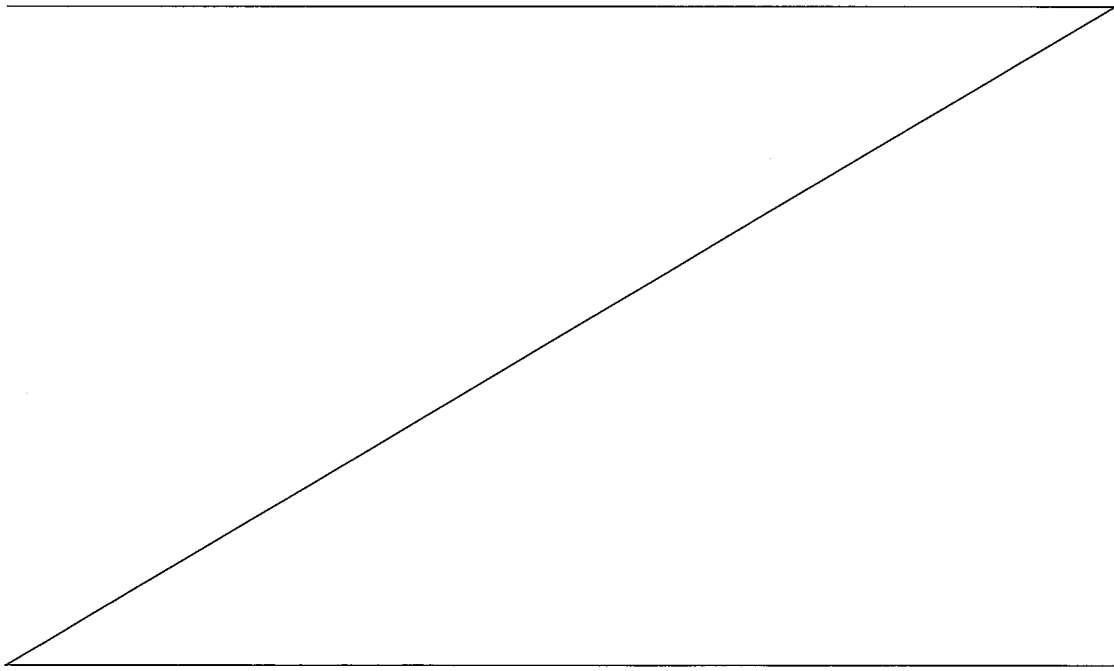
16. The Applicant will comply with the recommendations made in the Archaeological Inventory Survey with regards to the:

- Waiahole Ditch – avoidance and protection during development activities

- Oahu Sugar Company irrigation infrastructure – conduct archaeological monitoring during development activities and prepare an archaeological monitoring plan subject to acceptance by the State Historic Preservation Division prior to ground-disturbing activities.

17. The Applicant and its successors shall (1) maintain the surface and aboveground areas of the easement of the Waiahole Ditch where it traverses the Petition Area and shall have non-exclusive access to such areas; and (2) not interrupt or impair delivery of Waiahole Ditch water during construction and operation of the Project.

18. As recommended by Petitioner’s Ka Paakai O Ka Aina analysis to mitigate impacts to traditional and customary practices, Petitioner shall consult with appropriate agencies and persons who have knowledge of the Pohakea trail’s historical location and possible status and incorporate consultation recommendations in its development plans. Petitioner shall also identify and avoid all native plant communities and their associated habitats.



ADOPTION OF ORDER

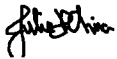
This ORDER shall take effect upon the date this ORDER is certified by this Commission.

Done at Honolulu, Hawai'i, this 17th, day of September, 2021, per motion on September 9, 2021.

LAND USE COMMISSION

APPROVED AS TO FORM

STATE OF HAWAII



Deputy Attorney General

By



JONATHAN LIKEKE SCHEUER
Chairperson and Commissioner

Filed and effective on:

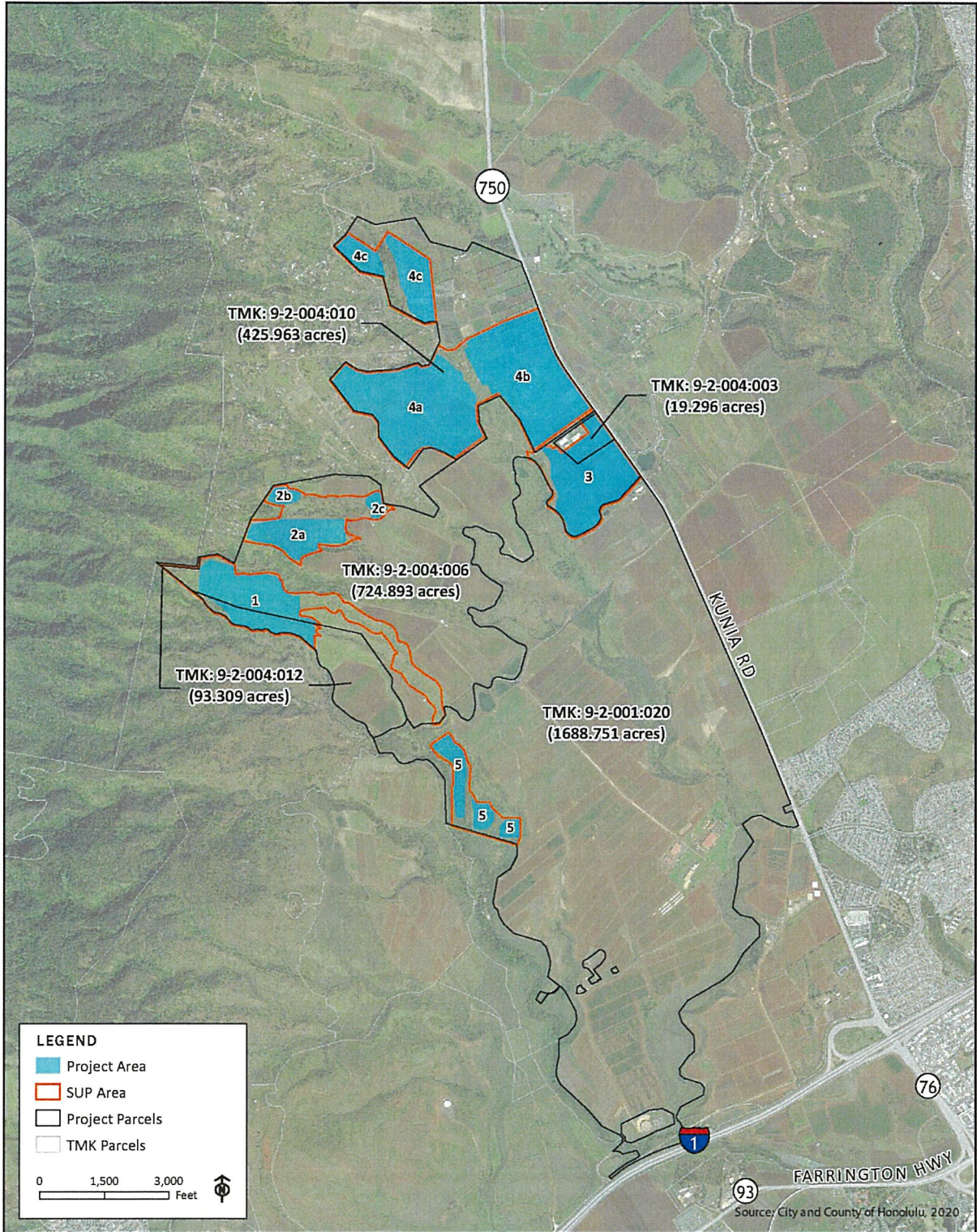
9/17/2021

Certified by:



DANIEL ORODENKER
Executive Officer

EXHIBIT "A"





BEFORE THE LAND USE COMMISSION
OF THE STATE OF HAWAII

the Matter of the Petition of)	DOCKET NO. SP21-412
)	
MAHI SOLAR, LLC)	CERTIFICATE OF SERVICE
)	
)	
For a Special Use Permit to Establish)	
a Solar Energy Facility on)	
approximately 620- acres of land)	
within the State Land Use)	
Agricultural District at 'Ewa District)	
of O'ahu, Hawai'i; Tax Map Key)	
No. (1) 9-2-001:020(por.), and)	
(1) 9-2-004:003 (por.), 006 (por.), 010 (por.))	
And 012 (por.))	

CERTIFICATE OF SERVICE

I hereby certify that a copy of the FINDINGS OF FACT, CONCLUSIONS OF LAW, AND DECISION AND ORDER was served upon the following by either hand delivery or depositing the same in the U. S. Postal Service by regular mail as noted:

MARY ALICE EVANS, DIRECTOR
State of Hawai'i
Office of Planning
235 South Beretania Street
Room 600, Leiopapa A Kamehameha Bldg.
Honolulu, HI 96813

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Department of Corporation Counsel
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REGULAR MAIL

RANDALL SAKUMOTO, Esq..
Five Waterfront Plaza, 4th Floor
500 Ala Moana Boulevard
Honolulu, Hawaii 96813

CERTIFIED MAIL
RETURN RECEIPT
REQUESTED

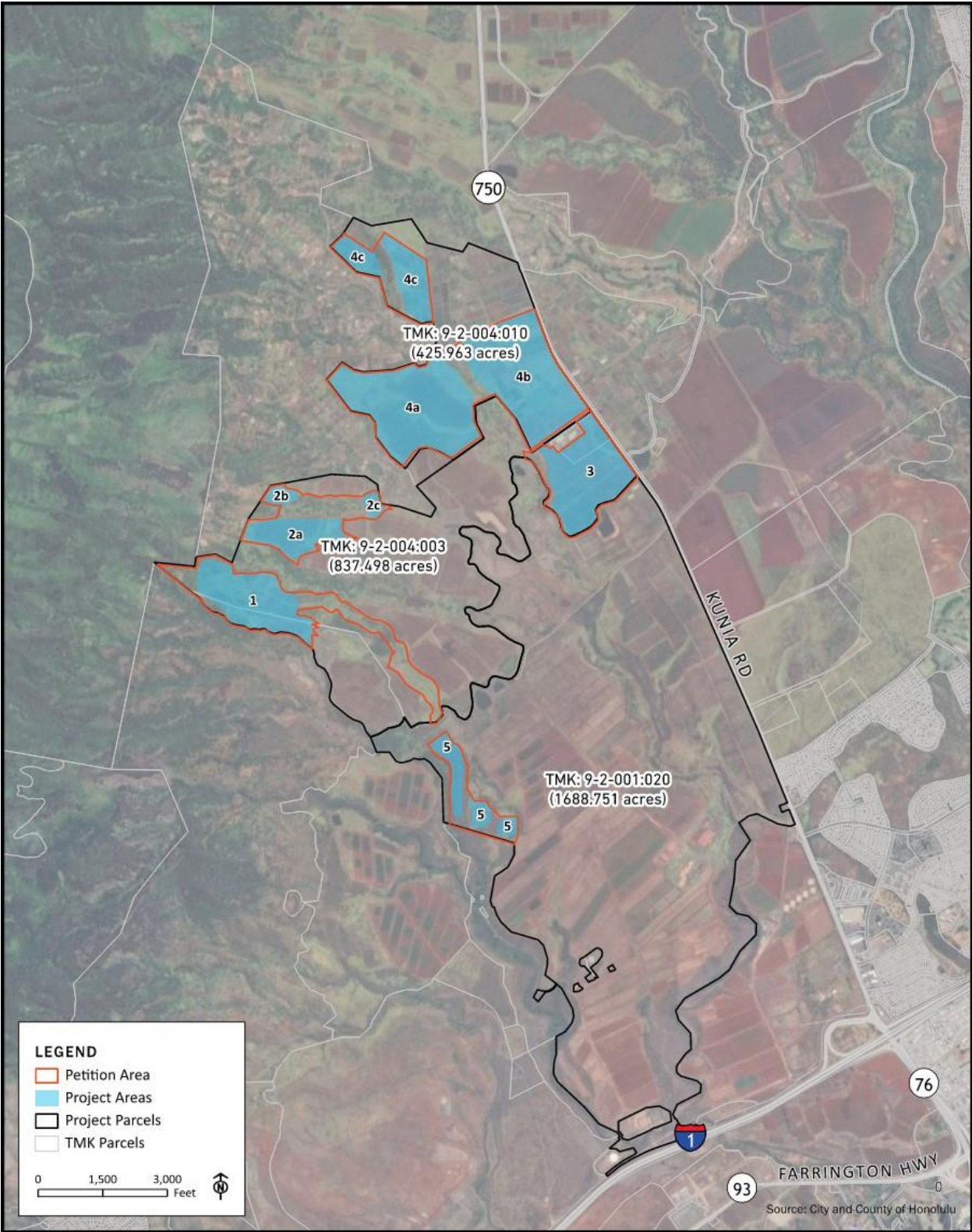
DATED: Honolulu, Hawaii, this 17th day of September, 2021.



DANIEL ORODENKER
Executive Officer

Attachment 3

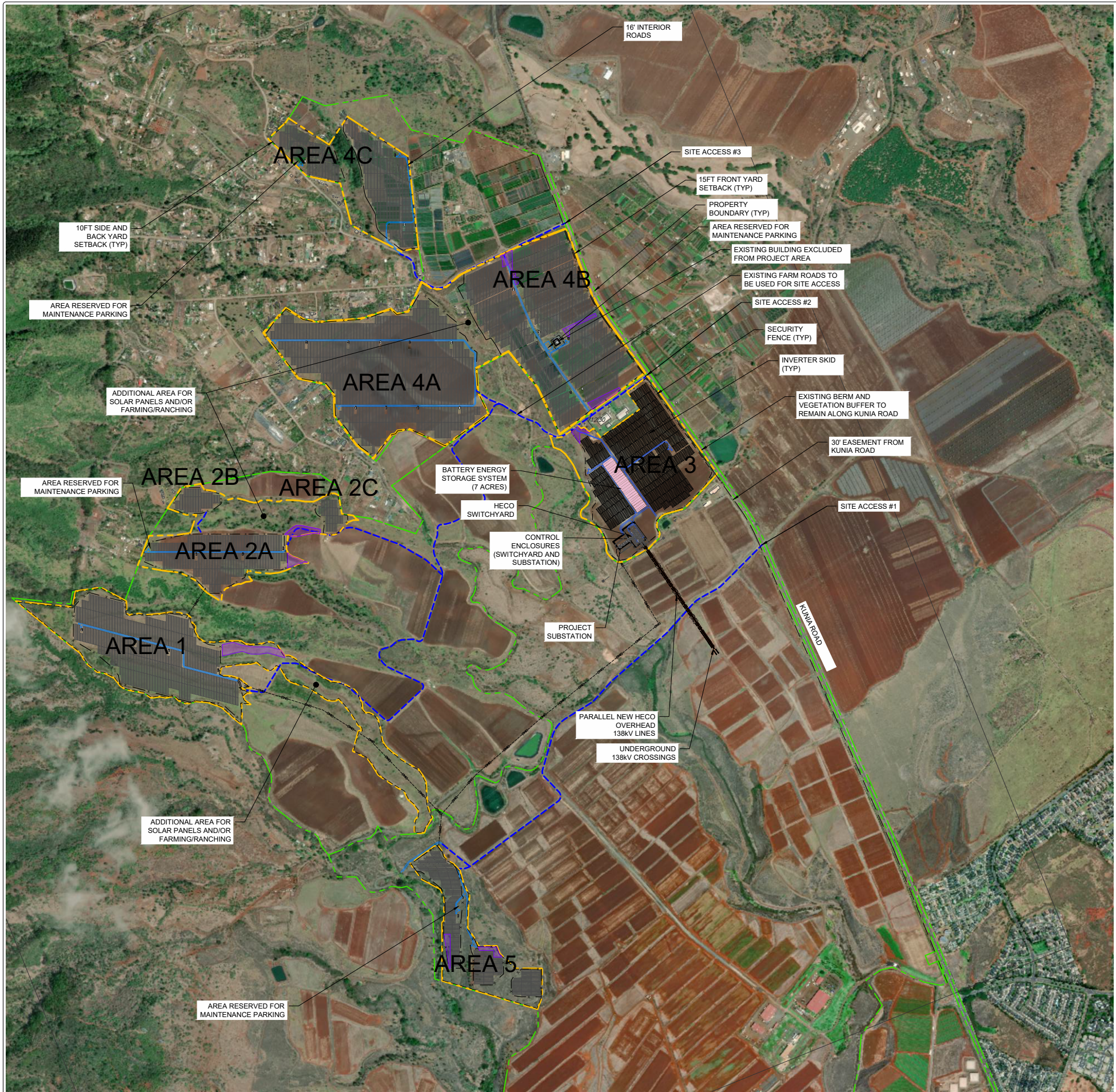
**Tax Map Keys – Updated
March 2024**



Attachment 3: Updated Tax Map Keys (2024)

Attachment 4

**Site Plan – Updated
March 2024**



SHEET NOTES:

1. LOCATIONS SHOWN ARE FOR GENERAL GUIDANCE ONLY. SLOPES OF THE SITE ARE NOT DEPICTED AND LOCATIONS MUST BE VERIFIED ON SITE BEFORE INSTALLATION.
2. FINAL STRING SIZING TO BE CONFIRMED BY ENGINEER-OF-RECORD.

LEGEND

	TMK/PROPERTY LINE
	PROJECT AREA
	FENCE LINE
	ROAD
	EXISTING OVERHEAD ELECTRICAL
	PROPOSED OVERHEAD ELECTRICAL
	SETBACK
	EXISTING ROAD FOR SITE ACCESS
	TEMPORARY CONSTRUCTION LAYDOWN

1 OVERALL SITE LAYOUT
 1" = 800'
 0' 400' 800' 1600'

THIS DOCUMENT IS THE PROPERTY OF REVAMP ENGINEERING, INC. AND CONTAINS CONFIDENTIAL INFORMATION. ITS RECEIPT OR POSSESSION DOES NOT CONVEY ANY RIGHTS TO REPRODUCE, MANUFACTURE, USE, OR SELL ANYTHING IT MAY DESCRIBE. NO PART IS TO BE DISCLOSED WITHOUT WRITTEN PERMISSION FROM REVAMP ENGINEERING, INC.

ENGINEER'S STAMP

CLIENT

PROJECT NAME
MAHI SOLAR
SITE LOCATION
 KUNIA, HAWAII
 21.413°, -158.066°

DRAWING ISSUE

1	01/21/2021	ALTERNATE LAYOUT
2	01/29/2021	PER CLIENT COMMENTS
3	02/09/2021	FOR SUP
4	02/16/2021	FOR SUP
5	02/18/2021	PER CLIENT COMMENTS

REVISION ISSUE

DRAWN BY: ET **CHECKED BY:** AAC
PROJECT NO.: 20105
DRAWING TITLE
REVISED SITE LAYOUT (2024)

DRAWING NUMBER



PRELIMINARY - NOT FOR CONSTRUCTION

Attachment 5

**Public Utilities Commission
Order No. 37515 –
Docket No. 2020-0140
December 30, 2020**

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF HAWAII

In the Matter of the Application of)
)
HAWAIIAN ELECTRIC COMPANY, INC.) DOCKET NO. 2020-0140
)
For Approval of Power Purchase)
Agreement for Renewable)
Dispatchable Generation with Mahi)
Solar, LLC.)
_____)

DECISION AND ORDER NO. 37515

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BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF HAWAII

In the Matter of the Application of)
HAWAIIAN ELECTRIC COMPANY, INC.) DOCKET NO. 2020-0140
For Approval of Power Purchase)
Agreement for Renewable) DECISION AND ORDER NO. **37515**
Dispatchable Generation with Mahi)
Solar, LLC.)
_____)

DECISION AND ORDER

By this Decision and Order,¹ the Public Utilities Commission ("Commission") approves, subject to the conditions set forth herein: (A) the Power Purchase Agreement ("PPA") between Hawaiian Electric and Mahi Solar LLC ("Mahi Solar" or "Seller"), dated September 11, 2020, for a 120-megawatt ("MW") alternating current photovoltaic ("PV") project paired with a 120 MW/480 megawatt-hour ("MWh") battery energy storage system ("BESS") to be located in Kunia, on the island of Oahu

¹The Parties to this proceeding are HAWAIIAN ELECTRIC COMPANY, INC. dba HAWAIIAN ELECTRIC ("Hawaiian Electric" or "Company") and the DIVISION OF CONSUMER ADVOCACY ("Consumer Advocate"), an ex officio party to this proceeding pursuant to Hawaii Revised Statutes ("HRS") § 269-51 and Hawaii Administrative Rules ("HAR") § 16-601-62(a). The Commission admitted Mahi Solar as a participant. See Order No. 37386, "Granting Mahi Solar, LLC's Motion to Participate," filed October 20, 2020.

(the "Project" or "Facility"); and (B) Hawaiian Electric's request to include all non-energy payments under the PPA, including the Lump Sum Payments (as defined in the PPA) and related revenue taxes, through the Purchased Power Adjustment Clause ("PPAC"), to the extent such costs are not included in base rates.

I.

BACKGROUND

A.

Procedural History

On September 15, 2020, Hawaiian Electric filed its Application requesting approval of, among other things, the subject PPA.²

On October 2, 2020, Mahi Solar submitted a motion to participate in this proceeding.³

On October 16, 2020, the Commission issued Protective Order No. 37370 to govern the production and exchange of confidential information in this docket.

²"Hawaiian Electric Company, Inc.'s Application; Exhibits 1-9; Verification; and Certificate of Service," filed September 15, 2020 ("Application"). On September 25, 2020, Hawaiian Electric filed an amended Exhibit 5, which is hereby incorporated into the Application.

³"Mahi Solar, LLC's Motion to Participate; Affidavit of Michael Alvarez; and Certificate of Service," filed October 2, 2020 ("Motion to Participate").

On October 20, 2020, consistent with its intent to review the PPAs resulting from the Hawaiian Electric Companies'⁴ Phase 2 competitive procurement on an accelerated timeline, the Commission filed Order No. 37383,⁵ setting forth a statement of issues for this proceeding, as follows:

1. Whether Hawaiian Electric has met its burden of proof in support of its request for approval of the PPA between Hawaiian Electric and Mahi Solar, dated September 11, 2020, for [a] 120 MW photovoltaic project, coupled with a 120 MW/480 MWh BESS, proposed to be located in Kunia, on the island of Oahu.
 - a. Whether Hawaiian Electric's purchased power arrangements under the PPA, pursuant to which Hawaiian Electric will dispatch energy on an availability basis from Mahi Solar and pay fixed Lump Sum Payments to Mahi Solar, are prudent and in the public interest, with explicit consideration under HRS § 269-6, of the effect of the State's reliance on fossil fuels on price volatility, export of funds for fuel imports, fuel supply reliability risk, and greenhouse gas emissions;
2. Whether Hawaiian Electric has met its burden of proof in support of its request to include all other payments for energy and non-energy under the PPA, including the Lump Sum Payment (as defined in the PPA), and related revenue taxes, through the PPAC,

⁴The "Hawaiian Electric Companies" are Hawaiian Electric, Maui Electric Company, Limited, and Hawaii Electric Light Company, Inc.

⁵Order No. 37383, "(1) Approving Hawaiian Electric Company, Inc.'s Request to Bifurcate its Power Purchase Agreement-Related Requests from its Interconnection-Related Requests; and (2) Adopting a Procedural Order to Govern the PPA-Related Requests," filed October 20, 2020 ("Order No. 37383").

to the extent such costs are not included in base rates;

3. Whether Hawaiian Electric has met its burden of proof in support of its request for its proposed accounting and ratemaking treatment for the purchased power expenses under the PPA; and
4. Whether it is in the public interest for the 138 kV line extension, required to interconnect the Project to Hawaiian Electric's system, to be constructed above the surface of the ground pursuant to HRS § 269-27.6(a) and (b).

Order No. 37383 also bifurcated Hawaiian Electric's PPA-related requests (Issues 1-3) from its above-ground 138 kilovolt ("kV") line extension-related requests (Issue 4) and established a procedural schedule governing Hawaiian Electric's PPA-related requests.⁶

Also on October 20, 2020, the Commission granted Mahi Solar's motion to participate.⁷

Between October 23, 2020, and November 4, 2020, pursuant to Order No. 37383, the Consumer Advocate issued information requests ("IRs") to Hawaiian Electric and Mahi Solar. The Commission also issued its own IRs to Hawaiian Electric and Mahi Solar on November 16, 2020.

⁶Order No. 37383 at 5-9. As mentioned in Order No. 37383, the Commission intends to issue a separate procedural order to govern Hawaiian Electric's interconnection-related requests. Id. at 16.

⁷Order No. 37386.

On November 25, 2020, Mahi Solar filed its Statement of Position.⁸

Also on November 25, 2020, the Consumer Advocate filed a motion for enlargement of time to extend the deadline to file its Statement of Position, and for Hawaiian Electric to file its Reply Statement of Position.⁹

On November 30, 2020, the Commission issued Order No. 37463, granting the Consumer Advocate's motion for enlargement of time, and extending the deadline for the Consumer Advocate to file its Statement of Position from November 25, 2020, to December 1, 2020, and for Hawaiian Electric to file its Reply Statement of Position from December 2, 2020, to December 8, 2020.¹⁰

On December 1, 2020, the Consumer Advocate filed its Statement of Position.¹¹

⁸"Mahi Solar LLC's Statement of Position; Affidavit of Vanessa Kwong; Exhibit A; Attachment 1; and Certificate of Service," filed November 25, 2020 ("Mahi Solar SOP").

⁹"Division of Consumer Advocacy's Motion for Enlargement of Time; and Certificate of Service," filed November 25, 2020 ("Consumer Advocate's Motion to Enlarge Time").

¹⁰Order No. 37463, "Granting the Division of Consumer Advocacy's Motion for Enlargement of Time," filed November 30, 2020 ("Order No. 37463").

¹¹"Division of Consumer Advocacy's Statement of Position," filed December 1, 2020 ("Consumer Advocate SOP").

On December 8, 2020, Hawaiian Electric filed its Reply Statement of Position.¹²

Pursuant to the amended deadlines set forth in Order No. 37463, no further briefing is contemplated and the PPA-related requests are ready for decision-making.

B.

Parties To The PPA

Hawaiian Electric is an operating public utility engaged in the production, transmission, distribution, purchase and sale of electricity on the island of Oahu.¹³

Mahi Solar is owned by Longroad Energy Holdings, LLC ("Longroad").¹⁴ Longroad employs the same management team that developed seven utility-scale projects currently operating in Hawaii, including over 110 MW of solar, and more than 3 gigawatts of projects on the mainland.¹⁵ Longroad has raised \$15 billion in project debt, tax equity, corporate debt and equity.¹⁶

¹²"Hawaiian Electric Company, Inc.'s Reply Statement of Position; Exhibit A; and Certificate of Service," filed December 8, 2020 ("Hawaiian Electric Reply SOP").

¹³See Application at 7.

¹⁴See Motion to Participate at 2-3.

¹⁵See Application at 19.

¹⁶See Application at 19.

Longroad has financed over \$600 million of development and construction in the State.¹⁷

C.

The Project

The Project will be located on 617 acres of land in Kunia, on the island of Oahu, identified by Tax Map Key ("TMK") Nos. "(1)9-2-001:001, (1)9-2-004:012, (1)9-2-004:006, (1)9-2-004:003, (1)9-2-004:010, and possibly portions of additional parcels specifically to accommodate a connector line being considered".¹⁸ Pursuant to the PPA, Longroad will develop, finance, construct, and operate the Project.¹⁹ The Project's 120 MW generation component will include approximately 362,000 ground mounted PV modules, mounted to 4,300 single-axis trackers, and connected to thirty-two (32) 4 MW inverters.²⁰ The Project's storage component will include a 120 MW/480 MWh BESS, an overhead 34 kV collector line, and a 34.5/138 kV substation, and possibly an additional

¹⁷See Application at 19.

¹⁸Application at 20. See also, id. at Exhibit 7.

¹⁹See Application at 19.

²⁰See Application at 21.

138 kV connector line.²¹ The Project will interconnect with Hawaiian Electric's system through a new 138 kV switching station adjacent to the existing 138 kV transmission circuits in the Kunia area.²²

Mahi Solar "represents and warrants that, as of the Commercial Operations Date ('COD') of the [Project],²³ the [Project] will be a qualified renewable resource under the [Renewable Portfolio Standards ('RPS')²⁴] in effect as of the effective date of the PPA ('Effective Date')."²⁵ Mahi Solar further represents that as of the Effective Date, "absent a change in RPS law, any and all energy delivered by Seller to Hawaiian Electric

²¹See Application at 21.

²²See Application at 21.

²³The "Commercial Operations Date" is defined by the PPA as the "date on which the Facility first achieves Commercial Operations." Application, Exhibit 1 at 151. "Commercial Operations" is further defined by the PPA as Hawaiian Electric's "satisfaction" of certain "conditions," which includes passage of the "Acceptance Test[.]" Id., Exhibit 1 at 150-151. The "Acceptance Test" is defined, in part, as a "test" conducted by Mahi Solar and witnessed by Hawaiian Electric "within thirty (30) Days of completion of all Interconnection Facilities[.]" Id., Exhibit 1 at 147.

²⁴See HRS §§ 269-91, -92, -93, -94, -95, and -96.

²⁵Application at 22. The "Effective Date" is defined by the PPA as "the last to occur of (i) the Non-appealable PUC Approval Order Date and (ii) the date that the Interconnection Requirements Amendment . . . is executed and delivered as such date is set forth in the Interconnection Requirements Amendment." Id., Exhibit 1 at 154.

from or through the [Project] will meet the definition of 'renewable electrical energy' or 'renewable energy' as defined under HRS § 269-91."²⁶

D.

Material Terms Of The PPA

The salient terms of the PPA are summarized below.²⁷ In general, Hawaiian Electric states that "[s]pecific terms and conditions of the PPA were negotiated by [Hawaiian Electric and Mahi Solar] at arms-length and contain indemnification, insurance and other provisions that will serve to protect [Hawaiian Electric] and its customers from certain risks associated with interconnecting the PV plus storage Facility."²⁸

Term: The initial term ("Term") of the PPA is twenty-five (25) years following the Commercial Operations Date.²⁹ Upon expiration of the Term, the PPA automatically terminates.³⁰

²⁶Application at 22 (citation omitted).

²⁷The terms and conditions of the PPA are also summarized in Exhibit 4 to the Application. In addition, the complete PPA is attached as Exhibit 1 to the Application. Citations to the PPA will be by the Application's "Exhibit 1" numbers, rather than the PPAs' internal page numbering.

²⁸Application at 10, 25.

²⁹See Application, Exhibit 4 at 3.

³⁰See Application, Exhibit 4 at 3.

Commission Approval and Associated Termination Rights:

Hawaiian Electric and Mahi Solar are required to use "good faith efforts to obtain, as soon as practicable," a satisfactory Commission order approving the PPA.³¹ If a satisfactory Commission order is not issued within twelve (12) months of the date the Application was filed with the Commission, or within a longer period as agreed to by Hawaiian Electric and Mahi Solar, either Hawaiian Electric or Mahi Solar may, within one hundred eighty (180) days of such date, issue written notice declaring the PPA null and void.³² Similarly, if a Commission approval order is issued within twelve (12) months but is appealed, and a non-appealable Commission order approving the PPA is not obtained within twenty-four (24) months from the date the Application was filed, eighteen (18) months from the filing of such appeal, or such longer period as Hawaiian Electric and Mahi Solar may subsequently agree upon, Hawaiian Electric or Mahi Solar may, within ninety (90) days of such date, by written notice, declare the PPA null and void.³³

Hawaiian Electric clarifies that "[t]imeframes for Commission approval were set based on, among other things,

³¹Application, Exhibit 4 at 3 (citing Exhibit 1 § 12.3(a)).

³²See Application, Exhibit 4 at 3.

³³Application, Exhibit 4 at 3-4.

the Project's schedule, the Parties' desire to meet the Guaranteed Commercial Operations Date proposed by Seller in its RFP Proposal, and the Project's need to move forward as expeditiously as possible to safe harbor the federal Investment Tax Credit ('ITC')."³⁴ However, Hawaiian Electric also clarifies that "in the event Seller is unable to safe harbor the ITC and the PPA is not declared null and void pursuant to the terms of the PPA, the contract price negotiated in the PPA will not be increased or subject to adjustment."³⁵

Company Right to Declare PPA Null and Void Prior to

Effective Date: Hawaiian Electric may declare the PPA null and void prior to the Effective Date for the following reasons:

- (a) Seller implements material changes in the type of, or performance specifications of, the equipment that affects the results of the IRS or project schedule without consent of the Company[;]
- (b) Seller's material breach of any of its representations and warranties, including a breach of Sections 22.2(c) or 22.2(d) of the PPA requiring Seller to have obtained certain Land Rights and Governmental Approvals, or the provisions of Attachment G (Company-Owned Interconnection Facilities) requiring the payment by Seller to Company of certain specified amounts for interconnection facilities, and such breach has not been cured within ten (10) Days of notice from the Company[;]
- (c) Seller, after making payment for the interconnection facilities, requests in writing

³⁴Application, Exhibit 4 at 4.

³⁵Application, Exhibit 4 at 4.

that Company stop or otherwise delay the performance of work for which Company received such payment[;] and

- (d) The IRS Letter Agreement and any agreement to effectuate a greenhouse gas emissions analysis under Section 12.3 (PUC Approval) is terminated prior to the completion of the Interconnection Requirements Study.³⁶

Pricing - Lump Sum Payment:

The PPA does not provide for any energy payment; rather, “the Seller is paid a Lump Sum Payment” in exchange “for the Company’s right to dispatch” the Project’s energy production.³⁷ The Project’s energy projection is valued based on an estimated Net Energy Potential (“NEP”) for the Project, which “represents the theoretical annual energy delivery of the [Project’s] PV System to the Point of Interconnection [with Hawaiian Electric] assuming ‘typical’ availability and ‘representative’ meteorological conditions at the [Project] site, with a probability of exceedance of 95%.”³⁸ The Lump Sum Payment amount will be adjusted “from time to time as the MWh value assigned to the [Project’s] NEP is reassessed as provided in the PPA[,]” but which will be “made on

³⁶Application, Exhibit 4 at 4-5 (citing Exhibit 1 § 12.5).

³⁷Application, Exhibit 4 at 5.

³⁸Application, Exhibit 4 at 7.

the basis of the 'Unit Price' of \$0.097045944 per [kilowatt-hour ("kWh")] of NEP, as specified in the PPA."³⁹

Pricing - Liquidated Damages: Liquidated damages ("Liquidated Damages") are assessed when/if Mahi Solar fails to achieve certain Performance Metrics that indicate that Hawaiian Electric "is not receiving the benefit of its dispatch rights over the [Project's] energy production and storage."⁴⁰ Liquidated Damages are assessed based on the full Lump Sum Payment amount and have "the potential to reduce [the Lump Sum Payment] down to zero if the [Project] is completely unavailable or if the [Project] is available but underperforming in other aspects as measured by the Performance Metrics."⁴¹ The Performance Metrics include:

1. The PV System Equivalent Availability Factor ("EAF")⁴² Performance Metric, which is used to evaluate the availability of the PV System for dispatch by Hawaiian Electric;

³⁹Application, Exhibit 4 at 7. Hawaiian Electric states that the Unit Price was calculated based on the Lump Sum Payment and MWh value of the Project's NEP as provided by Mahi Solar in its RFP Response. Id.

⁴⁰Application, Exhibit 4 at 9.

⁴¹Application at 23.

⁴²See Application, Exhibit 1 at 10-13.

2. The Guaranteed Performance Ratio ("GPR")⁴³ Performance Metric, which is used to evaluate the efficiency of the PV system;

3. The BESS Capacity Performance Metric,⁴⁴ which is used to confirm the capability of the BESS to discharge as required by the terms of the PPA;

4. The BESS EAF Performance Metric,⁴⁵ which is used to determine whether the BESS is meeting its expected availability;

5. The BESS Annual Equivalent Forced Outage Factor ("EFOF") Performance Metric,⁴⁶ which is used to evaluate whether the BESS is experiencing excessive unplanned outages; and

6. The BESS RTE Performance Metric, which is used to evaluate the BESS' energy storage efficiency.⁴⁷

In the event that Mahi Solar fails to achieve one or more of the Performance Metrics, there is a Liquidated Damages amount that is associated with such failure.⁴⁸ Liquidated Damages relating to the PV system are calculated on the basis of the

⁴³See Application, Exhibit 1 at 160.

⁴⁴See Application, Exhibit 1 at 149.

⁴⁵See Application, Exhibit 1 at 149.

⁴⁶See Application, Exhibit 1 at 390.

⁴⁷See Application, Exhibit 1 at 9.

⁴⁸See Application, Exhibit 4 at 9.

Lump Sum Payment amount.⁴⁹ Liquidated Damages relating to the BESS are calculated on the basis of the BESS Allocated Portion of the Lump Sum Payment for an applicable three-month period (which is referred to in the PPA as a "BESS Measurement Period").⁵⁰

Pricing - Other Adjustments: The Lump Sum Payment may also be adjusted based on the report of the Project's NEP by an independent engineer ("IE") at the close of Seller's construction financing, but before commercial operation of the Facility. If the IE finds that the Project's NEP is equal to or greater than the NEP estimate provided in Seller's RFP Response, the Lump Sum Payment specified in the Application will apply for the first fifteen (15) months following commercial operation of the Project. However, if the IE determines that the Project's NEP is less than the NEP estimate in Seller's RFP Response, Seller may either: (1) declare the PPA null and void; or (2) use the IE's NEP estimate to reduce the Lump Sum Payment used during the first fifteen (15) months following commercial operation of the Project, as well as pay a one-time Liquidated Damages calculated on the basis of \$10/MWh of the differential between the two NEP estimates.⁵¹

⁴⁹See Application, Exhibit 4 at 5.

⁵⁰Application, Exhibit 4 at 6.

⁵¹See Application, Exhibit 4 at 9.

Company's Right of First Negotiation to Purchase the Project: In the event Mahi Solar wishes to assign its interest in the Project or effect a change of control, Hawaiian Electric has the first right to negotiate for purchase of the Project.⁵² Additionally, "in the event that [Hawaiian Electric] is subject to consolidation treatment under [Financial Accounting Standards Board Accounting Standards Codification] 810 . . . with respect to Seller and the [Project], . . . [Hawaiian Electric and Seller] shall effectuate a sale of the [Project] to [Hawaiian Electric]. Such sale shall be on commercially reasonable terms" as specified in the PPA.⁵³ Hawaiian Electric clarifies that any such purchase of the Project "shall be subject to application to the Commission for approval, and, prior to consummation, formal Commission approval of such purchase."⁵⁴

Similarly, at the end of the PPA Term, Hawaiian Electric has the right of first negotiation to purchase the Project.⁵⁵

⁵²See Application, Exhibit 4 at 10 (citing Exhibit 1 § 19.1; and Exhibit 1 Attachment P). The PPA also provides for limited instances of "exempt sales" to which Hawaiian Electric's right of first negotiation does not apply. See Exhibit 1 at 315, Attachment P, § 1(c).

⁵³Application, Exhibit 4 at 10 (citing Exhibit 1 § 24.5; and Exhibit 1 at 326-327, Attachment P, § 6).

⁵⁴Application, Exhibit 4 at 10.

⁵⁵See Application Exhibit 1 at 312-327, Attachment P.

Compliance with Laws and Regulations: Under the PPA,

Mahi Solar is responsible for:

- (A) obtaining, at its expense, any and all necessary permits, governmental approvals, and land rights for the construction and operation of the [Project], including but not limited to rights-of-way, easements, or leases;
- (B) installing, operating, and maintaining the Project safely and in compliance with all applicable laws; and
- (C) Prior to commencement of construction of the Company-owned Interconnection Facilities, providing the necessary permits, government approvals, and land rights for construction, ownership, operation, and maintenance of the Company-Owned Interconnection Facilities.⁵⁶

Site Restoration: After termination of the PPA, or if the PPA is declared null and void, Mahi Solar will, upon Hawaiian Electric's request, remove all Company-Owned Interconnection Facilities and Seller-Owned Interconnection Facilities from the land and restore the land to its condition prior to construction (alternatively, Hawaiian Electric may elect to remove all or part of the Company-Owned Interconnection Facilities and/or Seller-Owned Interconnection Facilities, in which case Mahi Solar will reimburse Hawaiian Electric for the cost of removal).⁵⁷

⁵⁶Application, Exhibit 4 at 11 (citing Exhibit 1 §§ 11.1 - 11.3).

⁵⁷See Application, Exhibit 4 at 11.

Company Dispatch: Hawaiian Electric will have discretion to dispatch the Project, including the PV system and BESS, in its preferred manner.⁵⁸

Credit Assurances and Security: Mahi Solar is required to post and maintain Development Period Security and Operating Period Security.⁵⁹

Guaranteed Commercial Operations Date, Project Milestones: Mahi Solar must meet certain "Guaranteed Project Milestones" to keep the Project on schedule, as set forth in Article 13, and "[f]ailure to meet Guaranteed Project Milestones subjects Seller to Daily Delay Damages and eventual termination for failure to cure."⁶⁰

If a Project milestone is not achieved by the applicable deadline, Mahi Solar shall pay Daily Delay Damages to Hawaiian Electric in the amount of \$33,333.33 per day following the 10th day after the applicable milestone deadline, not to exceed one hundred eighty (180) days for each missed milestone.⁶¹

⁵⁸See Application, Exhibit 4 at 11.

⁵⁹See Application, Exhibit 4 at 11-12.

⁶⁰Application, Exhibit 4 at 12 (citing Exhibit 1, Article 13).

⁶¹Application, Exhibit 1 at 78-80, § 13.4.

II.

PARTIES' AND PARTICIPANT'S POSITIONS

A.

Hawaiian Electric

In support of its Application, Hawaiian Electric puts forth a number of justifications, including: (1) the Project is the result of a competitive bidding procurement process; (2) the Project is expected to provide bill savings over the contract term; (3) the Project is expected reduce customer exposure to fuel price volatility; (4) the Project will help meet the State's energy policy objectives and RPS goals; (5) the Facility will provide essential Grid Services as defined in the Integrated Grid Planning process; (6) the Project will reduce fossil fuel consumption by Hawaiian Electric's generating units; and (7) the Project will be dispatchable and thus allow Hawaiian Electric to get maximum value from this and additional renewable resources.⁶²

Competitive Bidding Process. Hawaiian Electric notes that the Project was selected through a competitive procurement process with defined targets and operation dates.⁶³ For Oahu, "Hawaiian Electric sought Proposals for the capability to provide approximately 1,300,000 MWh per year ('MWh/year') of variable

⁶²See Application at 3-5.

⁶³See Application at 9.

renewable dispatchable generation delivered to the Company's System."⁶⁴ Hawaiian Electric states that this process enabled it to select this Project (as part of a portfolio of projects) to deliver the benefits contemplated by the Stage 2 RFP at competitive prices.⁶⁵

Bill Savings. Because the Unit Price of the Project is fixed (and not tied to the price of fossil fuels), it is expected to result in customer bill savings customers over the term of the PPA. Hawaiian Electric estimates that as a result of the PPA, a typical residential customer consuming 500 kWh per month of electricity could save approximately \$1.38 per month on average during the term of the PPA.⁶⁶

Fuel Price Volatility. Hawaiian Electric asserts that the PPA will reduce customer exposure to volatility in fuel prices by de-linking the PPA pricing from fossil fuel over the term of the PPA, and by adding more renewable generation that displaces fossil fuels. As such, Hawaiian Electric states that customers "will not be subject to bill increases with rises in the price of fossil fuel."⁶⁷

⁶⁴Application, Exhibit 2 at 6.

⁶⁵See Application at 9.

⁶⁶See Application at 10.

⁶⁷Application at 12.

RPS Goals. Hawaiian Electric states that “[t]he renewable energy to be purchased from the Facility pursuant to the PPA will assist Hawaiian Electric in achieving the State of Hawaii’s RPS goals.”⁶⁸ Hawaiian Electric estimates that the Project could contribute up to 4.14 percentage points of the its 2025 RPS and 3.17 percentage points of the Hawaiian Electric Companies’ consolidated 2025 RPS.⁶⁹

Grid Services. Hawaiian Electric states that the Project will enable it to dispatch available energy in real time, thereby “allowing the Facility to potentially contribute to many of the grid services as proposed in the Integrated Grid Planning process traditionally provided by conventional synchronous generation[.]”⁷⁰ According to Hawaiian Electric, it “will be able to dispatch energy from the Project’s PV or storage system as needed to serve customer demand outside solar production hours, and to provide replacement reserves.”⁷¹ Hawaiian Electric asserts that “the Facility’s technical and operational capabilities will contribute to grid stabilization for faults and contingencies,” which will allow the Project to provide energy and grid services

⁶⁸Application at 11.

⁶⁹See Application at 11.

⁷⁰Application at 9 (citation omitted).

⁷¹Application at 9.

that might otherwise come from fossil fuel conventional generating units.⁷²

Reduced Fossil Fuel Consumption. Hawaiian Electric estimates that energy from the Project will reduce fossil fuel consumption over the life of the PPA as follows: 2,541,564 barrels of low sulfur fuel oil avoided; 364,199 barrels of diesel fuel avoided; and 5,202,000 barrels of Ultra-Low Sulfur Diesel.⁷³

Dispatchable Generation. Hawaiian Electric states that “[t]he PPA was based on the model Renewable Dispatchable Generation PPA filed with the Stage 2 RFP [whose] [s]pecific terms and conditions . . . contain indemnification, insurance, and other provisions that will serve to protect the Company and its customers from certain risks[.]”⁷⁴ Hawaiian Electric asserts that it negotiated significant provisions to ensure capabilities of the facility whenever it is dispatched during the term of the PPA.⁷⁵

⁷²Application at 9.

⁷³See Application, Exhibit 3 at 3-4.

⁷⁴Application at 10.

⁷⁵See Application at 10, see also Application, Exhibit 4.

B.

The Consumer Advocate

The Consumer Advocate recommends approving Hawaiian Electric's PPA-related requests, subject to certain conditions.⁷⁶ In reaching this recommendation, the Consumer Advocate states that it considered: (1) the procurement process; (2) the pricing and bill impacts associated with the proposed PPA; (3) the terms and conditions of the proposed PPA; (4) community outreach; and (5) the Project's effect on the State's reliance on fossil fuels, greenhouse gas emissions, and contribution to renewable portfolio goals.⁷⁷ Notwithstanding the Consumer Advocate's concerns regarding a few issues raised by the IO in its Oahu Phase 2 RFP IO Report, the reasonability of the Lump Sum Payments, and certain ambiguities in Hawaiian Electric's greenhouse gas ("GHG") analysis, the Consumer Advocate concludes that there do "not appear to be any 'fatal' flaws in the areas" that it reviewed."⁷⁸

The Consumer Advocate therefore recommends that the Commission: (1) approve the PPA between Mahi Solar and Hawaiian Electric, dated September 14, 2020; (2) find that the

⁷⁶See Consumer Advocate SOP at 1-2.

⁷⁷See Consumer Advocate SOP at 12.

⁷⁸Consumer Advocate SOP at 34.

purchased power arrangements in the PPA are reasonable, with explicit consideration of the effect on the State of Hawaii's reliance on fossil fuels on price volatility, export of funds for fuel imports, fuel supply reliability risk, and GHG emissions; (3) authorize Hawaiian Electric to include all payments for energy and non-energy under the PPA, including the Lump Sum Payments and related revenue taxes, in Hawaiian Electric's PPAC to the extent such costs are not included in Hawaiian Electric's base rates; and (4) approve the proposed accounting and ratemaking treatment for the purchased power expenses under the PPA.⁷⁹

The Consumer Advocate recommends that the Commission impose the following conditions on approval: (1) Hawaiian Electric should file copies of all invoices relating to the engineering, procurement, construction, and maintenance associated with the proposed PPA no later than sixty (60) days after the Commercial Operations Date, as well as file Mahi Solar's income statements or results of operations related to the proposed PPA that will allow the Commission and the Consumer Advocate to evaluate the comparability of the Project's actual results to the pro forma information; (2) as it relates to future procurement processes, bidders should be required to file the pro forma information related to their project, in addition to copies of any

⁷⁹See Consumer Advocate SOP at 1-2, 39-40.

supporting documentation (e.g., copies of leases, EPC contracts, etc.) - including native files with formulas intact - to support their bid price; (3) Hawaiian Electric should file, within 15 days of any missed Guaranteed Project Milestone, the milestone missed, the reason(s) why the milestone was missed, as well as measures the Company believes will address the delay, including preventing similar delays for the same or other projects in the future; (4) Hawaiian Electric should file periodic analyses that support a finding that the Project is being used and dispatched in a manner to maximize the benefits to customers; (5) all completed environmental assessments that will be used to develop a detailed decommissioning plan and methodology should be in place to determine if the Land has been restored to its condition prior to the development and construction of the Project; and (6) the two issues identified by the IO in the Oahu Phase 2 RFP IO Report should be addressed for future RFPs.⁸⁰

The Consumer Advocate does not object to the inclusion of the PPA payments in Hawaiian Electric's PPAC, if such costs are not included in another cost recovery mechanism.⁸¹

The Consumer Advocate does not object to Hawaiian Electric's proposed ratemaking treatment, but argues that

⁸⁰See Consumer Advocate SOP at 35-37.

⁸¹See Consumer Advocate SOP at 37.

“as the Company conducted a preliminary evaluation, which considered the PV system not to contain a lease, while the BESS was determined to contain a lease, to the extent that there are any changes to those determinations, the Company should report such changes and any associated changes to the regulatory asset/liability and ratemaking treatment.”⁸²

C.

Mahi Solar

In its Statement of Position, Mahi Solar recommends that the Commission find that the purchased power arrangements under the PPA are prudent and in the public interest.⁸³ In support of its recommendation, Mahi Solar cites: (1) cost savings to Hawaiian Electric’s customers; (2) RPS and environmental benefits; (3) needed energy storage and grid services on Oahu; and (4) community support.

Cost Savings. Mahi Solar states that the Project’s pricing of \$97.045944 per MWh “is the lowest of the Stage 2 RFP projects on Oahu.”⁸⁴ Mahi Solar further states that “[a]djusting

⁸²Consumer Advocate SOP at 39.

⁸³See Mahi Solar SOP at 3. Mahi Solar also argues that, if necessary, the Commission should find that the 138 kV line extension should be constructed above the surface of the ground. Id. at 3.

⁸⁴Mahi Solar SOP at 7.

for the approximate \$22 per MWh that would have been included in the Project's pricing" if Hawaii State tax credits were available to Mahi Solar, and not required to be passed through to ratepayers, the Project's pricing "would be equivalent to \$75.046 per MWh, which would be lower than any of the Stage 1 RFP projects on Oahu."⁸⁵

Mahi Solar states that the Project will result in cost savings of \$1.38 per month for a typical residential Hawaiian Electric customer on Oahu on average during the term of the PPA.⁸⁶ Mahi Solar also states that certain PPA terms, including potential Lump Sum Payment adjustments and various performance metrics, ensure that ratepayers will not pay for services or capacity that they do not receive.⁸⁷

RPS and Environmental Benefits. Mahi Solar observes that the Project will contribute approximately 4.14 percentage points to Hawaiian Electric's 2025 RPS.⁸⁸ Relatedly, Mahi Solar states that "the Project will contribute to a cleaner environment for the island of Oahu by" displacing approximately, 2,541,514 barrels of low sulfur fuel oil, 364,199 barrels

⁸⁵Mahi Solar SOP at 7-8 (citation omitted).

⁸⁶See Mahi Solar SOP at 8.

⁸⁷See Mahi Solar SOP at 8.

⁸⁸See Mahi Solar SOP at 9.

of diesel fuel, 5,202,000 barrels of ultra-low sulfur diesel fuel, and 1,204,286 barrels of biodiesel.⁸⁹

Energy Storage and Grid Services. Mahi Solar states that the Project includes a BESS that can store photovoltaic energy as it is produced, and allow Hawaiian Electric to dispatch that energy at time of high customer demand and assist in grid stabilization.⁹⁰ Mahi Solar further states that the BESS will perform grid services that are traditionally performed by conventional synchronous generation, including "Regulating Reserve, Primary Frequency Response, and Voltage Support."⁹¹ Mahi Solar explains that the Project is also expected to operate in "grid-forming mode, which will assist with maintaining system reliability, and help to reduce or eliminate the use of fossil-fuel synchronous units."⁹²

Community Support. Referencing initial public comments it received that were provided with the Application, and comments received at community meetings, Mahi Solar states "that the Project has general support of the local community."⁹³ Mahi Solar

⁸⁹Mahi Solar SOP at 9-10 (citation omitted).

⁹⁰See Mahi Solar SOP at 10.

⁹¹Mahi Solar SOP at 10 (citation omitted).

⁹²Mahi Solar SOP at 10 (citations omitted).

⁹³Mahi Solar SOP at 11.

states that it has developed robust plans to mitigate concerns raised in these comments, including the Project's impacts to agricultural lands, and potential impacts to pueo habitat.⁹⁴

Finally, Mahi Solar stated its opposition to various reporting conditions that the Consumer Advocate has requested in past dockets, and requested that the Commission "approve the PPA without imposing such reporting conditions on [Mahi Solar]."⁹⁵

D.

Hawaiian Electric Reply

In its Reply Statement of Position, Hawaiian Electric "generally agrees with the . . . recommendations made by the Consumer Advocate in its SOP," and "supports the SOP" filed by Mahi Solar, to the extent it recommends approval of the PPA, but "takes no position" as to Mahi Solar's other arguments.⁹⁶

With regard to the Consumer Advocate's Statement of Position, Hawaiian Electric acknowledges the Consumer Advocate's proposed conditions and addresses them as follows:

(1) Re: filing of Project invoices and Seller's income statements or results of operation following the Commercial

⁹⁴See Mahi Solar SOP at 11-13.

⁹⁵Mahi Solar SOP at 15.

⁹⁶Hawaiian Electric Reply SOP at 1-2.

Operations Date. Hawaiian “does not object to this recommendation in concept,” but contends that “[s]ince Seller will maintain such information, . . . the condition should apply to Seller, which is a participant in this proceeding.”⁹⁷ Hawaiian Electric also observes that Mahi Solar can designate this information as confidential, if desired.⁹⁸

(2) Re: requiring bidders to submit pro forma information in future procurement processes, with supporting documentation. Hawaiian Electric agrees with this recommendation and adds that, “[h]aving now completed the RFP process of Stage 2, the Companies confirm that requiring a complete pro forma would have been beneficial to the process and allowed for a more informed evaluation of developers’ proposed projects.”⁹⁹

(3) Re: requiring Hawaiian Electric to file, within fifteen (15) days of any missed Guaranteed Project Milestone, the milestone missed, the reason why the milestone was missed, and any measure to mitigate the impact (including in the future). Hawaiian Electric requests a filing timeframe of twenty-five (25) days after a missed Guaranteed Project Milestone

⁹⁷Hawaiian Electric Reply SOP at 5.

⁹⁸See Hawaiian Electric Reply SOP at 5.

⁹⁹Hawaiian Electric Reply SOP at 6.

instead to align with the Seller's ten-day grace period before being assessed Daily Delay Damages.¹⁰⁰

(4) Re: requiring Hawaiian Electric to file periodic analyses to support a finding that the Project is being used in a manner that maximizes benefits to customers. Hawaiian Electric states that the Application identifies the numerous benefits of the Project and PPA, and it is already required to provide information relating to the use and dispatch of the Facility in reports filed in Docket Nos. 2017-0213 and 2011-0206.¹⁰¹

(5) Re: decommissioning plan. Hawaiian Electric states that "it would not be prudent to only use environmental assessments prepared prior to development and construction of the Project as the basis for the Project's decommissioning plan" to determine if the Land has been restored to its condition prior to the development and construction of the Project.¹⁰² Hawaiian Electric states that "[s]ince further assessment of potential impacts to the land will continue to be refined throughout the project development, environmental study and permitting processes, a detailed decommissioning plan and methodology . . . has not yet been developed. Any such plan would require an assessment of the

¹⁰⁰Hawaiian Electric Reply SOP at 6-7.

¹⁰¹See Hawaiian Electric Reply SOP at 7-10.

¹⁰²Hawaiian Electric Reply SOP at 10.

Company's needs for the interconnection facilities and the environmental laws in effect at the time of decommissioning, and thus cannot be committed prior to the Project's development and construction."¹⁰³

(6) Re: pages 30-31 of Attachment 1 to the Consumer Advocate's Statement of Position. In connection with pages 30-31 of Attachment 1 to the Consumer Advocate's Statement of Position, Hawaiian Electric states that it will, among other things, "attempt to include more specific information related to other renewable technologies, such as biofuel or other firm type generators, for any future, renewable, technology-agnostic RFP."¹⁰⁴

Finally, Hawaiian Electric states that it supports Mahi Solar's SOP to the extent that it recommends that the Commission find the PPA prudent and in the public interest.¹⁰⁵

¹⁰³Hawaiian Electric Reply SOP at 10-11.

¹⁰⁴Hawaiian Electric Reply SOP at 12.

¹⁰⁵See Hawaiian Electric Reply SOP at 12.

III.

DISCUSSION

A.

Legal Authorities

Generally, the rates agreed upon between Hawaiian Electric and Mahi Solar pursuant to the PPA are subject to review under HRS § 269-27.2(c), which provides:

The rate payable by the public utility to the producer for the nonfossil fuel generated electricity supplied to the public utility shall be as agreed between the public utility and the supplier and as approved by the public utilities commission; provided that in the event the public utility and the supplier fail to reach an agreement for a rate, the rate shall be as prescribed by the public utilities commission according to the powers and procedures provided in this chapter.

The commission's determination of the just and reasonable rate shall be accomplished by establishing a methodology that removes or significantly reduces any linkage between the price of fossil fuels and the rate for the nonfossil fuel generated electricity to potentially enable utility customers to share in the benefits of fuel cost savings resulting from the use of nonfossil fuel generated electricity. As the commission deems appropriate, the just and reasonable rate for nonfossil fuel generated electricity supplied to the public utility by the producer may include mechanisms for reasonable and appropriate incremental adjustments, such as adjustments linked to consumer price indices for inflation or other acceptable adjustment mechanisms.

Additionally, HAR § 6-74-22 states that rates for purchases shall:

- (1) Be just and reasonable to the electric consumer of the electric utility and in the public interest;

- (2) Not discriminate against qualifying cogeneration and small power production facilities; and
- (3) Be not less than one hundred per cent of avoided cost for energy and capacity purchases to be determined as provided in [HAR] 6-74-23 from qualifying facilities and not less than the minimum purchase rate.

Concomitantly, HAR § 6-74-15(b)(1) provides that HAR § 6-74-22 does not prohibit an electric utility or any qualifying facility from agreeing to a rate for any purchase, or terms or conditions relating to any purchase, which differ from the rate or terms or conditions which would otherwise be required by HAR § 6-74-22.

Relatedly, HRS § 269-16.22 states:

All purchase power costs, including costs related to capacity, operations and maintenance, and other costs that are incurred by an electric utility company, arising out of power purchase agreements that have been approved by the public utilities commission and are binding obligations on the electric utility company, shall be allowed to be recovered by the utility from the customer base of the electric utility company through one or more adjustable surcharges, which shall be established by the public utilities commission. The costs shall be allowed to be recovered if incurred as a result of such agreements unless, after review by the public utilities commission, any such costs are determined by the commission to have been incurred in bad faith, out of waste, out of an abuse of discretion, or in violation of law. For purposes of this section, an "electric utility company" means a public utility company as defined under section 269-1, for the production, conveyance, transmission, delivery, or furnishing of electric power.

Similarly, HAR § 6-60-6(2) states:

No changes in the fuel and purchased energy costs may be included in the fuel adjustment clause unless the contracts or prices for the purchase of such fuel or energy have been previously approved or filed with the commission.

HRS § 269-6(b) further provides:

The public utilities commission shall consider the need to reduce the State's reliance on fossil fuels through energy efficiency and increased renewable energy generation in exercising its authority and duties under this chapter. In making determinations of the reasonableness of the costs of utility system capital improvements and operations, the commission shall explicitly consider, quantitatively or qualitatively, the effect of the State's reliance on fossil fuels on price volatility, export of funds for fuel imports, fuel supply reliability risk, and greenhouse gas emissions. The commission may determine that short-term costs or direct costs that are higher than alternatives relying more heavily on fossil fuels are reasonable, considering the impacts resulting from the use of fossil fuels.

B.

Procurement Of The Project

The PPA filed in this docket is the result of the Hawaiian Electric Companies' second round of competitive procurement to acquire new, dispatchable and renewable energy resources for Oahu, Maui, and Hawaii Island, which has been the focus of Docket No. 2017-0352.¹⁰⁶ The PPA with Mahi Solar

¹⁰⁶See Application at 12-13 and Exhibit 2; see generally, In re Hawaiian Elec. Co., Inc., Hawaii Elec. Light Co., Inc., and Maui Elec. Co., Ltd., Docket No. 2017-0352.

represents one of several competitively procured, renewable dispatchable generation power purchase agreements resulting from this second round of competitive bidding.¹⁰⁷ Collectively, these projects, if approved, would provide approximately 300 MW of new renewable generation and about 2,000 MWh of storage across the Hawaiian Electric Companies' service territories, and are expected to lower electricity bills, on average, approximately \$1 per month on the islands of Oahu and Maui.¹⁰⁸ When taking the first round of competitive procurement into account, which produced eight similar solar plus storage project applications in 2018, and seven of which were approved in 2019,¹⁰⁹ the past several years have represented a monumental shift in the electrical energy landscape in Hawaii towards reaching

¹⁰⁷See Docket Nos. 2020-0136, 2020-0137, 2020-0138, 2020-0139, 2020-0141, 2020-0142, and 2020-0143. Negotiations with other renewable project developers that were selected from the second round of competitive bidding are still ongoing, and may result in additional power purchase agreements.

¹⁰⁸<https://www.hawaiianelectric.com/new-renewable-projects-submitted-to-regulators-will-produce-lower-cost-electricity-advance-clean-energy> (accessed December 23, 2020).

¹⁰⁹The Commission issued a Decision and Order regarding the Paeahu Solar project in Docket No. 2018-0433 on October 15, 2020, which is currently the subject of a pending motion for reconsideration.

100% renewable energy generation in accordance with the State's Renewable Portfolio Standards.¹¹⁰

C.

Addressing The PPA

1.

Material PPA Terms And Conditions

a.

Pricing Provisions

Lump Sum Payment. As described above, the Lump Sum Payment is payable to Mahi Solar on a monthly basis and calculated by multiplying the Unit Price by the NEP, which is then offset by Liquidated Damages, if applicable. The Unit Price is fixed at \$0.097045944 per kWh of NEP, or approximately \$0.10 per kWh, for the Term of the PPA.¹¹¹

The Commission observes that, at approximately \$0.10/kWh, the Unit Price is similar to other PPAs that the Commission has approved, and continues the declining pricing trend in procurement of utility-scale renewable generation.

NEP. The NEP is defined by the PPA as:

The estimated single number with a P-Value of 95 for the annual Net Energy that could be produced by the Facility

¹¹⁰See HRS § 269-92.

¹¹¹See Application, Exhibit 1 at 183 and Exhibit 4 at 7.

based on the estimated long-term monthly and annual total of such production over a ten-year period. The Net Energy Potential is subject to adjustment as provided in Attachment U (Calculation and Adjustment of Net Energy Potential) to this Agreement, but in no circumstances shall the Net Energy Potential exceed the NEP RFP Projection. Any energy losses incurred by the BESS should not be factored into the NEP.¹¹²

In more colloquial terms, as noted above, “[t]he NEP represents the theoretical annual energy delivery of the [Project]’s PV system to the Point of Interconnection assuming ‘typical’ availability and ‘representative’ meteorological conditions at the site, with a probability of exceedance of 95%.”¹¹³ Mahi Solar represents that the Project will be capable of generating up to 271,525 MWh per year.¹¹⁴

The NEP is subject to adjustments during the Term of the PPA. The first assessment will occur prior to commercial operation of the Project, at the close of Mahi Solar’s construction financing.¹¹⁵ Hawaiian Electric will receive a copy of the IE’s Energy Assessment Report, which will include the IE’s own NEP

¹¹²Application, Exhibit 1 at 168 (emphasis added). “Net Energy,” in turn, is defined as “[t]he total quantity of electric energy (measured in kilowatt hours) produced by the Facility over a given time period and delivered to the Point of Interconnection, as measured by the revenue meter. ‘Net Energy’ is the equivalent of ‘Actual Output.’” Id.

¹¹³Application, Exhibit 4 at 7.

¹¹⁴See Application at 2, and Exhibit 4 at 5.

¹¹⁵See Application, Exhibit 4 at 9.

estimate.¹¹⁶ If the IE's NEP estimate is "equal to or greater than the NEP estimate provided in Seller's RFP Response, the Lump Sum Payment specified in this Application will apply for the first 15 months following Commercial Operations."¹¹⁷ If the IE's NEP estimate is less than the estimate in Seller's RFP Response, Seller may either declare the PPA null and void or may accept the IE's NEP estimate; however, if Seller accepts the IE's NEP estimate, the IE's NEP estimate will be used to reduce the Lump Sum Payment during the first 15 months following Commercial Operations and Seller must pay a one-time Liquidated Damages penalty (calculated on the basis of \$10/MWh of the differential between the Seller's NEP estimate and the IE's NEP estimate).¹¹⁸ Thereafter, evaluators shall conduct periodic operational energy production reports ("OEPR"), which may trigger further recalculations of the Lump Sum Payments.¹¹⁹

Thus, although the NEP will be adjusted at certain intervals specified by the PPA, the PPA caps the NEP at the amount specified by the RFP (i.e., 271,525 MWh per year). Applying the PPA's Unit Price of \$0.097045944/kWh, the maximum

¹¹⁶See Application, Exhibit 4 at 9.

¹¹⁷Application, Exhibit 4 at 9.

¹¹⁸See Application, Exhibit 4 at 9.

¹¹⁹See Application, Exhibit 1 at 367-379 (Attachment U, "Calculation and Adjustment of Net Energy Potential").

Lump Sum Payment under the PPA is \$26,350,399.95 per year, or \$2,195,866.66 per month.¹²⁰

Upon considering the PPA's NEP (which is capped at a maximum amount) and Unit Price (which is fixed for the Term of the PPA), the Commission finds that the Lump Sum Payment is reasonable because placing a maximum amount payable on the Lump Sum Payment provides more certainty and comparatively less price volatility to fossil fuel prices.¹²¹ In addition, as noted above, the Unit Price is reasonable when compared to similar PV plus BESS PPAs that the Commission has recently approved.

Moreover, based on the Lump Sum Payment for this Project, Hawaiian Electric estimates that a typical residential ratepayer using 500 kWh per month will save \$1.38, on average, in monthly electricity payments during the PPA term.¹²²

Liquidated Damages. As stated above, Liquidated Damages have the potential to reduce the Lump Sum Payment down to zero if the Project is completely unavailable or underperforming as measured by the Performance Metrics. For the PV system of the Project, these Performance Metrics include: (a) the PV Equivalent

¹²⁰Expressed as a mathematical equation: $(\$0.097045944 \text{ per kWh} \times 1,000) \times 271,525 \text{ MWh per year} = \$26,350,399.95 \text{ per year.}$
 $\$26,350,399.95 \text{ per year} / 12 \text{ months} = \$2,195,866.66 \text{ per month.}$

¹²¹See HRS § 269-6(b).

¹²²See Application at 10.

System Availability Factor Performance Metric, which evaluates the availability of the PV system for dispatch by Hawaiian Electric; and (b) the GPR, which evaluates the efficiency of the PV system.¹²³

Regarding the BESS system, the Performance Metrics include: (a) the BESS Capacity Performance Metric, which confirms the capability of the BESS to discharge energy as required under the terms of the PPA; (b) the BESS EAF Performance Metric, which determines whether the BESS is meeting its expected availability; (c) the BESS EFOF Performance Metric, which evaluates whether the BESS is experiencing excessive unplanned outages; and (d) the BESS RTE Performance Metric, which is used to evaluate the BESS' storage efficiency.¹²⁴ Liquidated Damages relating to the BESS are calculated on the basis of the BESS Allocated Portion of the Lump Sum Payment (i.e., 50%) for an applicable three-month period (i.e., the BESS Measurement Period).¹²⁵

The Commission finds that these Performance Metrics will collectively provide cost savings to ratepayers, as well as ensure that ratepayers are not paying for services or capacity if the PV system or the BESS do not meet their expected capability (as noted

¹²³See Application, Exhibit 1 at 10-16, and Exhibit 4 at 6.

¹²⁴See Application, Exhibit 1 at 9-34, and Exhibit 4 at 6.

¹²⁵See Application, Exhibit 1 at 149-150.

above, the NEP for the Project is estimated at 95% capability which will be backstopped by these Performance Metrics).

b.

Nature Of The PPA.

The PPA is essentially a capacity contract, under which Hawaiian Electric agrees to pay Mahi Solar a monthly Lump Sum Payment in exchange for the flexibility to dispatch the Project to meet the grid's "energy and grid service requirements."¹²⁶ Consequently, Hawaiian Electric will make payments, even if it is unable or decides not to take any energy from the Project.¹²⁷ While the Performance Metrics and Liquidated Damages may offset the Monthly Lump Sum payments, in the event no Liquidated Damages are assessed, Hawaiian Electric is required to pay the full amount of the Monthly Lump Sum, regardless if Hawaiian Electric is capable of dispatching all of the Project's energy during that month. As the Consumer Advocate notes, this "represents a significant transfer of risk to customers."¹²⁸

Notwithstanding the Consumer Advocate's concerns, upon reviewing the record and considering the circumstances of

¹²⁶Application at 2.

¹²⁷See Consumer Advocate SOP at 20.

¹²⁸Consumer Advocate SOP at 20.

this particular Project, the Commission finds that the capacity contract nature of the PPA is reasonable. First, the Commission notes that, the PPA, like those from the Phase 1 RFP, represents a relatively new model of PPA which, as acknowledged by the Consumer Advocate, "represents an evolution from earlier contracts," and eliminates a number of less desirable provisions, including seniority curtailment, evergreen terms, and variable pricing.¹²⁹

The Commission notes that these previously-included provisions were undesirable due to the impacts they had on curtailment of renewable energy. Under prior PPAs, the seniority curtailment provision provided that renewable PPAs would be curtailed on a seniority basis in reverse chronological order.¹³⁰ As a result, the utility would "curtail deliveries of electric energy from power purchase agreements with the most recent chronological seniority date first, and deliveries under the earliest power purchase agreements last[,]"¹³¹ which ultimately meant that the newer, more efficient projects were curtailed first, while older, less efficient projects were curtailed last.

¹²⁹See Consumer Advocate SOP at 19.

¹³⁰See In re Maui Elec. Co., Ltd., Docket No. 2015-0225, Decision and Order No. 33537, filed February 18, 2016 ("D&O 33537"), at 13.

¹³¹D&O 33537 at 13.

In addition to curtailing more efficient renewable projects, this provision also discouraged potential Independent Power Producers (“IPPs”) from entering into PPAs with Hawaiian Electric, as the IPPs anticipated that their projects were more likely to be curtailed.¹³²

These concerns subsequently resulted in new contract mechanisms, including variable pricing, under which the utility would pay an IPP for both electric energy delivered to the utility as well as for “compensable curtailed energy,” which is essentially energy from the IPP that the utility is unable to accept.¹³³ While providing some assurance and financial stability to IPPs, variable pricing can still constitute payments for energy that customers cannot use. In prior proceedings, the Commission has instructed Hawaiian Electric to investigate an “alternative mechanism to the current curtailment system[.]”¹³⁴

The PPA, with its Lump Sum Payment provision, represents an improvement over these prior contract models. Significantly, the addition of the BESS allows the Project to store electric energy received from the PV system, thereby allowing Hawaiian Electric the flexibility to dispatch it at a meaningful

¹³²See D&O 33537 at 56.

¹³³D&O 33537 at 9-10.

¹³⁴See D&O 33537 at 53-54 and 67-68.

time, rather than curtailing it or dispatching it at the expense of curtailing another renewable resource.¹³⁵ This should mitigate concerns regarding curtailment seniority and variable pricing, as the Project can use its BESS to store energy that Hawaiian Electric cannot immediately dispatch, rather than face curtailment or require complicated pricing mechanisms to provide financial recovery for the IPP.

Additionally, as discussed above, the dispatchable nature of the PPA will allow Hawaiian Electric to dispatch stored energy to meet “periods of peak energy demand, and other non-solar periods, that could otherwise require fossil generation to meet[,]” and “assist in grid stabilization subject to discharge limits.”¹³⁶

That being said, the Commission recognizes the Consumer Advocate’s concerns about the capacity-payment nature of the PPA and agrees with the Consumer Advocate’s suggestion that Hawaiian Electric should be “prepared to demonstrate that

¹³⁵While prior contract models provided IPPs with the ability to “bank” curtailed energy, this is somewhat of a misnomer, in that the curtailed energy is merely credited toward a future term but is physically lost due to curtailment. See D&O 33537 at 10-11 and 54-55.

¹³⁶Application at 23.

resources are being used to maximize the benefits to customers, without excess capacity or underutilized resources.”¹³⁷

As such, although the Commission finds that the nature of the PPA is reasonable and in the public interest when considering other pricing terms of the PPA, as discussed above, the Commission will require Hawaiian Electric to report on Project operations for purposes of accountability, to illustrate how the Project is dispatched and used to maximize customer benefits, to inform other projects, and to inform related dockets, as follows:¹³⁸

Monthly reporting. Beginning with the first full calendar month following the in-service date of the Project, Hawaiian Electric shall file hourly commitment, dispatch, and curtailment data for the Project and all other Hawaiian Electric and IPP units on the system. Hawaiian Electric shall also include a narrative explanation of how the Project’s dispatch and use benefitted customers (e.g., customer bill savings, reductions in fossil fuel generator dispatch, associated fuel savings, early and/or on-schedule fossil fuel generator retirement(s), reduced GHG emissions, etc.).

¹³⁷Consumer Advocate SOP at 35.

¹³⁸See e.g., In re Hawaiian Elec. Co., Inc., Docket No. 2017-0213, Decision and Order No. 35556, filed June 27, 2018 (“D&O 35556”), at 63-64.

The monthly and annual reports shall be filed in Docket No. 2011-0206 and may be consolidated with other curtailment reports therein.¹³⁹

The Commission finds that such reporting represents a reasonable step towards improving transparency regarding Hawaiian Electric's use of its renewable resources for the benefit of its customers. Additional reporting requirements may be imposed in other dockets to the extent the Commission finds them to be reasonable and in the public interest.

c.

PPA Duration

As noted above, the PPA provides for an initial Term of twenty-five (25) years following the Commercial Operations Date.¹⁴⁰ "Upon expiration of the Initial Term, the PPA automatically terminates."¹⁴¹

The Consumer Advocate notes that the PPA term is "lengthy[,] " and "[d]uring times of declining price trends and technological improvements, such long terms may [] stifle

¹³⁹Hawaiian Electric shall work with Commission staff to ensure the content of the monthly reports is consistent with this Decision and Order and adequately provides the transparency required herein.

¹⁴⁰See Application, Exhibit 4 at 3.

¹⁴¹Application, Exhibit 4 at 3.

innovation since, as technology improves and prices decline, customers are not able to benefit from such improvements if [Hawaiian Electric] is locked into lengthy contracts.”¹⁴²

However, as the Consumer Advocate also notes, the IO in Docket No. 2017-0352 concluded that the non-price terms of the PPA are “reasonable” and that during the negotiation of the PPAs, the IO “observed no undue preference or treatment by Hawaiian Electric.”¹⁴³

Additionally, the PPA will automatically terminate upon the expiration of the initial 25-year term. This represents an improvement over previous PPAs, which included so-called “evergreen” provisions, under which the PPA would automatically renew upon the expiration of the initial term, without change in contract provisions.¹⁴⁴ The Consumer Advocate and Commission have expressed concern over such evergreen provisions in the past, which have necessitated Commission-imposed notice requirements.¹⁴⁵ The subject PPA’s move away from such provisions is a notable improvement.

¹⁴²Consumer Advocate SOP at 20-21.

¹⁴³Consumer Advocate SOP at 21.

¹⁴⁴See In re Hawaiian Elec. Co., Inc., Docket No. 2014-0356, Decision and Order No. 33036, filed July 31, 2015 (“D&O 33036”), at 66-68.

¹⁴⁵See D&O 33036 at 67-70.

Moreover, the PPA duration should not be viewed in isolation from the rest of the terms of the PPA. As discussed above, the Unit Price of the PPA is lower than recent PV plus BESS PPA pricing approved by the Commission, and the Lump Sum Payment is capped pursuant to the terms of the PPA, thereby limiting the potential cost exposure to Hawaiian Electric's customers.

Overall, the Commission finds that the subject PPA represents a significant step forward, not only towards Hawaii's renewable energy goals consistent with HRS § 269-6, but also towards lower energy prices. As such, combined with the reporting requirements set forth above, in Section III.C.1.b, the Commission finds that the 25-year Term of the PPA is reasonable and in the public interest.

d.

Curtailment

As discussed above in Section III.C.1.b. (Nature Of The PPA), above, the PPA contains provisions that address curtailment issues present in prior power purchase agreements, such as seniority curtailment and variable pricing. As stated by Hawaiian Electric, "[u]sing the availability of the [Project] and its Net Energy Potential as a basis for Lump Sum Payments limits the developer's financial risk associated with excess energy

curtailment, as seen in PPAs for prior projects, while at the same time ensuring low-cost pricing to benefit customers for the term of the PPA.”¹⁴⁶ In contrast to prior as-available renewable projects with fixed price energy on a must-take, as-available basis, the PPA allows Hawaiian Electric “to dispatch the [P]roject’s capacity and energy, with the flexibility for the facility to be used by the Company in the manner to benefit the system as a whole, in real time, based on current conditions, available resources and immediate needs.”¹⁴⁷

For similar reasons, Hawaiian Electric states that “addition of this Project is not expected to increase or decrease the system energy contributions of existing must-take, as-available independent power producer facilities[;]”¹⁴⁸ i.e., the Project should not affect curtailment of existing IPPs. As discussed above, many existing IPPs are curtailed for excess energy in reverse chronological seniority. Hawaiian Electric asserts that flexibility provided by the Project’s BESS allows Hawaiian Electric to avoid this issue by “only dispatch[ing] the [Project] when there is a system need for the energy after taking

¹⁴⁶Application at 32.

¹⁴⁷Hawaiian Electric Response to CA/HECO-IR-19.

¹⁴⁸Hawaiian Electric Response to CA/HECO-IR-20.

into account energy contributions from existing independent power producer facilities.”¹⁴⁹

Hawaiian Electric also states that it does not expect the Project “to increase or decrease the system energy contributions of existing must-take, as-available independent power producer facilities.”¹⁵⁰ Hawaiian Electric also states that “to the extent that the Project’s storage component can be charged from other generating resources on the grid, there could be the potential to utilize some of the energy generation from existing must take, as-available independent power producer facilities[.]”¹⁵¹

Upon review, the Commission finds that these considerations support the overall reasonableness of the Project. Specifically, the BESS can help significantly reduce curtailment risk, as compared to prior renewable PV projects. Furthermore, while the Project, due to the PPA’s provisions, may not necessarily improve curtailment of other, existing, renewable IPPs, it is not expected to exacerbate or worsen curtailment issues.

Additionally, the Commission observes that the reporting requirements described in Section III.C.1.b. (Nature Of The PPA),

¹⁴⁹Hawaiian Electric Response to CA/HECO-IR-20.

¹⁵⁰Hawaiian Electric Response to CA/HECO-IR-20.

¹⁵¹Hawaiian Electric Response to CA/HECO-IR-20.

above, gives the Commission assurances by providing transparency and accountability for Hawaiian Electric's dispatch decisions. If the Commission determines that renewable facilities are experiencing significant curtailments as a result of the Project, the Commission may investigate this issue as warranted.

2.

Land Use

According to Hawaiian Electric, the Project will be located on 617 acres of land in Kunia, on the island of Oahu, identified by TMK Nos. "(1)9-2-001:001, (1)9-2-004:012, (1)9-2-004:006, (1)9-2-004:003, (1)9-2-004:010, and possibly portions of additional parcels specifically to accommodate a connector line being considered".¹⁵²

Mahi Solar states that it has provided Hawaiian Electric with documents to demonstrate its land rights with respect to the Project.¹⁵³ Although Mahi Solar has not yet received all the necessary permits and/or approvals for the Project, the Commission

¹⁵²Application at 20. See also, id. at Exhibit 7; <http://geodata.hawaii.gov/energis/> (providing a database searchable by TMK No.). The Commission notes that searching for TMK (1)9-2-001:001 does not yield a result in the energis database, and that Exhibit 7 shows that the Project will include TMK (1)9-2-001:020, but not TMK (1)9-2-001:001.

¹⁵³See Mahi Solar Response to CA/LONGROAD-IR-2a.

notes that Mahi Solar has identified the necessary permits and approvals and developed an anticipated timeline of when it expects to receive them.¹⁵⁴ The Commission notes that section 11.1 of the PPA expressly states: "Seller shall obtain, at its expense, any and all Governmental Approvals required for the construction, ownership, operation and maintenance of the Facility."¹⁵⁵

In the Application, Hawaiian Electric describes the Project site as "mauka of Village Park and Royal Kunia and primarily ewa (west) of Kunia Road. The area is a relatively flat landscape that supports a mixture of open space, agriculture and some development."¹⁵⁶ Hawaiian Electric further states "[t]he Project will be constructed on land owned by farmers who are active in commercial agriculture and are making some portion of their land available for the Project, while continuing to farm crops on the remainder of the property, where their operations will not be negatively affected by the [Project]."¹⁵⁷

Relatedly, the Commission notes that certain parcels for the Project's proposed site appear to contain soil classified as

¹⁵⁴See Mahi Solar Response to CA/LONGROAD-IR-2b. The Commission notes that this response is mislabeled as a response to CA/LONGROAD-IR-2a.

¹⁵⁵Application, Exhibit 1 at 67.

¹⁵⁶Application at 20.

¹⁵⁷Application at 20.

"A," according to the Land Study Bureau's detailed land classification and productivity rating.¹⁵⁸ While land use issues are governed by the Land Use Commission, and beyond the Commission's scope of authority and expertise, the Commission is aware that HRS Chapter 205 places certain restrictions and/or requires specific permits for certain uses on agricultural land.¹⁵⁹

Mahi Solar represents that it is responsible for obtaining every governmental approval necessary to complete the Project and has a timeline for securing all outstanding governmental approvals. The Commission accepts Mahi Solar's representations regarding governmental approvals and further notes that, in the event Mahi Solar fails to obtain the necessary governmental approvals, the PPA provides for the assessment of damages against Mahi Solar and in favor of Hawaiian Electric, which protects Hawaiian Electric's customers from any potential negative effects related to permitting or other governmental approvals. The Commission expects Hawaiian Electric to hold Mahi Solar accountable for its responsibilities and making diligent progress to complete the Project according to the timeline contemplated by the Application and the PPA.

¹⁵⁸See <http://geodata.hawaii.gov/energis/> (providing a database searchable by TMK No. and with an LSB (A-E Soil Ratings) layer).

¹⁵⁹See generally, HRS Chapter 205.

Specifically, pursuant to the PPA, Mahi Solar is required to pay Daily Delay Damages to Hawaiian Electric if Mahi Solar misses a Guaranteed Project Milestone other than Commercial Operations.¹⁶⁰ Furthermore, Hawaiian Electric has certain rights to terminate the PPA in the event Mahi Solar does not achieve a Guaranteed Project Milestone Date.¹⁶¹

The Commission finds that having these delay provisions in the PPA are reasonable in light of Hawaii's mandated RPS goals.¹⁶² Accordingly, the Commission finds that land use issues are satisfactorily addressed by the PPA and through Hawaiian Electric's and Mahi Solar's representations. However, the Commission also finds that the PPA contemplates situations where Daily Delay Damages might be paid from Mahi Solar to Hawaiian Electric prior to the Commercial Operations Date and the associated Lump Sum Payment.¹⁶³

¹⁶⁰See Application, Exhibit 1 at 79.

¹⁶¹See Application, Exhibit 1 at 79-80.

¹⁶²See HRS § 269-92(a).

¹⁶³See Application, Exhibit 1 at 79-80. As noted above, the PPA identifies the Guaranteed Commercial Operations Date of December 31, 2023. Application, Exhibit 1 at 299. Furthermore, Hawaiian Electric requests that the Commission issue a decision and order as soon as practicable in order to facilitate the "attainment of tax credits, which is expected to ultimately reduce the cost of electricity to benefit customers," as described in the Application. Application at 6.

According to the PPA, the Lump Sum Payment commences on the Commercial Operations Date.¹⁶⁴ As such, it is possible that Daily Delay Damages could be paid from Mahi Solar to Hawaiian Electric prior to the commencement of the Lump Sum Payment, in the event Guaranteed Project Milestones are not met before the Commercial Operations Date. Under these circumstances, if Daily Delay Damages are assessed, they would not be offset by Hawaiian Electric's Lump Sum Payment, because the date to begin the Lump Sum Payment (commencing with the Commercial Operations Date) would not yet have occurred.

According to the PPA, Daily Delay Damages are payable on a monthly basis from the "Development Period Security."¹⁶⁵ Furthermore, "[i]f the Development Period Security is at any time insufficient to pay the amount of the draw to which Company is then entitled, Seller shall pay any such deficiency to Company promptly upon demand."¹⁶⁶

As such, to the extent that Daily Delay Damages are paid to Hawaiian Electric prior to commencement of the Lump Sum Payment, Hawaiian Electric shall credit the amount of the Daily Delay Damages received to its ratepayers through the PPAC.

¹⁶⁴See Application, Exhibit 1 at 8.

¹⁶⁵Application, Exhibit 1 at 80 (PPA § 13.5).

¹⁶⁶Application, Exhibit 1 at 80 (PPA § 13.5).

3.

Greenhouse Gas Emissions Analysis

a.

Lifecycle GHG Emissions

Hawaiian Electric's GHG Analysis is included as Exhibit 5 to the Application.¹⁶⁷ The GHG Analysis considers three stages in the lifecycle assessment of GHG emissions associated with the Project: (1) the upstream stage, which includes emissions attributed to raw material extraction, manufacturing, material transportation, and Project construction; (2) the operations stage, which includes emissions caused by operation and maintenance of the Project; and (3) the downstream stage, which includes emissions associated with decommissioning and disposal of Project materials. The lifecycle GHG analysis results are summarized in the tables below.¹⁶⁸

¹⁶⁷See Application, Exhibit 5 ("GHG Analysis").

¹⁶⁸For all information involving calculated data, Hawaiian Electric provided underlying inputs, assumptions, calculations, formulas, and references in an Excel-compatible spreadsheet file "MahiSolar_GHGAnalysis_Sep2020.xlsx".

Project Stage ¹⁶⁹		GHG Intensity (kg CO ₂ e)/MWh			
		Full Project	T&D Infrastructure	Solar	Storage
Upstream	Raw Materials Extraction & Manufacturing	45	0.40	23	21
	Transportation	0.37	0.035	0.19	0.14
	Construction	0.73	0.18	0.55	
Project Operations	Operations & Maintenance	0.23	0.23		
Downstream	Transportation	0.10	0.0037	0.057	0.043
	Decommissioning & Disposal	2.2	0.025	2.1	
Total Project Lifecycle		49			

Project Stage		GHG Emissions (MT CO ₂ e)			
		Full Project	T&D Infrastructure	Solar	Storage
Upstream	Raw Materials Extraction & Manufacturing	305,924	2,747	159,098	144,080
	Transportation	2,494	239	1,303	951
	Construction	4,941	1,191	3,750	
Project Operations	Operations & Maintenance	1,568	1,568		
Downstream	Transportation	709	25	388	295
	Decommissioning & Disposal	14,723	169	14,554	
Total Project Lifecycle		330,359			

¹⁶⁹The abbreviations in these tables are memorialized as follows: kilograms ("kg"); carbon dioxide equivalents ("CO₂e"); transmission and distribution ("T&D"); and metric tons ("MT").

b.

Avoided GHG Emissions

In addition to estimating lifecycle GHG emissions, the GHG Analysis estimates Avoided Emissions by projecting the GHG emissions of fossil fuels on Hawaiian Electric's system from years 2024 to 2048 that would otherwise occur if the Project were not built.¹⁷⁰ Net emissions are also presented in the GHG Analysis and are calculated as Avoided Emissions from fossil fuel plants minus the emissions from the Project. The Avoided Emissions analysis focuses:

solely on direct (stack) emissions since those emissions alone are significantly higher than those of the Project, represent the majority of projected GHG emissions from avoided fuel consumption if the Project were not built, and demonstrate the benefits of the Project over the avoided case in terms of GHG emissions. Thus it was concluded that the further inclusion of indirect GHG emissions from the fossil fuel sources (upstream, operations, or downstream) to the avoided case was unnecessary.

Avoided Lifecycle GHG Emissions and Avoided Operations GHG Emissions were assumed to be equal and were calculated based on the combustion emissions of the fuel that would be consumed if the Project were not built. This approach does not quantify upstream emissions associated with producing and transporting the fossil fuels; indirect operations emissions such as those incurred by the combustion of fossil fuel by vehicles associated with plant maintenance and operations or auxiliary power uses needed for the operation of the fossil fuel electricity generation units or the administration of these units; or downstream emissions associated with decommissioning of the fossil fuel

¹⁷⁰See Application, Exhibit 5 at 11.

electrical generation units. These excluded categories of GHG emissions, if included, would serve to further increase the overall Avoided GHG emissions, resulting in a higher Net GHG emissions reduction.¹⁷¹

The results of the Avoided and Net GHG Emissions analysis are presented in the tables below.

	Avoided GHG Intensity (kg CO₂e/MWh)	Avoided GHG Emissions (MT CO₂e)
Avoided Operations	521	3,536,560
Avoided Lifecycle	521	3,536,560

	Net GHG Intensity Reduction (kg CO₂e/MWh)	Net GHG Emissions Reduction (MT CO₂e)¹
Net Operations	521	3,534,991
Net Lifecycle	472	3,206,201

After review of the record, the Commission finds that the GHG Analysis provides satisfactory estimates of upstream and operational GHG emissions associated with the Project. The projected lifecycle and avoided emissions are based on the best reasonably available public data and literature that has undergone scientific peer-review for solar PV, battery energy storage, substation, and T&D infrastructure systems. The GHG Analysis considers the most current information available, including emission factors, manufacturer specifications,

¹⁷¹Application, Exhibit 5 at 12.

transportation distances to Oahu, and Project-specific inputs for equipment, materials, and activities. Where a given input was not provided or otherwise confirmed by the developer, the GHG Analysis provides a brief explanation and reference to the source documentation for the proxy value used.¹⁷²

In contrast to the upstream and operational GHG emissions analysis, the inputs and assumptions Hawaiian Electric uses for downstream emissions are not specific. The GHG Analysis discusses many possible disposal options for every Project component, "including landfill, incineration, and recycling[.]"¹⁷³ The GHG Analysis does not specify which components will be repurposed, recycled, incinerated, or landfilled.¹⁷⁴

¹⁷²See Application, Exhibit 5. See also Hawaiian Electric Response to CA/HECO-IR-13.

¹⁷³Application, Exhibit 5 at 11. See also Application, Exhibit 5, Appendix Table A7: Decommissioning & Disposal GHG Emissions Calculations. Project components listed for disposal include PV panels, inverters, transformers, batteries, battery storage containers, miscellaneous battery equipment, overhead transmission line, optical ground wire cable, wood poles, switchyard and substation components, and miscellaneous T&D equipment. Id.

¹⁷⁴Mahi Solar explains that "[a]t this stage of development the selection of recycling vendors has not been made for any of the equipment, though the key elements of the programs typically include separation of components into segregated processing streams and disposal and management of any hazardous waste materials in compliance with applicable state and federal regulations." Response to PUC-Mahi Solar-IR-101.

The Consumer Advocate raises concerns about the downstream GHG analysis, noting that there is “some ambiguity regarding the end of life treatment for equipment for T&D Infrastructure that would impact downstream GHG emissions.”¹⁷⁵ The Consumer Advocate argues that Hawaiian Electric and Mahi Solar do not have a detailed decommissioning plan and methodology in place and contends that a basic plan or outline of a possible plan would provide additional clarity on downstream GHG emissions.¹⁷⁶

Hawaiian Electric responds that Mahi Solar already provided a general decommissioning plan in response to PUC-Mahi Solar-IR-101.¹⁷⁷ Hawaiian Electric further argues that decommissioning plans will continue to be refined throughout the Project’s development and “require an assessment of the Company’s needs for the interconnection facilities and the environmental laws in effect at the time of decommissioning, and thus cannot be committed to prior to the Project’s development and construction.”¹⁷⁸

The Commission is aware that the policies and related industries for managing the end-of-life treatment of PV and storage

¹⁷⁵Consumer Advocate SOP at 31-32.

¹⁷⁶See Consumer Advocate SOP at 33-34.

¹⁷⁷See Hawaiian Electric RSOP at 10-11.

¹⁷⁸Hawaiian Electric RSOP at 11.

projects are still maturing.¹⁷⁹ The Commission recognizes the speculative nature of planning for a potential decommissioning that is at least 25 years away.¹⁸⁰ But the Commission believes that a more detailed plan for end-of-life treatment (i.e., repurposing, recycling, incineration, and/or landfilling) for all Project equipment would help ensure that strategies are in place to safely and cost effectively handle these materials at end of life with minimal environmental and GHG impacts. It would also allow for a more thorough assessment of downstream GHG emissions. The Commission also notes that the PPA Term is 25 years, and the expected useful life of the batteries that make up the BESS is 20 years.¹⁸¹ This means that Hawaiian Electric and Mahi Solar should plan to address end-of-life treatment for batteries before the PPA Term expires.

Therefore, Commission finds it reasonable and in the public interest to require Hawaiian Electric to work with Mahi Solar to develop a comprehensive end-of-life management plan for the Project's components. This plan should provide the end-of-life treatment for each Project component, the expected

¹⁷⁹See, e.g., Recycling and Disposal of Battery-Based Grid Energy Storage Systems: a Preliminary Investigation, Electrical Power Research Institute (December 2017), available at <https://www.epri.com/research/products/000000003002006911>.

¹⁸⁰See Consumer Advocate SOP at 34.

¹⁸¹See Application, Exhibit 5 at 25.

cost of this treatment, and any third-parties expected to provide this service. Given the speculative nature of this plan, and the nascent nature of policies and related industries for managing the end-of-life treatment of PV and storage projects, the Commission will give Hawaiian Electric 5 years from the date of this Order to file it.

Notwithstanding these concerns, as discussed further in Section III.C.6. (Conditions To Approval) below, the Commission finds that approval and completion of the Project would result in a significant reduction in GHG emissions on Hawaiian Electric's system. As demonstrated by the GHG Analysis, the Project will help avoid significantly more emissions on Hawaiian Electric's system than it will produce, resulting in 3,206,201 MT CO₂e net reduction in GHG emissions over the Project's lifecycle.¹⁸²

4.

Community Outreach

The RFP required Mahi Solar to develop a comprehensive community outreach and communications plan for the Project.¹⁸³ Exhibit 8 of the Application contains a summary of Mahi Solar's

¹⁸²See Application, Exhibit 5 at 13.

¹⁸³See Application at 25-26.

community outreach efforts and public comments it received as of the time the Application was filed.¹⁸⁴

In response to CA/LONGROAD-IR-6.a., Mahi Solar states that currently there is no substantial opposition to the Project. Likewise, in its Statement of Position, Mahi Solar states that the Project has general support of the local community.¹⁸⁵ Specifically, Mahi Solar states that it “conducted a community meeting where it solicited comments” and “will continue to keep the community informed and engaged throughout the development of the Project and to address in a timely manner any potential issues or concerns that arise.”¹⁸⁶

The Consumer Advocate notes that Mahi Solar is working with the Hawaii Farm Bureau and an ecological restoration and engineering team to address the community’s concerns and that Mahi Solar is also working with stakeholders to determine the community benefits package that would best fit the desires of the community.¹⁸⁷

The Commission emphasizes the importance of community engagement and has carefully reviewed Mahi Solar’s efforts to reach

¹⁸⁴See Application at 27, and Exhibit 8.

¹⁸⁵See Mahi Solar SOP at 11.

¹⁸⁶Mahi Solar SOP at 11, 13.

¹⁸⁷See Consumer Advocate SOP at 25.

out to the community and allay any concerns. The Commission finds that not only has Mahi Solar met both the RFP and PPA community outreach requirements by providing Hawaiian Electric a detailed plan for community outreach, but it has also engaged a broad and diverse set of community members and stakeholders and considered community feedback by committing to conduct several studies.

The Commission believes effective community outreach is essential to achieving the State's clean energy goals. Based on the foregoing, and upon review of the record, the Commission finds that Mahi Solar has met the requirements related to community outreach in both the RFP as well as the PPA.

5.

PPA Approval

The additional capacity of the Project is beneficial because it increases Hawaiian Electric's system reliability and grid stability in the event, for example, of an unforeseen shutdown of one or more other units on Hawaiian Electric's system.

Subject to the reporting requirements discussed in Section III.C.1.b. (Nature Of The PPA), the nature of the PPA is reasonable and in the public interest when considering other pricing terms of the PPA.

To the extent that "Daily Delay Damages" are paid to Hawaiian Electric prior to commencement of the Lump Sum Payment,

Hawaiian Electric shall credit the amount of the "Daily Delay Damages" received to its ratepayers through the PPAC.

The subject PPA overall represents a significant step not only towards Hawaii's renewable energy goals consistent with HRS §§ 269-6 and 269-92 (RPS), but also towards lower energy prices.

As such, subject to the reporting requirements set forth in Section III.C.1.b. (Nature Of The PPA), the Commission finds that the term of the PPA is reasonable and in the public interest.

A fixed Unit Price throughout the PPA term is reasonable and in the public interest because the fixed price provides more certainty and comparatively less price volatility than fossil fuel prices and contributes to significant customer bill savings.¹⁸⁸

Upon considering the PPA's NEP (which is capped at a maximum amount) and Unit Price (which is fixed for the Term of the PPA), the Lump Sum Payment is reasonable because placing a maximum amount payable on the Lump Sum Payment provides more certainty and

¹⁸⁸HRS § 269-6(b) (stating that the Commission shall "explicitly consider, quantitatively or qualitatively, the effect of the State's reliance on fossil fuels on price volatility, export of funds for fuel imports, [and] fuel supply reliability risk"); see also Hawaiian Electric Response to CA/HECO-IR-29 (describing the fluctuations in diesel fuel prices over the past ten years).

comparatively less price volatility as compared to fossil fuel prices.¹⁸⁹

The Performance Metrics in the PPA will collectively provide cost savings to ratepayers and ensure that ratepayers are not paying for services or capacity if the PV system or the BESS do not meet their expected capability.

The BESS helps to significantly reduce curtailment risk, as compared to prior renewable PV projects. Furthermore, while the Project, due to the PPA's provisions, may not necessarily improve curtailment of other existing renewable IPPs, it is not expected to exacerbate or worsen curtailment issues.

Hawaiian Electric's GHG Analysis satisfactorily captures both the Project's direct emissions and foreseeable indirect emissions. As demonstrated in these analyses, approval and completion of the Project would result in a significant reduction in Lifecycle and Operational GHG emissions relative to the baseline without the Project.¹⁹⁰

¹⁸⁹See HRS § 269-6(b) (stating that the Commission shall "explicitly consider, quantitatively or qualitatively, the effect of the State's reliance on fossil fuels on price volatility, export of funds for fuel imports, [and] fuel supply reliability risk").

¹⁹⁰See Application, Exhibit 5 at 12.

Mahi Solar has met the requirements related to community outreach in both the RFP and the PPA by providing Hawaiian Electric a detailed plan for community outreach.

The Commission concludes that the Performance Metrics included in the PPA provide Mahi Solar with a strong incentive to ensure that the Facility is available for Hawaiian Electric to dispatch.

Based on the foregoing, the Commission finds and concludes that Hawaiian Electric has met its burden of proof in support of its request for approval of the subject PPA between Hawaiian Electric and Mahi Solar. The Commission finds and concludes that Hawaiian Electric's purchased power arrangements under the PPA, pursuant to which Hawaiian Electric will dispatch energy on an availability basis from Mahi Solar and pay Lump Sum Payments to Mahi Solar are prudent and in the public interest. Therefore, subject to the conditions discussed above in Section III.C.1.b. (Nature Of The PPA), and immediately below, the Commission approves the PPA.

6.

Conditions To Approval

The Commission finds it reasonable and in the public interest to require Hawaiian Electric to report on Project operations for purposes of accountability and to inform other

projects and related dockets.¹⁹¹ Hawaiian Electric shall comply with the following reporting requirements:

Monthly reporting. Beginning with the first full calendar month following the in-service date of the Facility, Hawaiian Electric shall file hourly commitment, dispatch, and curtailment data for the Project and all other Hawaiian Electric and IPP units on the system. Hawaiian Electric shall also include a narrative explanation of how the Project's dispatch and use benefitted customers (e.g., customer bill savings, reductions in fossil fuel generator dispatch, associated fuel savings, early and/or on-schedule fossil fuel generator retirement(s), reduced GHG emissions, etc.). The monthly report shall be filed in Docket No. 2011-0206 and may be consolidated with other curtailment reports therein. The Commission continues to expect that Hawaiian Electric's curtailment of fossil fuel generation will occur before curtailment of must-take, as-available renewable resources.¹⁹²

¹⁹¹See D&O 35556 at 63-64.

¹⁹²See HRS § 269-6(b); In re Hawaii Elec. Light Co., Inc., Docket No. 2011-0040, Decision and Order No. 30088, filed December 30, 2011, at 42.

Regarding the Consumer Advocate's proposed conditions, the Commission finds as follows:

Requiring Hawaiian Electric to file invoices and Seller's income statements or results of operation following the Commercial Operations Date. The Consumer Advocate has proposed a similar condition in prior proceedings involving the Stage 1 PPAs, and older renewable PPAs.¹⁹³ In support of its proposal in this proceeding, the Consumer Advocate states that it will allow the Consumer Advocate "to evaluate the comparability of the Project's actual results to the pro forma information[.]"¹⁹⁴

In the Stage 1 PPA dockets, the Commission declined to adopt the Consumer Advocate's proposed condition because: (1) the Stage 1 PPA model does not contain a curtailment seniority provision, nor is it expected to impact curtailment of existing renewable IPPs; (2) the nature of Stage 1 PPA procurement process has provided a number of safeguards, such as Commission and stakeholder review, competitive bidding, and IO oversight; and (3) that when reviewing the reasonableness of the Project, the Commission considers many other factors in addition to Project

¹⁹³See Docket Nos. 2019-0050, 2018-0436, 2018-0435, 2018-0434, 2018-0433, 2018-0432, 2018-0431, and 2018-0430 (collectively "Stage 1 PPA Dockets"); see also Docket Nos. 2017-0443, 2017-0018, 2015-0331, 2015-0225, and 2015-0224.

¹⁹⁴Consumer Advocate SOP at 36.

cost, including customer bill savings, reducing fossil fuel consumption, reducing GHG emissions, and grid services. For these same reasons, after considering the record as a whole, the Commission is not persuaded that the disclosure of the Project invoices and Mahi Solar's income statements, is warranted under these circumstances and, therefore, declines to adopt the Consumer Advocate's proposed condition.

Requiring bidders to file pro forma information in future procurement processes with supporting documentation.

Mahi Solar does not appear to oppose this condition and Hawaiian Electric agrees that such information "would have been beneficial to the [procurement] process and allowed for a more informed evaluation of developers' proposed projects."¹⁹⁵

The Commission observes that this proposal does not pertain to the Consumer Advocate's finding of overall reasonableness regarding the subject PPA. The Commission initially addressed this issue in Docket No. 2017-0352, but will re-examine it in future procurement processes.¹⁹⁶

Reporting of missed Guaranteed Project Milestones, the reason why the milestone was missed, and any measure to

¹⁹⁵Hawaiian Electric Reply SOP at 6.

¹⁹⁶See Order No. 36356 at 25-26 (directing Hawaiian Electric to remove the requirement that bidders provide pro forma information as a requirement of the Phase 2 RFPs).

mitigate the impact. Hawaiian Electric does not oppose this, but requests a filing timeframe of twenty-five (25) days after a missed Guaranteed Project Milestone to align with the Seller's ten-day grace period before being assessed Daily Delay Damages.¹⁹⁷ The Commission finds this condition, including Hawaiian Electric's proposed modification, to be reasonable, because it will allow the Commission and the Consumer Advocate additional visibility into the Project's progress and the potential for delays. Therefore, the Commission directs Hawaiian Electric to report, within twenty-five (25) days after a missed Guaranteed Project Milestone: (1) the milestone missed; (2) the reason why the milestone was missed; and (3) any mitigation measures already taken or contemplated. Such reports shall be filed in this docket.

Requiring Hawaiian Electric to file periodic analyses to support a finding that the Project is being used in a manner that maximizes benefits to customers. As Hawaiian Electric correctly notes, it is already required to file information relating to the use and dispatch of the Facility in reports filed in Docket Nos. 2017-0213 and 2011-0206. The Commission finds that requiring the periodic analyses that the Consumer Advocate requests would be duplicative, given the monthly reporting that is

¹⁹⁷Hawaiian Electric Reply SOP at 6-7.

already required. Therefore, the Commission declines to adopt this condition.

Decommissioning plan. The Consumer Advocate argues that a basic decommissioning plan or outline would provide additional clarity on the revised GHG emissions detailed in response to CA/HECO-IR-32.c.¹⁹⁸ Although the Commission agrees that a basic plan or outline could provide additional clarity on GHG emissions, and who would bear the costs of decommissioning, there is insufficient information to develop such a plan this time. The Commission expects that more information will become available in the due course of the permitting process and the Project's operation. According to Hawaiian Electric, the GHG impacts of decommissioning will be "negligible."¹⁹⁹ Additional clarity on this negligible portion of the Project's GHG emissions would not affect the Commission's overall GHG analysis. But the Commission will require Hawaiian Electric to work with Mahi Solar to develop a comprehensive end-of-life management plan for the Project's components, as discussed above. Hawaiian Electric shall file that

¹⁹⁸See Consumer Advocate SOP at 33-34.

¹⁹⁹Response to CA/HECO-IR-32.a. Hawaiian Electric further indicates that GHGs caused by decommissioning and disposal would increase the Project's total lifecycle GHG emissions by 0.007%. See Response to CA/HECO-IR-32.c. The Consumer Advocate references this analysis in its SOP, and does not question or contradict it. See Consumer Advocate SOP at 32-33.

end-of-life management plan in this docket within five years of the date of this Order.

Pages 30-31 of Attachment 1 to the Consumer Advocate's Statement of Position. Hawaiian Electric does not object to these conditions, instead stating that it will work on those issues in "any subsequent all resource RFPs."²⁰⁰ Mahi Solar does not raise any objections. The Commission addressed changes to the bid evaluation process for Phase 2 in Docket No. 2017-0352.²⁰¹ The Commission agrees that Hawaiian Electric should continue work with the Commission the Consumer Advocate, and other stakeholders in Docket No. 2017-0352 to address the IO's concerns and recommendations going forward. The Commission will provide additional guidance as needed.

D.

Recovery Of PPA-Related Non-Energy Payments Through The PPAC

Given the Commission's overall approval of the PPA, the Commission likewise approves Hawaiian Electric's request to recover the PPA's non-energy payments, including the Lump Sum Payments and related revenue taxes, through the PPAC, to the extent

²⁰⁰Hawaiian Electric Reply SOP at 11.

²⁰¹See Docket No. 2017-0352, Order No. 36474, "Approving the Hawaiian Electric Companies' Proposed Final Phase 2 Requests for Proposals, with Modifications," filed August 15, 2019.

such costs are not included in base rates. This is consistent with HAR § 6-60-6(2), which authorizes the pass through of purchased energy charges through an electric utility's PPAC, and HRS § 269-16.22, which requires the pass through of power purchase costs through an automatic adjustment surcharge.

However, the Commission conditions approval of recovery of the non-energy payments under the PPA through the PPAC, as follows:

A. As discussed above, in Section III.C.2. (Land Use), to the extent Daily Delay Damages, Termination Damages, or other revenues or benefits are paid to Hawaiian Electric, such revenues or benefits paid to Hawaiian Electric shall be returned to its ratepayers through the PPAC; and

B. Recovery of the Lump Sum Payment through the PPAC shall be limited to the Lump Sum Payment net of Force Majeure adjustments or any offset due to Liquidated Damages.

E.

Hawaii's Energy Policy Statutes

The State of Hawaii has adopted several energy policies requiring and/or encouraging reduction in the utilization of fossil fuels in statutes that directly pertain to the regulation of public utilities, as discussed further, below.

1.

Contribution to State Energy Goals (RPS)

The Commission notes Hawaiian Electric's statement that "[t]he renewable energy to be purchased from the Facility pursuant to the PPA will assist Hawaiian Electric in achieving the State of Hawaii's RPS goals."²⁰² The Commission also notes Hawaiian Electric's estimate that the Project could contribute up to 4.14 percentage points of Hawaiian Electric's 2025 RPS and 3.17 percentage points of the Hawaiian Electric Companies' consolidated 2025 RPS.²⁰³

2.

HRS § 269-6

HRS § 269-6(b) provides, in relevant part:

The [Commission] shall consider the need to reduce the State's reliance on fossil fuels through energy efficiency and increased renewable energy generation in exercising its authority and duties under this chapter. In making determinations of the reasonableness of the costs of utility system capital improvements and operations, the commission shall explicitly consider, quantitatively or qualitatively, the effect of the State's reliance on fossil fuels on price volatility, export of funds for fuel imports, fuel supply reliability risk, and greenhouse gas emissions.

²⁰²Application at 11.

²⁰³See Application at 11.

Hawaiian Electric estimates "that the Facility has the potential to displace about 8,107,763 barrels of fossil fuel over the term of the PPA[.]"²⁰⁴ Hawaiian Electric further states that the Project will assist it with moving "towards energy independence and decreased reliance on foreign imported oil while maintaining reliability of the Company system."²⁰⁵ Hawaiian Electric explains how the PPA will reduce customer exposure to volatility in fuel prices because "[t]he PPA pricing is not linked to fossil fuel and is fixed over the term of the contract, meaning customers will not be subject to bill increases with rises in the price of fossil fuel."²⁰⁶

The Commission recognizes the importance of considering the effects that Hawaii's reliance on fossil fuels has on the State's economy and general welfare in making utility resource planning, investment, and operation decisions. In performing the duties specified in HRS Chapter 269, the Commission has been

²⁰⁴Application at 5. See also Application, Exhibit 3 which provides a "Project Benefits Analysis" that quantifies the benefits of the Project using a production simulation computer program called PLEXOS to simulate how the Hawaiian Electric's electric power system will operate without the Project ("Base Case") and with the Project ("Alternate Case"). Specifically, Hawaiian Electric expects the Project to displace 2,541,564 barrels of low sulfur fuel oil, 364,199 barrels of diesel fuel, 5,202,000 barrels of ultra-low sulfur diesel, and 1,204,286 barrels of biodiesel for the Oahu system.

²⁰⁵Application at 11-12.

²⁰⁶Application at 12.

diligent in implementing the State's energy policies and statutes, giving deliberate weight to these provisions in the broader context of the many other statutes and considerations necessary to regulate and provide universal, reliable, and affordable access to essential electric utility services.²⁰⁷

Based on the above estimates of the total avoided fuel consumption that will result from implementation of the Project, the Commission concludes that fuel consumption will also decrease if the Project is implemented, and that, as a result, the overall funds that would have been spent for fuel imports will also decrease correspondingly.

Furthermore, the Commission concludes that the reduction of fuel consumption resulting from implementation of the Project, along with the increased level of renewable energy that will be utilized, will result in a reduced need for fossil fuel supply and thus reduce fuel supply reliability risk.

Based on the above estimates of the total avoided fuel consumption that will result from implementation of the Project,

²⁰⁷Some of these broader considerations (such as monetary costs) are obvious, while others are explicitly stated or implied elsewhere in statutes, and/or specified in case law in which the courts have set forth standards and interpretations regarding the determination of just and reasonable rates, which collectively include: reliability, affordability, fairness, provision of just and reasonable compensation for utility investment, and provision of just and reasonable rates to utility customers.

the Commission concludes that fuel consumption will also decrease if the Project is implemented, and that, as a result, the overall funds that would have been spent for fuel imports will also decrease correspondingly.

Furthermore, the Commission concludes that the reduction of fuel consumption resulting from implementation of the Project, along with the increased level of renewable energy that will be utilized, will result in a reduced need for fossil fuel supply and thus reduce fuel supply reliability risk.

Upon explicit consideration, weighing the four specified criteria in HRS § 269-6(b) (price volatility, export of funds for fuel imports, fuel supply reliability risk, and GHG emissions), the Commission finds the PPA to be reasonable and in the public interest because the PPA overall advances Hawaii's goal of reducing reliance on fossil fuels through energy efficiency and increased renewable energy generation through clean energy resources, and does so at a price that is estimated to result in savings for Hawaiian Electric's ratepayers between 2024 and 2048. The Commission finds that the amount of fuel that the Project is projected to displace will result in a decreased reliance on imported oil, thereby reducing the potential negative economic impacts of oil price volatility, and also decrease the funds exported for fuel imports.

F.

Remainder Of The Proceeding

As noted above, Hawaiian Electric requested that the Commission issue two separate decisions and orders in this docket, the first decision approving the PPA-related requests, which are the subject of the Commission's discussion, above, and the second decision approving the Interconnection-Related Requests.²⁰⁸ Pursuant to Order No. 37383, the Commission bifurcated Hawaiian Electric's PPA-related requests from its Interconnection-Related Requests.²⁰⁹

As of the filing of the Application, the IRS was not completed; however, in order to take advantage of federal investment tax credits, "the Parties agreed to execute the PPA prior to the completion of the IRS for the Project."²¹⁰ Hawaiian Electric stated that it will file an amendment to the PPA based on the IRS results.²¹¹ As such, upon Hawaiian Electric's filing of an amendment to the PPA based on the IRS results, the Commission will issue a procedural schedule in this docket to

²⁰⁸See Application at 5-7.

²⁰⁹See Order No. 37383 at 15-16.

²¹⁰Application at 24 (citation omitted).

²¹¹See Application at 24.

govern its review of Hawaiian Electric's above-ground 138 kV line extension Interconnection-Related Requests (Issue 4).²¹²

IV.

SUMMARY OF FINDINGS OF FACT AND CONCLUSIONS OF LAW

Based on the foregoing, subject to the conditions set forth above, the Commission finds:

1. Hawaiian Electric has met its burden of proof in support of its request for approval of the PPA between Hawaiian Electric and Mahi Solar, dated September 11, 2020. In support thereof, the Commission further finds:

A. The purchased power arrangements under the PPA, pursuant to which Hawaiian Electric will dispatch energy on an availability basis from Mahi Solar, including the Lump Sum Payment to be paid to Mahi Solar, are prudent and in the public interest; and

2. Hawaiian Electric has met its burden of proof in support of its request to include all non-energy payments under the PPA, including the Lump Sum Payment and related revenue taxes,

²¹²See Order No. 37383 at 7 (stating that the Commission intends to issue a separate procedural order to govern Hawaiian Electric's above-ground 138 kV line extension-related requests).

through the PPAC, to the extent such costs are not included in base rates.

V.

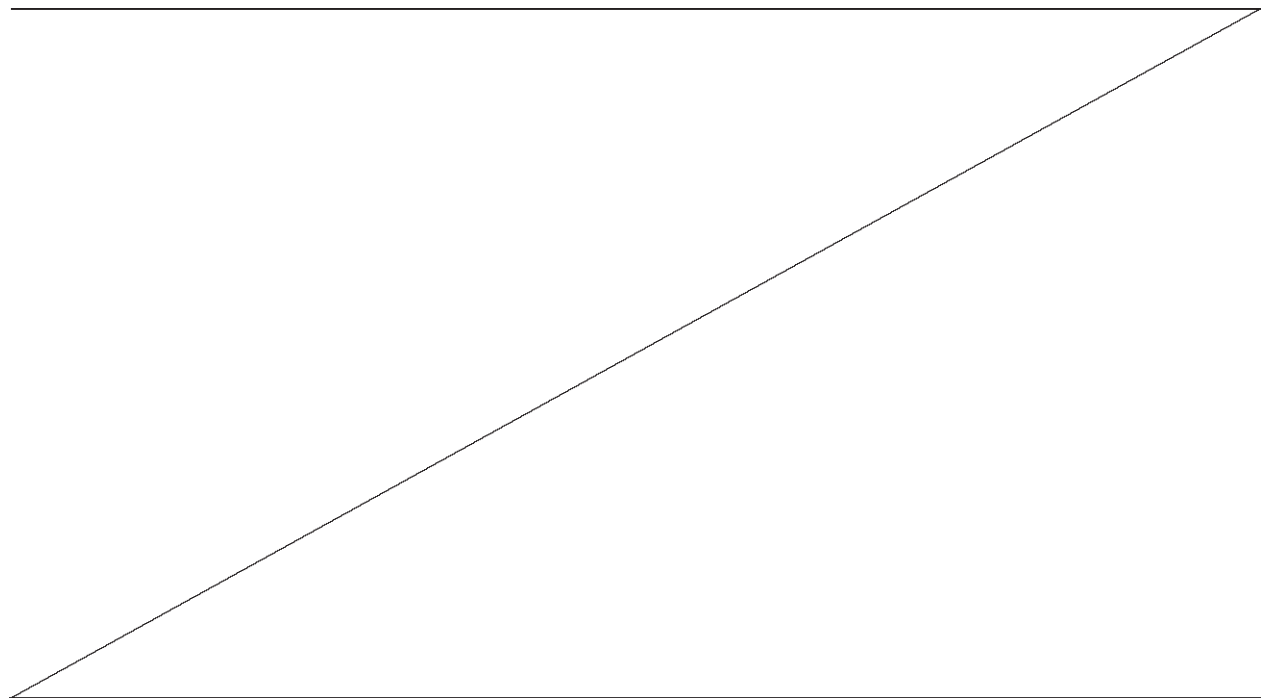
ORDERS

THE COMMISSION ORDERS:

1. Subject to the conditions set forth in Sections III.C.6. and III.D., the Commission approves:

A. The PPA between Hawaiian Electric and Mahi Solar, dated September 11, 2020; and

B. Hawaiian Electric's request to include all non-energy payments under the PPA, including the Lump Sum Payments (as defined in the PPA) and related revenue taxes, through the PPAC, to the extent such costs are not included in base rates.



2. After Hawaiian Electric files an amendment to the PPA based on its IRS results, the Commission will issue a procedural schedule in this docket to govern its review of Hawaiian Electric's above-ground 138 kV overhead line Interconnection-Related Requests.

DONE at Honolulu, Hawaii DECEMBER 30, 2020.

PUBLIC UTILITIES COMMISSION
OF THE STATE OF HAWAII

By 
James P. Griffin, Chair

By 
Jennifer M. Potter, Commissioner

By 
Leodoloff R. Asuncion, Jr., Commissioner

APPROVED AS TO FORM:


Mike S. Wallerstein
Commission Counsel

2020-0140.ljk

CERTIFICATE OF SERVICE

Pursuant to Order No. 37043, the foregoing Order was served on the date it was uploaded to the Public Utilities Commission's Document Management System and served through the Document Management System's electronic Distribution List.

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PUBLIC UTILITIES
COMMISSION

The foregoing document was electronically filed with the State of Hawaii Public Utilities Commission's Document Management System (DMS).

Attachment 6

**Public Utilities Commission
Order No. 37515 –
Docket No. 2021-0024
April 7, 2021**

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF HAWAII

----- In the Matter of -----)
)
 PUBLIC UTILITIES COMMISSION) DOCKET NO. 2021-0024
)
 Opening a Proceeding to Review)
 Hawaiian Electric's Interconnection)
 Process and Transition Plans for)
 Retirement of Fossil Fuel Power)
 Plants.)
 _____)

ORDER NO. 37715

RESPONDING TO COMMENTS FILED PURSUANT TO
ORDER NO. 37624, AND FURTHER DISCUSSING NEXT STEPS

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF HAWAII

----- In the Matter of -----)
)
PUBLIC UTILITIES COMMISSION) DOCKET NO. 2021-0024
)
Opening a Proceeding to Review) ORDER NO. 37715
Hawaiian Electric's Interconnection)
Process and Transition Plans for)
Retirement of Fossil Fuel Power)
Plants.)
_____)

RESPONDING TO COMMENTS FILED PURSUANT TO
ORDER NO. 37624, AND FURTHER DISCUSSING NEXT STEPS

On March 16, 2021, the Public Utilities Commission ("Commission") held a Status Conference ("March 16 Status Conference") in this docket¹ to: (1) review Hawaiian Electric's

¹The Parties to this proceeding are Hawaiian Electric and the DIVISION OF CONSUMER ADVOCACY ("Consumer Advocate"), an ex officio party, pursuant to Hawaii Revised Statutes ("HRS") § 269-51 and Hawaii Administrative Rules § 16-601-62(a). As set forth in Order No. 37624, "Opening the Docket," filed on February 11, 2021 ("Order No. 37624"), "the Commission does not intend to solicit intervenors or participants in the docket," given the Commission's intent to establish this docket "for planning and information-gathering purposes only" to review the progress of various Hawaiian Electric-related renewable projects, the transition plans for retirement of Hawaiian Electric's AES Hawaii Plant ("AES Plant") and Kahului Power Plant ("Kahului Plant"), and other fossil fuel power plant transition plans, as needed. Order No. 37624 at 1, 4, 6, and 14-15.

Initial Status Update² regarding the transition plan for the retirement of the AES Plant on Oahu, filed on March 5, 2021, (2) receive an update from the Hawaii Natural Energy Institute ("HNEI") on modeling system reliability with retirement of the AES Plant ("HNEI analysis"),³ and (3) discuss action items with Stage 1 and 2 Oahu Project developers regarding acceleration of their Project commercial operations schedules.⁴ The Commission set forth next steps following the March 16 Status Conference by Order No. 37698, "Outlining Next Steps Following the March 16, 2021 Status Conference," filed on March 24, 2021.

March 25, 2021 was the deadline for stakeholder comments on the Initial Status Update, as well as proposals regarding acceleration of their Project commercial operations schedules.⁵

²Letter from C. Ching to Commission re: Docket No. 2021-0024 - Opening a Proceeding to Review Hawaiian Electric's Interconnection Process and Transition Plans for Retirement of Fossil Fuel Power Plants, "Initial Status Update," filed on March 5, 2021, including Exhibits 1-4 (collectively, "Initial Status Update").

³"Grid Planning for a Modern Power System in Hawaii: AES Retirement & Replacement Analysis," dated March 15, 2021, filed in Docket No. 2021-0024 on March 23, 2021 ("HNEI analysis").

⁴See "Notice of Status Conference on Tuesday, March 16, 2021," filed on March 9, 2021 ("March 9 Letter"), and "Agenda and YouTube Link for Status Conference on Tuesday, March 16, 2021," filed on March 11, 2021, as well as Hawaiian Electric's PowerPoint and the HNEI analysis PowerPoint presentations from the Status Conference, filed in the docket on March 23, 2021.

⁵Order No. 37624 at 13, 15.

The Commission thanks all stakeholders for the comments that were submitted by March 25, 2021, in response to Order No. 37624. Broadly speaking, the Commission is encouraged by the ideas and actionable proposals that have been submitted, and outlines in this Order the next steps for acting on the submissions. In this Order, the Commission also offers preliminary feedback to guide further development and clarification of next steps in this and related dockets.

I.

COMMISSION FEEDBACK ON PRIORITY NEEDS AND TIMING FOR OAHU

The Commission has posted HNEI's presentation from the March 16, 2021 Status Conference in Docket No. 2021-0024. HNEI's analysis highlights that the fall of 2022 and summer of 2023 are projected to be periods of tight reserves based on the current Guaranteed Commercial Operations Dates ("GCOD") for Stage 1 and 2 renewable projects (see HNEI analysis, Slide 10). HNEI's analysis also indicates that the time period from 6 - 10 p.m. shows the highest risk for unplanned outages.

Based on HNEI's analysis, the Commission is prioritizing near-term actions that provide load reductions and capacity resources during these critical periods. Some parties have also requested follow up discussions with HNEI for further review of the analysis, which the Commission will be

scheduling as a near-term priority item for follow up to the March 16 Status Conference.

The discussion at the March 16 Status Conference also briefly addressed the topic of additional energy needs to fully replace the AES Plant. Based on the output from currently-approved projects, a gap remains that the Commission will look to fill with the Projects and programs discussed below, plus any additional projects that may be submitted and are approved by the Commission in the near-term.⁶

As stated at the March 16 Status Conference and going back to orders initiating the procurements that are the subject of Docket No. 2017-0352, the Commission remains committed to a portfolio of clean energy solutions as the first and preferred actions to replace the AES Plant.⁷ The Commission will only look

⁶See Docket No. 2017-0352, Order No. 36356, "Providing Guidance on the Hawaiian Electric Companies' Phase 2 Draft Requests for Proposals for Dispatchable and Renewable Generation," filed June 10, 2019, at 11, stating that "[t]he Commission intends to address any additional renewable energy and capacity needs through the expansion of existing distributed energy customer programs and tariffs (i.e., DER, DR, and CBRE tariffs)." Also, see Docket No. 2017-0352, Letter from Commission to Kevin Katsura re: Docket No. 2017-0352 - To Institute at Proceeding Relating to a Competitive Bidding Process to Acquire Dispatchable and Renewable Generation, filed on March 5, 2021, regarding the Kupono Solar Project.

⁷See, e.g., Docket No. 2017-0352, Order No. 36187, "Providing Guidance in Advance of the Hawaiian Electric Companies' Phase 2 Draft Requests for Proposals for Dispatchable and Renewable Generation," filed on February 27, 2019, at 2 (explaining that "[t]he [C]ommission sees Phase 2 as an opportunity to use creative,

at fossil-fueled solutions as fall-back or last-resort options to maintain system reliability.

The Commission provides the feedback below to encourage further development of contingency actions to address these needs, highlight efforts already underway, and identify next steps in this and related dockets. The Commission summarizes these efforts below by topic.

A.

Stage 1/Stage 2 RFP Developer Action Items and
Governor Ige's Powering Past Coal Task Force

The Commission appreciates the contributions from project developers in response to the Commission's request for comments in Order No. 37624 (collectively referred to as "Developer Responses"), and provides the following observations and actions that the Commission has taken based on the feedback.

competitive procurement to retire existing fossil generation and to take a further step towards meeting Hawaii's renewable energy goals. The [C]ommission anticipates that the central focus of the upcoming Phase 2 procurement process will be to replace the capacity, energy, and ancillary services from the AES [] Plant and MECO's Kahului [] Plant, as the [C]ommission expects the Companies to hold firm on the timelines set forth in the [Power Supply Improvement Plans] for retiring those facilities."); Order No. 36356 at 8 (noting that the objectives of using "creative, competitive procurement to increase renewable energy in Hawaii, reduce costs to customers, address the planned retirement of existing fossil fuel generation, and further progress towards Hawaii's renewable energy goals . . . remain the focus of this competitive procurement process." (emphasis added))

First, all comments provided by Project developers indicated a strong desire to achieve commercial operations before the applicable Project's currently-scheduled GCOD, and their Project schedules have built in additional time to address unforeseen delays that might affect meeting their GCOD (and triggering potential delay damages). This contingency buffer in Project schedules provides potential opportunities to realize some schedule improvements. To support this, the Commission will be working with the Hawaii State Energy Office on Governor Ige's Powering Past Coal Task Force ("Task Force") to "develop a common operating picture of the overall progress of the portfolio of measures to track through a master schedule of projects, reviews, and critical dependencies from the present to 2023."⁸

As the Task Force purpose clause indicates, with disciplined project management across the entire portfolio of Projects and coordination with relevant government entities and stakeholders, the group effort will attempt to maintain the current schedules for as many approved projects as possible, and realize some potential acceleration.⁹ The first Task Force meeting was

⁸See Executive Order 21-01, "Power Past Coal Task Force," at 2, available at: <https://governor.hawaii.gov/wp-content/uploads/2021/03/2103146-BED-HSEO-Executive-Order-No.-21-01-distribution-signed.pdf>.

⁹Executive Order 21-01 at 2.

held on March 31, 2021, and the Commission fully supports the collaborative effort.

1.

Proposals to Accelerate Mililani I and
Waiawa Solar Project Schedules

Clearway Energy Group ("Clearway"), the Project developer for the Mililani I and Waiawa Projects, which are respectively the subjects of Docket Nos. 2018-0434 and -0435, has proposed a set of actions that it states would accelerate the GCODs for these projects by three months.¹⁰ Based on HNEI's analysis, this acceleration poses a potentially significant improvement for system reliability on Oahu, in that the timing of new capacity additions from these projects, in addition to the AES West Oahu Project (see Docket No. 2019-0050), would restore reliability risk to the seasonal average for this time period, if these three Projects come online prior to the AES retirement as proposed.¹¹ On March 29, 2021, the Commission re-opened the dockets for

¹⁰Letter from Greg Shimokawa to Commission re: Docket No. 2018-0434 - Mililani I Solar, LLC; "Response to Order No. 37700," filed on April 5, 2021 ("2018-0434 Letter"); and Letter from Greg Shimokawa to Commission re: Docket No. 2018-0435 - Waiawa Solar, LLC; "Response to Order No. 37701," filed on April 6, 2021 ("2018-0435 Letter").

¹¹HNEI's analysis, at Slide 10, also assumes a "Deferred Maintenance" schedule for existing generation units.

the Mililani I and Waiawa Projects (i.e., Docket Nos. 2018-0434 and -0435) and requested that Hawaiian Electric and Clearway submit amended PPAs reflecting the proposal within one week (i.e., by April 5, 2021). As noted above, the Commission has received those submissions,¹² and will be issuing orders shortly laying out additional steps for expedited review of the proposals in those dockets.

2.

Additional Proposals to Expedite Stage 1 and 2 Projects

The Commission again appreciates the Developer Responses up to this point. For a limited period of time, the Commission is open to considering project developers' additional proposals, which should be filed by July 1, 2021, in the instant docket, to re-align their Project GCOD's ahead of the priority periods identified in HNEI's analysis.

3.

Critical Path Items for Stage 1 and 2 Projects

Based on the Developer Responses, each Project has critical path items specific to its circumstances, but, categorically, these items include, remaining permitting,

¹²See 2018-0434 and 2018-0435 Letters.

interconnection review for Stage 2 Projects, and construction/commissioning of facilities. The Commission will closely track the schedules for these items through the reporting in this docket and the Task Force. The Commission will also remain open to proposals that could facilitate timely construction of interconnection facilities. Ulupono Initiative and Project developers submitted several recommendations in this area and the Commission will act on proposed process improvements that can support timeline improvements for these Projects.

B.

Advance and Expedite Demand-Side Actions to Address Needs

1.

Energy Efficiency/Public Benefits
Fee Administrator ("Hawaii Energy")

As noted by nearly every stakeholder, energy efficiency is a cost-effective resource and the Hawaii Energy program has consistently delivered on program targets and goals. The Commission will prioritize Hawaii Energy program resources over the next two years to directly incentivize load reductions during the target periods and energy optimization initiatives that support demand-side management programs. The Commission will be looking at opportunities where the Hawaii Energy program can offer near-term incentives to boost participation in new DER programs and

rate offerings. Hawaii Energy's comments in response to Order No. 37624 reflect these concepts,¹³ and the Commission will be working with Hawaii Energy on developing more detailed programs to address grid needs.

2.

Distributed Energy Resource ("DER")
Program Modifications to Address Critical Needs

In Docket No. 2019-0323, the DER parties submitted four recommendations for immediate Commission consideration in response to the Commission's guidance to develop an Emergency Demand Response Program, in addition to the DER Program Track proposals anticipated in May.¹⁴ Each of the recommendations appear to address one or more of the critical needs identified above. To help prioritize the Commission's review and further consideration of these recommendations, the Commission will be seeking further information on the anticipated timelines to implement each option

¹³Letter Re: Docket No. 2021-0024 - Opening a Proceeding to Review Hawaiian Electric's Interconnection Process and Transition Plans for Retirement of Fossil Fuel Power Plants Initial Status Update from Brian Kealoha to Commission, filed on March 25, 2021.

¹⁴Docket No. 2019-0323, In re: Public Util. Comm'n, Instituting a Proceeding to Investigate Distributed Energy Resource Policies Pertaining to the Hawaiian Electric Companies, "DER Parties Initial Recommendations in Response to Commission Guidance for Development of an Emergency Demand Response Program and Notification of Additional Status Update Meetings," filed on March 25, 2021.

and preliminary estimates on impact to critical needs outlined above. The Commission will review and implement new actions in Docket No. 2019-0323.

The Consumer Advocate has also raised the topic of new pricing programs that target critical peak periods as a potential demand-side management action. The Commission will also solicit further feedback on this option and will consider utilizing the Hawaii Energy program to complement these pricing options with targeted incentives during the transition period for the AES Plant.

3.

Expedite and Expand CBRE Tariffs for Small Projects

Per Order No. 37592, the Commission received updated drafts for Phase 2 of the CBRE Program on March 30, 2021,¹⁵ and stakeholders will be submitting their comments on those updated drafts in mid-April. The Commission finds promising many of the recommendations by the Joint Stakeholders and will consider expanding the capacity for small projects in Tranche 1 and additional steps to facilitate participation, including increasing

¹⁵In re Hawaiian Elec. Co., Inc., Docket No. 2015-0389, "The Hawaiian Electric Companies' Community Based Renewable Energy Phase 2 Tariff and Appendices, and RFPs and Model Contracts for LMI Subscribers, Tranche 1, Molokai and Lanai, Books 1-6, including Exhibits 1-12; and Certificate of Service," filed on March 30, 2021.

compensation, encouraging provision of grid services, and simplifying interconnection procedures. The Commission also appreciates the report submitted by Ulupono Initiative reviewing interconnection processes, and will look to implement its recommendations to improve likelihood of a successful Phase 2.¹⁶

C.

Need for Further Review of
Hawaiian Electric's Proposed Contingency Actions

1. Additional Details on Costs and Risks of Hawaiian Electric's Deferred Maintenance Plan - HNEI's analysis indicates that the proposed Deferred Maintenance Plan can significantly improve reliability risk in the fall of 2022.¹⁷ However, this option can only provide temporary benefit and has additional risks and costs. The Commission will ask further information requests in this docket to better understand the costs and risks associated with this option.

¹⁶See "Attachments to Comments by Ulupono Initiative on Hawaiian Electric's Interconnection Process and Transition Plans for Retirement of Fossil Fuel Power Plants," filed on March 25, 2021. The Commission reviewed numerous stakeholder comments in the "Interview Summaries" section of the Appendix to the attachments, discussing challenges with the interconnection process and concerns about the viability of the CBRE program given the additional costs and uncertainties from current interconnection practices.

¹⁷See HNEI analysis, Slides 4 and 7.

2. **Additional Details on Reactivation of Honolulu**

Power Plant - As stated earlier and in prior orders, the Commission's first preference and priority is implementing the portfolio of clean energy solutions to retire the AES Plant. Based on Hawaiian Electric's statement that reactivating the Honolulu Power Plant would require approximately 6 months, there is a possibility to exercise this as a fall-back reliability option if other projects and programs are not progressing as anticipated. The Commission will request further information on all steps required to bring this project online by September 2022. This information will help determine the latest possible point to make a decision on this option.

3. **Option to install batteries at West Loch solar**

project - Given the significant amount of approved, cost-effective solar plus storage projects in the queue and potential to utilize customer-side resources, while the Commission may have questions regarding this option, exploring this contingency does not appear to be the best use of key stakeholder time at this point.

D.

Commission's Concerns Regarding the Kapolei Energy Storage Project

The March 16 Status Conference included considerable discussion about the Commission's concerns with Hawaiian Electric's currently proposed scope, cost, and planned utilization of the Kapolei Energy Storage Project. The Commission is further detailing these concerns and next steps in an Order that will be issued shortly in Docket No. 2020-0136.

II.

ADDRESSING THE REDESIGNATION OF HAWAIIAN ELECTRIC'S
INITIAL STATUS UPDATE EXHIBITS 1 AND 2, FILED ON MARCH 12, 2021

Pursuant to Order No. 37703, "Modifying Protective Order No. 37664," filed on March 30, 2021, on April 5, 2021, Hawaiian Electric filed redesignated Exhibits 1 and 2 to its Initial Status Update in the instant docket with significantly fewer redactions, noting: (1) Hawaiian Electric unredacted portions of Exhibit 2 of the filing pertaining to CBRE "as there is no NDA in place and the procurement process is closed so the confidential designations of that information is no longer warranted[;]" and (2) that for contractual obligations with developers that Hawaiian Electric identified as being covered by an NDA, Hawaiian Electric "reached out to developers and requested of each, in the interest of transparency, to advise [Hawaiian Electric]

whether they would consent to make public their confidential information.”¹⁸ Hawaiian Electric then “unredacted such confidential information where they have received responses from the developers agreeing to disclose their confidential information publicly.”

The Commission views this redesignation as a positive development in terms of Hawaiian Electric’s filings’ transparency and openness, which will make material much easier for the Task Force and other interested stakeholders to review in this docket. The Commission expects that going forward, Hawaiian Electric will take steps congruous with those identified in its April 5, 2021 Letter such that filings have limited, if any, redactions, both for the sake of transparency and in furtherance of the collective, shared responsibility for ensuring successful retirements of the AES and Kahului Plants.

¹⁸Letter from: Brian Hiyane To: Commission Re: Docket No. 2021-0024; Opening a Proceeding to Review Hawaiian Electric’s Interconnection Process and Transition Plans for Retirement of Fossil Fuel Power Plants; “Redesignation of Exhibits 1 and 2 filed March 12, 2021[,]” filed on April 5, 2021 (“April 5, 2021 Letter”), at 1-2.

III.

UPDATE ON THE APRIL 13, 2021 STATUS CONFERENCE

Regarding the April 13, 2021 Status Conference, the Commission requests that Hawaiian Electric eFile any presentation materials it plans to use during the Status Conference in the instant docket by Monday, April 12, 2021.

Additionally, as discussed above, on April 5, 2021, Hawaiian Electric and Clearway filed the 2018-0434 and 2018-0435 Letters in those respective dockets proposing a set of actions that Clearway states would accelerate the GCODs for the Mililani I and Waiawa Solar Projects by three months. The Commission appreciates the effort to update the Commission on negotiations in those dockets but would like to hear more about the timeline and details required for the contracting parties to reach agreement. As such, the Commission will add a brief agenda item to the April 13, 2021 Status Conference,¹⁹ to give Hawaiian Electric and Clearway the opportunity to provide a short update on the status of their discussions relating to the 2018-0434 and 2018-0435 Letters.²⁰

¹⁹See Notice of Status Conference on Tuesday, April 13, 2021, filed on March 25, 2021.

²⁰The detailed agenda for the April 13 Status Conference will be filed in the instant docket shortly.

IV.

ORDER

THE COMMISSION ORDERS that the various programs, guidance, and initiatives described above will be addressed in the relevant dockets.

DONE at Honolulu, Hawaii APRIL 7, 2021.

PUBLIC UTILITIES COMMISSION
OF THE STATE OF HAWAII

By James P. Griffin
James P. Griffin, Chair

By Jennifer M. Potter
Jennifer M. Potter, Commissioner

By Leodoloff R. Asuncion, Jr.
Leodoloff R. Asuncion, Jr., Commissioner

APPROVED AS TO FORM:

Caroline C. Ishida
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Commission Counsel

2021-0024.ljk

CERTIFICATE OF SERVICE

Pursuant to Order No. 37043, the foregoing order was served on the date it was uploaded to the Public Utilities Commission's Document Management System and served through the Document Management System's electronic Distribution List.

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COMMISSION

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