

**Kamehameha Schools Motion for Modification, Time Extension, and Release and
Modification of Conditions, LUC Docket No. A87-610**

Written Direct Testimony of Lisa S. Kettley, February 25, 2022

1. **Please state your name and business address for the record.**
My name is Lisa Kettley and my business address is 737 Bishop Street, Suite 2340, Honolulu, Hawaii.
2. **What is your current occupation?**
I am a senior planner and project manager with Tetra Tech.
3. **How long have you specialized in permitting, regulatory compliance, and project management?**
I have worked in the land use, regulatory, and natural resources field for over 20 years. Included in my work doing land use permitting and land use planning, I have also conducted or overseen numerous HRS Chapter 343 environmental reviews and NEPA reviews. I focus on strategic planning, technical due diligence and land use entitlement processes. For the past 10 years, I have been particularly focused on renewable energy projects.
4. **Did you provide a copy of your resume for these proceedings?**
Yes, my resume was provided as Exhibit 17.
5. **Please briefly describe your educational background.**
I received a Bachelor of Science in Environmental Studies from the University of Oregon, and a Master of Science in Biological Sciences from Stanford University.
6. **To what professional organizations do you belong?**
I belong to the American Planning Association, National and Hawaii Chapters, and the Hawaii Association of Environmental Professionals.
7. **Have you even been qualified as an expert witness in permitting and as land use planner before the Land Use Commission (“Commission”)?**
I have not been previously designated as an expert witness. However, I have done project management for several solar farm projects that have come before the Commission.
8. **Are you familiar with the area referred to as the Petition Area?**
Yes. The Petition Area is the 1,395-acre area owned by Kamehameha Schools that the Commission reclassified to the Urban District in this Docket A87-610.

9. **Please describe the solar farm that is the subject of these proceedings before the Commission.**

The solar farm project will be developed by Waiawa Phase 2 Solar, LLC (“WP2S”). It is a 30 megawatt (“MW”) alternating current (AC)/60 MW direct current (DC) solar photovoltaic system, coupled with a 240 MW-hour battery energy storage system.

The solar photovoltaic system includes a series of solar modules mounted on single-axis trackers that rotate on a fixed axis from east to west as the sun moves across the sky. The battery energy storage system includes a series of battery units that will be housed in containers distributed throughout the site. The battery units will be installed on concrete pads (also referred to as “power conversion stations”), along with other equipment including inverters, transformers and communication equipment.

The project also includes a substation with control cabinets, step-up transformers, an operations and maintenance structure, and other ancillary interconnection equipment. Two 46 kV overhead lines will deliver power from the substation to the existing Waiau-Mililani and Wahiawa-Waimano 46 kV sub-transmission lines, which are generally parallel to the H-2 Freeway. The project components will be enclosed by fencing that will be about 7 feet high.

10. **Where is this solar farm going to be located?**

The project will be within approximately 387 acres in the northwestern portion of the Petition Area (the “Phase 1 Site”). This area is shown on Exhibit 2. It is one of the two areas that the Commission approved for solar development in 2014.

The other area that the Commission approved for solar development is approximately 268 acres on the southeastern side of the Petition Area (and that area the Commission reauthorized for solar development by an Order issued in February 2020). That area is also depicted on Exhibit 2. I understand that SunEdison, the solar developer who originally intended to develop both of these areas that were approved by the Commission in 2014, was not able to move forward due to difficulties at the Public Utilities Commission (“PUC”) and later went bankrupt.

11. **What is your role in this Project?**

I coordinated several of the due diligence studies completed for the project, including the biological resources survey, delineation of jurisdictional waters, visual assessment, and glare analysis. I also provided permitting support and will be preparing the application for a Conditional Use Permit (minor) that will be submitted to the City and County of Honolulu Department of Planning and Permitting (“DPP”) for approval.

12. **Are you familiar with the Motion for Modification, Time Extension, and Release and Modification of Conditions that KS filed with the Commission in December of 2021 and the related exhibits?**

Yes, generally. I know in December of last year KS filed a Motion for Modification, Time Extension, and Release and Modification of Conditions requesting Commission approval for some modifications to one of the two solar farms that the Commission approved in 2014.

Tetra Tech prepared some of the exhibits that were filed with the pending Motion. We prepared the Visual Simulations (Ex. 6), the Glare Analysis (Ex. 7), and the Biological Resources Survey Report (Ex. 10).

13. **Please briefly describe the location and existing land use entitlements for the Petition Area.**

The Petition Area is located at Waiawa and Waipio, Ewa, Oahu, Hawaii, and is currently designated by Tax Map Key Nos. (1) 9-4-006:034, 035(por.), 036(por.), 037(por.); 9-6-004:024 (por.); 025, 026; 9-6-005:003 (por.), as depicted on Exhibit 1. The Petition Area is located east of the H-2 Freeway/Ka Uka Boulevard interchange, and northwest of Pearl City.

The Petition Area is in the State Urban District and is partially surrounded Urban District land and Agricultural District land, as depicted on Exhibit 1. No Conservation District lands are adjacent to the Petition Area. The nearest Conservation District land is approximately 0.9 miles east of the Petition Area.

The Petition Area is designated primarily for urban type uses on the Central Oahu Sustainable Communities Plan land use map, including Residential and Low Density Apartment, Major Community Commercial Center, and Industrial, as well as Agriculture and Preservation Areas, as depicted on Exhibit 4.

There is a mixture of City and County zoning districts within the Petition Area. These include Neighborhood Business District (B-1), Community Business District (B-2), Low Density Apartment District (A-1), Medium Density Apartment District (A-2), Industrial-Commercial Mixed Use District (IMX1), Residential District (R-5), General Preservation (P-2), AG-1 (Restricted Agriculture) and AG-2 (General Agriculture), as depicted on Exhibit 3.

As shown on Exhibit 3, the Phase 1 Site is zoned Community Business District (B-2), Low Density Apartment District (A-1), Industrial-Commercial Mixed Use District (IMX-1), Residential District (R-5). Slivers of area zoned as General Preservation (P-2) are located along the northern and southern edges.

No portion of the Petition Area is within the City and County of Honolulu's Special

Management Area.

14. **Does Tetra Tech prepare environmental assessments and impact statements under State and Federal law (i.e., HRS Chapter 343 and NEPA?)**

Yes, and I frequently work on those types of documents.

15. **Did you prepare any such assessment for this solar farm?**

No, because no environmental assessment is needed. Development of the solar farm does not include any of the triggers that require an EIS or EA. Moreover, I understand that the Director of DPP confirmed that in a letter in 2014 that was submitted to the Commission in connection with the original solar farm proceedings in this Docket. A copy of that letter has been provided as Exhibit 15.

16. **Based on your knowledge and experience as a preparer of HRS Chapter 343 environmental assessments and environmental impact statements, does the Commission have the ability to give the Petition Area a blanket exemption from all future HRS Chapter 343 review?**

I have never heard of such a thing. I know that under Hawai‘i Administrative Rules §11-200.1-11, when faced with a proposed “action” that involves one of the triggers for an EA or EIS, after the acceptance of an EIS or issuance of a FONSI/approval of an EA, an agency can determine that additional environmental review is not required for various reasons. However, before doing so they must carefully review the new proposed action before making that decision. An agency cannot make that determination in advance and provide some sort of advance blanket exemption for all future actions.

17. **What is your interpretation of the language Petitioner KS proposed for Condition 10 regarding environmental review – specifically, the portion of that condition that DPP questioned in its letter of February 3, 2022?**

The language you are asking about is:

Any future use of the Petition Area, including future uses of the solar farm sites following the decommissioning of the solar farms, shall be subject to the environmental review process promulgated under HRS chapter 343, as applicable. Provided that if the HRS chapter 343 environmental review process is completed for the entire Petition Area, no separate or additional environmental review shall be required **under this condition** following the decommissioning of the solar farms. (emphasis added).

DPP interpreted that to provide a loophole that would avoid future environmental review through the preparation of a supplemental EIS, even if a supplemental EIS would otherwise be required. I do not read proposed Condition 10 that way.

My interpretation of this language is that it merely clarifies that no supplemental EIS will be required due solely to this Condition 10. However, that does not mean that no

supplemental EIS will be required. I do not believe that the LUC has the ability to establish a blanket exemption like that in advance. In the future, as the KS Master Plan gets developed after the preparation of an initial EIS, if there is a trigger and a proposed action, the agency asked to make a decision on that proposed action will have to determine whether a supplemental EIS is required. The language in proposed Condition 10 does not change that requirement.

18. **Does the LUC have the authority to allow the solar farm on the KS Property?**

Yes. The solar farm is permitted under City and County of Honolulu law. Under the Commission’s Administrative Rules, HAR § 15-15-24, “Any and all uses permitted by the counties either by ordinance or rules may be allowed within this [the Urban] district, subject to any conditions imposed by the commission pursuant to section 205-4(g), HRS.”

19. **What do the City and County ordinances or rules say about solar farms on this property?**

The City and County of Honolulu’s Land Use Ordinance (LUO; Revised Ordinances of Honolulu Chapter 21) identifies the uses that are considered appropriate in each zoning district and the minimum standards and conditions that must be met if those uses are to be permitted. Based on DPP’s Solar Farm Guidelines, the Project is expected to be considered a Utility Installation, Type B. According to LUO Table 21-3 (Master Use Table), which specifies the permitted uses and structures in each zoning district, a Utility Installation, Type B is permitted in all zoning districts with issuance of a Conditional Use Permit (minor), subject to compliance with the specific development standards, district development standards and general development standards outlined in the LUO.

20. **Are any approvals from the Department of Planning and Permitting needed for this project?**

Yes, the project will require a Conditional Use Permit (minor), as described above. It will also require grading, grubbing and building permits from DPP.

21. **Is livestock allowed within the project site?**

No. Under the City zoning regulations, livestock is not permitted in the applicable zoning districts where the project will be located (except within the small slivers of P-2). Exhibit 36 is an excerpt from the LUO Table 21-3 (Master Use Table).

22. **Please discuss the Visual Simulations that you prepared.**

The Visual Simulations, dated August 2021, were submitted as Exhibit 6. We prepared this study by first identifying representative vantage points from publicly accessible locations around the Petition Area. Photographs were taken from each vantage point using a digital single lens reflex (dSLR) camera equipped with a “normal lens,” which most closely approximates the field of vision of the human eye.

The following six vantage points were selected for the visual simulations: (1) viewpoint 1

from H-2 South, approximately 0.75 miles northwest of the project; (2) viewpoint 2 from Ka Uka Offramp Southbound, approximately 0.4 miles northwest of the project; (3) viewpoint 3 from H-2 Onramp Southbound, approximately 2,000 feet to the west of the project; (4) viewpoint 4 from Aaniu Loop, approximately 1 mile southwest of the project; (5) viewpoint 5 from Waipio Uka Street, approximately 3,000 feet southwest of the project; and (6) viewpoint 6 from the Ka Uka Overpass, approximately 1,600 feet west of the project.

Photographs from each vantage point were stitched together to create a panoramic image. Using the project layout and associated design information, a scaled three-dimensional model was developed, including lighting conditions based on the location and time of day depicted in the photograph. The model was overlaid on each panoramic image using real-world coordinates for the project location and the vantage point of the simulation. For purposes of the three-dimensional model, it was assumed that the solar panels will have a maximum height of 16 feet and the perimeter fence would be a 7-foot-tall chain link fence. The deadends and lightning mast in the substation were assumed to be 32 feet tall. The utility poles that will support the 46kV interconnection lines were assumed to be 65 feet tall and spaced approximately 75 feet apart.

The existing views from the communities surrounding the Phase 1 Site will remain intact. The solar arrays have a low profile and will conform to the existing topography to the extent practicable. Additionally, seen in the context of existing man-made modifications, including the H-1 Freeway, electrical transmission lines, and similar structures, the visual impacts are expected to be minimal. From the six vantage points studied, the project will be slightly visible from viewpoint 2, will be somewhat more visible from viewpoints 3 and 6, and will not be visible from viewpoints 1, 4, and 5. As shown in the simulations, existing vegetation helps to screen views of the project and will be left in place to the extent practicable.

23. **Will the solar project create glare, particularly glare that might affect drivers or planes?**

No. This conclusion is based on the Glare Analysis Report for the Waiawa Phase 2 Plus Storage Project, dated August 2021 that was provided as Exhibit 7. The analysis was conducted using the Solar Glare Hazard Analysis Tool (SGHAT) software through an online tool (GlareGauge) developed by Sandia National Laboratories and hosted by ForgeSolar. This is an industry standard approach that models potential glare from the point of view of average first- and second-floor structures at observation points in the surrounding community, typical commuter cars and commercial trucks on nearby roadway segments, and final approach paths and air traffic control towers at nearby airports. As a point of clarification, ForgeSolar defines “glare” as a continuous source of bright light. Glare is generally associated with stationary objects, which, due to the slow

relative movement of the sun, reflect sunlight for a longer duration.

After running three analyses, using 11 observation points, six roadway segments, 16 final approach flight paths, and two air traffic control towers, the Glare Analysis Report concluded that the project will not create glare.

In an abundance of caution, due to the proximity to Wheeler Army Airfield (HHI), Daniel K. Inouye International Airport (HNL), and Kalaheo Airport (JRF), the Glare Analysis recommended that WP2S seek a “no effect” letter from the Federal Aviation Administration Obstruction Evaluation Group. “Determination of No Hazard to Air Navigation” letters were issued by the Federal Aviation Administration Obstruction Evaluation Group on July 7, 2021. I also note that the State Department of Transportation Airports Divisions and Highways Divisions confirmed that they do not have any concerns with this solar farm project.

24. **Please describe the preparation of the Biological Resources Survey Report.**

Tetra Tech conducted a biological survey for the project, which is summarized in the Biological Resources Survey Report, dated August 2021; this was submitted as Exhibit 10 (“**Biological Survey**”). The Biological Survey covered the solar farm area as well as adjacent areas, for coverage of about 497 acres. That area includes all 387 acres where the project will be located, as well as a little over 100 acres surrounding the solar project site, including some areas outside of the Petition Area.

No federally or state listed plant or animal species were observed within or in the immediate vicinity of the Phase 1 Site during recent biological surveys. The Biological Survey found that the study area has been heavily modified by previous agricultural activities associated with sugar cultivation. The land is dominated by non-native plant and wildlife species. No federally or State listed plant or animal species were observed within or in the immediate vicinity of the study area during the survey, and no portion of the study area is designated as critical habitat.

Although not observed, it is assumed that several federally or state listed wildlife species may occasionally occur in or fly over the Phase 1 Site, including Hawaiian hoary bat or ‘ōpe‘ape‘a (*Lasiurus cinereus semotus*), pueo or Hawaiian short-eared owl (*Asio flammeus sandwichensis*), Hawaiian seabirds (Hawaiian petrel or ‘ua‘u [*Pterodroma sandwichensis*] and Newell’s shearwater or a‘o [*Puffinus newelli*]), and Hawaiian waterbirds (ae‘o or Hawaiian stilt [*Himantopus mexicanus knudseni*], ‘alea kea or Hawaiian coot [*Fulica alai*], and ‘alae ‘ula or Hawaiian common gallinule [*Gallinula galeata sandvicensis*]). As such, the Biological Survey offered avoidance and minimization measures that could be employed in connection with the development of the solar farm.

In its February, filing the Office of Planning and Sustainable Development suggested conditions that could be imposed upon the Commission’s approval of the pending Motion to address wildlife concerns. Those conditions are largely consistent with the measures identified in the Biological Survey. I understand that WP2S has committed to implementing those measures recommended by the Office of Planning and Sustainable Development (with some minor clarifications on language, pursuant to an agreement between the Office and KS).

25. **Were other environmental matters addressed in the Biological Survey?**

Yes. As reported in the Biological Survey, AECOS, Inc. undertook a jurisdictional waters survey in November 2020. That survey was submitted to the United States Army Corps of Engineers (“USACE”) for a formal determination. In July 2021, USACE concurred that no USACE permitting was required.

Overhead interconnection lines will cross Panakauahi Gulch, a tributary to Waiawa Stream. Panakauahi Gulch has intermittent flow and is generally subject to regulation by USACE. However, for this project, because the interconnection lines will only span across the gulch and no fill will be placed below the high-water mark, no impacts to jurisdictional waters will occur and no permits are required. Of course, if those construction plans were to change (which is not expected), such that there would be the discharge of dredged or fill material into Panakauahi Gulch, or otherwise require the issuance of permits, authorization from the USACE would be obtained prior to that construction.

26. **Will the solar project generate new impacts on State or County services?**

The solar farm will not generate any new or additional demands for parks, schools, or health care services nor will it extend the service area limits for police and fire protection.

27. **Is the solar project and the request under the Motion consistent with the Hawaii State Plan?**

Yes. The Commission determined that in its 2014 Decision and Order where it approved the two utility-scale solar farms as interim uses of the Petition Area. Specifically, the Commission made findings that the interim solar use of the Petition Area for solar farms is consistent with HRS §§ 226-18 (Objectives and Policies for Facility Systems - Energy); 226-103 (Economic Priority Guidelines) with respect to encouraging the development of clean industries, and energy use and development.

Since that time, the Legislature has emphasized the importance of renewable energy even more. Act 38, SLH 2015 amended the Hawaii State Plan objectives and policies for facility systems — energy (HRS § 226-18) to add the following objectives:

- (2) Increased energy security and self-sufficiency through the reduction and ultimate elimination of Hawaii’s dependence on

imported fuels for electrical generation and ground transportation;

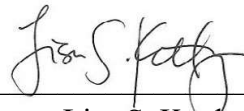
(3) Greater diversification of energy generation in the face of threats to Hawaii's energy supplies and systems

I'll add that the project also supports the State's goal of having 100% of Hawaii's electricity produced from renewable energy sources by the year 2045 (that was Act 97 in 2015).

Based on Hawaiian Electric's estimates, the project will generate enough energy to power approximately 18,000 homes a year. Additionally, over the term of the Power Purchase Agreement, the project will result in the avoidance of 2,908,097 barrels of fossil fuel and the reduction of greenhouse gas emissions by 1,078,948 metric tons of carbon dioxide equivalent (CO₂e).

28. **In your professional opinion, is there good cause for the Commission to grant the Motion requested by Kamehameha Schools for this solar farm project?**

Yes. Developing a utility scale solar project on an interim basis on land designated for Urban uses is an appropriate use of the Petition Area. The project will also help the State achieve its near-term energy goals. Furthermore, this use is consistent with the use that the Commission already approved for this very site in 2014. The pending Motion simply seeks to adjust the time period for development.



Name: Lisa S. Kettley

Makaweli, Hawai'i, February 25, 2022