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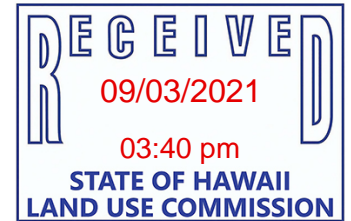
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TESTIMONY OF PHYLLIS SHIMABUKURO-GEISER  
CHAIRPERSON, BOARD OF AGRICULTURE  
STATE OF HAWAII

BEFORE THE LAND USE COMMISSION  
THURSDAY, SEPTEMBER 9, 2021

REMOTE MEETING  
9:00 a.m.

SPECIAL PERMIT APPLICATION (SP21-412)  
MAHI SOLAR PROJECT  
120 MEGAWATT ALTERNATING CURRENT (MWAC) SOLAR AND ENERGY  
STORAGE FACILITY  
KUNIA, OAHU: TMK: NO. (1) 9-2-01: POR. 20, POR. 10 AND POR. 12

Chairperson Scheuer and Members of the Commission:

Thank you for the opportunity to present testimony on this important matter. On May 14, 2021, the Department of Agriculture (Department) sent a letter to the City Department of Planning and Permitting containing our comments and recommendations on the Mahi Solar State Special Use Permit (SUP). On June 23, 2021, the Department presented both written and oral testimony before the City Planning Commission. Attached to this testimony is a copy of our May 14, 2021 letter to the Department of Planning and Permitting. Earl Yamamoto, Planner with the Department is attending the meeting remotely and is available for questions.

In summary, the Department stands on its letter of May 14, 2021 in its entirety. We would add that "B" rated agricultural lands comprise 65 percent of the Mahi Solar project area that is split into five areas within the most highly productive agricultural area on Oahu that we refer to as the Kunia corridor.

The Department's concluding statement on the Mahi Solar State Special Permit application is as follows:



“The Department strongly encourages Mahi Solar to fulfill its commitments and assertions and go beyond the minimum statutory requirement of making the project site available for agricultural activities at a lease rate that is at least 50 percent below the fair market rent for comparable properties. The Department believes that research alone is not a satisfactory outcome, nor is sheep used only for weed control. The majority of the land area under the project site contains some of the State’s most potentially productive soils for intensive agricultural production. The Department expects the research to be done by HARC (Hawaii Agriculture Research Center) along with the field trials with interested farmers to result in intensive agricultural activity on the project site.”

In the following, we have summarized the recommendations and other statements made in the letter (underscoring used for emphasis):

### **Irrigation water**

The availability of sufficient irrigation water when needed is fundamental to ensure maximal agricultural productivity for conventional soil-based agricultural production. This is particularly critical during the dry and windy summer months experienced in the area and for crops such as alfalfa.

The Department strongly recommends that data and information on maximum water demand, sources, storage, pumping, delivery, and year round availability to all five project areas be developed prior to Phase Two of the Agricultural Plan described in Appendix C. Further, this data and information should be provided to agricultural operators interested in the project site or specific project areas for agricultural production including livestock, hydroponic, and aquaponic.

### **Solar panel coverage by project area**

There will be a net area of 147 acres of solar panel coverage on the project site (Application, page 3-7).

The Agricultural Plan, research, and field testing should include the soft hose irrigation system being proposed for future agricultural activities that may occur under and adjacent to the solar panel arrays.

### **Fencing**

Fencing is important to discourage trespassing and crop or animal theft and to keep livestock from dislocation.

The extent and type of fencing and gating to be in place prior to full operation of the solar energy facility should reflect the needs of the anticipated agricultural activities and not just providing security for the solar energy facility.

### **Mahi Solar Agricultural Plan**

The proposed agricultural plan would utilize 610 of the 620-acre project. Of the 610 acres, 488.9 acres will be cultivated in crops and used for livestock grazing and bee keeping. (Application, pages 3-10 to -11) Department staff notes that livestock grazing and crop cultivation are not compatible in the same area if they are not effectively separated. The aforementioned proposed fencing can contain livestock under the solar panels to do weed control but that will likely preclude the cultivation of in-ground crops within the same area. As noted earlier, irrigation water in sufficient quantity and availability on demand is fundamental to any crop or livestock operation. There is scant mention of irrigation water and no mention of water for livestock in the Application and Appendix C (Mahi Solar: Agricultural Plan), although water infrastructure is planned for all project areas (Appendix C, Table 1, page 7)

The Agricultural Plan has three phases –

Phase One is two years of research to be done by the Hawaii Agriculture Research Center that will include field trials of identified crops at the Clearway solar facility just south of Mililani Town. Conventional and hydroponic cultivation will be used for crops such as lettuce, basil, and alfalfa and other legumes and grasses for livestock forage. The field trials are to determine what crops can be productively grown with what practices under and between solar panels. (Appendix C, pages 19-21)

Phase Two occurs after Mahi Solar is in operation. Mahi Solar “will make available” 610 of the 620-acre project site “to local farmers to grow agricultural products at a commercial scale.” (Application, page 3-12). Department staff find this phase confusing as the Application further states that Mahi Solar will coordinate with local farmers and ranchers, along with HARC and local experts “to propose agrivoltaic projects that they believe will be successful”. (Application, page 3-12) This differs considerably from the description of Phase Two further on in the Application, as follows:

“As each new agricultural use is tested at the project site in research trials or grown in the solar fields by farmers, HARC and Mahi Solar will gather data and evaluate the results. This will help farmers and ranchers learn and modify their work, in an iterative process.” (Application, page 5-2)

Similarly, the linkage between Phases One and Two is made in the Agricultural Plan (Appendix C, page 5), where land and water will be provided to farmers and ranchers to grow out these crops (from Phase One) at commercial scale. This is more in line with the description of Phase Two in the Agricultural Plan (Appendix C, pages 22-26). Mahi Solar needs to make consistent its intention to link the research in Phase One and its application by farmers and ranchers in Phase Two.

Phase Three is the sharing of data collected on agrivoltaic farming.

The Department supports proof-of-concept as the best way to determine the suitability of the to-be-determined agricultural activities to be researched and field trialed by the Hawaii Agriculture Research Center and interested farming operations at the Clearway Mililani solar facility.

### **Proposed agricultural activities**

The proposed agricultural activities (Appendix C, Figure 4, page 6) show about 41 percent (250 acres) of the 610 acres available for agricultural uses may be in directly edible commodities such as honey, vegetable, sweet potatoes, and hydroponic lettuce. Another 19 percent (121 acres) will be in livestock grazing, presumably sheep, as cattle and goats are not mentioned.

Oahu Grazers has expressed interest in using a few hundred acres of the project site as additional pasture land for their sheep (500 head) and maybe calves. This operation already runs sheep on the properties of existing solar energy facilities on Oahu.

With respect to the market for sheep and lambs, the Department understands that Oahu's primary livestock slaughter facility has expressed reluctance to offer services to hogs. The Department is not aware that this reluctance also applies to sheep and lambs. The Department recommends Oahu Grazers to confirm their agreement(s) with their slaughter facilities.

State law (Section 205-4.5(21), HRS) does not require the sale of sheep and lamb or the products of any "compatible agricultural activity". However, it is the generation of revenue by agricultural operators selling their agricultural products such as vegetables, melons, fruits, honey, and so forth that will ensure continued agricultural activity under and adjacent to solar arrays. This is why the Department focuses on the application's references and commitments to infrastructure, research, and field trials

that affect agricultural operators and the establishment and continuation of their agricultural activities.

The Department has read the HARC Solar White Paper (Appendix B within Appendix C “Agricultural Plan”) and has every confidence that this venerable Hawaii agricultural institution will follow through on their commitments to the best of their ability and produce data and information that will help those agricultural operators who are committed to the project site to become economically viable.

This concludes our presentation. Thank you for the opportunity to testify on this important permit application.

Attachment (1)