

REBUTTAL TESTIMONY OF

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Subject: Integrated Resource Planning

1 A. Yes. Life of the Land (“LOL”) raised the concern that the proposed new
2 generating unit will contribute to global warming (also referred to as climate
3 change), primarily in LOL-T-1, LOL-T-2 and LOL-T-5. LOL also raised the
4 concern that other air emissions may pose risks to the environment and human
5 health. Southern Wine and Spirits of America (“SWSA”) raised concerns that
6 electric and magnetic fields (“EMF”), water pollution, air emissions, traffic
7 congestion, and noise may negatively affect their business.

8 Q. Are externalities considered in utility resource planning and project
9 implementation?

10 A. A general planning process, such as IRP, considers the externality impacts that are
11 of concern, however impacts for certain externalities, such as the concerns raised
12 by SWSA, can be highly dependent on project-specific parameters. These types
13 of externalities might be considered in only very general terms in a planning
14 process, such as IRP, since specific project sites, configuration, and proximity to
15 human activities are determined in the project development step, which generally
16 comes after the development and approval of the IRP plan. These externalities are
17 more appropriately considered in project-specific evaluation at the time the project
18 permits and approvals are sought. Project-specific siting considerations for the
19 Campbell Industrial Park Generating Station were addressed by Mr. White in
20 HECO T-10.

21 Q. What is Hawaiian Electric’s position on the consideration of externalities in IRP?

22 A. Hawaiian Electric’s position is that external costs and benefits should be
23 considered in the development of IRP plans. In support of this position, Hawaiian
24 Electric filed with the Commission in July 1997 in Docket No. 95-0347, the
25 Hawaii Externalities Workbook. In its Statement of Position in Attachment III of

1 the workbook, Hawaiian Electric explains that the potential impact on the
2 environment, the State's economy, people's lifestyle and culture, and society in
3 general are relevant factors in the identification, evaluation, and inclusion of
4 alternative resource options in Hawaiian Electric's plan to meet customers' energy
5 needs. However, societal costs should not be given equal weight with utility costs
6 in the assessment and optimization of resource options – because of the substantial
7 uncertainty regarding the quantification and valuation of societal impact costs and
8 benefits, the potential rate impact of giving equal weight to speculative externality
9 costs in selecting resources, and the “perverse” effects that a piecemeal approach
10 to externalities may cause. (Hawaii Externalities Workbook, Hawaiian Electric
11 Utilities Statement of Position, p. 15 and 16)

12 Q. In general, how are externalities that are of concern considered in general
13 planning processes such as IRP?

14 A. In general, monetized externality costs can be conservatively estimated (i.e. the
15 actual externality costs would be expected to be lower) for some externalities such
16 as certain air emissions. These externality costs can then be evaluated in the
17 societal cost perspective by adding the monetized externality cost to direct costs,
18 which are then compared for each plan considered. When monetized externality
19 costs are not available, then a quantitative evaluation is done by estimating the
20 volume or amount of the externality which is then compared for each plan
21 together with other quantitative values. If it is not possible or feasible to monetize
22 or quantify the externality, then a qualitative approach is used.

23 Q. In general, how are monetized externality costs estimated?

24 A. There are four general approaches to estimating monetized externality costs,
25 which are 1) direct impact or damage-cost; 2) cost of control; 3) use of values

1 derived in other jurisdictions; and 4) value-based community assessment. These
2 approaches were explained in detail in section 4 of the Hawaii Externalities
3 Workbook. Hawaiian Electric generally supports the damage-cost approach
4 because of, among other things, its attempt to identify the uninternalized damages
5 and benefits, however this must be weighed against the magnitude, complexity,
6 and uncertainty in developing and applying the damage-cost approach to a
7 specific externality.

8 Q. How were greenhouse gas emissions considered by Hawaiian Electric in its
9 Integrated Resource Planning process?

10 A. Hawaiian Electric recognized the growing concern of greenhouse gas emissions
11 and the possible effects of global warming. In its IRP-3, Hawaiian Electric
12 estimated the amount of carbon dioxide emissions (the primary greenhouse gas for
13 the Hawaiian Electric system) for each plan. This allowed Hawaiian Electric to
14 evaluate the estimated increase or decrease in carbon dioxide emissions and the
15 resources required to change the amount of carbon dioxide emissions, along with
16 the estimated changes in other attributes of the plans under consideration (HECO
17 IRP-3, Section 11.5, p. 11-6 and Appendix U). Hawaiian Electric has not yet
18 determined a monetized value for greenhouse gas emissions. The global nature of
19 the issue and the speculative nature of the damages due to global warming make it
20 difficult to establish a Hawaii-based damage-cost basis for the monetized
21 externality cost of greenhouse gas emissions. Given this difficulty, Hawaiian
22 Electric elected to use the quantitative approach to evaluating greenhouse gas
23 emissions in its IRP-3.

24 Q. What is the appropriate proceeding to consider global warming externalities?

25 A. Hawaiian Electric maintains that while it is important to understand the

1 greenhouse gas emissions from a specific individual resource for which approval
2 is being sought, such as the Campbell Industrial Park Generating Station, it is
3 more appropriate to evaluate the reasonableness of the emission level in an IRP
4 docket where the total system requirements and portfolio of resources can be
5 evaluated.

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7 CONSIDERATION OF OTHER FEASIBLE RESOURCE OPTIONS IN IRP

8 Q. Have other parties in this docket provided testimony on other resource options
9 such as renewable energy as an alternative to the Campbell Industrial Park
10 Generating Station?

11 A. Yes. LOL testified in LOL-T-1 that “Life of the Land will show that
12 Hawaiian Electric did not consider other feasible alternatives” (LOL T-1, p. 58, at
13 13). LOL T-1 also states “Life of the Land will show that there are a combination
14 of reasonable alternatives currently available to put O`ahu on the path to energy
15 self-reliance without building another fossil-fuel burning power plant” (LOL T-1,
16 p. 58 at 18). LOL also testified that “[w]e advocate 200-250 MW in local,
17 cleaner, greener renewable energy projects: OTEC to supply peak power, energy
18 efficiency and SWAC to decrease peak power needs, wind, solar and wave energy
19 to displace oil. We propose tearing down the pre-statehood Honolulu Power Plant
20 in Downtown Honolulu.” (LOL T-6, p. 2 at 23).

21 Q. Have other parties in this docket provided testimony on demand-side (“DSM”)
22 resource options?

23 A. Yes. LOL testified in LOL T-6 of their proposal for an energy efficiency utility
24 (LOL T-6, p. 8)

25 Q. How did Hawaiian Electric’s Integrated Resource Planning process consider other

1 feasible resource options?

2 A. As I explained in my direct testimony, the HECO IRP-3 process included the
3 development of DSM program and supply-side resource data for analysis in
4 HECO IRP-3. (HECO T-7, p. 5 at 15). The HECO IRP-3 report explained in
5 detail the consideration of all possible DSM programs and renewable energy
6 resources, which included the screening of these resources to determine those that
7 should be considered further in the integration analysis. Specifically, Section 6
8 explains the development of DSM program information and Section 8 explains the
9 development of supply-side resource information. Sections 9, 10, and 11
10 explained the integration analysis. In addition, Mr. Sakuda's direct testimony also
11 explains how these resource characterizations were analyzed in the integration
12 analysis to determine a preferred plan. (HECO T-2, p. 10 to 11 and p. 53 to 58)

13 Q. Did Hawaiian Electric consider ocean thermal energy conversion ("OTEC"), sea
14 water air conditioning ("SWAC"), wind, solar, and wave energy in its IRP-3?

15 A. Yes. HECO IRP-3 report explains the consideration of SWAC and the eligibility
16 to participate in the Commercial and Industrial Custom Rebate DSM program
17 (Appendix I, p. I-5). OTEC and wave energy technologies failed the commercial
18 screening criteria (Section 8.3.1, p. 8-8). Wind and solar passed the commercial
19 screening criteria and Unit Information Forms were developed characterizing
20 possible projects for evaluation in the integration analysis (Section 8.3.1, p. 8-11).

21 Q. What is the appropriate proceeding to consider other feasible resource options
22 such as renewable energy and DSM resources?

23 A. The evaluation and consideration of alternative resources such as renewable
24 energy and DSM resources, as well as distributed generation, to achieve broad
25 policy objectives such as reducing imported energy to Hawaii and addressing

1 global warming, is more appropriately evaluated in an IRP docket. This would
2 allow a portfolio approach to resource planning and meeting the broad policy
3 objectives.

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SUMMARY

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Q. Would you summarize your rebuttal testimony regarding greenhouse gas
7 emissions externalities?

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A. Greenhouse gas emissions were considered in the development of the HECO
9 IRP-3 report. Consideration of greenhouse gas emissions externalities should be
10 made in consideration of the overall portfolio of resources, and accordingly is
11 more appropriately addressed in an IRP docket.

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Q. Would you summarize your rebuttal testimony regarding other feasible resource
13 options?

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A. Other feasible resource options such as renewable energy, DSM and distributed
15 generation were evaluated extensively in HECO's IRP. Consideration of
16 renewable energy, DSM and distributed generation resources should be made in
17 consideration of the overall portfolio of resources, and accordingly is more
18 appropriately addressed in an IRP docket.

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Q. Does this conclude your rebuttal testimony?

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A. Yes.

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Witness HECO RT-7 does not have any exhibits.