BEFORE THE PUBLIC UTILITIES COMMISSION

OF THE STATE OF HAWAII

In the Matter of PUBLIC UTILITIES COMMISSION Instituting a Proceeding to Investigate Distributed Generation in Hawaii.	)	Docket No. 03-0371

POST-HEARING OPENING BRIEF OF KAUAI ISLAND UTILITY COOPERATIVE

AND

CERTIFICATE OF SERVICE

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KAUAI ISLAND UTILITY COOPERATIVE ("KIUC"), by and through its attorneys, Oshima Chun Fong & Chung LLP, does hereby submit its Post-Hearing Opening Brief in this docket.

I. PROCEDURAL BACKGROUND

Pursuant to the schedule set forth in Prehearing Order No. 20922 filed on April 23, 2004, HAWAIIAN ELECTRIC COMPANY, INC., HAWAII ELECTRIC LIGHT COMPANY, INC. and MAUI ELECTRIC COMPANY, INC. (collectively, "HECO"), KIUC, THE DIVISION OF CONSUMER ADVOCACY, DEPARTMENT OF COMMERCE AND CONSUMER AFFAIRS (the "Consumer Advocate"), HESS MICROGEN ("Hess"), LIFE OF THE LAND ("LOL"), HAWAII RENEWABLE ENERGY ALLIANCE ("HREA"), the COUNTY OF KAUAI ("COK") and the COUNTY OF MAUI ("COM") (HECO, KIUC, Consumer Advocate, Hess, LOL, HREA, COK and COM hereafter collectively referred to as "Parties and Participants") are required to each file their respective post-hearing opening briefs with respect to the issues set forth below, in addition to any other questions the Parties and Participants wish the Commission to consider, as set forth in

that certain Commission letter dated December 28, 2004. Pursuant to Prehearing Order No. 20922, these post-hearing opening briefs are required to be filed by no later than March 7, 2005 (i.e., 4 weeks after the transcript for the scheduled panel hearings was filed with the Commission, which filing occurred on February 7, 2005).

Pursuant to Prehearing Order No. 20922, KIUC hereby submits this post-hearing opening brief.

II. STATEMENT OF THE ISSUES

As set forth in the Commission's letter dated December 28, 2004, the specific issues to be addressed in this brief are as follows:

1. Whether the costs and benefits of distributed generation change in times of excess capacity vs. times of shortages of capacity; if the answer is yes, then given that for the life of any long-term asset there are likely to be periods of excess capacity and shortages, please comment on the time span over which one should measure the costs and benefits of distributed generation.

2. How should non-utility owned distributed generation be incorporated into the IRP process, in a manner comparable to the treatment of utility-owned distributed generation, so that there is no market or regulatory advantage of one type over another?

3. Whether transmission and distribution costs will be substantially reduced for CHP or other distributed generation projects set up for peak shaving only.

4. Whether potential loss of revenues to investor owned utilities, due to advancements in technology and the development of new markets is a risk for which the utility has been and is compensated through its approved rate of return; and which forms of distributed generation, if any, would fall into the category of advancement risks for which the utility already receives compensation.

5. Whether the utility would have stranded costs in period of load growth.

6. Is it reasonable to expect identification of individual projects or project zones in the IRP process? What specific modifications to the IRP process should the Commission consider to facilitate such identification?

7. Under each of the two scenarios for participation in distributed generation – utility participation and utility affiliate participation – what rules and restrictions are necessary to assure that the competition between non-utility projects and utility-owned (or affiliate-owned) projects is evenhanded, meaning that the utility or utility affiliate has no unearned competitive advantage? (Note: although some Parties and Participants may believe that there is no possibility of unearned competitive advantage, while other Parties and Participants might believe that any participation by the utility or an affiliate will distort the market, the Commission urges Parties and Participants to suspend these beliefs for purposes of this question and assist the Commission's consideration of practical approaches.)

In addition to the issues specifically raised by the Commission in its December 28, 2004 letter, KIUC asks the Commission to consider the questions listed below. These questions represent issues and topics previously discussed in this docket and are viewed by KIUC as having significance on any final orders or decisions that may be reached. These other questions are as follows:

1. What are the differences that set KIUC as a cooperative utility apart from an investor-owned utility?
2. What are the unique characteristics of the electrical system on the island of Kauai and how does this impact DG?
3. What are the feasible options for distributed generation ("DG") project ownership on the island of Kauai?
4. How should DG be defined in terms of this docket as it applies to KIUC?
5. What utility incentives are appropriate to facilitate DG?
6. What are the key issues and considerations associated with interconnecting DG to the electrical system on the island of Kauai?
7. How should DG interconnection costs be allocated?
8. How should the costs associated with providing service to DG customers be determined and recovered?

9. What is the appropriateness of applying exit fees to DG customers leaving KIUC's system?

10. What should the mechanisms be for recovery of costs associated with system modifications and upgrades and fuel costs required to serve customer-owned DG?

11. Should CHP (combined heat and power) systems be offered to customers by the utility as a regulated service?

KIUC acknowledges that the use of DG will likely continue to expand over the coming years, and increased activity should be seen across Hawaii. In fact, we are already seeing the beginnings of this activity. KIUC continues to believe that many uncertainties and variables exist that make it difficult to pre-determine, on a general basis, what forms of DG are the most appropriate and feasible for Hawaii, and whether DG will mature into a source of primary energy and/or capacity on a widespread basis or will remain primarily used at remote locations or for back-up and supplemental power.

KIUC believes that the role of the Commission in this process should be to set forth policy objectives that could assist the electric utilities in making the determination on a case-by-case basis whether a specific DG project or facility is feasible. In order to do so, the Commission must carefully consider all of the issues and questions noted above. In addition, in KIUC's case, these policy objectives must be flexible enough to allow KIUC, as an electric cooperative, to take into consideration the interests of its members. These policies must remain fairly general at the current time to allow for sufficient flexibility as DG technologies advance and the resulting costs and efficiencies are improved and can be better determined. However, at a minimum, these policies

should recognize the potential risk that any extensive or non-controlled infusion of DG would have on an electric utility's revenues and on its ratepayers. In connection with this, these policies should provide some guidelines to allow the electric utility to, at a minimum, recover its costs of allowing or pursuing DG without unduly burdening the ratepayers that are not directly benefited by the DG, while also allowing the owner of the DG facility to share in the benefits of any savings it provides to the electric utility.

III. POST-HEARING OPENING BRIEF

The following sets forth KIUC's Post-Hearing Opening Brief with respect to each of the issues set forth in the Commission's December 28, 2004 letter, in addition to the other questions deemed important by KIUC for Commission consideration and determination as set forth above. The discussion and positions set forth herein focus on the benefits and impacts of DG, as the term "distributed generation" was defined in Order No. 20582 filed on October 21, 2003 in this docket as involving "the use of small scale electric generating technologies installed at, or in close proximity to, the end-user's location."

1. Issue 1: Whether the costs and benefits of distributed generation change in times of excess capacity vs. times of shortages of capacity; if the answer is yes, then given that for the life of any long-term asset there are likely to be periods of excess capacity and shortages, please comment on the time span over which one should measure the costs and benefits of distributed generation.

KIUC is interpreting this issue to apply to both generation and distribution capacity. While the benefits of DG generally increase in times of shortage of capacity and correspondingly decrease in times of excess capacity, the costs of DG typically do not change in either scenario. In determining the benefits of DG, one key determinant is whether the DG is customer or third party owned vs. utility owned. Utility-owned DG results in costs and benefits generally similar to other forms of utility-owned generation,

but most likely with higher heat rates and higher operating costs (for fossil fueled DG relative to central plant fossil fueled generation). Customer or third party owned DG, on the other hand, depending on its specific application and technology and unit size in relation to site average and peak load, can offer benefits to the utility by providing a hedge against new construction during periods of capacity shortage.[1]

The utility can realize either a *temporary* or *permanent* benefit from the DG capacity. If the DG unit is installed at a substation and defers substation expansion for a period of time such as two years, the benefit is real and temporary. However, in this case, once the substation expansion can no longer be deferred and is required to be installed, the DG unit will no longer be needed and as such will no longer provide this benefit. However, it is possible that the DG unit could be moved to another constrained location on the utility's distribution system and continue to offer a temporary benefit. In another case, the DG unit could offer a system generation capacity benefit which could turn out to be either permanent or temporary.

Time span often depends on the technology and size of DG involved. Having said this, many DG units used by utilities have been in service for decades. While any utility system will indeed experience periods of capacity shortage and excess over time, the key is when a capacity need enters the utility resource plan. Once a capacity need is identified by the utility, the motivation is for the utility to meet that need. If the need is met by DG, an appropriate time span for the DG to be evaluated would be the expected

[1] If the DG unit is sized smaller than the customer's average load, it then may be operated in a baseload mode to continually offset a portion of the customer load. In this case, the DG application would be viewed by the utility as a load reduction. However, if the DG unit is sized with excess capacity (i.e., greater than the site load), it may offer a capacity resource to the utility. This capacity resource is only meaningful if the utility has dispatch control of the DG unit by a contractual relationship.

service life of the DG equipment. Depreciation schedules and tax treatment would also be key issues here as well.

2. **Issue 2: How should non-utility owned distributed generation be incorporated into the IRP process, in a manner comparable to the treatment of utility-owned distributed generation, so that there is no market or regulatory advantage of one type over another?**

At least as it pertains to KIUC, non-utility owned DG should be incorporated into the IRP process in a manner that allows KIUC to balance costs, risks and environmental concerns as well as to ensure that adequate resources are available to provide reliable service to KIUC's members. Non-utility owned DG can be incorporated through a competitive bidding process, as is planned by Idaho Power in their 2004 IRP[2] or by purchasing power based on avoided cost. In determining the avoided costs, a number of inputs should be considered, including without limitation estimated plant capital and operating costs, based on scenarios that determine the most likely resource that the utility would avoid constructing as a result of the deployment of the DG facility. DG that does not operate baseloaded nor comply with PURPA can be incorporated as a demand side resource, and could be allowed to participate at negotiated or market-based prices.

With respect to KIUC, KIUC is a fairly new member-owned cooperative, operating the electric utility on the island of Kauai since November 1, 2002. In connection with this, KIUC has recently submitted a proposed revised IRP framework to the Commission and the Consumer Advocate for their respective review and consideration. See letter filed on December 23, 2004 in Docket No. 02-0060. This proposed framework is intended to replace the prior framework that was prepared by

[2] The Idaho Power 2004 Integrated Resource Plan can be found at http://www.idahopower.com/energycenter/2004IRPFinal.htm.

KIUC's predecessor when the electric utility was investor owned, and will take into account the cooperative's principles and the interests of KIUC's members. This revised framework requires KIUC to analyze how DG will impact its system needs and includes a process for determining the energy goals of the cooperative, especially given the fact that the drivers and incentives that exist for investor owned utilities may not apply to KIUC as a cooperative.

The new proposed IRP framework (aka Integrated Resource Planning Principles) includes DG as one of a number of resource options to be considered as part of an integrated plan. The framework specifically states the following on pages 14-15:

E. Resource Options

1. In the development of its integrated resource plan, KIUC shall consider all supply-side[3] and demand-side resource options appropriate to the KIUC service territory and available within the years encompassed by the planning horizon to meet the stated objectives.

2. KIUC shall include among the options the supply-side and demand-side resources or mixes of options currently in use, promoted, planned, or programmed for implementation by KIUC. Supply-side and demand-side resource options include those resources that are or may be supplied by persons other than KIUC.

3. KIUC shall initially identify all supply-side and demand-side resource options appropriate to the KIUC service territory. KIUC may, upon review, screen out those options that are clearly infeasible. KIUC may establish such other criteria for determining the feasibility of options.

[3] As reflected in KIUC's proposed IRP framework, supply-side is defined to now include DG.

3. **Issue 3: Whether transmission and distribution costs will be substantially reduced for CHP or other distributed generation projects set up for peak shaving only.**

Generally, CHP or other DG projects set up for peak shaving only will not necessarily result in a substantial reduction in transmission and distribution (T&D) costs. Because T&D costs are largely fixed costs, cost savings can only occur when avoiding an increase in costs. As such, DG projects are typically only useful for reducing T&D costs when an upgrade to a portion of the system is required. An electric utility can, as has been done in a New York pilot program,[4] develop a process whereby it issues a request for proposals when it needs to expand its T&D system, subject to certain constraints such as the size and nature of a project. At that time, prospective DG developers can then submit bids. If it is determined that the DG project can reduce costs for the utility, a contractual arrangement can be put into place to enlist the DG as a T&D resource.

4. **Issue 4: Whether potential loss of revenues to investor owned utilities, due to advancements in technology and the development of new markets is a risk for which the utility has been and is compensated through its approved rate of return; and which forms of distributed generation, if any, would fall into the category of advancement risks for which the utility already receives compensation.**

The focus of this issue is exclusively on investor owned utilities, and not KIUC as a cooperative. Nevertheless, KIUC offers its response in an effort to allow for a better understanding of the role of technology and risk in utility decision-making.

[4] New York State electric distribution utilities are conducting a pilot program to assess the viability of distributed generation to address distribution system requirements and eliminate or defer the need for other system upgrades on a targeted basis. Details on the Niagra Mohawk Company pilot program can be found at http://www.nationalgridus.com/niagaramohawk/business/programs/3_energy_info.asp.

Advancements in technology and development of new markets are risks that the utility should consider in its planning process, particularly with respect to planning for future utility investments and potential loss of revenues. Utility-owned DG can, and has been, addressed by utilities in such processes. Customer-owned DG, however, differs in that the customer's decision making process is not open to the utility when the utility is making investments to serve a given customer, and thus presents a risk outside of that offered by technology advancements and new market development.

In the case of utility-owned DG, the utility typically is motivated to select technologies that are fully-commercialized and proven in service. In an effort to better serve customers, however, the utility may consider the deployment of leading edge technology (e.g., advanced fuel cells or advanced wind power turbines). Nevertheless, it is still incumbent upon the utility to ensure, to the maximum extent possible, that technology adoption risks are minimized. KIUC believes that utility technology decisions should be made deliberately and with full research, disclosure and analysis of the potential risks and rewards, and with an emphasis on minimizing risks while seeking to maximize customer benefit. In this case, the risk tolerance and exposure are well within the prudent operation of the utility business and addressed within the ratemaking process.

5. Issue 5: Whether the utility would have stranded costs in a period of load growth.

KIUC understands this question to pertain to stranded assets resulting from the loss of base rate revenue due to a customer supplying part or all of their electrical needs from a customer or third party owned and operated DG facility and that any standby or exit fees applicable to this customer do not fully compensate for the lost revenue.

Based on this understanding, a utility would not necessarily incur stranded costs if load growth occurs in the same electrical supply area as the former customer and the load growth has energy needs at least equal to the amount previously provided to the former customer by the utility.

6. **Issue 6: Is it reasonable to expect identification of individual projects or project zones in the IRP process? What specific modifications to the IRP process should the Commission consider to facilitate such identification?**

KIUC believes that it may not be practical within the IRP process to expect identification of individual projects or project zones under certain circumstances. On the one hand, if the projects are utility investments and are fairly advanced in their project planning stage to define the specific project costs and risks, then it is reasonable to require the electric utility to include such projects in the IRP planning process. On the other hand, customer-planned projects are not always immediately brought to the attention of the electric utility, and in any event, are subject to a number of additional risks outside of the utility's influence and control, including but not limited to the financial stability of the customer and the priority of the project relative to other investment options for that customer. If such projects were required to be identified as part of the IRP planning process, then the IRP process must include certain contingencies that can balance costs and risks in the event the specific project or projects do not materialize.

7. **Issue 7: Under each of the two scenarios for participation in distributed generation – utility participation and utility affiliate participation – what rules and restrictions are necessary to assure that the competition between non-utility projects and utility-owned (or affiliate-owned) projects is even-handed, meaning that the utility or utility affiliate has no unearned competitive advantage?**

The response to this issue assumes that a set of rules, regulations and restrictions could be designed to create a "level playing field" for all participants, i.e., a

utility, a utility affiliate, and a customer/third party. This issue has not been researched as it applies to KIUC as a cooperative. KIUC believes, however, that the rules that would apply to a cooperative's DG participation may differ significantly from the rules that would apply to DG participation by an investor-owned utility. In fact, the rules for a cooperative may be quite limited in scope as a reflection of the different ownership structures and the cooperative's resulting strong member/customer focus.

It is KIUC's understanding that experience to date on this issue all involve DG facilities owned by utility affiliates as opposed to the regulated entities themselves. A body of experience does exist for characterizing the practical approaches for "fair" participation in DG by utilities. Issues that almost always arise regarding the "unfair utility advantage" include use of the utility logo, access to customer information, cost and revenue accounting, access to and use of company resources and material, restraint of trade, etc. The past history of experience on this issue is especially prevalent in states such as California and Maryland.[5] It is important to note that benefits to DG customers and ratepayers have also been identified in some cases.

In addition to the issues specifically raised by the Commission and set forth above, KIUC respectfully asks the Commission to consider a number of additional questions. These questions represent issues and topics previously discussed in this

[5] In California, the use of the utility name by the utility affiliate was a major focus of the drive for "fairness." PG&E Energy Services (a utility affiliate) was required to notify potential customers up front that they were not part of the regulated utility and that the customer could deal with PG&E Energy Services or other contractors providing similar services. In Maryland, a Baltimore Gas & Electric Company (BG&E) affiliate providing home and business energy services was allowed to display the corporate logo as well as actively market their services across the state. The Maryland association of mechanical contractors, whose members provided similar services, protested the "unfair advantage" of the BG&E affiliate. BG&E noted that no ratepayer funds were used to support the affiliate's activities. BG&E's acquisition of some major contractors in the state tended to mute the controversy.

docket and are viewed by KIUC as having significance on any final orders or decisions that may be reached.

Question 1: What are the differences that set KIUC as a cooperative utility apart from an investor-owned utility?

KIUC is different than other electric utilities in Hawaii due to its cooperative ownership structure. As mentioned in KIUC's Direct Testimonies (KIUC-T-1, page 3), under this structure, all electric customers on Kauai are members/owners of KIUC unless that customer elects not to become a member/owner. Substantially all of Kauai's approximately 29,000 current electric customers are members of KIUC. Under this relationship, any money left over after KIUC's bills are paid each year (i.e., the margin between income and expenses) is designated as the members' patronage capital. These net margins are distributed annually to all members in the form of cash or credits to the member's patronage capital account, or any combination thereof, in proportion to the value or quantity of the services purchased by the member from KIUC during the applicable fiscal year. KIUC-T-2 (pages 7 to 8).

As a member-owned cooperative, KIUC is not driven by the same factors as an investor-owned utility. KIUC does not have to satisfy the needs of any shareholders, nor deal with the natural tension that exists between shareholders and ratepayers. Instead, KIUC seeks to meet the needs of its member/customers. Thus, as it applies to DG, all the cooperative's members will share in any costs or revenues associated with a DG unit that is owned and operated by KIUC and installed at a member's location. In the final analysis, the members of KIUC will have a great deal of input on how DG opportunities should be pursued for its electrical system. See KIUC-T-2 (pages 7 to 9).

As mentioned elsewhere in this docket, KIUC is still in the process of evaluating what it means to be a member-owned cooperative and what resulting role it should have

in the DG process. See KIUC-T-2 (page 32). In that connection, KIUC plans to evaluate DG on a case-by-case basis weighing the net benefits that said generation will have to its members and on its electrical system as well as what may be desired by its members. For example, if the interest of KIUC's membership is to pursue a certain type of DG facility regardless of expense, then the proposed facility may likely be implemented. However, if the interest of KIUC's membership is to pursue DG at the lowest cost and with maximum benefits to its members, then careful study would precede any decision to allow a DG facility to interconnect to KIUC's grid, or construct a utility-owned DG project. In either case, it is incumbent upon the Board and management of KIUC to act on behalf of its membership and ensure that any implemented DG project makes ultimate sense to the cooperative.

Question 2: What are the unique characteristics of the electrical system on the island of Kauai and how does this impact DG?

As noted on pages 5 to 6 of KIUC-T-2, all of the Hawaiian Islands are isolated electrical systems, consisting of generation, transmission and distribution. The small isolated nature of Kauai affects the potential structure of the electric system and the use of DG within the system. KIUC serves an average of 23 customers per mile of transmission and distribution system lines. Major generation resources are located on the southern shore requiring KIUC to transport power across the island's largely uninhabited inner core consisting of tall mountains and deep valleys to serve northern shore load centers. KIUC's total annual revenue is approximately $100 million, characteristic of a small generation and T&D system. Accordingly, DG will likely have a significant technical impact on KIUC's operations and system stability due to lightly loaded feeders, and KIUC will have difficulty absorbing the impact of lost revenues due to a customer leaving the system.

Kauai has a current historic peak electrical demand of approximately 77 MW, with no interconnections with other systems for emergency and economy power exchanges as typically found with mainland transmission systems. With no capability to receive backup and emergency power from other systems, KIUC is required to build, operate and maintain a stand-alone system of generators capable of serving the island's peak load, while meeting the "adequacy of supply" criteria specified by the Commission in General Order No. 7, i.e., "The generation capacity of the utility's plant, supplemented by electric power regularly available from other sources, must be sufficiently large to meet all reasonably expectable demands for service and provide a reasonable reserve for emergencies." On Kauai, no "electric power regularly available from other sources" exists, thereby compelling KIUC to build sufficient generation capability to offer reliable power supply to its members. KIUC owns approximately 123 MW of capacity on Kauai, sufficient to sustain the loss of the single largest unit during its annual peak load, and also the loss of both the largest unit and the third largest unit to scheduled maintenance during morning peak hours. KIUC-T-2 (pages 5 and 6).

KIUC has built sufficient generation capability to offer reliable power supply to its members and customers, and is not projecting a need for new generating capacity to meet load until after 2012. As a result of this situation, no new generating capacity is now needed on Kauai. If DG is built by KIUC's customers on Kauai, this customer owned and interconnected DG will result in lost revenues. KIUC's members and customers will as a result individually experience greater costs to absorb these lost revenues, either through increased rates, or, for members, through a decrease in patronage capital refunds/credits. KIUC-T-2 (page 2).

Finally, the relatively small size of the entire electric system means that a single customer can potentially materially affect the entire cooperative. For example, a 3 MW turbine installed at a hotel resort represents a significant percentage of the 77 MW peak demand of KIUC's entire system.

Question 3: What are the feasible options for DG project ownership on the island of Kauai?

As noted earlier, KIUC has built sufficient generation capability to offer reliable power supply to its members and customers, and is not projecting a need for new generating capacity to meet load until after 2012. If generation is to be built on Kauai, even though no new capacity is needed, the DG unit may be owned by 1) individual end-use customers, 2) third party investors, or 3) KIUC. A customer may be interested in installing its own generation to lower costs and/or improve reliability. This option may be most attractive to the customer in the case of CHP applications where a significant thermal load may be served by the DG unit, as in the case of a large hotel complex. In some cases, a third party might approach a resort hotel and offer to provide them power for a rate lower than the applicable KIUC tariff. In either case, the hotel would own or lease, operate (or pay for operation as part of their power rate), and in most cases control output from the DG unit. KIUC-T-2 (pages 20 to 21).

In the above situation, it is likely that the hotel would remain a member or customer of KIUC in order to receive backup and maintenance power when needed. An open issue here is the rates that KIUC should charge the customer for backup/standby power when needed, especially when KIUC must 1) reserve a fixed amount of generating capacity for this customer, 2) maintain the transmission and distribution system to serve this customer when needed, and 3) still meet its revenue requirement necessary for T&D construction and its operations with reduced revenues from the

hotel. In this case, in the absence of a full cost recovery standby charge, the revenue requirement must be spread over the remaining smaller customer base, thereby incrementally increasing costs for all other members and customers. All other cooperative members and customers would then have to pay more to cover the utility's fixed costs, including costs associated with the T&D system. The hotel, if still a customer of KIUC, would also see the resulting increased costs (and if still a member, would see a corresponding reduction in patronage capital refunds/credits), which would most likely not be anticipated or taken into consideration by the hotel when the DG/CHP feasibility study was conducted. KIUC-T-2 (page 21).

This is not to say, however, that the customer owning DG would not see any benefits in the above application. It is just that these realized benefits from electricity generation might be limited by other factors. For example, the customer may end up paying higher incremental fuel costs due to the loss of the buying power of the cooperative, maintenance and repair expenses, and replacement (backup/standby) power. The customer would also have to either rely on a relatively unknown third party for equipment operation and maintenance (O&M), or train its own staff to conduct the O&M. Further, if the customer is a KIUC member, they would see a material reduction in their patronage capital refunds/credits. Nevertheless, the customer would gain control of the generator output, and may benefit from the thermal output of the unit. The detailed customer economics of whether the DG is feasible for that customer's purposes must be determined on a case-by-case basis. Perhaps most significantly, only the hotel, in this example, would benefit from the installation of the DG project. Any savings would only accrue to the hotel, and no benefit would be realized by the KIUC system (or

any of KIUC's other members or customers) from the increased supply diversity represented by the DG installation. KIUC-T-2 (pages 21 to 22).

It must also be kept in mind that since Kauai is an isolated system, there is no real market into which the customer could sell excess power capacity, especially during periods in which KIUC has a sufficient generation capacity margin. As such, the purchase of excess power from the customer would have little to no benefit to KIUC's other members and customers. However, if KIUC owned the DG unit, all the cooperative's members and customers would share in the costs and benefits, payments to support the revenue requirement planned for any T&D system upgrades would be maintained, and the KIUC system would gain another generation resource, thereby increasing overall system flexibility. KIUC could then negotiate a business arrangement with the hotel allowing them to share in the benefits resulting from DG unit operation. The customer would also benefit from having the DG unit owned by KIUC in that KIUC, and not the customer, would then be responsible for the operation and maintenance of the DG facility. However, it should be noted that general policies that require KIUC to always share presumed cost savings with end-users who install DG are inappropriate. Instead, any sharing of savings should be based on actual cost reductions to KIUC that are site dependent. KIUC-T-2 (pages 22 to 23).

With KIUC ownership, an additional benefit to members and customers would result from KIUC having control over the operation of the DG unit. In addition to the increased diversity of supply, KIUC would gain the value of ancillary services such as voltage support. KIUC-T-2 (page 23).

In light of the above discussion, utility ownership of DG projects should be allowed and even encouraged on Kauai. In this case, KIUC and its members and

customers could also benefit from the strategic deployment of DG around the island to optimize the design, operation and diversity of KIUC's T&D system. KIUC-T-2 (page 23). Cost recovery for KIUC-owned DG systems should then be allowed via the same cost recovery mechanisms used for other generation facilities owned by KIUC. See the discussion of Question 10 regarding cost recovery below.

Question 4: How should DG be defined in terms of this docket as it applies to KIUC?

KIUC believes that the definition of DG, at least as it pertains to the subject docket, should be limited to the definition set forth by the Commission in its Order No. 20582 (i.e., involving the "use of small-scale electric generating technologies installed at, or in close proximity to, the end-user's location."). With respect to the term "small scale," KIUC would define the term "small scale" as being relative to utility system loads and the loads of the utility's large customers as well as the location on the utility's grid. For KIUC's purposes, it believes that the upper size limit of a generating facility to be considered as DG in the context of the subject docket is somewhere between 1-2 MW for the island of Kauai. See Item 1.A.1 of Exhibit KIUC-RT-101 of KIUC's Rebuttal Testimonies (KIUC-RT-1).

If the definition were expanded to include large-scale electric generating technologies or technologies that are not installed in close proximity to the end-user's location, this would raise various additional issues and concerns that do not apply in the context of the Commission's definition. As an example, the use of large-scale generation would have a more significant impact on the electric utility's system and revenues. In addition, large-scale generation or DG facilities that are not installed in close proximity to the end-user may imply the use of the DG to serve multiple users or the need to cross public assets and rights-of-way to provide service to the end-users.

KIUC believes that no general determination of what DG technologies or sizes are feasible and viable for Hawaii or Kauai, to maximize benefits and minimize costs, can be made at the current time except on a case-by-case basis looking at a specific proposed project and location. KIUC-T-2 (page 15). However, on a case-by-case basis, any of the common DG technologies could be implemented on Kauai depending on specific site and operational characteristics, fuel availability and environmental impacts. Generally, however, to maximize benefits and minimize costs, regardless of the type and size of the DG, technology options with the following characteristics would be best for KIUC and its members and customers:

A. Dispatchable,

B. Reliable and constant supply source (the intermittent nature of renewables is a concern), and

C. Fully-commercialized technology with responsive after-sale service support.

KIUC also notes that special treatment of renewables may be warranted due to their lower emission levels and CHP may also be attractive due to its higher efficiency. KIUC-T-2 (pages 23 to 24).

Question 5: What utility incentives are appropriate to facilitate DG?

KIUC interprets the use of the term "incentive" as it is used within the IRP framework (i.e., providing an incentive to a utility to encourage participation in and promotion of full-scale demand-side management programs). These incentives may take any form approved by the Commission; one of the possible forms listed in the IRP framework is to allow the utility to earn a greater than normal return on equity for ratebased and demand-side management expenditures (rate base bonus). KIUC does

not believe that such an incentive is applicable or appropriate in the context of a member-owned electrical cooperative. In the cooperative context, KIUC believes that an appropriate mechanism for KIUC to encourage DG would be to allow KIUC to have the right of first refusal for ownership of any DG being interconnected to KIUC's electrical system. This would allow KIUC to coordinate with any customer/member interested in DG to evaluate the specific benefits associated with each DG and to then ensure that the subsidization of any benefits by other KIUC's members/customers does not occur. See KIUC's response to PUC-IR-17.

To clarify, KIUC uses the term "right of first refusal" to refer to KIUC's ability to evaluate the benefits of a DG system and then to ultimately own a DG system that provides a net benefit to KIUC. It does not mean that any customer desiring to have a DG installed on their property must first ask if KIUC wants to own it and only if/when KIUC declines would they then be able to own it. KIUC has no intentions of preventing anyone from installing DG on their property, as long as it is installed per established guidelines.

Question 6: What are the key issues and considerations associated with interconnecting DG to the electrical system on the island of Kauai?

From a technical perspective, any time the owner/operator of a DG project seeks interconnection with KIUC's grid, KIUC is obligated to consider impacts on personnel and public safety and system stability. KIUC's T&D system was originally designed for the one-way flow of power, i.e., from the generators to the customer. In assessing system performance in the case of two-way power flow, KIUC must study the impacts as well as prescribe specific requirements for protective relaying, grounding, coordination and other factors as needed. The engineering and system impact studies are intended to assess the need for any system modifications or upgrades needed to

accommodate the DG. Both the cost of the engineering study, and any system modifications and upgrades should be the responsibility of the DG owner/beneficiary. Of course, if KIUC is the owner, then all members and customers will share in these costs and any resulting benefits. KIUC-T-2 (page 3).

The interconnection of DG to KIUC's grid is regulated by certain codes and standards put in place to address safety and power quality issues. These codes and standards set forth requirements for the manufacture, installation and operation of DG interconnection equipment. The following three organizations are major players in the DG interconnection codes and standards arena:

- Institute of Electrical and Electronics Engineers ("IEEE"),
- National Fire Protection Association (NFPA), and
- Underwriters Laboratories (UL).

KIUC-T-2 (pages 28 to 29).

The IEEE approved Standard 1547, Standard for Distributed Resources Interconnected with Electric Power Systems, in June 2003. This is the only national interconnection standard and is an appropriate choice for adoption at the state level. This standard has been adopted as a requirement in many states. KIUC-T-2 (page 29).

Underwriters Laboratories Inc. ("UL") is an independent, not-for-profit product safety testing and certification organization. UL has tested products for public safety for more than a century and is the leader in U.S. electrical product safety and certification. UL's primary standard against which they will certify DG interconnection equipment is UL 1741 – Inverters, Converters, and Controllers for Use in Independent Power Systems. The standard covers inverters, converters, charge controllers and output controllers intended for use in stand-alone (not grid connected) or utility-interactive

(grid-connected) power systems. While this standard is not applicable to the interconnection of a DG system, it does allow the specific DG equipment to be pre-certified for this application. Pre-certification lends itself to the streamlined interconnection of some smaller DG systems, typically renewable in nature. KIUC-T-2 (page 29).

In addition to the technical requirements of interconnection, the business and contractual terms must also be considered. The trade association for the cooperative utilities in the United States, the National Rural Electric Cooperative Association ("NRECA") has developed the DG Toolkit. This document includes sample contracts, application flow charts, fee schedules and a customer guide to help explain utility interconnection requirements. This provides a good foundation for development of any interconnection requirements. The complete Toolkit is available at http://www.nreca.org/nreca/Policy/Regulatory/DGToolkit/index.html. KIUC-T-2 (footnote 1 and page 29).

In addition to the above, HECO's Rule 14.H was specifically written to apply to DG interconnection. KIUC is not familiar enough, however, with Rule 14.H to comment whether these rules could reasonably be applied to KIUC. KIUC is in the process of developing its own DG interconnection requirements. In doing so, KIUC notes that a standard HECO/KIUC interconnection rule may work for KIUC, assuming that the resulting interconnection agreements include reimbursement of any applicable interconnection or system upgrade costs by the DG owner, as well as other terms and conditions intended to protect KIUC and its members. The rule would also need to include a provision allowing specific interconnection arrangements/agreements to be

evaluated on a case-by-case basis depending on the DG mode of operation, location (geographically and on the feeder), and size relative to feeder load.

Question 7: How should DG interconnection costs be allocated?

Costs to interconnect a DG system are costs that the utility would otherwise not have incurred. The customer whose DG system causes these costs should be required to reimburse the utility for these costs; otherwise, that customer's system will be subsidized by KIUC's other customer/members. Regarding distribution system upgrades, KIUC distinguishes between charges to connect a new customer and charges to interconnect a DG system owned by a new or existing customer. Any charges a new customer would incur to be supplied power by KIUC are in accordance with KIUC's tariff on new connections, which allows KIUC to charge a customer for the difference between the cost to connect the new customer and the anticipated 5-year revenue stream from the customer. Charges that a new or existing customer would incur to interconnect a DG system are specific to system upgrades identified to interconnect that specific DG system and should be paid by that new or existing customer.

Question 8: How should the costs associated with providing service to DG customers be determined and recovered?

KIUC concurs with the Consumer Advocate that a cost of service study is an appropriate mechanism to identify and quantify each utility's costs to provide services to a DG customer and that appropriate tariffs should be applied that result in a DG customer being served at a cost that is not subsidized by non-DG customers.

Specifically regarding standby service, a standby tariff is a mechanism to recover expenses incurred to provide a service to a customer that are not recovered via the applicable rate schedule. As mentioned in KIUC's Direct Testimonies (KIUC-T-2,

pages 35 to 36), changes may be needed to KIUC's existing standby tariff calculations to better reflect KIUC's current cost of providing these backup services. KIUC's Rider S standby tariff offers Standby, Auxiliary, Supplementary or Breakdown Service to customers with onsite generation. In this regard, KIUC is currently conducting a cost of service study, the results of which will help KIUC determine what changes to the charges or structure may be necessary with respect to the deployment of DG.

While the general process and definitions used to determine a standby rate may be similar for each of the Hawaii electric utilities, including KIUC, KIUC believes that because of the uniqueness of each island's electrical system, each island utility should be allowed to calculate its own unique standby rate based on its own set of circumstances.

Question 9: What is the appropriateness of applying exit fees to DG customers leaving KIUC's system?

There are two possible scenarios for customers to "leave the KIUC system." In the first case, the customer leaves the utility system entirely and does not remain a customer to utilize backup or standby power as needed to supplement operation of the DG unit. A customer leaving the utility system under these circumstances must design into its DG project the necessary redundancy and reliability. Assuming this is the case, the issue that must then be examined is the extent to which KIUC's remaining customers will be able to cover KIUC's revenue requirement. In its Direct Testimonies (KIUC-T-2, page 21), KIUC stated, "In this case, the revenue requirement must be spread over the remaining smaller customer base, thereby incrementally increasing costs for all other members and customers. All other cooperative members and customers would then have to pay more to cover the utility's fixed costs, including costs associated with the T&D system."

In the above situation, a single small customer, or a number of small customers, leaving the utility system will have a minimal impact on utility operations and cost recovery. However, a large customer installing a MW-sized DG unit will have a material impact on KIUC. KIUC believes that under these circumstances, the imposition of an exit fee is reasonable and warranted to allow KIUC to recover the fixed costs of its generation, transmission, and distribution investments.

In the second situation, the DG customer remains a KIUC member or customer for backup or standby power. DG owners choosing to remain members/customers of KIUC would likely not be subject to any exit fees. In that case, an appropriate cost recovery mechanism would result through the applicable standby/backup charges.

Question 10: What should the mechanisms be for recovery of costs associated with system modifications and upgrades and fuel costs required to serve customer-owned DG?

Costs associated with system modifications required to serve customer-owned DG should be paid by the customer. For upgrades of the utility's system, the utility should be able to charge, prior to incurring, the real-time dollar expenses incurred by the utility to interconnect a DG system. The payment of expenses a customer incurs associated with interconnection equipment located on the customer's side of the meter is between the customer and supplying vendor.

As with any traditional supply-side resource that a utility owns or acquires via a power purchase agreement, a utility should be allowed to use its rate collection mechanism to recover costs associated with a DG generation facility.

The fuel cost recovery mechanism for a utility-owned, customer sited supply-side resource should be the same as for a traditionally sited utility-owned supply-side resource. As with other traditional supply-side generation, that portion of a DG facility's

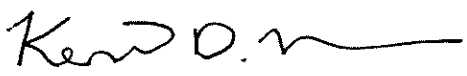
fuel expense not recovered in base rates should be recoverable via the energy rate adjustment clause passed along to all customers.

Question 11: Should CHP systems be offered to customers by the utility as a regulated service?

KIUC has begun to explore the feasibility of providing on-site CHP systems that are owned by KIUC with service provided in accordance with KIUC's existing tariff. Under this scenario, the customer would receive the benefit of waste heat and may be able to avoid standby charges in exchange for KIUC's free rental of the DG facility site on that customer's premises. Based on a preliminary analysis, KIUC believes that the only negotiations that may be required under these circumstances would be the real property and liability issues because KIUC would be the owner of the facility and would be providing service under the existing tariff. See KIUC's Preliminary Statement of Position (page 18).

It should be noted that KIUC has no current plans to specifically offer CHP systems to customers. KIUC is undecided whether such systems, if so offered by KIUC, should be offered as a regulated or unregulated service. However, KIUC agrees that, if so offered, it should be cost-effective and not burdensome to non-participating customers. See Item 3.A.2 of Exhibit KIUC-RT-101 of KIUC's Rebuttal Testimonies (KIUC-RT-1).

DATED: Honolulu, Hawaii, March 7, 2005.



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