Hess Microgen ("Hess") Responses to Information Request from the Division of Consumer Advocacy ("CA") based on Hess' Preliminary Statement of Position:

CA-SOP-IR-89 **Ref: Hess Preliminary SOP, page 2, number 2, paragraph 3, lines 3 and 4**

Please explain what "having the meter on their side" means and why it is important or beneficial to a customer.

Response:

To clarify, what Hess meant to say was that the DG unit would be on the customer side of the meter. That would mean that the DG unit would belong to the customer and the customer would have the direct benefits of needing less power and taking advantage of the thermal heat for CHP units.

CA-SOP-IR-90 **Ref: Hess Preliminary SOP, page 3, number 3, paragraph 3, lines 2 through 4**

a. If applicable, please provide a more specific discussion of how rates should be designed and implemented so that all customers, regardless of DG technology or ownership, are treated fairly and equitably.

b. Hess makes reference to "other fees and charges." Please provide a list of the other fees and charges to which is being referred.

Response:

a. It is Hess's position that it is inappropriate for it to set the criteria the commission should use to determine the overall fairness and equitability of rates.

b. The term "other fees and charges" was used generically to cover any future charges that the regulated electric utility companies may come up with in the future, in addition to HELCO's current standby charge and the customer retention discounts that are being offered by all HECO companies.

CA-SOP-IR-91 **Ref: Hess Preliminary SOP, page 3, number 3, paragraph 4, lines 4 and 5**

a. Hess mentions that the role of utilities and the Commission being important to assist in meeting the needs of the customers to have alternatives. Please discuss what the alternatives are that can meet a customer's need for reliable power at a fair price.

b. For purposes of this statement, please discuss the definition of reliable as used.

c. For purposes of this statement, please discuss what criteria the Commission should consider when determining a fair price.

Response:

a. The alternatives would be alternative forms of DG that are offered by electric utility companies, as well, as private companies. For example, CHP offer ratepayers a reliable source of power and an added alternative of using the waste heat for additional energy use and savings.

b. Reliable power for the purpose of this statement is having the power available when needed.

c. It is Hess' position that it is inappropriate for it to set the criteria the Commission should consider when determining a fair price.

CA-SOP-IR-92 **Ref: Hess Preliminary SOP, page 4, number 1, paragraph 1, lines 1 through 3**

Please identify the current or future DG technologies expected to be permanent and reliable enough to replace transmission and distribution facilities. If available, please provide any studies or analyses of Hawaii's transmissions and distribution system that supports Hess' expectation.

Response:

Hess is currently uncertain of the technology that may eventually replace transmission and distribution facilities. Hess believes that the DG options currently available are

reliable enough to add value to a distribution system in large numbers of small modules that are properly applied. Hess has no analysis of the Hawaiian systems specifically.

CA-SOP-IR-93 **Ref: Hess Preliminary SOP, page 4, number 1, paragraph 3.**

Please identify any geographic areas where voltage support is currently tenuous. Please provide a copy of any studies or reports that support the response.

Response:

The specific geographical information about Hawaii's system is not available to Hess. However, it has been Hess' experience that all electric utilities have circuits where voltage, while possibly within Utility Commission's specifications, is less supported than in others.

CA-SOP-IR-94 **Ref: Hess Preliminary SOP, page 4, number 1, paragraph 4**

Please define what "vast reduction" means and specifically what decrease in line losses could occur with DG. Please provide a copy of any analyses used to support the statement.

Response:

"vast reduction" means that there is a significant quantity of fossil fuel energy expended in line losses and transformation losses. Attached has Exhibit "A" is an example of losses associated with a typical distribution circuit before and after the application of the model DG unit.

CA-SOP-IR-95 **Ref: Hess Preliminary SOP, page 5, number 2, paragraph 1**

a. Please identify the types of DG that will provide all of the positive impacts identified in this paragraph.

b. What DG systems are more reliable?

c. Please provide reliability statistics by DG type that support this statement.

Response:

a. In this paragraph Hess is mainly referring to its CHP units. However, larger sized DG units (>500kW) can also provide the benefits identified in the paragraph.

b. It has been Hess' experience that reliability is tied to application. In large central plants, design engineers have the ability to build in redundancy or over build the infrastructure in an attempt to decrease outside factors and increase operation reliability. DG is still new in its application, and finding the right items to fortify the design is different from site to site and, therefore, difficult to apply in all cases.

Because of the application effect on the systems, Hess is not currently aware of any one DG technology that is significantly more reliable than another.

c. See b., above.

CA-SOP-IR-96 **Ref: Hess Preliminary SOP, page 5, number 2, paragraph 4.**

a. What DG units does Hess have experience with?

b. Hess asserts that a "contingent of three DG systems will together be more reliable than the utilities . . ." Is this referring to all DG or specific technologies?

Response:

a. Besides the 14 CHP systems that Hess manufactures, Hess generally has experience with all other DG or power systems, including, but not limited to: Neuvera Fuel Cells (in which Hess has a controlling interest); Intelegen Solutions ("ISI"), Tecogen, Cummings, Caterpillar, Wakeshaw, and Electrion.

b. Hess was referring to its NEXGEN control system which is standard on all Hess DG packages. Hess' NEXGEN control system provides, among other features, the ability to transition a building

from Parallel grid operation to Standby island operation and back again. A properly designed system can perform seamless Island to parallel transitions.

CA-SOP-IR-97 **Ref: Hess Preliminary SOP, page 6, paragraph 2, lines 2 through 4**

a. Hess indicates that its units on customer's sites are not part of the utility's grid. Please confirm that Hess is not asserting that the customer is not off-gird, but that the units are not controlled by the utility.

b. If this understanding is incorrect and Hess units are not connected to the grid and also do not serve 100% of the customer's electric needs, please explain how the remainder of the customers' electrical needs is served.

Response:

a. Correct

b. N/A

CA-SOP-IR-98 **Ref: Hess Preliminary SOP, page 6, number 3, paragraph 1, line 1**

Hess asserts that "every element of a utility's costs can be avoided by the deployment of DG." Please elaborate on this statement by identifying every element of utility costs that

could be avoided and how those costs would be avoided by DG deployment.

Response:

Hess would like to clarify that the two significant costs that DG/CHP would aid in deferring for the utility are 1) T&D costs and 2) Central Generation Station costs. These costs are deferred when DG/CHP are added at the load source which is frequently located significant distances from central generation stations. This provides more capacity on existing T&D systems and eliminates incremental generation as well as line loss thereby increasing existing central generation capacity.

CA-SOP-IR-99

Ref: Hess Preliminary SOP, page 6, number 3, paragraph 1, lines 4 and 5

Please elaborate on how and what utility capital costs would be reduced by DG deployment?

Response:

The deployment of DG/CHP would defer the capital cost of T&D improvements and Central Generation Stations based on growth. Locating DG/CHP at the load source frees up T&D capacity as well as Generation Station capacity including transmission line loss load.

CA-SOP-IR-100 **Ref: Hess Preliminary SOP, page 8, paragraph 2, lines 1 and 2**

Hess provides certain statistics related to coal and average efficiency.

a. Other than the AES plant, how does electricity operated from coal apply to Hawaii and its electric utilities?

b. If available, please provide the relevant statistics specific to Hawaii. Please identify the source of the data used to support the response.

Response:

a. Besides AES, Hess is only aware HC&S on Maui burning coal.

b. The statistics provided were not specific to Hawaii.

CA-SOP-IR-101 **Ref: Hess Preliminary SOP, page 10, number 5, paragraph 1, lines 1 through 3**

Hess indicates that the Hawaii Administrative Rules and Utility Rules and Practices need to be amended.

a. Please identify the various administrative rules and utility rules and practices that should be amended.

b. For each identified item above, please provide the suggested amendments.

Response:

a. -Standards for Electric and Gas Services in the State of Hawaii – Title 6, Chapter 60, Hawaii Administrative Rules;

-General Order 7. Title VII – Standards for Electric Utility Service in the State of Hawaii, Hawaii Administrative Rules;

-Standards for Small Power Production, Title 6, Chapter 74, Hawaii Administrative Rules; and

- A new DG chapter in the Hawaii Administrative Rules.

b. The Hawaii Administrative Rules should be amended to include, but not limited to:

-set procedures and time limits for negotiations with private companies offering DG technologies in regards to Power Purchase Agreements and Interconnection Agreements with the utilities;

-set procedures and time limits for the Commission to deal with dispute between private companies and utilities in regards to Power Purchase Agreements and Interconnection Agreements relating to DG technologies; and

-If it is decided in this Docket that the utilities should be allowed to offer DG systems, along with private companies, set procedures and rules to insure that the utilities and the private companies play by the same rules.

Hess Microgen ("Hess") Responses to Information Request from The Gas Company, LLC based on Hess' Preliminary Statement of Position:

TGC/HESS-SOP-IR-1 **Ref: Hess Preliminary Statement of Position, Article I, Section 2, p. 2 "DG projects should be owned and operated by both regulated electric utility companies ("utilities") and private companies to provide customers with the most options."**

a. Please identify other jurisdictions of which Hess is aware in which state commissions have allowed electric utilities to own small (1 MW or less) user-sited CHP that do not deliver electricity into the grid. Does Hess do business in any such jurisdictions? If so, does it have a "teaming-type agreement" in place in such jurisdictions?

b. Please state whether, to Hess' knowledge, most mainland electric utilities participate in the market for providing user-sited DG that do not deliver electricity to the grid, if at all, via a separately capitalized, separately staffed affiliate.

c. Please state whether, prior to or after the Hawaii "teaming agreement" went into effect, electric utility representatives attempted to contact a potential DG user that Hess was

working with, in an effort to provide a utility or utility-owned DG alternative. Explain the effect of the teaming agreement on such incidences.

Response:

a. Hess is not aware of other jurisdictions in which state commissions have allowed electric utilities to own small user-sited CHP that do not deliver electricity to the grid.

b. Yes.

c. To Hess's knowledge this did not occur.

TGC/HESS-SOP-IR-2 **Ref: Hess Preliminary Statement of Position, Issue 3, p. 3 "For example, the utilities should not be allowed to charge customers of the private companies standby charges or other fees and charges that it does not charge its DG customers."**

Does Hess have a position on an appropriate design for standby rates and scheduled maintenance rates in Hawaii? If so, please describe.

Response:

Hess is not an expert in ratemaking and ratemaking design, but it will state that it believes in a single rate standard for services. In the current method of electric utility pricing, tariff costs are spread evenly among members of a rate class and

are not specific to individual customers (i.e. the costs are not based on the actual cost to serve a specific customer.)

When it comes to DG rates, any DG should be governed by the same cost recovery method regardless of ownership. This standby rate should address the exact costs by site (credited for generation inefficiency and line and transmission losses) for servicing a DG unit.

TGC/HESS-SOP-IR-3 Ref: Hess Preliminary Statement of Position

a. As a result of the Teaming Agreement of 2/11/03, Hess is offering its products and services to the HECO companies for them to provide service to certain commercial and industrial customers within Hawaii, rather than offering those products and services directly to the customers. Please provide the prices or pricing schedules, pursuant to which, under each Sections 4.1 and 5.1 of the teaming agreement, Hess is offering each system or service to HECO, for purposes of comparison of such prices with (1) the prices available from other vendors of CHP equipment, and (2) the prices negotiated between HECO and the Joint

Customer. (Note that Ex. A to PUR-IR-7 in IC-03-098 lacks pricing information.)

b. Please provide the prices or pricing schedules pursuant to which Hess would provide systems or services directly to the individual customers, assuming the HECO companies declined to pursue them as Joint Customers or HECO Customers.

Response:

a. There are currently no prices or pricing schedules because prices and/or pricing schedules will be determined on a site specific basis according to the technology and complexity of each application.

b. There are currently no prices or pricing schedules because prices and/or pricing schedules will be determined on a site specific basis according to the technology and complexity of each application.

TGC/HESS-SOP-IR-4 **Ref: Hess Preliminary Statement of Position, Article II, Section 1, p. 4 "The use of DG in Hawaii will delay and/or replace transmission and distribution ("T&D") facilities needed by the utilities. Thus, reducing the capital cost of the utilities, and in turn, reducing the rates for ratepayers."; p.6 "DG will also delay and/or replace power plants and central station generation…"**

a. Does Hess agree that the potential for load-factor improvements, use of synchronous generators for voltage support, and reductions in T&D line losses are independent of the ownership of the DG by the electric utility or not?

b. Hess cites as a benefit the potential for onsite CHP using synchronous generators to provide voltage support to areas of the electric system where voltage support is tenuous. Yet in Docket No. 03-0366, the HECO companies, teaming with Hess, propose that utility-owned generation installed at Joint Customers' sites will be via inductive, rather than synchronous, generators. Is this potential system benefit therefore unrealized when the electric utility owns CHP in Hawaii?

Response:

a. The ownership of the DG unit makes no material difference in the potential benefits to the system grid. However, the operation of these units (Operating hours, kW generation levels, and VAR generation), can be optimized to serve the DG customer or the Utility. These goals are not always aligned.

b. One component of voltage sag is excessive line and transformer losses. Reducing the current (either the kW or kVARS) carried by the Utility distribution system will improve voltage. Therefore, while inductive units do not supply VARS themselves, they still aid in voltage support by reducing line losses.

Further, it is not necessarily the DG technology, but the application that provides the benefits. Hess prefers to use other methods of correcting power factor than using fuel in our DG sets to generate VARS.

TGC/HESS-SOP-IR-5 **Ref: Hess Preliminary Statement of Position, Article II, Section 2, p. 5 "DG systems are more reliable today than ever before ...."**

a. For purposes of formulating a more cost-based standby rate methodology, please provide the forced outage rate(s) (FOR) for Hess- made CHP systems and units currently operating in Hawaii. TGC is willing to take this information either on an aggregate basis for all such units or on a unit-by-unit or system-by-system basis. When Hess-made CHP units are operated by others, please so indicate.

b. Please provide the forced outage rate for all Hess CHP systems and units currently in operation nationwide. TGC is willing to take this information either on an aggregate basis for all such units or on a unit-by-unit or system-by-system basis. When Hess-made CHP units are operated by others, please so indicate.

c. Please explain any qualifiers to the above-referenced FORs, such as “assuming an operation schedule of 7800 hours per year” or other.

d. Hess indicates that a contingent of three of its units will be more reliable than the utilities (p. 5). Please provide all support for this statement, including both the Hess outage figures and the figures for the utilities and their sources.

Response:

a.,b.,c. The largest contributor to DG forced outages in the reciprocating engine technology is the balance of plant items to include the site design, fuel quality, and maintainability (how easy it is to get to the site, store parts, and perform

preventative maintenance). For these reasons, there is no way to qualify the forced outage level of a particular DG technology without addressing the application.

d. Hess does not have the system outage or customer outage information from HECO. The intent of the statement was to show that inherently the two systems have no points of commonality which would cause them to fail simultaneously. When the CHP packages are applied independently, the coincident outage rate is very small, thus insuring that some power will be available to the facility. Therefore, instead of a single source transmitted over a distance, there would be three sources very close to the power consumption location.

Hess Microgen ("Hess") Responses to Information Request from Hawaiian Electric Company, Inc., Hawaii Electric Light Company, Inc. and Maui Electric Company, Limited ("HECO") based on Hess' Preliminary Statement of Position:

HECO/Hess-IR-1

Ref: Hess Preliminary Statement of Position, page 6

Does Hess acknowledge that until the installation of DG/CHP systems increase and there is an adequate track record of the these systems performance, that it would be premature at this time to assert that DG/CHP can delay and/or replace T&D facilities?

Response:

No. Hess believes that it is time to delay T&D facility upgrades as DG is available to support the load. Multiple DG sites are encouraged instead of a single large plant.

HECO/Hess-IR-2

Ref: Hess Preliminary Statement of Position, page 10

Does Hess believe that it is prudent for the regulated electric utility to adopt a portfolio type approach to meeting the electric needs of its customers with a combination of DG/CHP resources, central station generation, renewables, demand-side management programs and conservation initiatives?

Response:

Yes.

HECO/Hess-IR-3 **Ref: Hess Preliminary Statement of Position, page 5**

Please explain in greater detail the positive impacts that DG/CHP will have on power quality and reliability.

Response:

This question is better worded as “can” have instead of “will” have. This is because Hess has found results in different areas. Here are some examples: 1. For sites that are voltage sensitive, such as manufacturing where welding occurs, running DG supports the voltage better. Our factory welders prefer to work when we are testing DG units as they say the welder is “easier” to use. 2. Onsite DG unloads primary (medium voltage) transformers thereby deluding the effect of harmonics for places where harmonics is an issue. 3. Wire degradation - Put simply, distribution system wires and devices that are heavily loaded or overloaded tend to fail mechanically before those that are lightly loaded. Reducing the load on the system will reduce wear and tear on the Utility system. 4. Having electric generation (synchronous) on a site allows the possibility that the site can have electrical power when the Utility system is

down. 5. From a cost basis, peak shifting or leveling the peak will more efficiently utilize the infrastructure providing a faster payback (based on the rate tariff).

HECO/Hess-IR-4 **Ref: Hess Preliminary Statement of Position, pages 7-9**

Please provide an estimate in terms of barrel of LSFO or diesel fuel to support the statement that "The deployment of DG, especially CHP, can vastly reduce the use of fossil fuel in Hawaii."

Response:

Please see response to CA-SOP-IR-94

HECO/Hess-IR-5 **Ref: Hess Preliminary Statement of Position, page 9**

What specific section of IEEE 1547 should be incorporated into HECO's Rule 14H?

Response:

In general all of IEEE 1547 should be used as a basis for distribution interconnections. Here are some places where Hess differs:

1. Section 4.41 implies that there is no possibility for islanding of a site. Hess has designed some sites to intentionally island backup power and later re-parallel to the utility.

2. Section 5.1.2 Testing voltage levels seems to imply that a 46 or 47 relay device is required for all interconnects.
3. Harmonics testing does not provide a protocol for establishing a baseline harmonics level at a facility.

HECO/Hess-IR-6 **Ref: Hess Preliminary Statement of Position, page 5**

Please provide forced outage information for a single unit, a two-unit and a triple unit DG installation. What is the basis for the information (i.e., based on actual DG unit installations).

Response:

The "weakest" link in the generation systems is the mechanical prime mover. As a result, forced outages associated with the package are more often the result of prime mover failures which rarely correlate by exact time and, therefore, the failures do not occur simultaneously. External causes like fuel problems, cooling issues, or mechanical damage to the site tend to correlate outages between units at a site, but not at multiple sites.

HECO/Hess-IR-7 **Ref: HESS Preliminary Statement of Position, pages 5-6**

With regard to the following statements,

a. "Many Hess sites are designed for multiple units. The occurrences of internally caused simultaneous outages, even with just two units, are extremely rare."

b. **"The Hess units on customer's sites are not part of the utility's grid, thus, these units are able to operate when the utility's grid is down. Also, because Hess units on customer's sites are sized on thermal load versus electrical load, thus never covering 100% of a customer's electrical needs, the Hess units do not feedback into the utility's grid and, thus, do not have a negative impact to the utility's grid."**

Will the combined MW capacity of multiple unit DG installations be sized to cover less than 100% of a customer's electrical need?

Response:

Yes.

HECO/Hess-IR-8 **Ref: Hess Preliminary Statement of Position, page 5**

What hours during the day is used to define the 60% off-peak period?

Response:

This information comes through extrapolation of Utility tariffs. On the mainland, utility tariffs define 40% or less of the time as on-peak. (i.e 8AM-9PM M-F). In a 168 hour week, that is 39%. In Hawaii, it appears that peak loads occur from 6-9PM as per the FERC form 1 data. This appears to align with HEI Rider M. Actual peak information is unknown to Hess.

HECO/Hess-IR-9 **Ref: Hess Preliminary Statement of Position, page 4**

Is it necessary for the utility to provide back-up generation and T&D facilities to cover a DG outage that may occur

during the peak period? If the answer is no, please explain why not.

Response:

For most DG sites (with multiple DG units at a site and multiple DGs on a circuit), the answer would be no. The diversity of site outages will add only small amounts of current to the distribution circuits which should not overload the distribution system. (A 200 kW unit will add 9.3 Amps to a 12.47 kV circuit, which should not affect the wires or a transformer.) Eventually the DG sites will exceed the capability of the wires. When this occurs, on site load curtailment or separation from the Utility would have to occur. This could possibly be enforced with a punitive tariff for outages. The idea that the utility would continue to build capacity to backup DG is a waste of resources in Hess' opinion.

HECO/Hess-IR-10 **Ref: Hess Preliminary Statement of Position, page 4**

What is your estimate of the T&D line losses incurred by the Hawaii utilities?

Response:

Hess can only provide an estimate based on the information available. HECO reports that they generated approximately 4.6 TWh (teraWatt) ($1x10^{12}$) in 2003. Even if we currently

assume a low loss (conservative) rate of 4% through the entire transmission and distribution system, that is 187 GWh or about the equivalent of 77,700 barrels of oil. The overall heat rate (efficiency) of the HECO generation is calculated to be 10,452 BTU/kW. So based on a conservative estimate of 4% kWh losses, that is equivalent to 13 million gallons of oil on Oahu alone. See Exhibit "B", attached.

HECO/Hess-IR-11 **Ref: Hess Preliminary Statement of Position, page 5**

What aspects of a DG facility should the utility be able to control to ensure the highest level of power quality and reliability?

Response:

Currently, only the Utility is aware of the generational needs of each system on a real-time basis. In addition, only the Utility is aware of the average circuit loading on a circuit by circuit basis. Therefore, the Utility can determine the greatest power quality (need) for generation, and can address this need by controlling the run time (on/off) and output level of the generation. The reliability of the DG unit is not likely to be subject to who controls the unit.

HECO/Hess-IR-12 **Ref: Hess Preliminary Statement of Position, page 10**

a. What specific information do you think utilities should make available to private companies?

b. How can the utilities honor the desires of specific customers to keep certain cost data confidential?

Response:

a. Hess believes utilities should make easily (ie: internet) and clearly available to private companies all tariff, interconnection, and application information necessary to apply DG/CHP systems.

b. Utilities should honor the desires of customers to keep certain cost data specific to the customers confidential and this data would only be available to the DG/CHP designers/suppliers when permitted by the customer.

Hess Microgen ("Hess") Responses to Information Request from Hawaii Renewable Energy Alliance ("HREA") based on Hess' Preliminary Statement of Position:

HREA-HESS-IR-1 (Planning: Issue 3). On page 3 of Hess's SOP, Hess states: "The role of the regulated electric utility companies ("utilities") should be the same as private companies that are competing to deploy DG to customers." Based on this statement, is it correct to assume that Hess believes it will NOT be at a competitive disadvantage, if it has to compete directly with HECO? Please explain.

Response:

Hess does not feel it will be at a competitive disadvantage because Hess is primarily a system designer and packager of DG/CHP systems which utilities would have to team with to supply a system.

HREA-HESS-IR-2. On page 5 (Impact: Issue 2), Hess indicates that most their CHP facilities are designed to operate 7800 hours a year. This translates to about 89% of the time. What would an average capacity factor for a typical CHP be?

Response:

The Nuclear Regulatory Commission defines capacity factor as, "The ratio of the net electricity generated, for the period of time considered, to the energy that could have been generated at continuous full-power operation during the same period." Based on this definition, the capacity factor would be approximately 88% (allowing for cycling) as the packages are designed to output rated power

continuously. We encourage the application designers to size the balance of plant appropriately so that the packages are not derated as the result of external causes. The only caveat is that Hess requires a break-in period where the equipment can only be operated to 75% load.

HREA-HESS-IR-3. On page 6 (Impact: Issue 2), in the first full paragraph, Hess indicates that a DG unit that does not feedback electricity to the grid will not have a negative impact to the grid. Is this true? For example, if the unit was not operating properly, would not it be possible for the unit to drag down the line voltage?

Response:

In Hess applications, the equipment is sized in modules that singly are significantly less than the load. As a result, the worst that can occur is the system becomes a motor until the relaying trips the generation unit off-line (approximately 15 seconds.) This motor (already running) will pull a fraction of the current of the rated generation. In essence, the small size makes it insignificant in its ability to alter the grid voltage or frequency.

HREA-HESS-IR-4. On page 9 (Implementation: Issue 1), with respect to the National Interconnection Standard IEEE 1547, would Hess agree that HECO's Rule 14 H comports with IEEE 1547? If not, why not?

Response:

Yes, on paper, but no in practice because the technical piece of IEEE 1547 (specifically the relay element types and settings) are defined for over and under voltage; over and under frequency; and possibly reverse power devices. In general, HECO's Rule 14 H often require current negative sequence current and voltage and neutral current tipping. The settings for these devices are not generic like IEEE 1547, but specific by site. This unknown factor will lead to nuisance trips or sites with non-standard protection.

HREA-HESS-IR-5. On page 10 (Implementation: Issue 4), in IRP would Hess agree that implementation of DG would benefit from the utility specification of areas and amounts of DG that would provide positive impacts to the utility system, e.g., to reduce line losses, off-set new T&D upgrades and defer new generation?

Response:

Yes, Hess would agree. Having the utility inform the market of higher need areas would be beneficial.

Hess Microgen ("Hess") Responses to Information Request from Life of the Land ("LOL") based on Hess' Preliminary Statement of Position:

LOL-SOP-IR-27: Can a fair market for all DG players exist if the utility participates directly in the DG market, without establishing any firewalls between its DG sector and other sectors of the company?

Response:

Yes, a fair market can exist as long as the regulated utility provides the information required to all private companies equally to provide DG/CHP in a timely manner.

LOL-SOP-IR-28: What is the average reliability rate, planned outage rate, scheduled outage rate, unscheduled outage rate, for Hess's generators operating within Hawaii?

Response:

See TGC/HESS-SOP-IR-5

LOL-SOP-IR-29: What is the length of time needed to negotiate each interconnection agreement and each power purchase contract between the utility and HESS. Please explain any time differentials in signing ICAs and PPAs with the utility regarding Hess's non-pre-packaged and pre-packaged CHP systems.

Response:

45 to 60 days should be sufficient to negotiate an interconnection agreement between the utility and Hess for one of Hess' pre-packaged CHP systems. However, this has not been Hess' experience in Hawaii.

In regards to PPAs and non-prepackaged CHPs that is not applicable to Hess.

LOL-SOP-IR-30: Can HESS units backfeed into the grid to provide emergency power to the grid during critical periods (for example, can a CHP unit installed at a school provide emergency power to the grid when the school is not in session)?

Response:

This is theoretically possible, but not currently practical. In order to manufacture an electrical island with DG units you must be fully aware of the loads to be supplied, the DG unit must be sized to sufficiently meet these loads, and a protection scheme needs to be developed that will properly isolate the utility failure cause and verify that it is removed from the island location. Finally, the system must be easy enough to understand so that Utility workers are not exposed to any added dangers when working on damaged power lines. This requires a level of control and understanding of the model not currently practicable. However, it is possible that the school use its extra hours constructively for other purposes that can benefit from the power, or that a separate power system be constructed to provide normal power to adjacent properties. For example, a church adjacent to a school might use a separate power system involving a transfer switch to power for Sunday operation.

LOL-SOP-IR-31: (a) Are fossil fuel CHP units a transition between the fossil fuel era and the sustainable era? (b) Can HESS CHP units be easily retrofitted with renewable energy based fuel cells (when they become available)?

Response:

Hess has always considered their product to be technology neutral. Unfortunately, many DG technologies have not been cost-effective to deploy. However, Hess envisions a time when other technologies will be will be available and Hess would remove the packaged cogeneration module and replace it with one that we would package with the newer “prime mover” technology.

LOL-SOP-IR-32: What is HESS’s guesstimate regarding the heat load of each island that could be provided by through CHP.

Response:

This is a very difficult number to even guess because so many factors go into determining if a good heat load can even be served by DG (distance to heat consumer, long term storage of heat, and temperatures required.) To answer the question, Hess would have to perform a significant study concerning the types of customers to be served and their current heat loads. The facilities where operations occur 24/7 would be where we would start.

LOL-SOP-IR-33: Does HESS support wheeling?

Response:

Hess is keenly aware of the difficulties faced by the utility companies to maintain vast distribution systems and feels that wheeling through the distribution, while theoretically possible, will create a level of difficulty that cannot be justified at this time. However, Hess does believe that over the fence use of heat and electrical power on private systems at a DG site should be utilized more.

LOL-SOP-IR-34: Should small DG that serve two or more contiguous properties be permitted?

Response:

Yes. Having over-the-fence use of energy typically leads to more efficient use. The technology is currently available to meter the usage for each party at a reasonable cost.

Sandra-Ann Y.H. Wong

Attorney at Law, a Law Corporation

1050 Bishop Street, #514
Honolulu, Hawaii 96813

June 16, 2004

The Honorable Carlito P. Caliboso and Commissioners
Hawaii Public Utilities Commission
465 South King Street
Kekuanaoa Building, Room 103
Honolulu, Hawaii 96813

Re: Docket No. 03-0371, In the Matter of Public Utilities Commission Instituting a Proceeding to Investigate Distributed Generation in Hawaii.

Dear Chairman Caliboso and Commissioners:

Please find enclosed for filing, the original and ten copies of Hess Microgen's ("Hess") reponses to information requests to its Preliminary Statement of Position in the above-referenced Docket.[1] Additionally, I will be sending you, via e-mail, an electronic version of Hess' responses.

Please do not hesitate to contact me if you should have any questions.

Very truly yours,

Sandra-Ann Y.H. Wong

Enclosures

c: Docket No. 03-0371 service list

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[1] In light of Johnson Controls, Inc.'s ("JCI") Notice of Withdrawal, Hess did not respond to JCI's IRs. Additional Hess will no longer be serving JCI.