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BEFORE THE PUBLIC UTILITIES COMMISSION

OF THE STATE OF HAWAII

---- In the Matter of ----	
PUBLIC UTILITIES COMMISSION	DOCKET NO. 05-0069
HAWAIIAN ELECTRIC COMPANY, INC. For Approval and/or Modification of Demand-Side and Load Management Programs and Recovery of Program Costs and DSM Utility Incentives	

HAWAII RENEWABLE ENERGY ALLIANCE'S SUPPLEMENTAL POSITION STATEMENT

IN SUPPORT OF HREA HEARING EXHIBIT NO. 2

EXHIBIT 1 AND CERTIFICATE OF SERVICE

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The Hawaii Renewable Energy Alliance ("HREA") submits its Supplemental Position Statement in support of HREA's Hearing Exhibit 2, "HREA Proposal for Inclusion of Seawater Air Conditioning District Cooling Systems on HECO's CICR DSM Program" ("Hearing Exhibit 2").[1] HREA strongly supports Hearing Exhibit 2, which requests the Commission to require the Hawaiian Electric Company ("HECO") to

[1] On March 16, 2005, the Commission filed its Order No. 21698 opening this docket ("Energy Efficiency docket"). On April 14, 2005, the Commission filed its Order No. 21749, which granted the April 4, 2005 motion by HREA to intervene in the Energy Efficiency docket. On August 31, 2006, in conjunction with an evidentiary hearing on the Energy Efficiency docket, the Commission admitted into the record Hearing Exhibit 2. On September 8, 2006, Information Requests ("IRs") were filed by Life of the Land, HECO, and the State of Hawaii Consumer Advocate. On September 22, 2006, HREA filed its responses to these IRs.

include seawater air conditioning ("SWAC") in one of HECO's rebate programs ("rebate"). The rebate amounts sought are: (1) $500/ton rebate for SWAC district cooling systems; and (2) $500,000 per customer rebate limit (collectively, "rebate").[2] Although HREA's position on the rebate is set forth in Hearing Exhibit 2, HREA files this supplemental statement to clarify and provide additional information in support of Hearing Exhibit 2.

I. DISCUSSION

HREA supports Hearing Exhibit 2 because SWAC uses renewable energy to provide significant economic and environmental benefits, market need exists for the rebate, SWAC meets or exceeds the requirements of the CIEE program and TRC test, and a prescriptive rebate is warranted.

A. SWAC Uses Renewable Energy to Provide Significant Economic and Environmental Benefits.

Based on the strength of SWAC's benefits, HREA requests an appropriate rebate to create an incentive for customers pay interconnection costs to join a SWAC system. As summarized in a recent HECO magazine advertisement:

> To reduce our dependence on imported oil, let's make ocean energy a major part of Hawaii's energy future. We owe it to ourselves, to our children and grandchildren.
>
> SEAWATER AIR CONDITIONING (SWAC). With SWAC, cold seawater is pumped from hundreds of feet below the surface to a cooling station on shore. Here the deep ocean's coldness is transferred to fresh water. The cold, fresh water then circulates in a closed pipe that carries it to nearby buildings. A proven technology, SWAC can deliver reliable

[2] Although the total rebates requested under Hearing Exhibit 2 may exceed the total annual amount of rebates provided through HECO's existing DSM rebate programs, the corresponding total amount of benefits similarly exceeds the total benefits from HECO's existing programs. It is also noted that the rebate may be paid over a period of years.

> cooling using far less electricity than conventional air conditioning. Hawaiian Electric supports the SWAC technology proposed by others for downtown and Waikiki.
>
> For the future, energy from the ocean can give us: Clean, local power, greater diversity in our energy resources, a power supply with a smaller footprint and low visual impact, reduced impact on global climate change, [and] renewable energy for generations to come.

Honolulu Business (Oct. 2006), p. 11.

B. SWAC Meets or Exceeds the CIEE Program Standards.

A rebate for SWAC is appropriate under the Commercial and Industrial Energy Efficiency ("CIEE") DSM program, rather than the Commercial and Industrial Customized Rebate ("CICR") program, because: (1) the CIEE program's High Efficiency Cooling component is intended for efficient chillers in commercial and industrial applications; (2) it is estimated to require eight years to develop 100,000 tons of SWAC beginning with the first system (25,000 tons in Downtown Honolulu) in 2009, 12,500 tons/year of SWAC will therefore be developed over the period of 2009–2016, SWAC will likely replace 12,500 tons/yr (of 25,740 ton/yr) of cooling in the CIEE program (i.e., the proportion of customers who previously may have considered replacing existing chillers with more efficient chillers), and the CIEE program already provides higher rebates for energy efficient chillers; and (3) SWAC will improve the CIEE program by providing relatively low marginal costs for kW and kWh savings and low implementation costs due to Honolulu Seawater Air Conditioning, LLC's ("HSWAC") involvement. SWAC delivers significant benefits to the HECO DSM programs, as shown in Exhibit 1, which summarizes the results of HECO spreadsheets (e.g., CE Analysis DOCKET (08-09-06) ESD 082206.xls) incorporating SWAC benefits and costs.

C. SWAC Meets or Exceeds the Total Resource Cost Test.

A rebate for SWAC under HECO's prior IRP3 Total Resource Cost ("TRC") is appropriate, and applying the new TRC test to SWAC is not appropriate, because: (1) the new TRC test, which determines avoided energy and capacity costs by shifting the proposed start date of 2024 to 2015 for a proposed fluidized bed combustion (FBC) coal power plant – which may or may not be approved and constructed – results in a negative avoided energy cost and significantly higher avoided capacity cost for 2015–2023 due to the relatively lower cost of coal compared to low sulfur fuel oil; (2) the new test creates a bias against DSM measures that significantly reduce energy use (e.g., solar water heating and SWAC) and a bias for load/demand shifting/control measures; (3) HECO proposes use of more expensive naphtha and ethanol without similarly adjusting the avoided energy costs used in TRC analyses for these fuels; and (4) HECO requires SWAC to meet a TRC test B/C ratio of > 1.0 although it appears the CICR and REWH programs are unable to meet this criterion.

D. Prescriptive Rebates Are Appropriate for SWAC Systems.

A prescriptive rebate is appropriate because: (1) it will alleviate any concern by HECO about providing higher rebates to a single technology under the CICR program; (2) no SWAC pilot or demonstration project is necessary insofar as SWAC is a proven technology in Hawaii and elsewhere, widespread use of which will provide utility system benefits far in excess of the requested $500/ton rebate; and (3) the requested $500/ton rebate is ~12% of the cost differential between conventional air conditioning and SWAC systems, and therefore consistent with that offered other technologies.

DATED: Honolulu, Hawaii, October 6, 2006.

Warren S. Bollmeier II
President, HREA

EXHIBIT 1

SUMMARY OF HECO SPREADSHEETS INCORPORATING SWAC BENEFITS AND COSTS

HECO's Baseline DSM Programs[3]

- The NPV of the Total Program Costs for HECO's proposed DSM programs for the 20-year Planning Horizon of 2006 – 2025 is $221,644,787
- This baseline DSM program will provide cumulative Net System Energy Savings of 559,876,474 kWh and cumulative Net System Peak Demand Savings of 157,576 kW
- This is equivalent to a NPV cost for Net System Energy Savings of $0.2324/kWh and a NPV cost for Net System Peak Demand Savings of $581/kW
- This baseline DSM program will provide cumulative Gross System Energy Savings of 785,256,780 kWh and cumulative Gross System Peak Demand Savings of 193,239 kW

HECO's Baseline DSM Programs with 25,000 tons of SWAC

- The baseline DSM program with 25,000 tons of SWAC (i.e., Downtown Honolulu SWAC System) will provide cumulative Net System Energy

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[3] The calculated Net System Energy Savings and Net System Peak Demand Savings are Gross System Values corrected for free riders. HECO assumes that the percentage of free riders for energy savings and demand reduction will be 34.7% and 33.6%, respectively. For a SWAC system, the percentage of free riders is expected to be very low as customers can only sign up if the system is developed and the system is more likely to be developed if a rebate is applied to interconnection costs. HREA maintains that free ridership for SWAC systems will be significantly less than for more efficient conventional chillers for the following reasons: (1) the incremental cost for more efficient chillers is significantly less than for a change from conventional chillers to SWAC; (2) users are more familiar and comfortable with conventional chillers and changing to more efficient chillers is easier than adopting new technology; and (3) some potential customers are risk adverse and will only connect to a SWAC system when others have. Applying HECO's estimates of free ridership underestimates the actual value of SWAC to the utility system.

Savings of 605,825,877 kWh and cumulative Net System Peak Demand Savings of 164,249 kW

- The NPV of the Total Program Costs for HECO's proposed DSM programs with 25,000 tons of SWAC (i.e., Downtown Honolulu SWAC System) for the 20-year Planning Horizon of 2006 – 2025 is $229,070,446
- This is equivalent to a NPV cost for Net System Energy Savings of $0.2253/kWh and a NPV cost for Net System Peak Demand Savings of $563/kW
- For an increase in NPV cost of $8,059,659, HECO will obtain an additional Net System Energy Savings of 45,949,406 kWh and additional Net System Peak Demand Savings of 6,673 kW
- For a 3.6% increase in NPV cost, HECO will obtain an 8.2% increase in Net System Energy Savings and a 4.2% increase in Net Systems Peak Demand Savings
- With the addition of 25,000 tons of SWAC, the marginal cost of Net System Energy Savings is $0.1287/kWh and the marginal cost of Net System Peak Demand Savings is $322/kW
- This baseline program with 25,000 tons of SWAC (i.e., Downtown Honolulu SWAC System) will provide cumulative Gross System Energy Savings of 855,623,400 kWh and cumulative Gross System Peak Demand Savings of 203,290 kW

HECO's Baseline DSM Programs with 100,000 tons of SWAC

- The baseline DSM program with 100,000 tons of SWAC (i.e., Downtown Honolulu SWAC System) will provide cumulative Net System Energy

Savings of 768,933,354 kWh and cumulative Net System Peak Demand Savings of 184,269 kW

- The NPV of the Total Program Costs for HECO's proposed DSM programs with 25,000 tons of SWAC (i.e., Downtown Honolulu SWAC System) for the 20-year Planning Horizon of 2006 – 2025 is $240,565,095
- This is equivalent to a NPV cost for Net System Energy Savings of $0.1956/kWh and a NPV cost for Net System Peak Demand Savings of $489/kW
- For an increase in NPV cost of $18,920,308, HECO will obtain an additional Net System Energy Savings of 209,056,880 kWh and cumulative Net System Peak Demand Savings of 26,693 kW
- For an 8.5% increase in NPV cost, HECO will obtain a 35.8% increase in Net System Energy Savings and a 16% increase in Net System Peak Demand Savings
- With the addition of 100,000 tons of SWAC, the marginal cost of Net System Energy Savings is $0.0686/kWh and the marginal cost of Net System Peak Demand Savings is $172/kW
- This baseline program with 100,000 tons of SWAC will provide cumulative Gross System Energy Savings of 1,105,405,142 kWh and cumulative Gross System Peak Demand Savings of 233,429 kW

Shift in Peak Demand Period

- HECO currently designs its DSM programs to reduce system peak demands for the current system peak demand period of 5:00 p.m. – 9:00 p.m. for some evening in October

- HECO also experiences a second broader peak during the day which is only about 2% (or ~27 MW) less than the evening peak
- At some time in the near future (~2008 to 2009) the evening peak may be reduced to less than the daytime peak (see table below)

	Coincident Peak Demand		
	Peak with EE DSM (MW) (18)	Peak w/o EE DSM (MW) (19)	EE DSM Peak Reduction (MW) (20)
2006	1,311.2	1,319.2	7.9
2007	1,329.5	1,347.0	17.4
2008	1,339.7	1,365.2	25.5
2009	1,357.4	1,390.8	33.4
2010	1,368.2	1,409.2	41.0
2011	1,377.3	1,424.7	47.4
2012	1,387.3	1,440.5	53.1
2013	1,396.9	1,456.3	59.4
2014	1,406.3	1,472.4	66.0
2015	1,415.9	1,488.6	72.7
2016	1,422.1	1,500.8	78.7
2017	1,428.5	1,512.9	84.5
2018	1,436.2	1,525.2	89.1
2019	1,444.1	1,537.6	93.5
2020	1,456.6	1,554.4	97.9
2021	1,465.2	1,564.7	99.5
2022	1,474.5	1,574.2	99.7
2023	1,484.2	1,583.9	99.7
2024	1,493.8	1,593.5	99.7
2025	1,503.6	1,603.4	99.8

(Source: HECO DSM AC 2006A r3.xls [Av. Costs - Formatted])

- Therefore, peak demand reductions during the daytime peak period (e.g., as provided by more efficient air conditioning become more valuable)
- HECO is now proposing to pay the demand incentive for any customer demand reduction, which reflects the added value of capacity reductions during afternoon peaks and allows the customer and HECO to pre-determine most demand incentive payments
- For the foregoing reasons, HREA supports HECO's proposal in this regard

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that on this date copies of the foregoing document were served upon the following individuals by placing a copy of same in the United States Mail, postage prepaid, addressed as follows:

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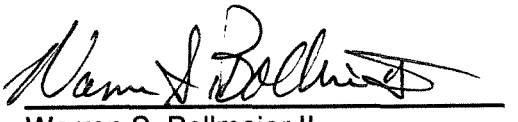
DATED: Honolulu, Hawaii, October 6, 2006.



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