

BEFORE THE  
PUBLIC UTILITIES COMMISSION  
OF THE STATE OF HAWAII

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In the matter of )  
 )  
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. )  
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DOCKET NO. 05-0069  
(Energy Efficiency Docket)

**THE HAWAII SOLAR ENERGY ASSOCIATION'S**  
**POST-HEARING REPLY BRIEF**  
  
**AND**  
  
**CERTIFICATE OF SERVICE**

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The Hawaii Solar Energy Association (HSEA) submits its POST-HEARING REPLY BRIEF to the Public Utilities Commission in Docket No. 05-0069, regarding Hawaiian Electric Company’s (HECO) proposed Demand-Side and Load Management Programs on November 15, 2006, in accordance with the amended Schedule of Proceedings approved by the Commission in a letter to William A. Bonnet dated April 13, 2006.

**PREFACE**

Electric utility regulation in Hawaii has become increasingly complex, protracted, and multi-dimensional over the past few years. Numerous energy dockets have been opened since September 2003, and they remain open. The legislature was also busy this year adding to the

Commission's workload, e.g. S.B. 3185 (Act 162) and S.B. 2957 (Act 240) enacted by the Twenty-Third Legislature, State of Hawaii, 2006.

In addition to the DSM/Energy Efficiency Docket, itself the outcome of a separated HECO rate case application filed on November 12, 2004 (Docket 04-0113), the Commission also has initiated IRP-3 (Docket No. 03-0253, September 11, 2003), competitive bidding (Docket No. 03-0372, October 21, 2003), and distributed generation (Docket No. 03-0371, October 21, 2003). HECO submitted its IRP-3 planning report to the Commission on October 28, 2005; the docket participants have yet to establish a schedule of proceedings. IRP-4, unless delayed, will begin during the first quarter of 2007.

Starting in November, 2004 the Commission began a series of RPS workshops. While promising work has been done to date, the workshop process remains unfinished. More recently, the PUC has opened dockets to investigate two related net energy metering issues (2006-0084, June 15, 2006), the earthquake (Docket No. 2006-0431, Oct. 27, 2006) and Pay As You Save (Docket No. 2006-0425, October 24, 2006), pursuant to Act 240.

Is this recent history relevant to this proceeding? Yes, on at least two levels. First, the Commission must at some point decide the issues common to these many dockets in a coherent manner. In addition, RPS, while not a specific issue or limiting factor in Docket No. 05-0069, impacts and will be impacted by the establishment of a statewide or island specific DSM/Energy Efficiency Standard(s). A precise definition of DSM in this docket and the establishment of a DSM Standard(s) will guide the Commission as it continues its exploration of RPS during the Act 95 workshop process.

If there are to be mutually consistent, compatible, and complementary DSM and RPS portfolio standards, there must be clear and concise definitions of what DSM is (and is not) and

what renewables are (and are not). HECO's proposed DSM programs, for example, include a renewable (solar water heating) and the definition of renewable within RPS includes rate-payer funded energy efficiency programs (DSM)<sup>1</sup> i.e. classical load reduction programs and measures.

Pursuant to Act 162, the Commission has the authority to prescribe the percentage of RPS that will be met by each type of "renewable electrical energy" resource as defined by the statute, provided that no less than fifty-percent (50%) of RPS is met by true renewables. Fifty-percent (50%) of RPS is thus eligible to come from DSM or other qualifying non-renewable technologies as defined in HRS 269-91. In short, Hawaii's RPS is also a DSM standard of sorts.

Second, HSEA observes that the Commission is extremely busy and understaffed. The PUC's ability to perform the required cross-docket analysis and integration on a timely and coherent basis is an issue in this and other open energy dockets. Time itself is a participant in these proceedings, and changing realities, including HECO's reserve margin shortfall, require prompt action and redress.

Act 162 notwithstanding, the decision to adopt a public benefits fund administrator (or any third party non-utility administrator) for DSM in Hawaii must not be undertaken lightly. The Commission must make this decision in full consideration of its resources, staff levels, the timeliness of recent energy docket decisions, and the very real possibility that a public benefits fund will be subject to periodic legislative raids.

Cheryl Harrington notes in this regard that "there are no raid-proof funds" and provides examples of such raids – both successful or threatened - in Maine, Wisconsin, Ohio, Connecticut

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<sup>1</sup> Cf. the definition of "renewable electrical energy" in Hawaii Revised Statutes, Section 269-91, as amended by S.B.3185 in 2006.

and Oregon. The Connecticut legislature has appropriated \$12 million from a *utility held* public benefits account to the general fund.<sup>2</sup>

HSEA does not find that the participants and parties to this docket have provided a sufficiently detailed record documenting the **clear** advantages of third party DSM administration. Absence of evidence, however, is not evidence of absence; the case “for” simply has not been sufficiently built in this docket. Evidence from other states indicates that the administrative model is less critical to the implementation of successful DSM programs than the adherence to key DSM precepts that include clarity of stated purpose, the consistency of policy over time, and a consensus of key stakeholders.<sup>3</sup> Cheryl Harrington writes that, “Only those jurisdictions which maintained the highest levels of clarity, consistency and consensus among key stakeholders while implementing major renovations in administration were able to achieve an ongoing high level of program results without dropping the ball”.<sup>4</sup>

The participants and parties, moreover, have not demonstrated to HSEA’s satisfaction that the transition to third-party administration will be – or can be – timely in Hawaii. Our direct question to the Commission in this regard is as follows: How long will it will take the PUC to effect a seamless transition to a third party market structure that does not lead to staff dissipation, diminished ratepayer participation, reduced DSM energy/capacity impacts, and/or the disruption of the DSM contractor and trade ally infrastructure? This question, and other transition related issues, are not red herrings to HSEA members. Unlike the other non-utility participants in this docket, HSEA represents DSM program **participants** that will be directly impacted on a daily basis by the Commission’s ultimate judgments in this docket. We find that

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<sup>2</sup> Cheryl Harrington, “Who Should Deliver Ratepayer Funded Energy Efficiency? A Survey and Discussion Paper”, page 10.

<sup>3</sup> Ibid. p. 6.

<sup>4</sup> Ibid.

a healthy skepticism regarding the benefits of a wholesale transition to third party DSM program administration is warranted.

## INTRODUCTION

The IRP-3 planning cycle that began in September, 2003 was the crucible in which Hawaiian Electric Company's proposed DSM programs in this docket were forged. Much has changed since September, 2003. Oil prices are significantly higher. The human impact on climate change is more evident. The relationship between national security and energy security is clearer. And the electric utility company in question, the Hawaiian Electric Company, now runs a precarious reserve margin capacity shortfall in the range of 170 – 200 MW.

Within this broad context the DSM/Energy Efficiency Docket takes on increased importance. Promising DSM measures and renewable technologies such as seawater air conditioning that did not pass the IRP-3 cut, for whatever stated reason, can and should be given a second look in this docket. HSEA believes that it is incumbent upon the Commission within both IRP-3 and the DSM/ Energy Efficiency Docket to explore the most viable, commercial, and cost effective energy efficiency, load management, and customer-sited renewable displacement and generation options.

Utility ratepayer funded DSM, as RMI stated in their Opening Brief, is now an essential component of Hawaii's energy policy (RMI, Opening Brief, at 2). No participant or party has evidenced disagreement with this assessment. The questions and concerns in this docket have not centered on the viability and importance of DSM itself, but rather on whether or not HECO has optimized its proposed portfolio of cost effective DSM measures, e.g. CA, Opening Brief, at 53.

The exclusion of seawater air conditioning as a viable DSM resource has, quite properly, been questioned during this docket. HECO's recent public endorsement of SWAC is encouraging, but the development of a realistic program budget (CICR or elsewhere) and an incentive structure sufficient to overcome the market barriers that face new technologies in Hawaii are more important than four color advertisements.

None of the participants or parties has expressed opposition to the expedited approval of HECO's proposed DSM programs, with the exception of the CA's opposition to the Residential Customer Awareness Program (CA, FSOP at 69, 70 and Opening Brief, at 60). HSEA also has consistently recommended changes to specific elements of the RNC and residential load management programs (HSEA, FSOP, at 13, 14, 15).

No participant or party has suggested that a prudent and reasonable third party administrator, if chosen, should discontinue or substantially modify the specific DSM programs submitted by HECO for consideration in this docket.

Despite the basic unanimity of opinion in this docket regarding the sufficiency of HECO's proposed DSM portfolio, HSEA has consistently recommended changes to specific RNC and residential load management program elements that we believe inhibit solar water heating system installations. Our judgment in this regard is partially based on the measured results of the RNC program between 1997 and 2005. Sixty-six percent (66%) of all RNC installations on Oahu during this period have been electric resistance water heaters (8,676 total). The U.S. military has installed 2,391 RNC solar water heating systems, to the private sector's 2,066 (4,457 total).<sup>5</sup>

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<sup>5</sup> HSEA, Post Hearing Opening Brief, Appendix 1, contained two mistakes. The RNC solar installations for the year 2000 were based on HECO's projected rather than actual numbers. RNC solar installations in 2000 totaled 744, not the previously reported 500. Total RNC solar

The installation of electric water heaters – whether nominally “high efficiency” or not - drive HECO’s peak load, build kWh sales, ensure that new homeowners will be saddled with unnecessarily high electric bills, and do not comport with State of Hawaii energy policy goals and objectives. As such, HSEA believes that electric resistance water heaters should be, by program design, the least attractive RNC water heater option. The RNC program numbers to date indicate that this is not in fact the case.

Throughout the course of this docket the Commission has heard that HECO’s solar water heating programs are the most successful utility sponsored DSM programs of their kind in the country. This statement is true. A number of other investor owned and municipal utilities now sponsor solar water heating programs that don’t measure up to Hawaii standards, e.g. Lakeland Electric, Sacramento Municipal Utilities District, Eugene Water & Power, Arizona Public Service, Salt River Project, and Gainesville Regional Utilities.<sup>6</sup> What is less clear to the HSEA, in light of our high electricity costs and nearly perfect climate, is why we are not even further ahead. The simple answer is that elements of the RNC program are out of alignment with both HECO’s reserve margin shortfall and State of Hawaii energy policy objectives.

### **HSEA’S FINAL RECOMMENDATIONS FOR COMMISSION ACTION**

1) HSEA recommends that the Commission approve HECO’s proposed DSM programs, with the modifications to the RNC program elements offered by HSEA, on an expedited basis.

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installations from 1997 – 2005 is 4,457. The total of all RNC solar, high efficiency heater, and tank and timer installations is 13,133. Of the 4,457 Oahu RNC solar installations from 1997 – 2005, 2,391 were military, not private sector, new construction. The privatization of military family housing has made the installation of solar water heating extremely practical for the managing entities. With the exception of Gentry Homes, no other large private builder on Oahu installs solar water heating as a standard feature on each new home.

<sup>6</sup> See in this regard, DSIRE, Database of State Incentives for Renewables & Efficiency, [www.dsireusa.org](http://www.dsireusa.org) DSIRE is a comprehensive source of information on local, state, utility, and federal incentives that promote renewables.

There appears to be unanimous agreement among the participants that HECO's proposed programs are sufficiently robust to warrant Commission approval.

2) HSEA recommends that the misalignment between RNC program objectives and State of Hawaii energy policy be addressed. The RNC program has driven Oahu builders/developers toward conventional water heating options that grow electricity sales and exacerbate peak system demand. The utility now seeks approval for programs, budgets and incentives, such as Energy Scout, to manage these residential loads during period of system crisis. Is this what we are trying to accomplish with DSM? Create new electrical loads and then turn them off?

During his hearing testimony, Mr. Block said that HECO found that the Tank & Timer option lead to greater peak demand reductions than those achieved by solar water heating systems. Transcript (8/29) at 353. We take Mr. Block at his word, but note that the Penguin (tradename) load management timer used in the Tank & Timer program **can be overridden by the homeowner for 30 minutes at a time** during the period from 5:00 – 9:00 p.m. An industrious homeowner can have his “locked out” water heater on almost continuously during the system peak if he so desires.

For the record, HECO can also modify the Residential Solar Water Heating Program Standards and Specifications, which are prescriptive in nature, to require that the mandatory electronic time switch used on REWH and RNC solar installations remain **off** between 5:00 p.m. and 9:00 p.m. This alone will not stop the intent homeowner from setting the timer to go on during the system peak, but it will prohibit the installation contractor from setting the timer to do so, and should make solar water heaters every bit as effective as the Tank & Timer option in minimizing the impact on peak load.

The evidence and record in this docket shows that electric water heaters once installed (timer or not) tend to stay installed. (HSEA, FSOP, at 14). HSEA thus recommends that the REWH and RNC solar water heating rebates be increased to \$1,000 while the tank and timer and high efficiency rebates be reduced in accordance with our Post-Hearing Statement of Position (HSEA, Opening Brief, at 20 and Reply Brief at 26).

3) HSEA recommends that HECO retain the administration of the REWH and RNC programs at this time. Our prefatory remarks in this Reply Brief provide the justification for our position.

4) HSEA requests that the Commission allow reasonable and prudent performance based incentives to either utility or third party administrators, if selected, to implement and manage DSM programs in Hawaii. Tying performance based incentives to the achievement of a clearly defined goal, say 80% the maximum achievable resource potential, is appropriate to the extent that MAP itself is accurate, current and casts a broad net.

HSEA believes that under no circumstances would it be prudent or reasonable for total utility compensation for administering DSM programs to exceed the rate of return allowed for rate-based supply side assets of equivalent MW magnitude.

5) HSEA recommends that DSM program costs continue to be recovered through a billing surcharge mechanism. We believe that it is sensible to put all allowable DSM program costs in one bucket. This is transparent and should make the reconciliation between costs recovered and the actual program costs much simpler. HSEA does have a concern that some IRP related costs that are now in base rates, such as key employee salaries, could be moved to the surcharge mechanism and potentially counted twice. This must be closely scrutinized and avoided.

HSEA further believes that it is preferable and educational for ratepayer's to see their actual pro-rated DSM costs on their monthly billing statements rather than to have such costs embedded in base rates.

6) The Commission should adopt the California Standard Practice Manual: Economic Analysis Of Demand-Side Programs And Projects definition of demand-side management (as revised in July, 2002). HSEA believes that a clear and concise definition of demand-side management is essential. The definition of DSM adopted by this Commission in this docket will broaden or narrow Hawaii's DSM program options regardless of administrative structure. The definition of DSM will make it easier or harder for Hawaii to reduce its dependence on imported fossil fuels to generate electricity. This is not an insignificant choice.

HSEA believes that the DSM/Energy Efficiency Docket offers the Commission the opportunity to revisit the wisdom of limiting DSM to classical conservation, efficiency and load-management measures. By adopting the California Standard Practice Manual Definition of DSM, the PUC broadens the acceptable portfolio of DSM options to include self-generation on the customer's side of the meter. Pursuant to the California definition of DSM, "Self generation refers to distributed generation (DG) installed on the customer's side of the electric meter, which serves some or all of the customer's electric load, that otherwise would have been provided by the central grid".<sup>7</sup> Self generation technologies include, but are not limited to, "photovoltaics, wind turbines, fuel cells, microturbines, small gas-fired turbines, and gas-fired internal combustion engines".<sup>8</sup>

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<sup>7</sup> California Standard Practice Manual: Economic Analysis of Demand-Side Programs and Projects, October, 2001, p. 3. As updated, July, 2002.

<sup>8</sup> Ibid.

The HSEA recommends that the Commission step back and view this docket a means of assessing the best overall mix of programs and resources to reduce load on the customer's side of the meter. Efficiency, conservation and self generation options provide identical ratepayer benefits. Customers use fewer kWh. Hawaii's ratepayers, like those of California, should have both efficiency and renewable generation options available to them as part of a broad and deep DSM portfolio. While HSEA does not propose specific self-generation DSM program options at this time, we urge the Commission to support a definition of DSM that does not preclude on-site self-generation in the future.

7) The Commission should reject the idea that inflexibility in any of the company's models or planning processes should be determinative in these proceedings. HECO's DSM cost/benefit calculations must be based on the best information available today. MAP was performed in 2003 and finalized in early 2004. The Commission's Decision and Order in this docket should not be constrained by dated facts, judgments, and assumptions. In this regard, HSEA recommends that the PUC require the Company to accelerate the 3 year MAP cycle and also require HECO to use current oil price and electricity rates in its avoided cost and cost-effectiveness calculations. The programs and technologies that pass or fail the MAP screening test are highly dependent upon current electricity rates, oil prices and other time sensitive data. Mr. Hee has testified that a residential rate of ¢11/kWh was used during the 2003 MAP screening. The cost for residential electricity in August, 2006 was over ¢19/kWh.

DSM avoided cost calculations also must be predicated on the marginal cost of electricity, i.e. the cost of peaking power, not base load power (in particular, the estimated future cost for a possible base load coal plant). Such costs must be compared to **current** supply side

resources costs that also change over time, including the fully loaded costs of operating utility owned and sited peaking DG units.

One final note on MAP: The screening process only includes savings benefits. Other externalities and system benefits, including reduced carbon emissions, are not included. These benefits should be picked up in the various cost tests that will be applied in this docket, but such subsequent tests can only be applied to programs, resources and technologies that initially “make the cut”.<sup>9</sup>

8) In regard to overall REWH and RNC program cost-effectiveness, HSEA recommends that the Commission adopt a 25 year system life in considering the cost-effectiveness of solar water heating systems. Based on Hawaii specific experience, a twenty-five year life, with provision for fully amortized maintenance costs, is appropriate.

9) HSEA supports the establishment of island specific goals developed during the IRP planning process. Based upon hearing testimony and the experience in other states, the initial benchmark for the annual reduction of total load from DSM should be set between 0.6% to 1.0%. The total reduction in sales that results from the utility’s DSM programs can be considered a function of the accuracy and viability of the MAP planning process. Here we note that the ease of achieving 80% of MAP at any given time will have some correlation with current electricity costs and oil prices. The utility should be required to exceed 80% of MAP under certain high electricity and fuel price scenarios. The extent and persistence of any reserve margin shortfalls, if they exist, also must be considered in setting the bar for annual DSM load reduction.

10) HSEA supports the continuation and enhancement, when justified, of customer incentives and rebates. (See HSEA, FSOP, at 10, 11).

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<sup>9</sup> California Standard Practice Manual, July 2002, page 20 – 21, outlines the benefit treatment for a number of externalities.

11) HSEA urges the Commission to provide for the retention of the robust retail competition that now exists in the delivery of REWH and RNC program services no matter what market structure is ultimately adopted. HSEA wants to make clear that retail competition is not synonymous with the wholesale level competition that may ensue should a third-party administrator be chosen for some or all of the DSM programs. Retail competition provides ratepayers with a broad choice of contractors, products, and price levels. Retail competition among numerous participating DSM contractors has benefited the ratepayer, Hawaii's primarily small business contractor infrastructure, and HECO.

A third party administrator, potentially a "wholesale" level low competitive bidder, may simply focus, for example, on classically "economic" programs i.e. those that look most cost-effectiveness under the traditional forms of measurement and may disregard customer class or other program equity issues. HSEA shares this concern. We also remain concerned that HECO may choose to focus, at some time in the future, on load management programs that concentrate exclusively on the kW side of the equation. HSEA contends that ratepayers are much more concerned with kWh reductions and actual dollar savings than kW system benefits.

12) While not a specific subject in this docket, the Commission's IRP Framework and the utility's IRP planning process have a profound impact on how the utility assesses and screens DSM resources and implements energy efficiency programs. HSEA believes that the Commission should revisit the Framework and update this document in accordance with current best IRP and DSM practices. As previously argued, the Commission's adoption of the California Standard Practice Manual definition of DSM which includes, conservation, efficiency, and on-site renewable and other self-generation options could dramatically alter the speed at which we address our fossil fuel dependency in the electricity generation sector.

In this docket we have been advised that the Commission is unconstrained by the RPS statute. Not so IRP. A number of participants, most notably the Consumer Advocate, have stressed that the entire IRP planning process must be improved. Members of the IRP-3 Advisory Board, including the HSEA, also have expressed frustration regarding a number of inadequacies within the present IRP planning process<sup>10</sup>.

The reevaluation of both the IRP Framework and utility planning process should be put on the near-term Commission agenda.

## **HSEA POST HEARING FINAL STATEMENT OF POSITION**

### **INTRODUCTION**

Hawaii remains the most oil dependent of the fifty states. Our electric utility companies consumed 26% of all oil imports in 2004. Energy consumers spent \$4.35 billion on energy in 2004, or 18% more than in 2003, primarily due to high oil prices. These expenditures represent about 8.7% of GSP.<sup>11</sup> Electricity in Hawaii is still primarily produced by the combustion of oil, tying ratepayers directly to volatile world oil markets.

The U.S. Department of Energy's Energy Information Agency (EIA) projects oil prices will average \$68/bbl through 2007.<sup>12</sup> More importantly, the EIA has reached the same conclusion shared by a number of other analysts that spare capacity on the supply-side is a thing

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<sup>10</sup> See in this regard HSEA, "Statement of Position In Regard To The Hawaiian Electric Company IRP-3 Draft Plan", July 30, 2005.

<sup>11</sup> Energy Resources Coordinator (ERC), Annual Report 2005, p. 2. Compare this data with that of decades past. The ERC Annual Report for 1995, cites energy purchases at \$2 billion, or 6% of GSP. The ERC's 1985 study reports energy expenditures of \$1.6 billion, or nearly 10% of GDP.

<sup>12</sup> Energy Information Agency, Short-Term Energy Outlook, May 9, 2006.

of the past.<sup>13</sup> Long-term prices are expected to remain volatile as world demand increases from 82 million barrels per day (2004) to an estimated 111 million barrels per day in 2025.<sup>14</sup> Global demand remains robust and tends to grow every year, driven largely by incremental demand growth in the Asian markets. In past annual estimates the EIA expected this rapidly growing world demand would be met by increased production from both OPEC (13 million more barrels a day) and non-OPEC producers (15 million more barrels per day). Others, notably petroleum geologists Colin Campbell and Kenneth Deffeyes, and investment banker Matthew Simmons, have questioned the ability of **any** large producers, especially Saudi Arabia, to significantly increase production from conventional sources going forward.<sup>15</sup>

A number of analysts believe that oil prices are headed higher in the long term. Arjun Murti, Managing Director of Goldman Sachs, speaking at a recent energy forum in Kuwait said that, “We believe markets are in the early stages of what we are calling a multi-year ‘super-spike’ period”.<sup>16</sup> Katherine Spector, head of energy research at JP Morgan Securities, in remarks to the same forum noted that, “Market fundamentals point to petroleum prices reverting to a higher mean in coming years”. Goldman Sachs “conservatively” predicts that oil will hit \$105 per/bbl if there is a major supply outage – for whatever reason - in a key exporting

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<sup>13</sup><http://news.moneycentral.msn.com/provider/providerarticle.asp?Feed=OBR&Date=20060528&ID=5753132>.

<sup>14</sup> Energy Information Agency, Annual Energy Outlook 2006 With Projections To 2030, February 2006, p 4. Cf. the EIA AEO 2005 report that predicated 2025 demand to be **121 million barrels per day**.

<sup>15</sup> Colin Campbell, The Coming Oil Crisis, 1997; Kenneth Deffeyes, Hubert’s Peak: The Impending World Oil Shortage, 2001; Matthew Simmons, Twilight In The Desert: The Coming Saudi Oil Shock and the World Economy, 2005.

<sup>16</sup><http://news.moneycentral.msn.com/provider/providerarticle.asp?Feed=OBR&Date=20060528&ID=5753132>

country.<sup>17</sup> Given the general discontent with the U.S. in the Middle East, Nigeria, and Venezuela an oil supply disruption is hardly unthinkable.

The current consensus is that oil prices are expected to remain high and volatile subject to spare capacity, inventories, refining constraints, natural or other disasters affecting the production and distribution infrastructure, and geopolitical uncertainty. Hawaii's ratepayers are now, and will continue to be, at risk as long as our generation facilities burn oil as the primary feedstock. In October, 2006 residential electricity in the HECO company service territory ranged from 0.186995 per kWh (Oahu) and 0.337969 (Molokai), **exclusive** of monthly customer charges.<sup>18</sup>

In addition to our statewide over-dependence on costly and polluting fossil fuels to generate electricity, we have one additional concern on Oahu. HECO states in its 2005 Adequacy of Supply Report that its reserve capacity shortfall has risen to 170 – 200 MW for the period from 2006 – 2009.<sup>19</sup> This shortfall is “equivalent in magnitude to the largest generating unit in operation on Oahu (180 MW)”. In its Interim Decision and Order No. 22420, the PUC stated that this shortfall is, “A source of great concern for the commission”.<sup>20</sup>

### **HSEA'S APPROACH TO THE DOCKET ISSUES**

The HSEA represents a number of licensed contractors with extensive statewide DSM program experience. In the context of the DSM/Energy Efficiency Docket our membership is most concerned about practical program issues such as appropriate rebate and incentive levels, the effectiveness of program marketing and promotion, paperwork and process simplification,

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<sup>17</sup> Ibid.

<sup>18</sup> October, 2006, Effective Rate Summaries filed by HECO, MECO and HELCO with the PUC.

<sup>19</sup> Hawaiian Electric Co., Adequacy of Supply Report, 2005, March 6, 2006, p. 2.

<sup>20</sup> PUC, Interim Decision And Order No. 22420, April 26, 2006, p. 16.

timely inspections, fair and reasonable technical specifications, unbiased grievance resolution, and other basic program design and implementation issues that impact their businesses on a daily basis.

HSEA members are also concerned that elements of HECO's RNC program inhibit the installation of highly efficient solar water heating systems. Similar concerns have been raised about HECO's aggressive residential Energy Scout load management program. HSEA unease is predicated on both the evidentiary record in this docket that indicates a preponderance of RNC electric water heater installations, and also customer perceptions that these programs are reducing energy demand in their homes and saving them money.

A small minority of HSEA members have expressed concerns regarding potential anti-competitive practices raised by these "voluntary" DSM programs and other perceived market distortions caused by the utility's presence within our industry. By virtue of the company's size and market power, such concerns are not entirely without foundation.

On balance, however, HSEA members support the continuation, continuity, continual improvement, and expansion of these critical DSM programs, particularly the Residential Efficient Water Heating (REWH) and Residential New Construction (RNC) programs, with the modifications to specific RNC program elements proposed in this Reply Brief and throughout this docket.

From the outset, HSEA developed three general positions that have informed our Statements of Position relative to the nine specific questions the Commission has raised for consideration in this docket<sup>21</sup>. HSEA's general positions in this docket are summarized below.

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<sup>21</sup> PUC, Order No. 22251, January 31, Amendment I, pp. 4 – 5.

(1) In light of HECO's severe reserve capacity shortfall, and the persistence of this problem until at least 2009, **HSEA supports the expedited approval of HECO's proposed DSM programs.** This support, however, should not be construed to mean that HSEA believes that the proposed DSM programs, especially the REWH and RNC solar water heating programs, should not be improved, expanded, and modified, nor does it mean that HSEA fully supports the proposed residential load management programs to the extent that such programs impede the retrofit installation of solar water heating systems going forward. HSEA retains similar concerns in regard to the tank and timer and high efficiency electric water heater incentive provisions in the RNC program.

(2) HSEA believes that Schedule "R" residential ratepayers, the largest of all ratepayer classes, should be afforded robust DSM programs and opportunities to **reduce** their electric bills. Load management, tank and timer, and high efficiency electric heater options, while important capacity deferral mechanisms, do not save significant kWh, and more accurately should be considered load building measures if not converted in large numbers to solar water heating systems at some point in the future.

Residential DSM programs have been perceived to be less cost-effective than the commercial and load-management programs proposed by HECO<sup>22</sup>. HSEA believes that the focus in these proceedings should be on the cost-effectiveness and equity of the entire portfolio of DSM programs; here we concur with RMI that the valuation of each individual program should be based on both its capacity (kW) **and** energy impacts (kWh)<sup>23</sup>.

In addition, HSEA would argue that the benefits and program equity provided by the residential REWH and RNC solar programs to Schedule "R" customers outweigh their

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<sup>22</sup> Consumer Advocate, Response to HECO's Interim DSM Proposals, January 10, 2006, p. 16.

<sup>23</sup> RMI, Response to HECO's Interim DSM Proposals, January 9, 2006, p. 3.

conventionally defined “costs”, i.e. Schedule “R” ratepayers have few options other than solar water heating (and PV within the HSEA proposed definition of DSM) to save significant amounts of energy (and money) while also providing other important system benefits. Given that HECO projects future load growth to be driven by **residential new construction**, the trend toward larger homes, and the proliferation of new electrotechnologies, the REWH and RNC solar programs remain essential energy savings and capacity deferral initiatives.<sup>24</sup>

(3) HSEA believes that the basic continuity and consistency of the current portfolio of DSM programs over the past ten years is in large measure responsible for the measured impacts and successes to date. HECO’s solar water heating programs, for example, contrast very favorably with one designed by the Sacramento Municipal Utility District (SMUD) in the early nineties. The SMUD program was poorly conceived, constantly changing, confusing to the public and contractor alike, had no long-term contractor support, and subsequently faded away to irrelevance. At present SMUD offers a \$1,500 rebate, has three participating contractors, and very few subscribers. More important to industry participants, the failure of the SMUD solar program has negatively impacted both our industry’s image as well as solar water heating system sales in the greater Sacramento area for years.

HSEA suggests that it is now time for HECO to augment its DSM programs by offering innovative, aggressive, targeted, and flexible new programs to accelerate the deployment of solar water heating systems and other measures to underserved categories of ratepayers including low income homeowners, renters, and the multi-family apartment and condo communities. HSEA would not disagree that a third party (parties) may be the best choice to administer such targeted programs.

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<sup>24</sup> HECO, Integrated Resource Plan, 2005 -2026, October 26, 2005, states, “residential sector growth is expected to be the driver for sales growth over the long term”, pp. 5 -10.

HSEA would argue that it is well understood by all stakeholders what IRP and DSM are **intended** to accomplish. The commission's IRP planning framework makes clear that disincentives should be removed and, as appropriate, incentives should be established to "encourage and reward aggressive utility pursuit of demand-side management programs"<sup>25</sup>. In addition, incentive mechanisms should be structured so that "investments in suitable and effective demand-side management programs are at least as attractive to the utility as investments in supply-side options."<sup>26</sup> It remains an open question whether or not IRP or DSM in Hawaii have achieved their maximum potential under the existing regulatory compact.

On balance, however, HSEA finds that HECO's DSM programs have benefited to date from clarity of purpose, basic consistency, and predictability and have achieved support among most participants and ratepayers. This is not to say that specific aspects of individual DSM programs should not be improved, modified and/or reevaluated.

## **HSEA'S POST HEARING FINAL STATEMENT OF POSITION**

In light of the foregoing discussion, our final responses to the specific docket issues are as follows:

### **STATEWIDE ENERGY POLICY ISSUES**

(1) HSEA favors the establishment of island specific DSM Standards. The IRP planning process for individual electric utility companies is the proper forum for establishing DSM Standards. Based upon the record in this docket and hearing testimony, HSEA recommends that the initial standard for annual reduction in electric utility load should be set somewhere between 0.6% and 1.0%.

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<sup>25</sup> PUC, A Framework For Integrated Resource Planning, Revised May 22, 1992, p. 4.

<sup>26</sup> Ibid.

HSEA further recommends that HECO's RPS targets remain unchanged and that they be met with true renewable generation and displacement technologies.

(2) In light of HSEA member concerns regarding DSM program continuity and consistency, plus the magnitude of the reserve margin shortfall and the potential disruption, delays, and loss of staff and infrastructure during any transition to a new market structure, HSEA favors the continuation of utility management of the REWH and RNC programs at this time. HSEA further supports the present competitive market based "trade ally" approach to delivering utility administered DSM programs to ratepayers.

(3) HSEA recommends the continuation of the current IRP surcharge mechanism. Ease of administration, simplicity, and transparency favor this approach.

(4) In accordance with the PUC's Framework For Integrated Resource Planning, the utility is entitled to recover the costs for planning and implementing its full-scale demand-side management programs. HSEA presumes this to mean the full recovery of all fixed costs. HSEA also supports reasonable performance based incentives that align utility behavior with the basic Framework goal of ensuring that demand-side programs are always as attractive to the utility as supply-side investments. Such incentives should be performance based and reflect both participant and ratepayer expectations that the utility is committed to providing a portfolio of very aggressive and cost-effective DSM programs.

HSEA believes that incentives are not warranted until and unless HECO achieves no less than 80% of MAP.

(5) HSEA has construed Commission question No. 5, regarding DSM incentive mechanisms, in two separate ways. First, pursuant to our FSOP at 10 – 11, we argue for the importance and continuance of customer rebates and incentives. Second, we also believe that

the DSM administrator, regardless of market structure, should benefit from performance based DSM financial incentives. Such incentives should not exceed the level of compensation the utility would be entitled to by constructing and rate basing conventional supply-side resources of similar MW magnitude.

### **HECO'S PROPOSED DSM PROGRAM ISSUES**

(6) HSEA believes that aggressive, improved, and more effective REWH and RNC DSM programs can be implemented in a cost-effective manner. The overall portfolio of DSM programs is already conventionally cost-effective; even more so in light of oil prices in a trading range of roughly \$60 – 75/bb oil. The “cost-effectiveness” of DSM programs is dependent upon current fuel costs, an accurate assessment of avoided costs on the margin, i.e. the cost for new peaking resources and not new base load coal generation options, and also the full cost to administer the current programs relative to the **fully loaded benefits** provided to ratepayers, the utility, our economy, the environment and society. HSEA believes that HECO is capable of delivering cost-effective programs presuming management is perfectly clear that it must either do so or forfeit the direct administration of a majority of these DSM to a third-party in the future.

(7) Please refer to our answer to No. 4 above.

(8) Pursuant to Interim Decision and Order No. 22420 the commission has concluded that HECO is no longer entitled to the recovery of lost margins and shareholder incentives.<sup>27</sup> This form of compensation is off the table and no longer an issue in this docket.

The Framework, however, leaves open a number of other possible utility incentive options. The Commission also has the authority to ensure that under no circumstances will any

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<sup>27</sup> PUC, Interim Decision and Order No. 22420, May 26, 2006, p. 19.

incentive mechanism allow HECO to exceed its authorized rate of return on rate base. The Framework, as well as the RPS law, envisions that appropriate incentives may be required so that the utility will aggressively pursue demand-side management and renewable energy resources. HSEA believes that it is sound regulatory policy to provide positive performance based incentives so that utility managers continue to give the demand-side of the equation as much attention as the supply-side.

HSEA favors reasonable performance based incentives for any administrator that successfully manages and implements DSM programs. "Successful" management presupposes a baseline of performance above which there are rewards and below which there are penalties. A penalty is not simply an absence of rewards. Under no circumstance, however, should financial DSM incentives exceed what the utility would have made by constructing and rate basing equivalent fossil supply-side generation resources.

(9) HSEA, for reasons previously stated in our general approach to this docket, believes that all of HECO's proposed DSM programs should be approved on an expedited basis including such program enhancements, improvements and modifications that have been delineated within this proceeding.

In the context of program improvements and enhancements, HSEA specifically recommends for Commission action and consideration the following proposals in regard to HECO's proposed REWH and RNC programs:

1) We urge the Commission to adopt a REWH and RNC solar water heating rebate level of no less than \$1,000. A number of factors justify an increase in incentives at this time, including:

- Oahu has the lowest electric rates of all the islands and also the lowest rebate structure within the HECO group of utilities. A common rebate structure for each island makes sense.
- Commercial DSM participants can expense their purchases, adding significantly to cost-effectiveness. Residential customers cannot.
- Unprecedented price increases in primary materials such as steel, copper, aluminum, and glass, oil driven freight and delivery surcharges, and the aggressive enforcement of an obscure section of the Uniform Plumbing Code by the City & County of Honolulu building department have increased installed system costs by 15% during the past three years.
- At this time the federal 30% tax credit for residential solar water heating systems must be considered a two year “grant”; no one has proposed that this legislation be enacted permanently and there is absolutely no guarantee that it will be extended beyond December 31, 2007. If the past twenty years have taught us anything, it is that Hawaii remains largely on its own in supporting and funding efficiency and renewables.
- HECO’s customer incentives have been a function of their level of savings and the persistence over time of those savings (HECO, Opening Brief, at 82.) In estimating the savings and life expectancy of solar water heating systems, HECO has used a fifteen year useful operating life. Based on the experience of HSEA member distributors and contractors, a twenty-five year useful life is far more accurate. HECO, therefore, has significantly underestimated the level of savings from program systems from the outset. A higher incentive level is therefore not unjustified.

Since 1975 approximately 86,000 solar water heating systems have been installed in the Hawaiian Islands. In general, very similar systems, using very similar components, have been installed in a very similar way during this thirty-one year period. With minimal service and preventative maintenance, HSEA expects that most of these systems have or will last twenty-five years. Given the high cost of electricity in Hawaii, homeowners maintain their systems, and the savings persist. Based on Hawaii specific experience, a twenty-five year life, with provision for fully amortized maintenance costs, is appropriate.

- Too many homebuilders continue to choose the tank and timer or high efficiency electric heater options for new construction rather than solar, i.e. either the solar incentives have been too low or the other options are simply too attractive to builders. Both the tank and timer and high efficiency electric heater options require or encourage the use of an 80 gallon electric water heater so that such homes can be considered “solar ready”.

Unfortunately, the percentage of conversions from these conventional heaters to solar remains unacceptably low. In fact, only 23.1% of new homeowners with a tank and timer option have converted to solar. A scant 10% of those homeowners with high efficiency electric waters heater have converted.<sup>28</sup> Whether inadvertent or not, the Company continues to grow electricity sales and build load in a time of reserve capacity shortfall by failing to modify these RNC programs.

2) HSEA supports a \$100 rebate level for the RNC tank and timer program. HSEA does not support the continuation of the monthly \$5 bill credit. We support the existing REWH rebate structure for the retrofit installation of high efficiency electric waters heaters, but would lower

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<sup>28</sup> HECO, Customer Efficiency Programs Division, Energy Services Department, Residential New Construction Rebate Count By Program Year and Technology. This information is submitted as Revised Appendix 1.

the RNC rebate for 80 gallon high efficiency heaters to a nominal \$50, while eliminating the rebates entirely for anything less than 80 gallons. If the goal is indeed to make new home solar ready, there is no compelling reason to provide incentives for heaters less than 80 gallons.

Over the past five years the tank and timer and high efficiency electric heater options have accounted for **as much as 84%** of the heaters chosen by homebuilders for new construction, and no less than 69% in any given year (this after Gentry Homes began installing solar water heating systems as a standard feature in 2005). These electric water heater incentives do not provide significant energy savings. They do, however, increase kWh sales, admittedly slightly less so than standard efficiency electric heaters, and they adversely impact our “aging generation infrastructure” regardless of their capacity deferral benefits<sup>29</sup>. According to HECO’s 2005 AOS, “as the demand for electricity increases, the generating units operate harder, which increases the likelihood of unscheduled (forced) outages and operations at derated power levels”.<sup>30</sup> An electric water heater, high efficiency or not, is “on” during the course of the day in relation to the volume of water used by the homeowner at a specific temperature setting. Moving this load off peak has certain system benefits, but it does little to help our “aging generation infrastructure” and it saves ratepayers a pittance relative to solar water heating.

3) We support residential load control of electric water heaters only to the extent that this program, and the utility’s general approach to the marketing and promotion of load management, does not inhibit future solar water heating system sales. HSEA would require the utility to make clear in its Energy Scout solicitations that homeowner bills will not decrease due to program

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<sup>29</sup> This expression was used by Robert F. Clarke in HEI’s 2005 Summary Report to Stockholders, p. 4. Mr. Clarke was explaining to shareholders why utility earnings were down \$8 million in 2005. He states that, “Our utility was under stress in 2005 due to our shrinking reserve margin and more extensive maintenance required on our aging generation equipment”.

<sup>30</sup> HECO, Adequacy of Supply Report, 2005, pp. 9 – 10.

participation. This is especially important in light of Mr. Block's hearing testimony where he reported that, "One of the important problems that we have with this program is people do think they're saving energy". (Transcript at 372). This is both our point and our fear. Tank and timer or Energy Scout customers that believe they are saving energy – and money – may not think seriously about converting to solar water heating.

HECO's Energy Scout promotional material should detail the benefits of other water heating options, including solar water heating, and indicate that this is a good time to purchase a solar water heater in light of unprecedented high oil prices and system savings. If the company is capable of numerous targeted mailings to solicit potential Energy Scout customers it is equally capable of doing the same for solar water heating. This balanced approach would demonstrate the Company's continuing commitment to saving both kW and kWh.

4) We propose the immediate establishment of a joint industry – utility working committee. We envision that this committee's brief will include consideration of the technical merits of the present REWH/RNC standards and specifications and approved products, the arbitration of contractor complaints or concerns relative to the standards and specifications and approved products, general issues relating to building codes and standards, and to provide technical input relative to **any** field testing of installed solar water heating systems. Members of this committee will come from HSEA, the utility, and as many as two outside experts with subject matter competence. Committee decisions and rulings will be by consensus.

5) HSEA supports targeted and focused program advertising that drives the buying public to HECO participating contractors. We do not support specific DSM marketing and advertising expenses that build or support HECO's larger corporate image.

6) HSEA supports innovative, aggressive, targeted and flexible programs that accelerate the deployment of solar water heating systems and other efficiency measures to low income homeowners, renters, the multi-family condo and apartment communities and other difficult to service customer categories. HSEA believes that these programs may be more effectively administered by a third-party, or parties, but we do not object to the utility responding to an RFP for services or winning the tender provided the Company had submitted the best overall proposal.

7) HSEA recommends that the Commission provide for the retention of the robust retail competition that now exists in the delivery of DSM program services. HSEA wants to make clear that retail competition is not synonymous with the promotion of third-party or “wholesale” competition. Retail competition among HECO participating contractors gives ratepayers a choice of providers, products, technology options and price levels.

## CONCLUDING REMARKS

With respect to both energy generation and demand-side management, the status quo unequivocally does not serve these islands. Over time persistent high oil prices inevitably will damage Hawaii’s economic competitiveness. The unbridled combustion of fossil fuels and the resultant warming of the earth, moreover, will not prove to be “cost-effective” for island states and nations<sup>31</sup>. Aggressive and decisive actions must be taken now to truly “decouple” Hawaii’s ratepayers from oil fired electricity. Such actions must be understood and supported by the key stakeholders, should be based on clear goals and principles, must be administered with consistency and clarity of purpose for many years, and, as the saying goes, also must be priced right. One of the key Commission actions required in this docket is simply to get the definition

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<sup>31</sup> Cf. Jeremy Leggett, The Carbon War: Global Warming and the End of the Oil Era, 2001.

of DSM right. HSEA believes that for DSM to be truly effective in Hawaii, it must include energy efficiency, conservation, and self generation on the customer's side of the meter.

A consensus has emerged among Hawaii's energy stakeholders that it is going to take an integrated and comprehensive package of legislation and regulation to significantly reduce our dangerous over-dependence on imported fossil fuels to generate electricity and fuel our vehicles. This DSM/Energy Efficiency Docket represents an important opportunity for the PUC to establish island specific DSM standards through the IRP planning process that will significantly reduce the amount of base energy consumed by our homes and buildings in the future.

As with renewable generation and displacement technologies, aggressive and effective DSM programs provide a number of significant ratepayer and societal benefits, not least of which are resource diversity, import substitution, reduced pollution and greenhouse gas emissions, enhanced energy security, risk reduction from unpredictable exogenous shocks affecting the price of oil and, of course, the ability to stabilize control over one's electricity costs going forward.

The HSEA wishes to thank the Commission for allowing its participation in this seminal docket.

**REVISED APPENDIX 1**

**HECO RESIDENTIAL NEW CONSTRUCTION (RNC) REBATE COUNT  
BY PROGRAM YEAR AND TECHNOLOGY**

	<b>Solar</b>	<b>HEWH</b>	<b>T&amp;T</b>	<b>Total</b>
<b>1997</b>	274	0	11	285
<b>1998</b>	492	0	277	769
<b>1999</b>	637	57	354	1,048
<b>2000</b>	744	133	350	1,227
<b>2001</b>	405	515	575	1,495
<b>2002</b>	338	527	575	1,440
<b>2003</b>	390	880	1,159	2,429
<b>2004</b>	508	1,067	702	2,277
<b>2005</b>	669	723	771	2,163
<b>Total</b>	<b>4,457</b>	<b>3,902</b>	<b>4,774</b>	<b>13,133</b>

Source: Annual DSM Program Accomplishments and Surcharge (A&S) Reports 1997-2005.

**T&T CONVERSIONS TO SOLAR**

	<b>T&amp;T Conversions to Solar</b>	<b>T&amp;T</b>	<b>Percent T&amp;T Conversion</b>
<b>1997</b>	0	11	0.0%
<b>1998</b>	15	277	5.4%
<b>1999</b>	23	354	6.5%
<b>2000</b>	75	350	21.4%
<b>2001</b>	100	575	17.4%
<b>2002</b>	305	575	53.0%
<b>2003</b>	220	1,159	19.0%
<b>2004</b>	147	702	20.9%
<b>2005</b>	220	771	28.5%
<b>Total</b>	<b>1,105</b>	<b>4,774</b>	<b>23.1%</b>

Source: Demand Side Management Information System data extract on 5/26/06.

**HEWH CONVERSIONS TO SOLAR**

	<b>HEWH Conversions to Solar</b>	<b>HEWH</b>	<b>Percent HEWH Conversion</b>
<b>1997</b>	0	0	0.0%
<b>1998</b>	2	0	0.0%
<b>1999</b>	16	57	28.1%
<b>2000</b>	28	133	21.1%
<b>2001</b>	37	515	7.2%
<b>2002</b>	56	527	10.6%
<b>2003</b>	89	880	10.1%
<b>2004</b>	102	1,067	9.6%
<b>2005</b>	60	723	8.3%
<b>Total</b>	<b>390</b>	<b>3,902</b>	<b>10.0%</b>

Source: Demand Side Management Information System data extract on 5/26/06.

## CERTIFICATE OF SERVICE

I hereby certify that I have this date served a copy of the foregoing statement of position upon the following parties and participants via electronic mail or postage prepaid to each of the parties and participant's respective addresses as set forth below:

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