

THE SOLARAY CORPORATION

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The Honorable Chairman and Members of the
Hawaii Public Utilities Commission
465 South King St., First Floor
Kekuanaoa Building
Honolulu, Hawaii 96813

Dear Commissioners:

Subject: Docket No. 2008-0249
Establishing Standards for Solar Water Heating Systems
Comments submitted by The Solaray Corporation

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PUBLIC UTILITIES
COMMISSION

General Comments:

The Solaray Corporation dba Inter-Island Solar Supply, incorporated in 1975, was a founding member of the Hawaii Solar Energy Association (HSEA) in 1977, has served as a "trade ally" during the HECO companies administration of the residential efficient water heating (REWH) and residential new construction (RNC) DSM programs from 1995 – 2009, and is presently supporting SAIC/Honeywell in its capacity as an active Hawaii market participant and wholesale distributor of renewable energy systems and components.

In its Decision And Order in docket 2008-0249, the Public Utilities Commission (Commission) states that, "the SWHS standards, established pursuant to HRS § 269-44 in this proceeding, could, in the near future, **profoundly impact** any person or entity involved in or associated with the building of residential single-family homes" (highlight mine)¹. Precisely. The HECO RNC solar water heating program has set a very high bar. Both the REWH and RNC programs have been the most successful utility sponsored solar water heating programs in the United States over the past thirteen years. It is thus imperative that the final D & O in this docket ensure that this "profound impact" on new homebuilders and homebuyers be positive rather than negative.

Unfortunately, from my perspective, the Commission is now wide of the mark. First, the D & O does not guarantee the stated purpose of Act 204, in particular the public interest goals of reducing pollution and making housing more affordable. Second, the D & O is not in compliance with all the specific requirements of HRS Section 269-144.

HRS Section 269-144 requires the Commission to adopt standards that include specifications for performance, materials, components, durability, longevity, proper sizing, installation and quality. The D & O does not adequately do this. Neither does it

¹ Public Utilities Commission, State of Hawaii, Decision and Order 2008-0249, p. 28.

provide for the maintenance of essential aspects of the status quo nor allow for simple changes to documents that must remain dynamic to be coherent, effective, and enforceable.

The HECO REWH and RNC solar water heating DSM programs have been successful precisely to the degree that customers are assured good system design, high performance, durable and reliable components, and a quality installation. The electric utility companies are guaranteed persistent energy savings and capacity deferral over time from systems, materials, and components that have been carefully vetted and have a long track record of successful performance in the harsh Hawaii environment.

The HECO REWH and RNC program documents, protocols, and thorough third-party post installation system inspections were woven tightly together in a continuous and interconnected quality assurance chain. Break the chain, which this D & O effectively has done, and you lose the performance, longevity, and quality guarantees new homebuyers now take as a given. The legislative goals of reducing pollution and making housing more affordable are out the window without field inspections and verification that the standards and specifications are being enforced.

What is completely missing from this D & O is a sense that all the elements now present in the chain are required or that chain is broken, including the essential role of an Administrator. Good intentions, I can only presume, are now deemed sufficient to replace good rules and the enforcement of those rules.

In its Motion for Clarification, the Consumer Advocate states that, "It was not the intention of the Consumer Advocate to imply that an administrator is unnecessary"². The CA goes on to say, "On the contrary, the Consumer Advocate believes that an administrator is essential not only to answer questions by solar water heating contractors and residential customers in implementing the RSHWS Standards, but as discussed in the Alternatives Stipulation, to perform such functions as site verification of each system"³. I fully concur with the CA. The HSEA concurs with the CA. The success of the residential solar water heating program going forward requires active administration and enforcement of the standards, specifications and program requirements.

Exhibit I, Part IV – Products, Section 4.0, adopted by the Commission states that, "All products used for system installations must conform to these Standards and Specifications"⁴. Despite this, the D & O makes no mention of the very provision necessary to establish conformance.

I believe that SAIC/Honeywell have the necessary expertise and experience to administer the standards and specifications, make timely updates to the Output Tables,

² The Consumer Advocate, State of Hawaii, Motion For Clarification Of The Commission's Decision And Order, Issued on July 1, 2009 In The Above Docketed Matters," July 13, 2009, p. 5.

³ Ibid p. 5.

⁴ Public Utilities Commission, State of Hawaii, Decision and Order 2008-0249, Exhibit 1, Residential Solar Water Heating System Standards And Specifications, Effective July 1, 2009.

and conduct cost effective field inspections and verification. All of these tasks fall far outside the scope and budgets of the county building departments. SAIC/Honeywell already administer these program documents and protocols for the residential retrofit market.

The incremental cost for SAIC/Honeywell to maintain and update the new construction documents and protocols will be minimal. There **must** be an administrator, an adjudicator if you will, that answers questions, resolves disputes, and has the in-house expertise to sort out acceptable from unacceptable systems and materials. Building departments have neither the charter nor the expertise to clarify and enforce those sections of the standards and specifications that exceed standard codes and relate to the design, sizing, orientation, performance and overall quality of a solar water heating system installation.

It is of concern to our company and this industry that neither the legislature nor the PUC seem to have recognized the centrality of rigorous field inspections and verification to this whole process. Good faith that people will do the right thing is an inadequate replacement for sound rules and strong enforcement. The REWH and RNC rules and quality assurance mechanisms that have been established over the past thirteen years, and the active administration of those rules and mechanisms, including field verification and enforcement, have produced a sound record of energy savings, capacity deferral benefits, and pollution abatement.⁵

The recent passage of H.B. 1464, HD3, SD 2, CD 1 codifies the Hawaii Clean Energy Initiative goal of achieving 4,300 GWH of end use energy reduction by 2030. Beginning in 2015, energy savings brought about by solar water heating systems will count toward this standard. The ability to accurately calculate these savings becomes even more critical going forward. As a practical matter, without field inspections the Commission will be estimating, not verifying for utility planning or third-party compensation purposes, the energy savings and pollution reductions resulting from mandated solar water heating systems.

Specific Comments:

1) The Table 6 collector output documents for HECO, MECO, and HELCO contain errors and dated material that must be corrected before final acceptance by the Commission. HSEA prepared and submitted a corrected Output Tables for Oahu, Maui, and the Big Island to the parties and interveners for review. The Output Tables included in the July 13, 2008 filing by HECO, MECO, and HELCO do not reflect the HSEA's corrections and updates.

2) The Commission has ruled that the, "Inclusion of a product list could result in negative consequences such as, but not limited to, unnecessarily restricting the type of

⁵ See HECO, HELCO, MECO Residential Solar Water Heating Program Benefits, 1996 – 2009, attachment.

products that can be utilized for the installation of SWH in Hawaii for compliance with these standards, which could unreasonably increase the costs to homeowners”.⁶

This ruling is inconsistent with thirteen years of real world program experience and, frankly, makes no sense. The “type of products that can be utilized” is already clearly **defined** in the program documents.⁷ The standards and specifications make specific judgments about the products that can and cannot be used and the Commission has ruled in this docket that these judgments and requirements are not too stringent. I am unaware, moreover, of a single product ever having been rejected by the HECO companies that met the minimum program requirements and was represented by a local stocking distributor, contractor, dealer or retailer.

Why then rule that an accepted products list, which the Commission implicitly endorses by their enactment of minimum performance and prescriptive standards and specifications, is restrictive or unnecessary? The maintenance of this list protects consumers from false and inaccurate claims and is entirely consistent with the public interest. Posting an inaccurate and dated product list is, if anything, the real disservice to fair and open market competition. Again, if you remove a link from the carefully crafted REWH and RNC quality assurance chain, the chain breaks.

One final note in this regard. The Commission or staff may be under the impression that Hawaii is some distant backwater in an otherwise highly competitive U.S. solar water heating market. No so! Hawaii is the most competitive solar thermal market in the United States. More manufacturers are active here than in any other state. Hawaii market participants and competitors represent an estimated 85% of **total** U.S. market share.⁸ The dominant U.S. market players are **all** present in this market. Approximately half the estimated 20,000 U.S. solar water heating installations in 2008 were in Hawaii.

3) Solar thermal manufacturers are constantly adding and testing new products or retesting old products pursuant to Solar Rating and Certification Corporation (SRCC) Standard OG-100 requirements. On occasion the SRCC Board makes technical decisions that may either increase or decrease currently posted collector and system ratings. This is reality, and it changes quite frequently.

It is my sense that the parties and interveners did not anticipate the necessity of filing a motion with the Commission to request a simple technical update to the Output Tables. This can be a time consuming process and actually restrict fair and open market competition. The Output Tables must be current and accurate. Timely updates are essential for the proper design, sizing, and performance of approved systems. SAIC/Honeywell will be updating these Tables for the retrofit program. The same collector ratings should be used and harmonized for mandated systems. It therefore

⁶ Public Utilities Commission, State of Hawaii, Decision and Order 2008-0249, p 22.

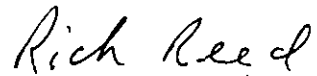
⁷ For example, Ibid., Exhibit 1, Standards and Specifications, Part III – System Requirements, 3.01: “Systems shall be of forced circulation or thermosiphon design which contains potable water”. (Emphasis mine).

⁸ Sun & Wind Energy. Issue 3, 2009, p. 90.

seems prudent and reasonable to also require SAIC/Honeywell keep these documents current for the new construction market.

Thank you for the opportunity to provide these comments. I anticipate that HSEA will cover these and other issues in greater depth.

Sincerely,
The Solaray Corporation
dba Inter-Island Solar Supply

A handwritten signature in cursive script that reads "Rich Reed".

Richard R. Reed
President



ENERGY SOLUTIONS

FOR THE HOME

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HECO, HELCO, MECO Residential Solar Water Heating Program Results (1996 through June 2009)

Number of Systems Installed	53,174
Total Rebates Paid	\$48.8 million

Savings	Annual	System Life
Total Demand Avoided	30.4 MW	
Total Energy (kWh) Saved	118.4 million	1,776.6 million
Total Barrels of Oil Saved	223,233	3,348,496
Emissions Avoided		
CO ₂	123,383 tons	1,850,750 tons
SO ₂	429 tons	6,431 tons
NO _x	280 tons	4,198 tons
PM ₁₀	37 tons	559 tons

Notes

- HECO is Hawaiian Electric Company.
- MECO is Maui Electric Company.
- HELCO is Hawaii Electric Light Company
- All three Programs operated partial year in 1996.
- Savings are rounded to nearest significant number.
- System life is assumed to be 15 years minimum.
- Customer savings based on PUC approved rates and measured system energy savings.
- Demand avoided based on measure system demand deferment coincident with system peak.
- Energy saved (kWh) based on system level energy production saved at plant location.
- Oil saved based on system average conversion rate of 600 kWh per barrel of oil.
- Emissions avoided derived from per kWh emissions reported to State PUC.



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