BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

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Order Instituting Rulemaking Regarding Policies, Procedures and Rules for the California Solar Initiative, the Self-Generation Incentive Program and Other Distributed Generation Issues.	Rulemaking 08-03-008 (Filed March 13, 2008)

OPENING COMMENTS BY THE DIVISION OF RATEPAYER ADVOCATES ON PROPOSED DECISION ADOPTING A SOLAR WATER HEATING PROGRAM

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I. INTRODUCTION

The Division of Ratepayer Advocates (DRA) hereby files comments on the Proposed Decision adopting a Solar Water Heating (SWH) Program. While DRA continues to believe the program is not cost-effective, we have opted in these comments to focus on ways to make the program better for ratepayers, and to transform the SWH industry to a market-based, self-sustaining one. In summary, DRA contends:

- The PD should place more emphasis on system reliability and performance by modifying the warranty requirements, and requiring incentives based on system output (which DRA calls performance based incentives, or PBI), for large systems;
- The SWH program should focus funds on large systems to build economies of scale in the most cost-effective and expedient manner;
- Incentive design should lead to persistent and sustainable progress toward market transformation and real cost-effectiveness;
- The PD should maximize the impact of SWH through integration with Energy Efficiency (EE) programs;
- Development of incentive calculation tools should include standards for reporting cost-effectiveness;
- The PD should provide greater detail to ensure the program encourages innovative low-cost SWH systems; and

- The Commission should hold workshops to hammer out additional program details.

II. BACKGROUND

Administrative Law Judge (ALJ) Duda allowed parties to comment on the Energy Division's Staff Proposal for an SWH program by Ruling dated July 15, 2009. At that time, DRA stated it did not believe the record supported deployment of a statewide SWH program. Rather, DRA recommended that the SWH Pilot Program discussed in the PD continue through its scheduled term, and then be evaluated in accordance with generally accepted cost-effectiveness tests, rather than the modified test used in the Staff Proposal. If, after a more thorough test, the Pilot demonstrated cost-effectiveness, DRA recommended focusing the program on technologies and applications with the best chance of becoming cost-effective and achieving market transformation.

However, the PD currently at issue finds that SWH is cost-effective, despite the applied test's differences from cost-effectiveness tests the Commission has used to evaluate other demand-side programs. While DRA takes issue with this finding, we focus our comments on making the program better for California ratepayers.[1]

III. ARGUMENT

A. The PD Should Place More Emphasis On System Reliability And Performance By Modifying The Warranty Requirements, And Requiring PBI For Large Systems.

The PD should ensure that SWH systems are reliable by expanding warranty protections and paying incentives based on system performance. California's promotion and deployment of clean energy includes certain examples of unreliable technologies, including early wind turbines, SWH systems, and compact florescent lights (CFLs). While the wind power industry has overcome its reliability problems, EE program

[1] Where possible, the suggestions offered by DRA in these comments are reflected in suggested Findings of Facts, Conclusions of Law, and modifications to Ordering Paragraphs and included as Appendix A hereto. For the balance of comments, suggested changes in language are included in the body of these comments.

administrators continue to battle perceptions of poor CFL quality and reliability.[2] The success or failure of this program may well be defined by customer perceptions of and experience with the reliability of SWH systems. Any faulty system installed under this program will have negative impacts beyond the damages to the owners of these systems: it will cause a "black eye" with lasting impact.

While the PD provides many program design features aimed at providing the requisite reliability, DRA offers two suggestions to strengthen the program in this regard. First, Assembly Bill (AB) 1470 mandates and the PD requires a minimum 10-year warranty for SWH collectors only.[3] In contrast, systems installed under the general California Solar Initiative (CSI) program come with a full system warranty that "must cover the solar generating system …, including PV modules (panels) and inverters, solar collectors, tracking mechanisms, heat exchangers, pumps, heat driven cooling systems associated with the solar energy system and provide for no-cost repair or replacement of the system or system components, including any associated labor during the warranty period."[4] The PD should require the SWH warranty to mirror the CSI warranty in all respects.

Second, while single-family systems require certification of the entire SWH system through SRCC OG-300, multi-family, commercial, and industrial systems only require that the collectors be certified through SRCC OG-100.[5] The inability to pre-certify large engineered projects is self-evident, but given that large systems command 80% of the incentive budget under the PD, an alternate means of ensuring the performance of these systems should be mandatory. DRA recommends achieving this by

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[2] "CFL quality remains a concern among consumers, retailers, and program administrators. Many of the initial CFL product complaints have been addressed (noise, insufficient light output, green skin tones, slow to illuminate); however, others remain. Program implementers continue to guard against exaggerated lamp-life claims, premature failure of bulbs, and dissatisfaction with light output or color." 2008 ACEEE Summer Session on EE in Buildings, p. 2-230; CFL Program Strategy Review: No Programmatic "Silver Bullet"; Moran, Peters, et al.

[3] PD Appendix A, p. 3.

[4] CSI Program Handbook, July 10, 2009, p. 26.

[5] The Solar Rating and Certification Corporation (SRCC) designs these certifications. "OGs" are Operating Guidelines adopted by SRCC.

using incentives based on actual energy production (performance based incentives or PBI) for all systems larger than 30 kW_{th} for this purpose.

While the PD acknowledges that other parties recommend the use of PBI in this proceeding, the PD does not commit the Commission to pursuing this option.[6] DRA believes that AB 1470's requirement for metering of these large systems, the experience of the Commission and the Program Administrators (PAs) with implementing PBI for CSI, and the developed markets for Performance Monitoring and Reporting Service (PMRS) and Performance Data Providers (PDPs) who remotely monitor Distributed Generation system performance, all favor PBI as a key component of the SWH program.[7] If the Commission agrees with CALSEIA's assertion that implementation of PBI would unduly delay the program start date, then at a minimum the Energy Division should hold an SWH PBI workshop in the near future to determine how and when it can be implemented.[8]

B. The SWH Program Should Focus Funds On Large Systems To Build Economies Of Scale In The Most Cost-Effective And Expedient Manner

In AB 1470, the Legislature states that a goal of the SWH program is to "install at least 200,000 solar water heating systems …, thereby lowering prices and creating a self-sufficient market that will sustain itself beyond the life of this program."[9] This statement correctly implies that one mode of market transformation will be economies of scale, but does not address how best to achieve these economies for specific cost categories, such as component costs (collectors, tanks, and balance of system parts), design, installation, and permitting costs, which each impact overall system price. Based on data from the interim SWH Pilot Program evaluation, DRA believes focusing

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[6] PD, pp. 38-39.

[7] The time and costs required to implement PBI for SWH should be reduced if the Commission can capitalize on the existing PMRS and PDP networks, and on the CSI program's ongoing PBI experience.

[8] The workshop should also cover whether PBI should be required for large electric-displacing systems, consistent with the general CSI requirements.

[9] PU Code Section 2862(k).

incentives on large systems offers the fastest and most effective way to achieve the required 16% cost reduction to make the program cost-effective.[10]

The PD decreases program cost-effectiveness by increasing the allocation of the incentive budget for single-family residences from the Staff's proposed 10% to 20% "to allow greater participation by residential customers and the installers who serve them."[11] However, the goal of the program is not to allow a specific number of single-family homeowners to install SWH; the goal is to transform the SWH industry such that all Californians can reap the benefits of a clean method of heating water and spaces. Indeed, the Interim Evaluation of the SWH Pilot Program states that "[s]ingle-family homeowners … represent the group with the least favorable economics."[12]

Larger systems provide the best "bang for the buck" in building manufacturing capacity and lowering equipment costs, which are the largest part of systems costs.[13] DRA therefore recommends reinstatement of the Staff Proposal's 10% allocation of incentives for single-family homes unless evidence is provided to show that the installation of more residential systems has specific market transformation benefits.[14]

DRA also recommends prohibiting PAs from shifting funds from more cost-effective multi-family and commercial applications to less cost-effective single-family applications. At a minimum, fund-shifting requests should be subjected to public review via the Advice Letter Process.[15]

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[10] Speed is important, since the SWH Pilot Program evaluation shows that SWH will not be cost-effective at the onset of the program.

[11] PD, p. 33.

[12] SWH Pilot Program Interim Evaluation Report, January 16, 2009, p. 5-19. This report is available at http://www.cpuc.ca.gov/PUC/energy/Solar/swh.htm.

[13] Equipment costs constitute approximately 57% of the cost of a residential retrofit system, per SWH Pilot Program Interim Evaluation Report, January 16, 2009, p. 5-21.

[14] For example, installing a higher number of small systems might produce greater efficiencies for installation labor and permitting. In contrast, installing larger systems not covered by OG-300 will likely produce more qualified system designers.

[15] Fund-shifting requirements are discussed in the PD at pages 33 and A-5. DRA recommends deletion of fund-shifting language from these sections.

The SWH program will be more effective if the PD clearly states the Commission's desire to achieve industry-wide cost savings and market transformation as quickly and cost-effectively as possible. General policy statements such as this will help guide forthcoming workshops, marketing and outreach plans, and scheduled PA submissions. While the SWH Pilot Program Interim Evaluation gives some feedback on these issues, the conclusions drawn have limited applicability given the small amount of data collected. If the final SWH Pilot Program evaluation includes a more robust data set, including significant multi-family and commercial participation, DRA recommends that these budget allocations be reviewed and adjusted based on the final SWH Pilot Program evaluation.

C. Incentive Design Should Lead To Persistent And Sustainable Progress Toward Market Transformation And Real Cost-Effectiveness

DRA strongly supports the PD's declining incentive system as one way to further market transformation and signal to the solar industry that business models must be developed that do not include ratepayer subsidies. However, other details of the PD's incentive design could be improved.

First, DRA believes the Staff's proposed incentive allocation among the four incentive "steps" is more consistent with program objectives than the PD's modifications, which shift $20 million into the first and highest incentive level.[16] The record provides very limited evidence on the specific level of incentive required to transform a potential SWH customer into a system owner.[17] Rather, the average incentive levels appear to reflect a policy choice to distribute the maximum funds allocated by AB 1470 to the target program size of 200,000 systems. While this is a reasonable choice, there is no

[16] Compare Table 14, p. 43, of the Staff Proposal attached to ALJ Ruling in this docket on July 115, 2009 with Table 3, p. 34, of the PD.

[17] SWH Pilot Program Interim Evaluation Report (January 16, 2009, p. 6-4) found that SWH contractors surveyed believe the cost threshold for customers to invest in SWH ranges from "price was not important" to $10,000. CALSEIA's request to shift funds from Tier 4 to Tier 1 is not supported by evidence that such a change will produce any incremental benefit, Opening Comments of CALSEIA, August 12, 2009, pp. 6-7.

evidentiary basis that a $12.82/therm incentive will produce results that would not otherwise be achieved with a lower rate such as $10.26/therm.

Lacking such data, there is no justification for shifting funds from Steps 2 and 3 to Step 1, where they would displace fewer therms and provide less ratepayer or societal benefit. DRA recommends use of the allocations in Table 14 of the original Staff Proposal as the best way to maximize attainment of the objectives of AB 1470.[18]

In addition, DRA suggests a reduction in the incentive cap on multi-family and commercial systems to $100,000 unless a PBI system can be implemented, or until the pending online performance and incentive calculation program can be fully vetted.[19] Based on CALSEIA's suggestion to include five performance modeling tools, and the PD's direction hold a workshop to develop such a tool, it appears the industry has no standard way to estimate system performance.[20]

Even when a standard is developed and adopted, its modeling results should be verified through field Measurement and Evaluation (M&E) studies to determine its accuracy. For large systems, small modeling errors or inaccuracies could lead to substantial overpayment (or underpayment) of incentives using up-front incentives based on estimated energy savings. Until modeling performance can be validated, it would be prudent to have a lower incentive cap than the cap ultimately adopted for long-term use.[21]

D. DRA Recommends Clarifications To Reflect The Commission's Desire To Maximize The Impact Of SWH Through Integration With EE Programs

DRA supports the PD's requirement for an EE audit and installation of "appropriate" EE improvements, and appreciates that detailed EE requirements will be established via a public workshop process. DRA believes the PD and the SWH program will be strengthened through incorporation of the following clarifications:

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[18] Staff Proposal attached to ALJ Ruling in this docket on July 15, 2009, p. 43.

[19] The PD establishes the need for this tool in OP4, p. 75.

[20] Opening Comments of CALSEIA, August 12, 2009, p. 14.

[21] Incentive caps are discussed in the PD at pages 31 and A-5. DRA recommends adding language regarding the interim $100,000 cap to these sections.

1. The PD should clarify that SWH systems should be sized based not on current hot water usage, but on the reduced hot water use that will result from EE improvements;
2. The workshop on the definition of "appropriate EE improvements" should also define specific energy audit requirements that are consistent with the "Universal Energy Auditing Tool (UEAT)" under development in the EE proceeding[22];
3. The general description of required EE improvements should more appropriately reflect the difficult balance between maximizing SWH market penetration, and the value provided by EE to customers, ratepayers, and society. While CALSIEA correctly states that replacement of dishwashers or clothes washers should not be required,[23] DRA believes the current language does not adequately capture the value EE improvements can provide, and the opportunity that is lost if EE is not pursued when SWH is installed. We provide alternate suggested language in the Appendix to these comments.

Additionally, while DRA appreciates and supports the direction to investigate combined SWH and EE applications, the PD is silent on the Commission's Zero Net Energy (ZNE) initiatives, and how the SWH program will contribute to them.[24] DRA believes that the Commission's multiple demand-side programs should lead to a market for "Clean Green Contractors" who can profit while helping customers install the optimal mix of clean energy technologies. The state's "green jobs" goals will therefore benefit from close coordination of demand-side programs. The PD should be modified to require CSI and SWH program administrators to participate in the statewide Integrated Demand Side Management (IDSM) Task force, and provide that developments within the IDSM forum will be used to update the SWH program.[25]

In addition, while the SWH program ideally will reduce costs and other barriers so that customers adopt SWH systems without government subsidies, market conditions

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[22] Interim enhancements to existing audit tools, and a roadmap for the development of the UEAT are to be provided by the EE program administrators in January 2010 via advice letter, D.09-09-047, OP 33(c), p. 381, and p. 251.

[23] Reply Comment of CALSEIA in this proceeding dated August 24, 2009, p. 8.

[24] ZNE is only possible with some form of distributed generation (DG), yet a CPUC workshop on ZNE held October 19, 2009 included no participation from CPUC or PA DG staff.

[25] D.09-09-047, p. 216.

such as rising prices for raw materials, fluctuating natural gas prices, skilled labor shortages, or reductions in the investment tax credit could forestall the required cost savings. If such circumstances occur, the market transformation objectives of AB 1470 may best be realized by incorporating SWH into building codes as part of a ZNE program. DRA respectfully requests that the PD fully reflect the Commission's "commitment to whole-house or whole building approaches"[26] by explicitly recognizing the importance of solar thermal technologies in the ZNE residential and commercial initiatives, and direct SWH program staff to work with EE program staff to develop effective ZNE programs.

E. Development Of Incentive Calculation Tools Should Include Standards For Reporting Cost-Effectiveness

The cost-effectiveness evaluation performed as part of the SWH Pilot Program was contentious, as indicated by parties' input. Going forward, the Commission must develop a standard means of measuring and reporting cost-effectiveness. A standard measure will allow stakeholders to accurately gauge the program's progress towards cost reductions, performance improvements, and market transformation.

Customers also need accurate and comparable estimates of SWH's money-saving benefits, since SWH providers often refer to such benefits when selling SWH systems. Potential CSI customers should not be forced to compare photovoltaic or SWH bids that use widely varying assumptions about natural gas costs, and discount rates that yield varying predictions of cost savings. It is very confusing to customers, and detrimental to the PD's objective of educating customers, if the market contains widely diverging estimates of the benefits, energy savings, and payback periods associated with installing an SWH system. The Commission should help protect consumers, and the integrity of the SWH industry as a whole, by establishing standards that allow an accurate comparison of bids from different contractors, including comparisons that can be used to efficiently allocate limited roof space between photovoltaic and SWH systems.

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[26] PD, p. 57.

DRA recommends that this issue be addressed in a workshop, and that standard cost-effectiveness reporting guidelines and standards be adopted in an ALJ ruling prior to development and submission of the PAs' market facilitation plans.

F. The PD Should Provide Greater Detail To Ensure The Program Encourages Innovative Low-Cost SWH Systems

DRA strongly supports the PD's goal to generate cost reductions "through market efficiency and innovation,"[27] but believes the PD should offer more specific guidance toward this end. The PD may actually stifle innovation by establishing an incentive level based on the average system price from the very limited SWH Pilot Program interim evaluation, which had limited "low-cost" installations and few commercial systems.[28] The SWH Pilot Program interim evaluation also describes average system costs in China and India which are more than 10 times lower, but subsequently dismisses this figure with the statement that "[t]he cost of systems in China and India is not reflective of the same quality systems being installed in Europe and the U.S."[29] While there is likely some truth to this statement about comparable quality of systems, other sources indicate much lower prices in other countries, including European countries with climates comparable to California:[30]

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[27] Id. at 14.

[28] The Interim Evaluation indicated average system price of $6,518 was based on a 80%/20% mix of small residential/large commercial installations, based on data from Tables 3-1 and 5-2 with no correction for differing time periods. Table 7-14 indicates 0% of SHWPP installation were categorized as "low-cost," but Harpiris' Reply Comments dated August 24, 2009 state that "[l]ow cost Fafco Revolution systems have been installed in the SWH Pilot Program," p. 5.

[29] SWH Pilot Program Interim Evaluation Report, January 16, 2009, p. 5-20.

[30] "Gravity Systems Worldwide: a question of quality and aesthetics," Sun & Wind Energy Magazine, January 2006, p. 32. Note that the article does not specify to what degree "end user price" may include subsidies. This article all states that "worldwide, more than 90% of all solar systems for domestic water heating are based on the thermosiphon principle." Id. at 29.

End User Price for Thermosiphon Systems				
	Euros		Dollars*	
Austria	1,500	2500	$ 1,965	$ 3,275
Greece	600	2,500	$ 786	$ 3,275
Turkey	650	650	$ 852	$ 852
Brazil	500	1,300	$ 655	$ 1,703
China	150	500	$ 197	$ 655
*1.31 $/Euro conversion used by SWHPP evaluation also used here				

The optimal level and structure of program incentives depends on unsubsidized system prices, trends in costs for hardware, labor, and permits, and consumer sensitivity to price. Further investigation is required to ensure ratepayer subsidies result in sustained SWH cost reductions that eliminate the need for subsidies. The Appendix to these comments offers alternative language to expressly allow for adjustments in incentive levels based in the findings of the SWH Pilot Program final evaluation, and other M&E data gathered and analyzed during the program.

Moreover, DRA offers the following recommendations for amendments to the PD to ensure M&E of the SWH program leads to successful evolution of the program:[31]

1. Review interim and final SHW Pilot Program evaluations and determine if results can be used "as-is," or should be augmented or repeated for the statewide program;
2. Provide a public review period for the M&E plan;
3. Include an investigation of SWH technology cost in countries with extensive SWH experience, analysis of the source of cost savings, comparison of cost data, and discussion of how these savings may be achieved in California. This analysis should be much more extensive than the limited SWH Pilot Program market research;
4. The SWH Pilot Program Interim Evaluation finds that conservative freeze protection requirements increase system long-term reliability, but increase up-front costs.[32] The evaluation and SRCC comments both recommend

[31] M&E requirements are discussed in the PD at pages 61 to 63 and A-11 to A-12. DRA recommends adding the numbered paragraphs in text to these sections.

[32] SWH Pilot Program Interim Evaluation Report, dated January 16, 2009, pp. 3-12 to 3-14.

establishing statewide criteria for climate freeze protection.[33] Program M&E should include an investigation of appropriate technologies for coastal vs. foothill vs. desert climates, and how freeze conditions in each climate zone should be treated in the program eligibility requirements;

5. Lower SWH costs in other countries could reasonably be attributed to the use of passive thermosiphon systems, which generally require a tank on the roof.[34] The aesthetics of these systems may be a barrier to adoption in the state. Program M&E should include an evaluation of California perceptions of thermosiphon systems with roof-top storage tanks, and whether this potential barrier can be overcome with SWH program design;
6. While DRA advocates using PBI for large systems, we do not recommend PBI at this time for residential systems due to the high monitoring and administrative costs involved. To facilitate future debate on this issue, the accuracy of the incentive calculation tool developed for large and small systems should be evaluated.

G. Other Recommendations

DRA makes the following additional recommendations for minor changes to the PD:

1. The PD requires "annual advice letters" with proposed market facilitation budgets and activities "for each calendar year."[35] As a market transformation program, the PAs should establish a clear market facilitation strategy with near-term and mid-term objectives consistent with achieving AB 1470 goals by 2018. DRA recommends that the first annual market facilitation advice letter, due October 1, 2010, should include a comprehensive strategic marketing and training plan, which should be adjusted and supplemented in subsequent annual advice letters;
2. The electric displacing SWH program budget includes no guidelines or caps on administrative expenses.[36] DRA recommends that the electric displacing portion of the program have an administration cap of 6%, similar to the gas displacing portion of the program;[37]

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[33] Id., p.3-13 and Comments of SRCC dated August 24, 2009, p. 5.

[34] The storage tank must be higher than the collector, and very few applications provide attic space that is above the collectors and allows inside installation of the tank.

[35] PD, Appendix A, p. 11.

[36] PD, Appendix A, p. 10.

[37] The administration budget for electric-displacing SHW is discussed in the PD at pages 53-56 and A-8 to A-10. DRA recommends adding the 6% cap to these sections.

3. DRA supports the requirement for semi-annual expense reports and recommends that Energy Division provide a template for the semi-annual expense report. The due date for this template should be set in the PD so that the PAs can develop consistent accounting systems and methods from the onset of the program;
4. The PD does not differentiate between multi-family and commercial systems in the budget allocation. DRA recommends that the allocation for multi-family systems in the Staff proposal be retained, that multi-family installations be tracked separately from commercial installations, and that strong participation in the multi-family sector be ensured through the Energy Division monitoring program discussed in section 7.1.4 of the PD;
5. The PD does not mention multi-family systems in the discussion of electric displacing incentives in section 7.2. The PD should clarify if and how multi-family dwellings are included;
6. AB 1460 requires a report to the legislature by July 1, 2010. Section 13 of the PD on M&E should discuss the legislative report.

H. Additional DRA Recommended Topics For Workshops To Aid In The Development Of The SWH Handbook

DRA understands that the PD seeks to implement SWH quickly, and that many important details will be addressed in developing the Program Handbook for each industry segment (residential, non-residential, low-income). To ensure key issues are addressed as the program unfolds, DRA recommends adding workshops or workshop topics to those already described in the PD. In addition to the workshop topics we address in previous sections, two others should be considered:

- Metering and Monitoring (M&M) to establish M&M requirements consistent with the intended usage of the data collected (M&E, PBI payments, etc.); and
- Standards for components and systems, as required by AB 1470, but not explicitly discussed in the PD's implementation schedule.[38]

IV. CONCLUSION

DRA appreciates the opportunity to comment on the PD and offers suggestions to help ensure this new program meets the goals and objectives of AB 1470. Many critical

[38] PU Code Section 2865(b).

program design issues remain to be determined, and DRA therefore recommends adding workshops to those adopted in the decision.

Respectfully submitted,

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APPENDIX A

DRA's Recommended Changes to Findings of Fact, Conclusions of Law and Ordering Paragraphs

Findings of Fact

7. A 16% system cost reduction, as used in the Itron analysis, is a reasonable ~~expectation~~ outcome for a successful SWH Program.

9. The Itron analysis of the cost-effectiveness of a statewide SWH program, to displace both electric and gas water heating, indicates that the program will provide societal benefits over the life of the systems installed in two of the four modeled scenarios.

New Findings of Fact

- A 10-year minimum warranty covering all hardware and labor is required in the general CSI program to ensure photovoltaic system reliability.
- The general CSI program uses Performance Based Incentives paid out over a five-year period to ensure maximum photovoltaic system performance.
- D.09-09-021 requires CSI program administrators to participate in the statewide Integrated Demand Side Management (IDSM) Task force.

Modified Conclusions of Law

1. Based on Itron's analysis, a SWH program may be cost-effective for ratepayers and in the public interest given successful implementation of a SWH program designed to produce sustainable cost reductions and should be adopted.

5. The PAs should develop selection, siting, and installation guidelines and methods to prevent oversizing of systems, and to prevent damage caused by freezing, and include these in the Program Handbook. These guidelines should be climate- zone specific, and should balance the program goals of cost-effectiveness and system reliability.

7. The gas displacing incentive levels proposed by staff are reasonable and should be adopted.~~, with a minor decrease in the Step 4 rate to fund additional systems at the Step 1 level.~~

13. The allocation of a gas displacing SWH incentive budget between residential customers, multi-family projects, and commercial customers proposed by staff are reasonable and should be adopted.~~, We should allocate 20% of the gas displacing incentive budget to residential customers, and allow the remaining 80% of the incentive budget for commercial and/or multifamily projects.~~

26. Appropriate energy efficiency improvements that reduce water heating demand under this program should be ones that are broadly applicable, do not require SWH installers to develop new skills, do not significantly increase project cost without offsetting savings with a reasonable payback period, that do not ~~or~~ delay installation, are easily validated, and are likely to be retained by the customer.

28. To receive incentives, customers should obtain an energy audit and deploy cost-effective and feasible energy efficiency measures that reduce water heating demand and meet our definition of appropriate energy efficiency improvements, as specified in the Program Handbook. The energy audit will be consistent with Universal Energy Auditing Tool (UEAT) developed in the energy efficiency proceeding. SWH systems should be sized based on the reduced hot water use that will result from EE improvements.

30. Market facilitation activities and budgets will be determined by Energy Division through an annual advice letter process. The first market facilitation advice letter should include a strategic plan with specific short term and mid-term milestones and goals towards achievement of the Legislature's goal of creating a self-sustained SWH market by 2018.

New Conclusions of Law

- A 10-year minimum warrantee covering all hardware and labor, consistent with the General Market CSI program, should be required to ensure SWH system reliability.
- Performance Based Incentives paid out over a five-year period should be required for large systems subject to the metering requirements of AB 1470 to ensure maximum SWH system performance.
- Incentive caps for large SWH heating systems should be reduced until such time that Performance Based Incentives are implemented, or until the accuracy of performance estimating tools can be fully vetted.
- Collaboration between Distributed Generation, Energy Efficiency, and Demand Response program staff on Integrated Demand Side Programs, particularly on Commission's Zero Net Energy initiatives, will aide in the attainment the California's greenhouse gas reduction goals.
- Development of a standardized method for reporting the economic benefits of SWH systems will aid in the education of consumers.
- Results from measurement and evaluation studies should be used both for retrospective reporting of program performance, and also prospectively to guide modifications to the Program Handbook

Modified Ordering Paragraphs

3. Within 60 days of this order, the Commission's Energy Division shall hold workshops regarding:

    a. Development of <u>selection,</u> siting, installation, and system sizing requirements to maximize solar water heating system performance and guard against oversizing of systems <u>and damage due to freezing. These guidelines should be climate zone specific, and should balance the program goals of cost-effectiveness and system reliability.</u>

b. Development of an on-line incentive calculation tool that estimates natural gas or electricity displacement based on solar water heating system location, design, and expected performance; and

c. Development of appropriate energy efficiency improvements that reduce water heating demand and that are broadly applicable, do not require solar water heating system installer to develop new competencies, do not significantly increase project costs without offsetting savings with a reasonable payback period, that do not ~~or~~ delay installation, are easily validated on system inspection, and are likely to be retained by the system owner.

d. Development of a standardized method for reporting the economic benefits of SWH systems to customers and policy makers.

e. Develop metering and monitoring standards.

6. Within 90 days of this order, each Program Administrator shall submit a separate Advice Letter that includes: a) a detailed estimate of its program budget for the first year of program implementation, indicating direct and indirect expenses, labor and non-labor, for incentives, administration, market facilitation, and measurement and evaluation; and b) its proposed market facilitation ~~activities~~ strategic plan, and detailed budget for the first two years of program implementation.

10. The Energy Division shall monitor implementation of the California Solar Initiative Thermal Program and notify the Administrative Law Judge and assigned Commissioner if there are great disparities in participation between ~~in either~~ the single-family residential, ~~or~~ commercial, and multifamily budget categories.

11. The Energy Division shall consult with the assigned Commissioner to establish the California Solar Initiative Thermal Measurement and Evaluation budget and scoping plan through an assigned Commissioner's Ruling, subject to public input.

13. In administering the California Solar Initiative Thermal Program, the Program Administrators shall perform all duties specified in Appendix A, including but not limited to the following:

a. Separately submit semi-annual expense reports to the Energy Division using a common template to be developed by Energy Division.

New Ordering Paragraphs

- Within 90 days of this order, the Commission's Energy Division shall hold a workshops regarding application of Performance Based Incentives for systems large SWH systems. Public input from this workshop will be incorporated by the Program Administrators in the commercial and multifamily portion of the CSI Thermal Program Handbook in the advice letter scheduled in Ordering Paragraph 7.
- The Energy Division shall hold a workshop to review the final evaluation of the Solar Water Heating Pilot Program, and determine if changes to the CSI Thermal Program Handbook are warranted, and should be presented by the PAs via the advice letter process.
- The Energy Division shall ensure that results from measurement and evaluation studies are used to prospectively to improve the CSi Thermal Program.
- Within 90 days of this order, the Commission's Energy Division shall provide an expense report template, issued via ALJ ruling.
- CSI program administrators will participate in the statewide Integrated Demand Side Management (IDSM) Task force, and applicable developments within this forum will be used to update the SWH program.

CERTIFICATE OF SERVICE

I hereby certify that I have this day served a copy of "**OPENING COMMENTS BY THE DIVISION OF RATEPAYER ADVOCATES ON PROPOSED DECISION ADOPTING A SOLAR WATER HEATING PROGRAM"** to each party of record on the official service list in **R.08-03-008** via electronic mail.

Parties who did not provide an electronic mail address, were served by U.S. mail with postage prepaid listed on the official service list.

Executed on November 25, 2009 at San Francisco, California.

/s/ ROSCELLA V. GONZALEZ
Roscella V. Gonzalez

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