U/KM/AFM/WPSC

Decision 93739 NOV 13 1981

ORIGINAL

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Application of SEMCOR ENERGY SYSTEMS for exemption from certain checklist requirements of Decision Nos. 92251, 92501 and 92769.	Application 60951 (Filed October 1, 1981)

O P I N I O N

On September 16, 1980, we issued Decision (D.) 92251 establishing demonstration solar financing programs for Pacific Gas and Electric Company, San Diego Gas & Electric Company, Southern California Edison Company, and Southern California Gas Company. We subsequently modified this decision by D.92501, December 5, 1980, and D.92769, March 3, 1981. In these decisions we specified a checklist of requirements for domestic solar water heaters. Solar water heaters must meet all checklist requirements to be eligible for the solar financing programs effective March 1, 1981.

By letter dated September 4, 1981, to the Energy Conservation Branch (ECB), which was docketed as Application 60951 on October 1, 1981, Semcor Energy Systems (Semcor) requested exemption from the OII 42 requirement of 20 gallons of hot water per bedroom per day.

Semcor's Position

Semcor claims that it installs hot water conservation devices and thereby reduces the need for generating 180 therms by solar energy. Semcor claims the following:

I. The Heliophase Microload system concept uses an optimally efficient approach for the production of solar domestic hot water (DWH).

A. The actual domestic hot waterload is reduced through implementation of specific conservation measures, as described in Section II-A.

B. The Heliophase solar array is then sized to satisfy the newly created real load, as described in Section II-B.

C. The result of this procedure is to optimize DHW service, while substantially reducing the system cost to the end user, and reducing the cost to utility ratepayers subsidizing the rebate and low-interest financing options under OII 42, as well as state taxpayers who subsidize the tax credits.

II. Techniques peculiar to Heliophase Microload.

A. Load Reduction

The measures used for DHW reduction are:

1. Reduce the fired tank thermostat temperature to 120°F. (setback).

2. Install flow-restricting devices on showers, lavatories, and sinks, reducing flow rate at the showers to 2.75 gpm and at all other faucets to 1.5 gpm.

3. Install fiberglass insulation blanket(s) to add at least R-6 to the fired DHW tank.

4. Install a bimetallic flue damper on the gas-fired tank.

The resulting load reduction effects claimed by Semcor are shown in Table I.

B. Solar System Array Sizing

The Heliophase Microload system solar array is then sized according to the OII 42 California Solar Domestic Hot Water Sizing Chart Handbook, except that the DHW load is downsized from 20 gallons per bedroom per day, to the level indicated by application of the data in Table I.

Example

A typical three-bedroom residence would be calculated as: 3 bedrooms x 20 gallons per bedroom x 0.648 (35.2% reduction per Table I, resulting in a net load remaining of 64.8%) = 38.9 gallons daily service DHW load.

Square Feet Collector Area Required = Nomagraph Area Factor Per 10 Gallons x 3.89

In effect, Semcor proposes that it provide a 60% solar reduction of energy use after the conservation devices are accounted for.

TABLE I

NATURAL GAS ENERGY SAVINGS THROUGH

LOAD REDUCTION

Equivalent Daily Load Reduction
Btu x 1000

Number of Bdrms	OII 42 Daily DHW Gals	140°F. Present Daily Btu	Temp. Setback to 120°	Flow Restrict	Insul. Add R6	Flue Damper	Daily Saving Btu	% Daily Total Load Reduction
2	40	54.8	5.5	6.1	6.1	3.9	21.6	39.4%
3	60	82.2	8.6	9.1	6.1	5.1	28.9	35.2%
4	80	109.6	11.0	12.2	6.7	7.9	37.8	34.5%
5	100	137.0	13.7	15.2	7.2	9.9	46.0	33.6%
6	120	164.4	16.4	18.3	7.2	11.8	53.7	32.7%

Discussion

In D.92251 we specifically directed the staff to evaluate under a monitoring program "the extent to which solar water heating can be relied upon to provide adequate and reliable supplies of energy". We then adopted, in D.92501, a checklist by which the installer of each system must certify that the system will deliver a net 60% solar fraction. We also required the staff to evaluate applications for exemptions to the rules.

Solar domestic water heating systems monitored in California prior to our sizing requirements have yielded solar fractions well under 60% as installed under uncoordinated industry methods. These units appear to be too small to produce worthwhile savings for their users and for ratepayers. ECB staff does not favor reductions to the present sizing requirements until such time as results of direct monitoring warrant them.

ECB Staff Position

The ECB applauds the use of conservation devices for hot water heaters. Prudent installers already use them while adhering to the required sizing. They do not fall into the category of solar energy, however, and will not be considered a substitute for solar energy generation in this program especially because we do not believe customers who convert to solar should be deprived in any way of normal water usage except on a voluntary basis.

In no case shall gas backup energy be converted to electric backup energy.

Conclusion of Law

The exemptions requested by Semcor for energy savings do not result from the use of solar energy and should not be granted.

O R D E R

IT IS ORDERED that:

1. Semcor Energy Systems (Semcor) is denied the requested exemption to reduce the amount of solar energy generation to 60% after the use of its recommended conservation devices.

2. Semcor and its contractors shall adhere to all currently effective installation requirements set forth in D.92251, 92501, and 92769.

This order becomes effective 30 days from today.

Dated NOV 13 1981, at San Francisco, California.

JOHN E. BRYSON
President
RICHARD D. GRAVELLE
LEONARD M. GRIMES, JR.
VICTOR CALVO
PRISCILLA C. GREW
Commissioners

I CERTIFY THAT THIS DECISION WAS APPROVED BY THE ABOVE COMMISSIONERS TODAY.

Joseph E. Bodovitz, Executive Director