STATE OF CALIFORNIA ARNOLD SCHWARZENEGGER, *Governor*

PUBLIC UTILITIES COMMISSION
SAN FRANCISCO, CA 94102-3298

July 12, 2007 Advice Letter 1540-E

Akbar Jazayeri
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Southern California Edison Company
P O Box 800
Rosemead, CA 91770

Subject: SCE's Review of Potential Load Control Programs

Dear Mr. Jazayeri:

Advice Letter 1540-E is effective June 1, 2001.

Sincerely,

Sean H. Gallagher, Director
Energy Division

SOUTHERN CALIFORNIA EDISON
An EDISON INTERNATIONAL Company

Akbar Jazayeri
Director of Revenue and Tariffs

May 1, 2001

ADVICE 1540-E
(U 338-E)

PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA
ENERGY DIVISION

SUBJECT: SCE's Review of Potential Load Control Programs

PURPOSE

In Decision 01-04-006 (D.01-04-006), the California Public Utilities Commission (Commission) directed Southern California Edison Company (SCE) to explore load control programs for electric uses other than air conditioning (*e.g.*, electric water heaters) and file an advice letter proposing any program it determines to be reasonable.[1] These potential load control interruption programs would be in addition to SCE's existing and expanded air conditioner cycling programs.

This advice filing is being provided for information only.

BACKGROUND

In D.01-04-006, the Commission directed SCE to report on its review of additional load control programs and seek approval of any alternatives that are reasonable.[2] The Commission also directed that SCE's efforts be targeted to residential and commercial customers.

D.01-04-006 implies that a potentially vast source of interruptible load may exist.[3] For some of the opportunities cited in D.01-04-006 (*e.g.*, air conditioners, pool pumps), SCE has already implemented programs.

1 D.01-04-006, Attachment A, Section 2.3.3, p. 5.
2 D.01-04-006, p. 36.
3 D.01-04-006, p. 36.

SCE's air conditioning cycling program contributed approximately 200 MW of interruptible load during the summer of 2000. This program is successful because it is based on years of data regarding loads that contribute to avoidable system peaks, the appropriate curtailment control technologies, customer acceptance of these technologies, overall cost-effectiveness of this program, and the infrastructure requirements to implement and operate such a program. This information is needed in order to develop successful, additional, load control programs.

In D.01-04-006, the Commission essentially doubled the size of SCE's current air conditioning program. SCE has necessarily focused much of its attention on the implementation of its expanded air conditioning cycling programs. SCE has also explored alternatives for additional load control programs as directed by the Commission. SCE has not identified any reasonable alternatives at this time nor has SCE considered what might be an appropriate incentive for such alternatives. SCE will continue to review potential alternatives such as those end-use areas discussed below. To the extent an alternative proves reasonable, SCE will seek permission from the Commission to implement that alternative.

DISCUSSION

A. Potential Load Curtailment Alternatives Reviewed

SCE identified and reviewed the following end-use areas:

- Water pumping;
- Escalators and elevators
- Electric water heating
- Commercial electric vehicle charging

The following sub-sections briefly describe these load curtailment options and identify the information needed to determine if these are reasonable alternatives to existing load interruption programs.

Water Pumping

SCE explored the potential for certain customers' non-essential water pumping loads to be curtailed during peak hours using a one-way pager system technology. Water pumping stations have several well pumps and booster pumps in operation on a typical day. The pumps operate based on a preprogrammed pumping schedule and storage tank level needs. SCE estimates the potential curtailable load in the 3 to 4 MW range.

SCE needs to assess which communication technologies offer the best choice for informing customers of curtailments. These technologies need to be reviewed for technical feasibility, costs, and ease of implementation as well as customer acceptance.

Escalators And Elevators

SCE explored the opportunities available for multi-level department stores and other high rise buildings to reduce elevator/escalator service by 50% during curtailment periods. Escalators typically require 10 and 20 HP motor drives. Many elevators are driven by 30 to 50 HP motor-generator sets. Curtailment opportunities arise due to the fact that the weekday system peak periods are generally not the heavy use periods for elevators and escalators.

SCE's preliminary estimate of the load reduction potential for these alternatives is in the 5 to 6 MW range. This estimate assumes approximately 100 multi-story department stores in SCE's service territory with at least two escalators and one elevator being dropped from service during curtailment periods.

In order to determine if this is a reasonable alternative, SCE needs to assess the sizes and types of systems needed for this option for control systems and other communication needs for such a program, technical feasibility, costs, and ease of implementation. Customer acceptance of such a program must also be assessed.

Electric Water Heating

SCE reviewed potential load curtailment opportunities that may be available through the interruption of electric water heating during peak periods. Most of the electric water heaters in SCE's service territory are in multifamily dwellings and mobile homes. The overall percentage of electric residential water heaters is estimated at about 10% of the total water heaters in use based on 1995 data. SCE's preliminary estimate of potential load curtailment is in the 2 to 3 MW range.

In order to determine if electric water heating provides a reasonable opportunity for load curtailment, SCE needs to assess if such a program is practical as a stand-alone program or if it must be coupled with sites where air conditioning cycling is already implemented. If this is the case, additional equipment will have to be installed to connect the water heater to the air conditioning cycling communication devices. SCE will need to also review the technical feasibility of this option, costs, and customer acceptance.

Commercial Electric Vehicle Charging

SCE reviewed whether opportunities exist to reduce load by curtailing battery charging for a variety of commercial electric vehicles (*i.e.*, non-road electric vehicle applications) during peak periods. Certain electric drive equipment may be adaptable to battery charging interruption strategies. Electric golf carts and industrial electric vehicles (forklifts, sweepers, scrubbers, tugs, shuttles and burden/personnel carries) may offer some load curtailment opportunities. Most of this equipment is presently charged in the late afternoon or in the early evening. One-way control switches similar to air conditioning cycling controllers could be used to interrupt chargers (or charging circuits) during curtailment periods.

In order to determine the potential for this as a reasonable load curtailment opportunity, SCE will need to assess the potential curtailable load, the technical feasibility of needed equipment, overall costs and customer interest and acceptance of such a curtailment program. Further, SCE needs to assess and develop information on customer use patterns, charger loadings, and communication systems.

B. Additional Evaluation of Electric Load Curtailment Opportunities

As the information discussed above demonstrates, significant additional assessment is needed to determine if any of these end-use areas will produce a reasonable opportunity that can be pursued as a load curtailment program. SCE will continue to review the load curtailment options described in this report utilizing standard feasibility analysis. SCE will also continue to research the technology requirements and the cost and benefits of the possible alternatives. If it appears that a particular load reduction approach is cost-effective and can contribute a material load reduction, SCE will determine the appropriate level of incentive that can be paid to customers and will develop the tariff terms and conditions for Commission approval.

In further assessing potential opportunities, SCE will screen potential alternative load reduction strategies using a simple total potential kW reduction criterion. In addition, the assessment criteria will also look at the number of individual end points because this has a significant bearing on implementation feasibility and program costs.

Hardware and software requirements are also major assessment criteria SCE will employ. As SCE has found on occasion with the air conditioner programs and other programs requiring interval meters, there simply may not be an adequate equipment inventory and lead times may be as long as several months. Additionally, the availability and training of staff or contractors who know how to install and maintain the devices, the ease and simplicity of control technology and

installation, and finally its reliability are all important assessment criteria that SCE will use to assess potential options.

Finally, SCE will examine the total cost per kW of load reduction, customer acceptance, and any conflicts with existing programs.

No cost information is required for this advice filing.

This advice filing will not increase any rate or charge, cause the withdrawal of service, or conflict with any other schedule or rule.

NOTICE

In accordance with Section III, Paragraph G, of General Order No. 96-A, SCE is mailing copies of this advice filing to the interested parties shown on the attached service list and interested parties in R.00-10-002. Address change requests to the attached GO 96-A Service List should be directed to Emelyn Lawler at (626) 302-3985 (E-mail: Emelyn.Lawler@sce.com).

Further, in accordance with Public Utilities Code Section 491, notice to the public is hereby given by filing and keeping the advice filing open for public inspection at SCE's corporate headquarters.

For questions, please contact Mark Wallenrod at (626) 302-8331 or by electronic mail at Mark.Wallenrod@sce.com.

Southern California Edison Company

Akbar Jazayeri

AJ:pk/eml
Enclosures