

Title:

LODGING INDUSTRY ENERGY EFFICIENCY PROGRAM
FOR SCE SERVICE TERRITORY

Submitted to:

California Public Utilities Commission
R.01-08-028
2004/2005 Non-Utility Energy Efficiency Program Selection

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Other Programs Proposed:

Lodging Industry Energy Efficiency Program
for PG&E Service Territory

Lodging Industry Energy Efficiency Program
For SoCalGas Service Territory

Public Swimming Pool Pump Energy Efficiency Program
For PG&E Service Territory

Public Swimming Pool Pump Energy Efficiency Program
For SCE Service Territory

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I. PROGRAM OVERVIEW

I.A PROGRAM CONCEPT

AEV, Inc. (AEV) proposes to implement a Lodging Industry Energy Efficiency Program as a Non-Utility Nonresidential Energy Efficiency Program in the service territory of Southern California Edison Company (SCE) for Program Years 2004 and 2005. The Lodging Industry Energy Efficiency Program is focused on improving energy efficiency for small lodging facilities by directly installing compact fluorescent lamps to replace incandescent lamps throughout the guest rooms of the lodging facilities that participate in the program.

I.B PROGRAM RATIONALE

Most small hotels and motels in SCE's service territory are owned and operated by individuals whose primary interest and concentration are on maintaining a profitable operation. With their primary focus on running their business, owners and operators of small hotels and motels generally do not have the time available to attend seminars or to read and digest materials mailed to them. Complicating this picture is the fact that many owners/operators of small hotels and motels are first-generation immigrants for whom English is not their first language. Because of these various reasons, owners/operators of small hotels and motels are a hard-to-reach market. Nevertheless, most owners of small hotels and motels are business-savvy and responsive to ways to reduce their costs or improve the quality of service they offer their customers.

Because of previous work performed for Southern California Gas Company, information is available identifying small lodging facilities in SCE's service territory who have indicated their interest in having compact fluorescent lamps installed in guest rooms. Thus, the Lodging Industry Energy Efficiency Program uses a targeted, direct install approach through which we directly install compact fluorescent lamps at these already-identified lodging facilities.

Note that we are also proposing a Lodging Industry Energy Efficiency Program for the service territory of Southern California Gas. Under that program, we would directly install low-flow showerheads in hotel/motel guest rooms. If we are selected to perform both programs, the work efforts would be coordinated to deliver both types of measures as appropriate.

I.C PROGRAM OBJECTIVES

The primary objective for the Lodging Industry Energy Efficiency Program is to provide long-term electric savings and demand reductions by directly installing compact fluorescent lamps to replace incandescent lamps in the guest rooms of small hotels and motels that have expressed their interest in having such lamps installed. A summary of the quantitative objectives for the proposed Lodging Industry Energy Efficiency Program in SCE's service territory is provided in Table I-1.

*Table I-1. Summary of Quantitative Objectives
for Lodging Industry Energy Efficiency Program in Service Territory of SCE*

Program Name	Lodging Industry Energy Efficiency Program
Utility Service Territory	SCE
Program Type	Direct Install
Target Sector	Lodging
NR Customer Size	Very small and small
Performance Target	24,000 CFLs installed in lodging facilities
Annual kWh Savings Target	794,880 kWh
Annual Peak kW Reduction Target	76.8 kW
Annual Therm Savings Target	N/A
Total Program Budget	\$253,420
TRC	1.67
PT	7.69

Besides its energy savings objectives, the Lodging Industry Energy Efficiency Program has other considerations recommending its implementation.

- It has strong equity considerations in that it is targeted toward a segment of the market that has traditionally been hard to reach with other programs.
- It is an innovative program, using a one-to-one marketing approach to improve energy efficiency for small hotels and motels.

II. PROGRAM PROCESS

II.A PROGRAM IMPLEMENTATION

Implementing the Lodging Industry Energy Efficiency Program involves (1) contacting those hotels and motels previously visited under SCE's Lodging Industry Energy Education Program, (2) recruiting these hotels/motels to have compact fluorescent lamps installed, and (3) actually installing the compact fluorescent lamps. Our marketing plan for achieving the first step is described in Section II.B. Our approach to the other two steps is discussed in this section.

Upon arriving at a hotel or motel to recruit them for the program, we first work with the hotel/motel owner/operator to determine the feasibility of replacing existing incandescent lamps with compact fluorescent lamps. If it is determined that such replacements are feasible, we get the approval of the owner/operator for our direct installation of compact fluorescent lamps throughout the hotel/motel's rooms. We have the owner/operator sign an agreement that authorizes us to install the compact fluorescent lamps throughout the guest rooms in the hotel/motel. After obtaining the signed agreement, we undertake the installation of the compact fluorescent lamps in all of the guest rooms.

We make a follow-up call to each owner/operator at 4 weeks after the site visit. Through this call, we determine whether there have been any problems with the installed lamps.

II.B MARKETING PLAN

Under previous work for Southern California Gas Company (the Lodging Industry Education Program), nearly 1,300 small hotels and motels in SCE's service territory were visited on-site and energy efficiency improvements that they could make were identified. Typically, the decision-makers at the hotels/motels were most interested in low flow showerheads and compact fluorescent lighting.

Because these hotels and motels have already been visited once and provided information about energy efficiency, the marketing plan for the proposed Lodging Industry Energy Efficiency Program involves again contacting them and recruiting them to have compact fluorescent lamps installed.

We re-contact each of the owners/managers of the small hotels or motels previously visited through telephone. We remind them of the previous energy efficiency visit and inform them of the new offer of replacing incandescent lamps in their guest rooms with compact fluorescent lamps.

II.C CUSTOMER ENROLLMENT

The customer enrollment process for the Lodging Industry Energy Efficiency Program is straightforward in that a small hotel or motel is enrolled into the Program at the time of the on-site visit to install the compact fluorescent lamps.

II.D MATERIALS

The compact fluorescent lamps that we install through the Lodging Industry Energy Efficiency Program will meet the following specifications:

- Unit shall operate between 95 and 125 VAC
- Unit shall have a standard compact screw in base designed to fit a standard lighting socket
- Threads shall have a brass coating
- Lamps shall come in 18, 20, 25, and 30 Watt models.
- Unit shall have an integral lock ring to prevent theft.
- Unit shall come with an approval from a testing agency such as Underwriters Laboratories.

We procure the compact fluorescent lamps by soliciting bids from suppliers. Candidate suppliers include the following:

- Graybar Electric
- Consolidated Electrical
- Nunn-Royal Electric
- Home Depot
- Wal-Mart
- Ace Hardware

II.E PAYMENT OF INCENTIVES

No direct incentives are paid to the small hotels and motels that participate in the Lodging Industry Energy Efficiency Program. Rather, hotels and motels have compact fluorescent lamps installed at no cost to them.

II.F STAFF AND SUBCONTRACTOR RESPONSIBILITIES

Our staffing structure and responsibilities for the Lodging Industry Energy Efficiency Program are shown in Table II-1.

Table II-1. Staffing Structure and Responsibilities

<i>Name</i>	<i>Title</i>	<i>Responsibilities</i>	<i>% Available</i>
Meir Ezer	President – AEV, Inc.	Administrative / Technical Advisor	15%
Ivan Varadi	Vice President – AEV, Inc.	Project manager - day to day project supervision	20%
Oscar Krausz	Electrical Engineer	Installation Supervisor	15%
Technician	AEV Field Staff	Field staff	100%
Technician	AEV Field Staff	Field staff	100%
Mahmoud Fouladi	Associate - ADM Associates, Inc.	Field supervisor	20%

II.G WORK PLAN AND TIMELINE FOR PROGRAM IMPLEMENTATION

Our proposed timeline for implementing the Lodging Industry Energy Efficiency Program in SCE’s service territory is shown in Table II-1. This timeline is for a program covering PY 2004 and PY 2005.

Table II-1. Timeline for Implementing Lodging Industry Energy Efficiency Program in the Southern California Edison Co. Service Territory

<i>Activity</i>	<i>Target Date</i>
Program Begins	February 2, 2004
Program Implementation Plan	February 20, 2004
Evaluation, Measurement & Verification Plan	March 15, 2004
First Quarter Report	April 30, 2004
Second Quarter Report	July 31, 2004
Third Quarter Report	October 31, 2004
Fourth Quarter Report	January 31, 2005
Fifth Quarter Report	April 30, 2005
Sixth Quarter Report	July 31, 2005
Seventh Quarter Report	October 31, 2005
Eighth Quarter Report	December 31, 2005
Program Deadline	November 30, 2005
Final Report	December 31, 2005

III. CUSTOMER DESCRIPTION

III.A CUSTOMER DESCRIPTION

The Lodging Industry Energy Efficiency Program is targeted at owners/operators of small hotels/motels in the service territory of Southern California Edison. Based on our previous work with hotels and motels in southern California, most of the targeted hotels and motels will have individual owners. Moreover, we expect that nearly three-fourths of the targeted lodging facilities will be the only one owned by the particular owner/operator.

III.B CUSTOMER ELIGIBILITY

Hotels/motels that are eligible for the Lodging Industry Energy Efficiency Program are those previously visited under Southern California Gas Company's Lodging Industry Energy Education Program. There are about 1,300 such hotels and motels in SCE's service territory.

III.C CUSTOMER COMPLAINT RESOLUTION

To allow for customer questions or complaints, we establish a toll-free ("800") telephone line that can be accessed by small hotels and motels in SCE's service territory. Firms can use this line to request information about the Lodging Industry Energy Efficiency Program, to request a visit, or to place a complaint. We respond to any requests or complaints within 3 days.

Each information or complaint call is documented on a computerized form. This form provides for the recording of caller profile information, date and time of the call, nature of the call, resolution of the call, and any other relevant information. All complaint forms are maintained in a computerized database that will be accessible by SCE and CPUC personnel for verification and auditing purposes.

Corrective actions for complaint calls are taken as appropriate and documented on the form. Cases where actions or verification visits are pending are kept in an active status file. Closed cases where problems have been resolved are retained to ensure documentation of problems and their solutions.

Periodic reports that summarize the number of information/complaint calls, the complaint backlog, and the time required for resolving complaints are prepared and included in the quarterly reports to SCE.

III.D GEOGRAPHIC AREA

We are proposing to implement the Lodging Industry Energy Efficiency Program in SCE's service territory.

IV. MEASURE AND ACTIVITY DESCRIPTIONS

IV.A ENERGY SAVINGS ASSUMPTIONS

The compact fluorescent lamps that will be installed through the Lodging Industry Energy Efficiency Program provide electric savings. Estimates for the electric savings and demand reductions from installation of a compact fluorescent lamp are available in the DEER database. However, the savings estimates that we use for compact fluorescent lamps are somewhat lower than the DEER estimates because the data collected in earlier work for SoCalGas relating to the lodging industry indicated that the number of operating hours for small hotels and motels was less than assumed for the DEER estimates.

IV.B DEVIATIONS IN STANDARD COST-EFFECTIVENESS VALUES

None of the cost-effectiveness variables that we have used deviate in value from those prescribed in the Energy Efficiency Policy Manual or the CEC's DEER database.

IV.C REBATE AMOUNTS

Compact fluorescent lamps will be directly installed through the Lodging Industry Energy Efficiency Program. No rebates are made for the lamps, nor will we request the rebates that are available through the utilities' statewide programs.

IV.D ACTIVITIES DESCRIPTIONS

There are no other activities in the Lodging Industry Energy Efficiency Program that are expected to produce measurable energy savings.

V. GOALS

The overall goal for the Lodging Industry Energy Efficiency Program is to deliver electric savings and demand reductions for small lodging facilities in SCE's service territory in the numbers shown in Table V-1.

Table V-1. Targets for Numbers of Installed CFLs, Electric Savings, and Demand Reductions for Lodging Industry Energy Efficiency Program in SCE Service Territory

<i>Program Year</i>	<i>Numbers of CFLs</i>	<i>Electric Savings (kWh)</i>	<i>Demand Reductions (kW)</i>
PY 2004	9,600	317,950	30.7
PY 2005	14,400	476,940	46.1
Total	24,000	794,880	76.8

VI. PROGRAM EVALUATION, MEASUREMENT AND VERIFICATION

VI.A APPROACH TO PROGRAM EM&V

This section discusses our approach to performing the evaluation, measurement and verification work for the Lodging Industry Energy Efficiency Program and to reporting on program progress.

AEV will contract with an independent third party who is not affiliated with AEV to evaluate the Lodging Industry Energy Efficiency Program and to measure and verify its claimed energy savings and measure installations. To assist the independent contractor in performing the M&V work, we collect needed data during the implementation of the program. Types of data needed include the following:

- Wattage of incandescent light bulbs removed;
- Wattage of compact fluorescent lamps installed
- Number of lamps installed.
- Occupancy rate;
- Savings per compact fluorescent lamp installed;

Because compact fluorescent lamps are a standardized energy efficiency measure, we expect that deemed savings values that can be stipulated (e.g., from DEER) can be used for the installed lamps.

We use a tracking system to keep track of the number of small hotels and motels at which compact fluorescent lamps were installed and the numbers of lamps installed. During the implementation of the program, we collect data on participants that we enter into a program tracking system. We already have a system for tracking the work that is based on previous work that we performed for hotels and motels in southern California. This tracking system is a full system that includes procedures, policies, protocols, forms, data entry and the data storage methods. The system is up and running and will require little modification to tailor it to meet the data collection and reporting requirements involved our implementing the Lodging Industry Energy Efficiency Program.

We use the system to track specific types of information that enable us to evaluate the progress of the program and our efforts. The information that we track includes the following:

- Name and address of each lodging facility visited;
- Basic characteristics of hotel/motel (e.g., number of rooms); and
- Number of compact fluorescent lamps installed at each hotel/motel.

At the end of the program, we provide the data in the tracking system to the selected EM&V contractor to support the preparation of an evaluation of the program's effects. This evaluation will include information about all activities undertaken as part of the program, including the number of hotels/motels that received services through the Lodging Industry Energy Efficiency Program and the specifics on the compact fluorescent lamps installed at each. Estimates of savings are also provided for each hotel/motel.

VI.B POTENTIAL EM&V CONTRACTORS

Potential EM&V contractors for the Lodging Industry Energy Efficiency Program include the following firms:

- Robert Mowris and Associates
- Sisson and Associates
- Ridge and Associates
- Itron (RER)

Each of these firms was an EM&V contractor for programs funded by the CPUC for 2002/2003 and have the capabilities and experience required to perform the evaluation of the Lodging Industry Energy Efficiency Program.

VII. DESCRIPTION OF QUALIFICATIONS

This section provides information on the qualifications of AEV, Inc. (prime implementor), ADM Associates (subcontractor) and of the personnel who will be the staff for the Lodging Industry Energy Efficiency Program.

VII.A QUALIFICATIONS OF AEV, INC. (PRIME IMPLEMENTOR)

AEV's ability to implement the Lodging Industry Energy Efficiency Program is based on our considerable experience in working with small business firms to improve energy efficiency.

AEV Associates, Inc. (AEV) is a consulting engineering firm with over 45 years of experience in the design of building Mechanical & Electrical systems. We enjoy a national reputation as an organization of highly-trained professional engineers that take pride in providing innovative and cost effective designs, using the latest engineering knowledge and analytical tools. The firm has provided engineering services for over 2,000 projects with a construction cost of over one billion dollars.

Our goal is to design the systems within the construction budgets of our clients utilizing the unique mix of qualifications of our staff. Our philosophy in conducting business is: (1) Dedication to serving our clients needs, (2) Sound business management, (3) State of the art energy efficient design of systems, (4) Reduced construction costs by creative use of our extensive experience, and (5) utilized state funds to enhance our design at no cost to the client.

AEV operates under the leadership of Meir Ezer, P.E. as President and Director of Engineering. The Plumbing & Fire Protection Division is headed by Ivan Varadi, C.I.P.E., Vice President. AEV offers services in master planning, feasibility studies, preliminary design, preparation of construction documents, cost estimating, construction administration and building commissioning service. Specific specialties include: (1) the design of heating, ventilating, and air-conditioning (HVAC) systems, central heating/cooling plants, and (2) plumbing, sanitation process piping and fire protection sprinkler systems. AEV provides complete architecture and engineering services when the mechanical disciplines are the major component of the project.

AEV also provides research and energy related studies of buildings. AEV has resources available to conduct studies requiring computer simulations and analysis, and monitoring and evaluation of energy systems. AEV provides comprehensive design evaluations of alternative energy systems, and utilization of Utility and state funds for incorporation of energy efficiency into the design of building systems.

The following tables summarize recent projects performed by AEV, Inc.

OFFICE BUILDINGS

150 Almaden - San Jose	15 story, 600 Tons
1901 Avenue of the Stars - L.A.	20 story, 480,000 SF
Atlantic Pacific - L.A.	30 story, 500,000 SF
California Bank - Beverly Hills	12 story
Cannon Films Office Bldg. - L.A	35,000 SF
Evans Product Building - Portland, OR	18 story, 1800 Tons
Financial Plaza of Pacific - Honolulu-HI	3 Bldgs, 7, 12, & 21 story
First National Bank of Oregon - Portland, OR	40 story, 841,000 SF
Glendale Federal - Beverly Hills	11 story HVAC renovation
Kaiser Permanente Medical Center - L.A	Remodel 3 story, 36,000 SF
Las Vegas office building - Las Vegas, NV	2 story, 37,000 SF
One Wilshire - L.A.	30 story, 670,000 SF
Pacific Gateway II - L.A	10 story, 520 Tons
Rox-San - Beverly Hills	10 story, HVAC renovation
Screen Actors Guild - Burbank	8 story, 410 Tons
Sherman Terrace - L.A.	5 story, 62,000 SF, 130 Tons
The City - Orange	18 story, 400,000 SF
Wilshire Fairfax - L.A.	16 story, 620 Tons

COMMERCIAL CENTERS

Broadway Plaza - L.A.	Shopping Mall; 500 Room, 23 story Hotel; 32 story office, 723,000 SF
Broadway Department Stores	16 locations each 160,000 SF
Culver Studios Parking - Culver City	3 Level underground, 150,000 SF

HOTELS

Beverly Hills Hotel - Beverly Hills	Master Plan & Remodel 300 rooms Addition 150 Room, 4 story
Four Seasons - Newport Beach	19 story, 600 Tons
Harrah's Lake Tahoe - Lake Tahoe, NV	Hotel & Casino 12 story
Hyatt Regency - Phoenix, AZ	735 Room, 14 story, 600,000 SF
Hyatt Regency - Dearborn, MI	700 Room, 14 story
La Mirada Holiday Inn - La Mirada	8 story
MARINA Beach Hotel - Marina del Rey	9 story
Marina Plaza Hotel - Marina del Rey	9 story
Ritz Carlton - Laguna Niguel	440 room, 4 story

Riviera - Las Vegas, NV	Addition & Remodel
Sahara Reno - Reno, NV	Addition 200 Room, 2 story Hotel & Casino

RESIDENTIAL

Century Park Apartments - L.A.	480 Apartment, 20 story
Elysian Apartments - Long Beach	200 Apartment, 13 story
Grand Promenade - L.A.	406 Apartment, 25 story
Merv Griffin Residence - L.A.	Office conversion to residential 3 story, 40,000 SF
Skyline Phase II - L.A.	250 Apartment, 14 story
Sunset Heights - L.A.	200 Apartment, 13 story
The Corinthian - L.A.	18 story
The Diplomat, L.A.	18 story, 177,000 SF
The Evian - L.A.	34 story
Western Addition - San Francisco	200 Apartment, 15 story

HOSPITALS

Beekman Hospital - New York, NY	8 story, 1,800 Tons
Camarillo State Hospital - Camarillo	Remodel 5 wards
Cedars-Sinai Medical Center - L.A	Remodel Outpatient Imaging - 12,600 SF Addition Emergency Dept., 23,000 SF Remodel Emergency Facilities, 33,000 SF
Duke University Medical Center - Durham, NC	2 Bldgs 5 & 8 story, 780,000 SF
Estelle Doheny Eye Hospital - L.A.	Addition, 4 story, 43,200 SF over 2 existing stories & garage
Hawthorne Community Hospital - Hawthorne	Addition, 80 Beds
Hoag Memorial Hospital - Newport Beach	MRI Facility, 5,000 SF
Inter-Community Medical Center - Covina	Off Hour CHW System, 20 Tons HVAC Evaluation, 1,590 Tons
Jewish Home for the Aged - Reseda	99 bed, 3 story
La Mirada Hospital - La Mirada	200 Bed
Martin Luther King Medical Center - L.A.	Remodel Neonatal Intensive Care
Methodist Hospital - Arcadia	3 story
Metropolitan State Hospital - East	Remodel 3 story, 200,000 SF

Norwalk Metropolitan State Hospital - West	Remodel, 3 story
Norwalk Rancho Los Amigos Medical Center - Downey	Patient Support, 3 story, 176,000 SF
Santa Ana Community Hospital - Santa Ana	Addition, 40 Beds
Santa Ana Medical Center - Santa Ana	9,000 SF Addition
Sherman Oaks Community Hospital - Sherman Oaks	3 story, Burn center
Sierra View District Hospital - Porterville	Patient tower 6 story, 85,000 SF
Temple Hospital - L.A.	Addition/Remodel, ER & utilities Remodel ETO sterilizer
Timken-Surges Research Lab - La Jolla	Remodel, 3 story
University of Wisconsin Medical Center - Madison, WI	Addition, 50,000 SF
Veterans Administration Hospital - Long Beach	2,600,000 SF
Veterans Administration Hospital - Loma Linda	Remodel, 3 story
Veterans Administration Hospital - WLA	500 Bed, 640,000 SF
	Addition & Remodel 15,000 SF Replace emergency generator cooling tower

UNIVERSITIES & COLLEGES

California State University - Fullerton	Auditorium/Fine Arts, 1,200 Seats 92,000 SF
California State University - Long Beach	Audio Visual Center & Library 7 story, 210,000 SF
California State University - L.A.	Engineering & Computer Science, 6 story with ice storage
California State University - Pomona	Remodel Biological Science, 3 story 15,000 SF
California State University - San Bernardino	Library 5 story, 280,000 SF
	Music building, 2 story, 26,000 SF
	Central CHW Plant, 3,200 Ton additions, 1,100,000 gal. TES
	University Hall, 5 story, 135,000 SF
	Campus DOC Energy Management System
	Energy Improvement HTHW

California State University - San Jose	System & CHW distribution
	Engineering & Computer Science,
	4 story addition 171,000 SF
	3 story remodel 153,000 SF
Occidental College - L.A	Central Heating Plant Renovation
Stanford University - Palo Alto	Library 5 story, 330,000 SF
	Dorm Heating Plant
University of California - L.A.	Arts Complex: 1200 & 200 seat
	theaters, support area & art gallery
	Remodel SEAS Boelter Hall, 7
	story, 61,500 SF
	Remodel Ueberoth Bldg
	Library 260,000 SF; Biology
	150,000 SF
	Remodel Faculty Center, 18,000
	SF
	Remodel Murphy Hall-residence
	Hospital Telecommunication
	Center
University of California - San Diego	Fine Arts 91,000 SF
University of California - Santa Barbara	Engineering 5 story 180,000 SF
	Drama 400 Seats
	Office 68,000 SF
	Residence Halls, 1400 units
University of Hawaii - Honolulu, HI	Library 4 story, 107,00 SF

JUNIOR/MIDDLE, HIGH SCHOOLS

LAUSD

Bancroft Junior High

Belmont High

Hale Middle

Washington High

Westchester High

Air Conditioning Addition

Air Conditioning Upgrade

Reconstruction

Culver City High - Culver City

Addition

Lompoc High - Lompoc

North High - Santa Maria

Quartz Hill High - Lancaster

South High - Torrance

Gymnasium

Torrance High - Torrance

Administration Building

New Heating Facilities

ELEMENTARY SCHOOLS

LAUSD

Arlington	
Berendo	
Cahuenga	Bond Repair/Reconstruction
Canoga Park	
Castelar	Bond Repair/Reconstruction
Cienega	
Darby	Air Conditioning Addition
Herrick Street	
Justice Street	
Langdon Avenue	
Osceola Street	
San Pedro	
Sherman Oaks	Air Conditioning Addition
Sierra Park	
Superior Street	
Trinity	
Woodcrest	Reconstruction
Woodland Hills	Air Conditioning Addition
Horace Mann - Beverly Hills	
Madison - Torrance	

PRIVATE SCHOOLS

Art Center - L.A	
Campbell Hall - North Hollywood	
Hillel Hebrew Academy - Beverly Hills	3 story and subterranean parking
McKinley Home for Boys - San Dimas	
School of the Handicapped - L.A	

THEATERS & ENTERTAINMENT CENTERS

Beaver Creek Center of the Arts-Beaver Creek, CO	519 seat Community Theater & Art gallery
California State University - Fullerton	Audio Visual Center & Library, 2 story, 210,000 SF
California State University - L.A	Full Stage Theater, 1,200 seats
California State University - Pomona	Music 2 story, 26,000 SF
Cannon Film Recording Studios - L.A	40,000 SF
Century City Entertainment Center - L.A	2 Theaters & Shopping Center
Compact Video Entertainment Center - L.A	7 story, 120,000 SF
Dance Gallery - L.A	Dance Complex, 77,000 SF 8,500

	SF
Edwards Film Theaters - Alhambra	
Edwards Film Theaters - La Verne	
Edwards Film Theaters - Mission Viejo	
Forum - Inglewood	Sports Arena, 17,500 seat
Hayashi Recording Studios - L.A	4,000 SF
Honolulu Municipal Stadium - Honolulu, HI	500 seats
Laemmle 7 Plex Cinema - Pasadena	
Mann Film Theaters - El Monte	
Mann Film Theaters - San Diego	
Twentieth Century Fox - L.A	Drama 400 seats & Office 68,000 SF
University of California - San Diego	Fine Arts, 91,000 SF
University of California - Santa Barbara	Remodel, 75,000 SF
Warner Brothers Studios - L.A.	2 story, 10,000 SF

MILITARY, INDUSTRIAL & SPECIAL PROJECTS

Air National Guard Facilities - Point Mugu	84,000 SF
Beckman Laser Institute, UCI - Irvine	140 Tons
Camp Pendleton	BEQ Mess Hall
Flight Simulator - El Toro	2 story, 250 Tons
General Motors - Van Nuys	Paint Facility, 6,000 Tons, 900,000 CFM
George Air Force Base - Victorville	Service Building
Long Beach-Los Angeles Rail Transit Shops (Blue Line)	Car Maintenance, 120,000 SF
L.A. County Museum - L.A.	Remodel & Addition
Marine Corps Airfield	Aircraft Training
Norton Air Force - Norton	4 story
Norwalk-El Segundo Rail Transit Shops (Green Line)	Car Maintenance
Point Mugu Naval Airfield - Point Mugu	Technical Building
Sarah Mellon Sciff Pavilion - Pittsburgh, PA	150,000 SF
Turf Paradise - Phoenix, AZ	Race Track

CORRECTIONAL FACILITIES

77th Street Regional Police Facility - L.A	Police & Jail 200 bed, 106,700 SF
Alhambra Police Facility - Alhambra	Police & Jail, 46 bed, 56,400 SF
Chuchawalla Valley State Prison - Riverside	Corrections to Thermal Fluid System
Contra Costa/West County Justice Ctr - Martinez	Detention Facility, 232,000 SF
Imperial County Prison - North	4,200 Ton Central CHW Plant & Propane Systems
Imperial County Prison - South	4,400 Ton Central CHW Plant Emergency Generator & Propane Systems
Los Angeles Reception Center - L.A	Detention Facility 1,450 bed, 520,000 SF

REHABILITATION & HVAC SYSTEM UPGRADES

Atlantic Richfield Plaza - L.A.	Office, two 52 story Towers
Beverly Hills Hotel - Beverly Hills	Energy Utilities Master Plan
Glendale Federal Building - Beverly Hills	Office, 10 story, 500 Tons
LACO South Central Social Services - L.A	Office, 2 story, 200 Tons
LACO Lincoln Heights Social Services - L.A	Office, 2 story, 120 Tons
Long Beach Water Department - Long Beach	Office, 4 story
Music Center/Mall Garages - L.A	Supply & Exhaust systems
Pacific Telephone Company - LA	Utility, 2 story
Rox-San Building - Beverly Hills	Office, 10 story, 160 Tons
State of California - Sacramento	Office, 4 story, 270,000 SF

SHOPPING CENTERS/RETAIL FACILITIES

Emporio Armani - Beverly Hills
Fontana Shopping Center - Fontana
Gardena Mall - Gardena
Giorgo Armani - Beverly Hills
Grand Terrace Shopping Center - Grand Terrace
Guess - Beverly Hills
Hemet Shopping Center - Hemet

Palmdale Shopping Center - Palmdale
 Redlands Shopping Center and Theaters
 - Redlands
 Riverside Shopping Center - Riverside
 Victorville Shopping Center - Victorville

RELIGIOUS INSTITUTIONS

Calvary Church of Pacific Palisades	Sanctuary & Classroom Complex, 100,000 SF
Church of Jesus Christ of the Latter Day Saints - Van Nuys	
Church of the Nazarine - Houston, TX	
Church of the Nazarine - Garden Grove	
Lutheran Church - Anaheim	
Maria Regina Korean Apostle Church - Torrance	
Self Realization Fellowship - Pacific Palisades	
Temple Beth Shalom - Whittier	
Temple Judea - Encino	

CENTRAL PLANTS

California State University - San Bernardino	3,200 ton refrigeration with 1,100,000 gallon CHW storage Campus DOC energy management system Campus energy improvement HTHW system & CHW distribution
Imperial County State Prison, North	4,200 ton refrigeration CHW plant distribution & propane system
Imperial County State Prison, South	4,400 ton refrigeration CHW plant & propane system
Occidental College - L.A	9800 MBH co-generator and boiler plant

STUDIES

9454 Wilshire Blvd. Office Building - L.A.	HVAC Master Plan
Alhambra Police Facility - Alhambra	Energy Efficient measures
California State University - San Bernardino	Chilled Water Master Plan

Four Seasons Hotel - Newport	Campus Energy Management Feasibility
Hillel Hebrew Academy - Beverly Hills	Thermal Storage
Intercommunity Medical Center - West Covina	HVAC Master Plan
Occidental College - LA	Evaluation of HVAC Systems
	Chilled Water Master Plan
	Steam Master Plan

RESTAURANTS

Camachos Restaurant - Universal City Walk
Depot Restaurant - Torrance
Gladstones - Universal City Walk
Health Research, ER Restaurant - Los Angeles
Perfectly Sweet - Alhambra
Rialto Cafe - Torrance
Suzuki Restaurant - Inglewood
Western Bagel - Burbank, Chatsworth, Granada Hills, Northridge
Wizard - Universal City Walk

Commissioning Projects	
Project Name / Location	Description of Commissioning Activities
Koss Wil Center	Chiller Test
1990 Ave. of the Stars	Garage Ventilation CO control system
MaMaison Hotel	AHU Variable Air Volume System
Cal Mart	Chiller system test
6500 Wilshire Blvd	AHU Variable Air Volume System
CBS - TES	Ice Storage system test.
6464 Sunset Blvd.	Chiller and VAV AH systems
Porter - Manufacturer	Chiller and VAV AH systems
Union Center	AHU Variable Air Volume System
USC	AHU System
660 South Figueroa	AHU Variable Air Volume System
Westwood GTY	AHU Variable Air Volume System
JCP Northridge	HVAC System, Chiller AHU & Pumps
JCP Canoga Park	Chiller system test
Eisenberg	Chiller system test
Warner Gaty	Air system test
Robinson May - Loral	Chiller system test

Robinson May - Eagle El-Capitan 77 th Street Police Facility Envest - GSA Holifield	Chiller system test Chiller and Ice Storage system test Complete HVAC test HVAC system, cooling tower, and CO Garage exhaust system
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VII.B QUALIFICATIONS OF ADM ASSOCIATES, INC. (SUBCONTRACTOR)

Since beginning business in 1979, ADM Associates, Inc. has worked with utilities throughout the country to implement large-scale programs to help small commercial firms use energy more efficiently. We have conducted programs to market energy efficiency services to small business firms for various clients, including the California Energy Extension Service, the Bonneville Power Administration, Entergy Services, Northern States Power, El Paso Electric, and Colorado Springs Public Utilities Department.

Our ability to inform owners/operators of small businesses about energy efficiency opportunities derives more generally from our hands-on experience in collecting and analyzing data on energy use for large numbers of commercial facilities.

- We have conducted energy audits on nearly 3,000 commercial and industrial facilities for such clients as Niagara Mohawk Power, Entergy Services, Northern States Power, El Paso Electric, Wisconsin Electric Power, Iowa Southern Utilities, Centerior Services Company, the Bonneville Power Administration, San Diego Gas and Electric, and Rochester Gas and Electric.
- We have conducted on-site surveys of nearly 10,000 commercial and industrial facilities for clients such as Entergy Services, Northern States Power, Union Electric, Central Illinois Public Service, Florida Power and Light, Alabama Power Company, El Paso Electric, the Bonneville Power Administration, Southern California Edison, Pacific Gas and Electric, the California Energy Commission, the Sacramento Municipal Utility District, San Diego Gas and Electric and other utility companies.

Following are brief descriptions of other projects where ADM has provided energy efficiency services.

- **Lodging Industry Energy Education Program**

For: Southern California Gas Company

Through the Lodging Industry Energy Education Program, ADM visited hotels/motels in SoCalGas’s service territory and offered their operators hands-on assistance to identify ways in which they can improve energy efficiency and save energy in their facilities. The Lodging Industry Energy Education Program demonstrated that a hands-on approach is a very effective approach to getting small business owners to think about

energy and to take actions to improve energy efficiency. We visited over 900 lodging facilities during 2000 and have visited over 400 more in 2001.

- **Beverage Vending Machine Program**

For: Southern California Edison Company

Under contract with SCE, we implemented an Energy Savings Program for Beverage Vending Machines. We installed VendingMisers™ or time clocks (as appropriate) on 3,400 vending machines in SCE's service territory. The control strategies are defined by (1) whether the vending machine is lighted and (2) whether the location of the machine will permit use of a time clock or requires use of a VendingMiser™. Most of these savings will go to small commercial customers, who are a particular target for the program.

- **Duct Efficiency Programs**

For: Pacific Gas and Electric
Southern California Edison
Southern California Gas
San Diego Gas and Electric

Under the California Board for Energy Efficiency's third party program, ADM was under contract with the four major investor-owned utilities in California (i.e., Pacific Gas and Electric, Southern California Edison, San Diego Gas and Electric, and Southern California Gas) to implement residential duct efficiency programs throughout California. The Duct Efficiency Programs were aimed at institutionalizing good duct design and establishing retrofit duct repair as a component of HVAC maintenance. Through the Duct Efficiency Program, we provided HVAC and/or sheet metal contractors with the information, procedures, and technologies that they could use to market duct leakage inspection and repair services to residential single-family and multi-family houses. Through the program, contractors were educated and trained on how to provide duct inspection and repair services as a viable business venture. Contractors were taught new techniques and procedures that were explicitly designed under this program in order to be effective and not too expensive. Contractors who participated in the programs were also assisted in identifying households who are interested in having their duct system inspected and repaired.

- **RCP Training**

For: Southern California Gas
Southern California Edison

ADM conducted training workshops to provide training to HVAC contractors to better equip them to participate in the Residential Contractors' Program. One aspect of the training was to provide training in central air conditioner/central heat pump diagnostic

tune-up, duct testing and duct sealing in conjunction with SCE/SoCalGas Installation Standards. The other aspect was to provide an overview of the RCP fulfillment process from consideration of installation of energy efficiency measures through completion of work and contractor payment. This overview included proper completion of program-related paperwork, including Incentive Voucher/Application and Customer Information and Declaration forms.

- **Local Energy Assistance Program**

For: Southern California Edison
Pacific Gas and Electric
Southern California Gas

ADM developed a program that we implemented throughout California to provide assistance to the planning departments in selected communities to encourage energy efficiency in new industrial and commercial developments that are being proposed in those communities. This program included directly influencing specific development plans and providing assistance to the planning departments of the local governments to plan/approve planning and zoning areas, based on energy use as well as other infrastructure criteria presently used. We also disseminated information regarding the results of these energy planning activities to other communities. Our program in California was funded at \$1.2 million by the major utilities (i.e., Pacific Gas and Electric, Southern California Edison, and Southern California Gas).

- **Energy Efficiency Site Surveys of Commercial, Industrial, and Agricultural Facilities**

For: Pacific Gas and Electric

In this project for PG&E, we are conducting surveys of commercial, industrial, and agricultural customer facilities to identify and analyze the energy efficiency opportunities using the 1-2-3 tiered approach to energy conservation. For Tier 1, we identify and analyze the no-cost energy efficiency opportunities in each customer facility. For Tier 2, we identify and analyze the low-cost energy efficiency opportunities in each customer facility. For Tier 3, we identify and analyze customer facilities with a view to identifying energy efficiency opportunities that will require major financial investments on the part of the customers. All recommendations target and prioritize measures and technologies that deliver both immediate and long-term peak-period kW demand savings and annual kWh and therm savings.

- **Energy and Water Efficiency Services Support**

For: Colorado Springs Utilities

Under this contract with the City of Colorado Springs Utilities, ADM provided energy and water efficiency services for CSU's industrial and large commercial customers. We

provided feasibility evaluations for energy and water efficiency projects and provided design plans for energy and water efficient projects. In addition, we provided training on energy and water efficiency projects for CSU staff.

- **Technical Support to Demand Side Management Unit**

For: Jamaica Public Service Company, Ltd.

Under a contract with the Jamaica Public Service Company, ADM provided technical support to JPSCo's Demand Side Management Unit. We provided a Resident Consultant who worked with JPSCo staff in planning demand-side management programs for JPSCo's customers. Subject areas for which we provide technical support included program planning and implementation, cogeneration feasibility studies, energy auditing, building codes, simulation modeling, monitoring, and program evaluation.

- **Technical Audits for Large Industrial Customers**

For: Power Agency of California

Under contract with the Power Agency of California, we conducted audits of large industrial electricity customers in order to identify appropriate energy efficiency improvements. To support this activity, we developed the audit form to be used in data collection, conducted on-site interviews of plant personnel on facility operations, collected other relevant data on-site, evaluated the collected data, and prepared engineering estimates of the energy savings for energy efficiency improvements for each of the audited facilities. Estimates of expected savings were developed through engineering calculations or through simulations with computerized energy analysis models.

- **Business Energy Advocates Program for Small Business**

For: California Energy Extension Service

ADM provided marketing and technical support services on energy conservation for a program to encourage small business firms in California to adopt techniques and technologies that reduce energy consumption and costs. The program was also intended to reduce the barriers encountered by business firms in gaining access to energy management techniques and practices. We identified energy conservation measures that are particularly applicable to given types of businesses and supported their applications for utility company incentive payments and low-interest small business loans.

- **Commercial Audits Project**

For: Entergy Services, Inc.

For Entergy, we performed the Commercial Audits Project. We performed on-site audits at about 650 commercial facilities throughout Entergy's service area. Using the data collected through these audits, we prepared customer-specific DOE-2 analyses of

energy savings from conservation measures. We prepared audit reports for the individual customers and also aggregated the data to prepare system-level estimates of the saturations of various end-use technologies and DSM measures.

- **Energy Audit Services for Small and Medium Commercial and Industrial Customers**

For: El Paso Electric

For El Paso Electric, ADM provided energy audit services to its small- and medium-size commercial and industrial customers. We conducted energy audits for approximately 250 small C&I customers and for approximately 75 medium C&I customers. The audit services included collecting data on-site, preparing an analysis of energy use and potential energy efficiency measures (using our *CPA 123* model), and preparing an audit report for each customer audited.

VII.C DESCRIPTION OF EXPERIENCE FOR KEY PERSONNEL

Our staffing structure for the Lodging Industry Energy Efficiency Program was presented in Section II.F. Descriptions of the experience of the key personnel for the program are provided in this section.

Meir Ezer, P.E. is the President & Director of Engineering at AEV Associates, Inc. Mr. Ezer has extensive experience in various aspects of the design and construction supervision of building mechanical systems. Mr. Ezer has been in charge of mechanical design of new and rehabilitation of existing hospitals, medical centers, universities, hotels, casinos, office buildings, condominiums, shopping centers, recording studios, theaters, schools, indoor central bus terminal, and other buildings. The HVAC systems in the previous projects have included all types and sizes of equipment, conventional and highly specialized systems, and various types of solar heating systems. He is expert in the design, control and commissioning of large (over 4,000-ton) central cooling plants and over 3,000 Ton chiller plant with thermal energy storage (TES) systems. The commissioning projects have included the chiller system, the variable frequency drive for air handling units, the pumps & cooling tower, the Garage CO system, and direct digital control system. Some of the commissioning process uncovered improper operation of the variable frequency drives, numerous incorrect control settings and missing some of the control functions. Mr. Ezer received his B.S. in mechanical engineering from the Israeli Institute of Technology, Haifa, Israel. He has completed courses towards an M.S. in Mechanical Engineering from Columbia University, New York. He is a registered professional engineer in California, and Nevada, and a member of the American Society of Heating, Refrigerating, & Air Conditioning Engineers (ASHRAE).

Ivan Varadi is Vice President and Director of Plumbing and Fire Protection Engineering at AEV Associates, Inc. Mr. Varadi has over 28 years of experience in all aspects of the

design and construction supervision of mechanical, plumbing and fire protection systems for all types of buildings, including high-rise, office, industrial, commercial, institutional, hospitals, restaurants, residential complexes, hotels, movie theaters, and educational facilities. Before joining AEV, Mr. Varadi was a project engineer at Helfman/Haloossim and Associates (HHA), where his responsibilities included supervision of all mechanical, plumbing, fire protection and electrical engineering. Mr. Varadi received his B.S. in mechanical engineering from the College of Building Mechanical Engineering, Budapest, Hungary.

Oscar Krausz, P.E. is a Director of Electrical Engineering at AEV Associates, Inc. Mr. Krausz has over 20 years of experience in the design and construction supervision of electrical facilities for all types of buildings. His experience includes the design and analysis of electrical distribution, emergency power, lighting, fire alarm, security and building automation systems. His projects include office buildings, shopping centers, upscale retail stores, churches, schools, laboratories, hospitals, medical buildings, multi-residential units, manufacturing plants, industrial facilities, computer centers and high rise buildings. Mr. Krausz received his B.S. and M.S. in electrical engineering from Polytechnic Institute Romania. He is a registered professional engineer in California.

Mahmoud Fouladi, a Mechanical Engineer at ADM, has considerable experience in performing energy audits and building energy analysis, recommending energy efficiency measures and providing strategies for control systems for various commercial and industrial projects. He has been conducting quality control for the Mobile Energy Clinic that ADM has been conducting in the SCE and SCG service areas for the past two years. During the past seven years he has participated in more than ten major commercial & industrial data collection projects conducted by ADM. He has been conducting on-site data collection on commercial and industrial facilities as a member of the field staff for the Non-Residential Measure Retention Study that ADM has been performing for Southern California Edison for the past five years. Other projects that Mr. Fouladi has participated in include:

- Performed on-site data collection and monitoring of lighting and HVAC motors for three projects conducted for Central Power and Light Co. in Texas.
- Performed on-site data collection for the evaluation of the New Commercial Construction Program conducted for Portland General Electric Co. The on-site data were used to develop DOE-2 simulations.
- Performed on-site data collection of commercial buildings for the Saturation Study conducted for Southern California Edison Co.

Mr. Fouladi earned his M.S. degree in Mechanical Engineering from George Washington University and his B.S. in Mechanical Engineering from Howard University.

VIII. BUDGET

Our summary budget table for implementing the Lodging Industry Energy Efficiency Program in SCE's service territory is detailed in Table VIII-1.

*Table VIII-1. Budget Summary
for Lodging Industry Energy Efficiency Program
in SCE Service Territory*

<i>Budget Item</i>	<i>Amount</i>
Administrative Budget	\$28,168
Marketing Budget	\$19,200
Direct Implementation Budget	\$180,000
EM&V Budget	\$9,473
Other Budget	\$16,579
Budget Total	\$253,420