

ACEEE National Conference on Energy Efficiency and Reliability: Lessons Learned

SMUD's Response to the Energy Crisis

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Overview

- SMUD Profile
- Energy Efficiency Programs
- Response to Energy Crisis



SMUD Profile

- Electric utility with a 900 square mile service territory
- Governed by seven member Board of Directors elected by voters
- Revenues of \$767 M in 1999, \$939 M in 2000
- 2,000 employees
- Summer peak - 2759 MW (7/99)



SMUD Profile

Customers Sales

Residential	451,000	3,950 GWh
<u>Commercial</u>	<u>58,000</u>	<u>5,340 GWh</u>
Total	509,000	9,290 GWh

Average Annual Consumption and Cost (1999)

Residential	8,867 kWh	\$0.0848/kWh
Commercial	93,798 kWh	\$0.0726/kWh



SMUD's Public Goods Budget

	<u>1998</u>	<u>1999</u>	<u>2000</u>	<u>2001</u>
Energy Eff	\$13.9	\$13.6	\$13.6	\$14.6
Renewables	\$ 3.7	\$ 3.6	\$ 3.3	\$ 3.2
RD&D	\$ 1.9	\$ 1.8	\$ 1.8	\$ 1.8
Low Income	\$ 4.7	\$ 5.2	\$ 5.4	\$ 6.1
TOTAL:	\$24.2	\$24.2	\$24.2	\$25.7

\$24.2 M is 3.8% of 1994 Revenues



SMUD's Residential Energy Efficiency Programs

Residential Services	Equipment Efficiency
Solar DHW	Appliance Efficiency
Shade Trees	New Construction
Multifamily	Retail Lighting
Low Income Weatherization	



SMUD's C/I Energy Efficiency Programs

- C&I New Construction
- C/I Retrofit Programs
 - Lighting and HVAC rebates
 - Resource Conservation Manager
 - Small C/I HVAC Tune-Up
 - Retrocommissioning
 - Energy Star
 - Pump Testing



As a Result of the Energy Crisis

SMUD--

- Increased energy efficiency and load management funding
 - SMUD increased EE funding by \$1.5 million
 - Received additional energy efficiency and load management funds from the state
- Expanded energy efficiency programs
- Expanded load management and voluntary curtailment programs
- Held an Energy Fair at Cal Expo
- Started licensing proceedings for new 500 MW gas-fired plant at Ranco Seco (site of retired nuclear plant)
- Increased rates to maintain financial viability



SB5X Background

- SB5X is emergency legislation in response to the energy crisis
- The bill allocates \$650 million for various energy-related projects
- Municipal utilities received \$40 million for EE
- Governor issued executive order allowing munis to receive the money **in advance**
- A simple contract--obtain 6.37 MW of peak capacity reduction for \$8 million



SB5X Background

- Met at CEC on May 1 and received approval to spend SB5X funds beginning May 2
- CEC asked for 50% of savings within 5 months
- We immediately began charging our rebates to SB5X in order to obtain the required savings
- Received first \$4 million in late June (the check took a circuitous route)



SB5X Programs

- Residential air conditioner rebates
- Refrigerator recycling
- Large C/I lighting rebates
- Large and medium cfl rebates
- Small C/I lighting
- Chiller/air conditioner/process rebates
- Small C/I HVAC/refrigeration tune-up
- Vending machine controller (Vending Miser)
- Residential new const air conditioner rebates



Residential Air Conditioner Rebates

- Original program focused on upstream market transformation incentives to distributors
- Changed program focus to provide customer rebates of \$300 or \$400 per unit depending on efficiency
- New program started 6/1
- Activity has been somewhat slow



Refrigerator Recycling

- Refrigerator recycling program required rfp, so took more time to implement
- Two companies attended the pre-bid meeting, ARCA and JACO Environmental
- Received one proposal from JACO
- After working through some issues with recycling of CFCs in the foam, JACO was awarded the \$1.5 million contract
- Program kicked off with a media event 9/7
- Program is very successful--funds will likely be spent by year-end



C/I Programs

- Large C/I lighting rebates (\$250/kW)
- Large and medium cfl rebates (\$10/cfl limited to 50% of project cost)
- Small C/I lighting (prescriptive rebates designed to at least cover full cost of materials)
- Chiller/air conditioner/process rebates (Prescriptive package rebates & \$750/kW for chillers and process)
- Small C/I HVAC/refrigeration tune-up



Vending Machine Controller

- Program required rfp even though we believed there was only one vendor
- Received two proposals
- Awarded \$1.5 million contract to Bayview Technologies for the Vending Miser[®] controller
- Device controls compressor operation and lighting of soft drink vending machines
- Highest benefits achieved at offices and schools
- Expect to install almost 6000 to 9000 controllers depending on budget limitations

Residential New Construction Air Conditioner Rebates

- Tough market—must cover incremental cost or builders will not participate
- Incentives are \$42/SEER point/ton
 - Example—if SEER 10 is required by Title 24 and the builder installs a 3 ton SEER 13 unit
 $3 \text{ SEER points} \times \$42/\text{ton} \times 3 \text{ tons} = \378 rebate
- To date, \$3.5 million has been preapproved
 - \$1.2 million is budgeted in 2002



Savings and Budget through September

<u>Program</u>	<u>kW</u>	<u>MWh</u>	<u>\$ (k)</u>
Residential ac rebates	381	169	\$186
Refrigerator recycling	-	-	\$ -
Large C/I lighting rebates	1,291	6,517	\$248
Large and medium cfl rebates	40	196	\$ 27
Small C/I lighting	63	253	\$ 39
Chiller/ac/process rebates	380	1,116	\$153
Small C/I HVAC/refer tune-up	168	403	\$ 55
Vending Miser	-	-	\$ -
<u>Res new construction ac rebates</u>	<u>-</u>	<u>-</u>	<u>\$ -</u>
Totals	2,323	8,655	\$736



The “Berkeley” Lamp

DOE, SMUD, SCE, PG&E, CEC

- Increased lighting quality
- Offices, dorms, libraries
- Significant energy savings
- Rapid deployment
- Low cost retrofit
- Strong user preference
- Low glare-computer
- Unique control features
- Lots of light



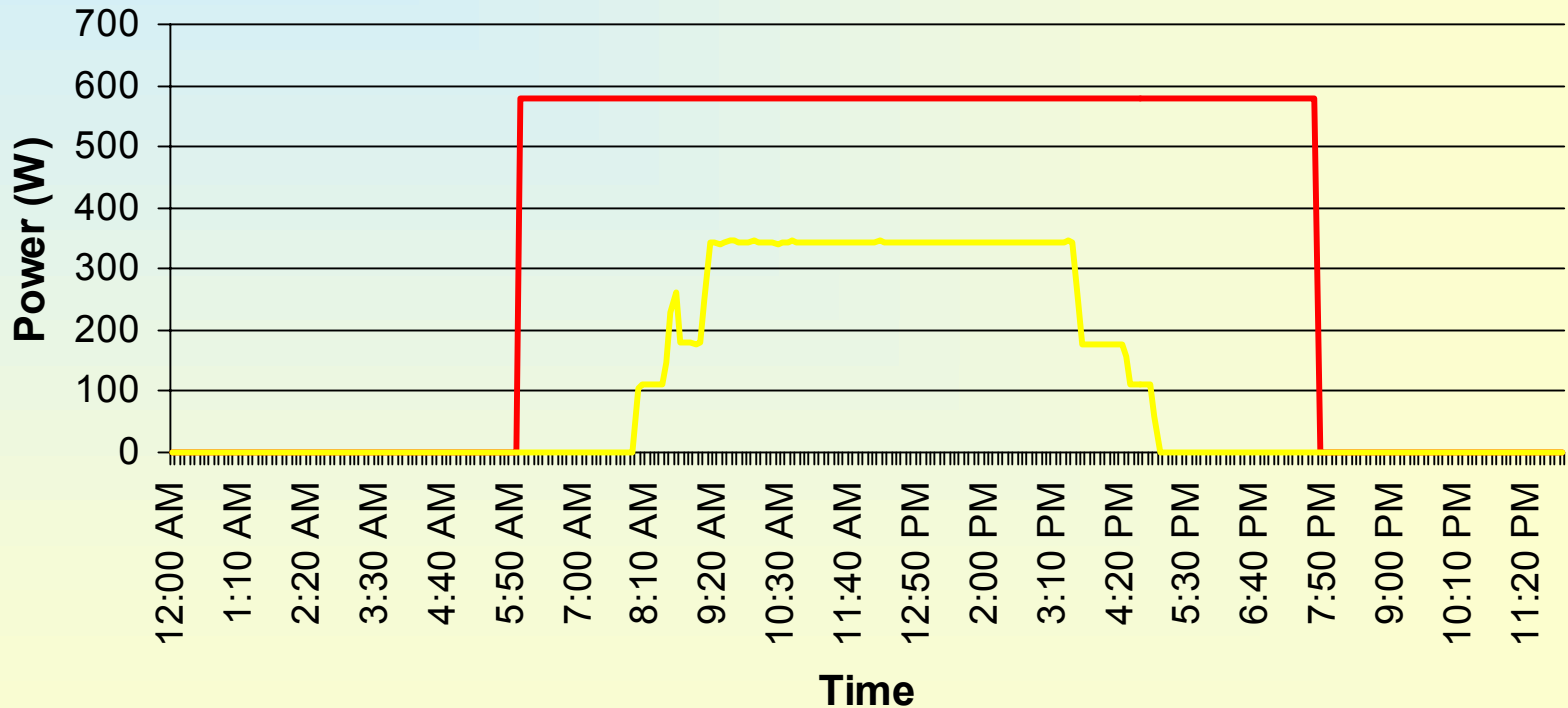
SACRAMENTO MUNICIPAL UTILITY DISTRICT
The Power To Do More.™



Single day before and after Berkeley lamp

Digital Imaging and Graphics office

(Four person open office cubes)



— 20 Overhead Lamps — 4 Berkeley Lamps



AB 970 Programs

- Like SB5X, AB970 provided \$100's millions for energy-related projects
- SMUD will receive \$1.3 million for C/I load management programs and \$700k for residential load management programs



AB 970 Programs

- C/I Programs
 - Demand Bid
 - Direct Load Control

- Res Programs
 - Radio Control Thermostats
 - Multi-bin TOU Rate
 - New construction initiative



Conclusions

- SMUD is on track to exceed energy efficiency and load management targets
- Our customers responded to the energy crisis by conserving over 10% in total energy use
- SMUD is preparing to build a 500MW gas-fired power plant to reduce reliance on contract and spot market power
- We will continue to monitor the energy situation and make adjustments as needed

