

# CURRENTS

AN ENERGY NEWSLETTER FOR LOCAL GOVERNMENTS

## Berkeley Non-Profit Breaks **SEPT/OCT 1999** New Ground on Energy Efficiency

by Peter Asmus

The City of Berkeley has always done things a little differently. So it should come as no surprise it chose a unique way to implement energy efficiency programs and other energy-related activities well before the current restructuring made its impact on California's electricity market.

Berkeley's work exemplifies how through partnership and innovation, local governments can take a big-picture approach to energy efficiency and address other pressing local issues such as job training,

community building, and economic development.

In 1985, the City created a non-profit - Community Energy Services Corporation (CESC) - to perform energy-related work for the city. No other municipal government is known to have taken this approach. Nonetheless, a non-profit structure created by a local government offers opportunities to streamline operations, work more closely with other community-based organizations, and reduce program costs at a time when increased competition is opening

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Coming Soon...  
Our Special Issue  
on Street Lighting!

## New Traffic Lights Keep Money Flowing

by Kristina Kaufmann

Cities and counties across the state are cutting utility and maintenance costs by using a new energy-efficient technology - light emitting diodes (LEDs) - in their traffic signals. The new LEDs require 90 percent less energy and last seven times longer than traditional incandescent bulbs.

Local governments interested in using LEDs should consult the California Energy Commission's "Summary of City and County Responses to Light Emitting Diode Traffic Signal Survey." The study contains information about LED

traffic signal installations by local governments statewide, including local experiences and barriers encountered.

The survey found that 48% of 292 California communities had installed LEDs in their traffic lights. Reduced energy and maintenance cost were the main reasons cited for traffic light conversions. It also includes contact information for the 105 communities that reported having installed LED traffic signals.

The City of San Jose, for example, has been testing and developing national standards for LEDs since

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## LEAP: Street Lights, Tools, Workshops

by Patrick Stoner

**T**he LEAP team has been busy since the last issue of *Currents* with trips to Southern California, street lighting research, and planning workshops.

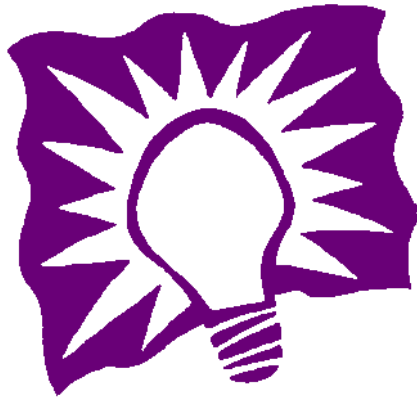
### ■ LEAP Assistance

We have committed to complete planning assistance for 12 cities and/or counties by year's end. In early August, we made a three-day trip to the Los Angeles/ Inland Empire area and met individually with ten cities and one county. The results were great. Our risk-free assistance (a city and developer can take or leave the recommendations) was accepted by five of these local governments. At this point, the following local governments will participate in the LEAP program in 1999: Beaumont, Brea, Huntington Beach, Irvine, La Verne, Moreno Valley, Murrietta, Temecula, Visalia and San Bernardino County. Several others have expressed interest, and we are waiting for their plans.

If time and funds allow, we can provide LEAP services to more than 12 cities this year. If you would like a personal visit to learn about LEAP, please call Josh Meyer at ☎(916) 448-1198 or e-mail to [jmeyer@lgc.org](mailto:jmeyer@lgc.org). We may be able to assist you this year, or schedule work for next year.

### ■ Street Lighting

We also spent the summer researching energy efficient street lighting. LEAP analyses combine energy efficiency with livable communities strategies. Newer, energy-efficient lamps that provide better color rendition and can be installed on lower posts are now available. You will be receiving a special edition of *Currents* next month that highlights our findings.



### ■ Solar Workshop

On November 4th, a workshop will be held on improving energy efficiency with solar orientation. The Santa Clarita workshop, sponsored by the LA Chapter of the American Planning Association and co-sponsored by the Local Government Commission, the City of Santa Clarita, and SCAG's Livable Communities Initiative, will provide a recap of the applicable laws, a discussion of the principles behind planning for solar orientation, and a hands-on exercise to apply the principles.

A computer tool that measures energy-efficiency improvements resulting from changing orientation (and many other community-level features) will also be demonstrated. Check out the calendar on upcoming workshops for registration details.

### ■ Computer Tool

Workshops for the computer tool mentioned above – to be provided for free to LEAP participating local governments – will be scheduled for the fall. We will be contacting LEAP cities and counties to arrange the trainings.

## Locals Go LED

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1992. Over the last two years, San Jose has spent about \$2 million to install over 14,000 red LEDs at over 700 intersections. Annual energy savings from the retrofit are expected to be \$600,000. Future retrofit projects include: ❶ The replacement of yellow flashing warning devices with an LED amber ball; ❷ Replacement of green traffic signals and arrows with LED green ball and arrow; and ❸ Replacement of railroad signals with red LED.

Red traffic signals are the most widely and cost-effective retrofit at this time. Cities are beginning to install green and amber LEDs on a trial basis because of their expensive installation.

Although LED conversions save money over the long run, significant installation costs may require cities to plan in advance to finance the retrofits. The primary funding for LED installations comes from cities' internal funds. Most cities finance all or a portion of the conversion through their annual maintenance budgets. Outside funding sources are available to cities. The California Energy Commission offers a loan program for interested communities. Some utility companies also offer incentives and rebates to make the conversion process more feasible.

For more information on San Jose's traffic light conversion, call Ron Northouse, City of San Jose, Department of Streets and Traffic, ☎(408) 277-4304. For more information on LED traffic signals, the California Energy Commission loan program or to obtain a copy of the study, call ☎(916) 654-4008.

# Non-Profit Tackles Berkeley Energy Efficiency

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up new doors for local governments to deliver energy efficiency benefits to its own facilities and its constituents.

CESC can serve as a purchasing agent for the City, which allows the municipal government to avoid the much maligned red tape that often frustrates timely and quality buys of energy efficiency products and services. “We are involved at the front end, in program planning and



design,” said CESC Executive Director Richard Flood. “Often we will perform energy audits for city facilities and then help put the required work out for bid.” CESC also performs research studies, such as LED traffic lights and solar energy system applications.

CESC is also a licensed contractor that provides construction services to residents under Department of Housing and Urban Development-funded programs. Welfare-to-work training in construction trades is a key component of the activity, which CESC integrates with energy efficiency services to keep installation costs low for small commercial and low-income residential projects.

Along with having a unique structure with which to pursue programs that save energy at municipal facilities through its Capital Assistance Program, CESC also focuses on providing energy efficiency services to segments of the market that have traditionally been under-served by utilities and ignored by for-profit energy service companies. CESC administers a grant under the U.S. Department of Energy’s “Rebuild America” program, which now has affiliates in 220 communities across the country. CESC’s program, called “ReEnergize East Bay,” is a consortium that includes the Cities of Berkeley, Oakland, and Emeryville; the Building Owners and Managers Association; Pacific Gas & Electric Co.; and other energy trade allies. ReEnergize delivers energy efficiency services to the small commercial, multi-family residential, and low-income segments of the population. (see sidebar on left).

A good example of how local policies help

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## *Energized for Christmas in April*

CESC takes the “community” in its title seriously. Besides providing welfare recipients job training in the construction trade, and its work with faith organizations, CESC also partners with “Christmas in April,” the leading national volunteer organization providing home repair and improvement services at no cost to low-income senior and disabled homeowners. Along with its subsidiary organization ReEnergize East Bay, CESC jointly coordinates volunteer projects year round with the Albany-Berkeley-Emeryville chapter of Christmas in April to augment their other home repair activities for the disadvantaged and those with disabilities.

National Rebuilding Day is observed each year on April 24. This year, the chapter rose to the occasion by providing home repairs to 39 Bay area homes. ReEnergize consultant Lisa Gartland developed a handbook on low-cost energy and water conservation opportunities and recruited twenty-six volunteers that broke into six teams and traveled from site to site, installing resource conservation measures at 30 locations in one day. Team members collected over \$4,000 in donated materials to assist the effort.

The calculated results of the program include:

- ▶ Annual water savings: 110,400 gal.
- ▶ Annual energy savings: 1801 therms / 7940 kWh
- ▶ Annual utility cost savings: \$1,843
- ▶ Measure lifetime utility cost savings: \$12,629
- ▶ Average annual savings per household: \$61
- ▶ Average measure lifetime savings per household: \$421

“CESC provides construction services in about 200 homes per year,” CESC Executive Director Richard Flood said. “We can extend this concept to these homes, as well as to other Rebuild America and Christmas in April offices. We will also suggest extension of the project through the County Housing Department which serves about 800 homes per year in Oakland, Alameda, and other East Bay municipalities.”

# Turning Brownfields into Brightfields

## Cities Create Clean Energy and Jobs on Contaminated Urban Sites

In an effort to encourage productive use of brownfields and advance the use of clean and climate-friendly energy technologies, the U.S. Department of Energy is working with local governments and industry to link solar energy technologies to brownfields development.

“Brightfields” refers to the conversion of contaminated sites into usable land by bringing pollution-free solar energy and high-tech solar manufacturing jobs to these sites. These measures include the placement of photovoltaic arrays that can reduce cleanup costs, building integrated solar energy systems as part of redevelopment, and siting solar manufacturing plants on brownfields.

Solar energy technologies, and photovoltaic systems in particular, are well-suited for brownfields sites. They require very little maintenance and can stand directly on the ground without penetrating the surface or disturbing any existing contamination. These systems can be installed to function on or off

the grid, depending on the needs of the site and existing infrastructure, without adding pollution to the site.

Brightfields provide an opportunity to attract environmentally conscious businesses that are interested in supporting green investments or locating in more environmentally friendly industrial parks. For example, locating solar module manufacturers on brownfields (one type of brightfields redevelopment approach) provides an opportunity to create new jobs and spur local markets for solar energy systems.

### ■ Brightfields, Big City

Working with U.S. DOE and Commonwealth Edison, the City of Chicago has developed an extensive plan that uses the brightfields approach to collectively advance their economic development, climate change, air quality and electricity reliability goals.

As a first effort, the City has attracted a solar panel manufacturer to locate on one of its brownfields. As a result, over 100 new jobs will be created. A solar energy system will also be installed at the

site, both to supply some of the company's electricity needs and to serve as a demonstration and educational site.

The City of Chicago and Commonwealth Edison jointly have committed \$8 million to purchase solar energy systems in the next five years. The systems will be installed on other brownfields sites as well as schools, office buildings, transportation routes, and municipal and commercial properties. U.S. DOE has also begun work with cities in California, Connecticut, Minnesota, New York, and Virginia.

### ■ Brownfields, Hot Air

In a related brownfields effort, Lawrence Livermore National Laboratory conducted an analysis of Superfund sites to determine the cost-effectiveness and feasibility of retrofitting existing nearby HVAC systems to take advantage of geothermal energy generated as a result of groundwater remediation.

Geothermal energy would be generated through pump-and-treat procedures that are commonly used to remediate groundwater. Although mildly contaminated, the groundwater (at a constant 55-60 degree temperature) can be used to heat buildings in winter and cool them in summer. This “pump and heat” concept, as U.S. DOE tentatively calls it, allows cleanup efforts to provide an added benefit of cooling and heating to nearby buildings. The laboratory now plans to use this cost-saving method of capturing renewable energy while conducting cleanup.

For more information, call Penny Adams at (202) 586-5806 or visit [www.eren.doe.gov/brightfields](http://www.eren.doe.gov/brightfields), the website which served as the source for this article.

## New Energy Efficiency Building Standards – Title 24 – In Effect

The newest version of the California Energy Commission's Energy Efficiency Building Standards – commonly referred to as Title 24 – are now in effect. Part of the state's building code, the standards apply to both residential and non-residential construction.

The new standards constitute the most significant energy code changes in California since 1992.

Since their adoption in 1977, the Energy Efficiency Building Standards have saved Californians an estimated \$16 billion in energy costs. The standards, along with the residential and non-residential compliance manuals, can be downloaded from the Energy Commission's web site at [www.energy.ca.gov/title24](http://www.energy.ca.gov/title24).

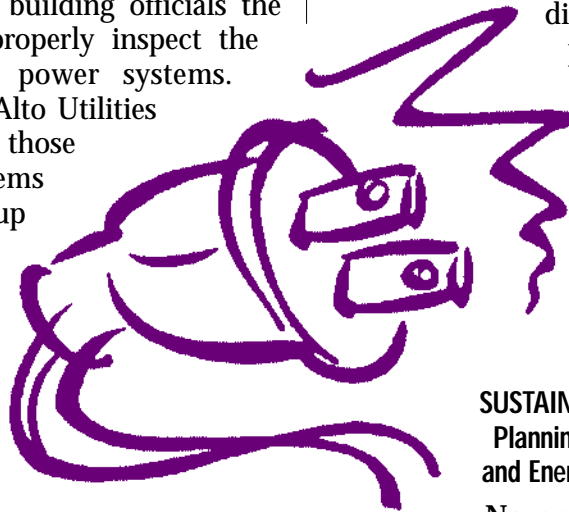
# Calendar of Upcoming Events, Sep-Nov

## FREE SEMINAR ON INSPECTING SOLAR PHOTOVOLTAIC SYSTEMS FOR CODE-COMPLIANCE

September 22 • Palo Alto

This free seminar will provide building officials the basic background needed to properly inspect the installation of solar electric power systems. Sponsored by the City of Palo Alto Utilities and PVUSA, it is a must for those responsible for seeing systems installed properly and keeping up with the latest photovoltaic system requirements. Register by September 17.

Contact: City of Palo Alto Utilities, ☎(650) 329-2241  
Location: Hyatt Hotel, Rms A-B, 4219 El Camino Real



## CITIES FOR CLIMATE PROTECTION WORKSHOP International Council for Local Environmental Initiatives (ICLEI) October 7-10 • Los Angeles

As part of ICLEI's Cities for Climate Protection Campaign, this workshop will focus on green power and cooling our communities through urban heat island mitigation. Workshop sessions will discuss strategies local governments can employ to "cool" their communities to improve air quality and cut global warming pollution.

Cost: \$200 (individual days at a reduced rate)  
Contact: ICLEI: ☎(510) 540-8843  
Location: Hotel Inter-Continental, Los Angeles

## HOT TOPICS, COOL SOLUTIONS Conference on Sustainable Communities

October 13-15 • Tucson, AZ

Sponsored by the City of Tucson and Tucson Institute for Sustainable Communities, this conference will highlight resource-efficient strategies for the southwestern region. Day 1 will be held at the Civano site, the first development to combine sustainable development practices with the design themes of New Urbanism, which strives to create livable, pedestrian- and transit-friendly neighborhoods.

Cost: \$250 before Sep. 24; \$300 after Sep. 24  
Contact: Irene Ogata ☎(520) 882-8177, [www.green-builder.com/institute/Conference/conference.htm](http://www.green-builder.com/institute/Conference/conference.htm)  
Location: East Speedway DoubleTree Suites, Tucson

## CALIFORNIA WATER POLICY IX

October 14-15 • Los Angeles

California's leaders will gather in LA to discuss the changing world of water policy and the impacts on the state. Among the topics this year are water and land use, water quality, water transfers, watershed management and border issues.

Cost: \$65- \$335  
Contact: ☎(619) 272-9627  
or e-mail: [ddodson@cts.com](mailto:ddodson@cts.com)

## SUSTAINABLE DESIGN WORKSHOP Planning for Solar Orientation and Energy Efficiency

November 4 • Santa Clarita

California law requires local governments to protect solar easements and deny a subdivision map that does not provide for natural heating and cooling opportunities. Sponsored by the American Planning Association (LA section), along with the City of Santa Clarita, SCAG's Livable Communities Initiative, and the LGC, this workshop will give an overview of state solar laws, teach techniques for proper solar orientation, show examples of solar redesigns of developments.

Cost: \$22 before Oct. 15; \$27 after Oct. 15  
Contact: Conal McNamara, ☎(661) 255-4349.  
Register on-line: [www.la-apa.org](http://www.la-apa.org)  
Location: City Council Chambers, 23920 Valencia Blvd., 1st Floor, Santa Clarita

## 3RD ANNUAL PARTNERS FOR SMART GROWTH CONFERENCE November 17-20 • San Diego

A landmark conference on implementing resource-efficient, "smart growth" development principles and practices. Sponsored by the Urban Land Institute, the U.S. EPA, and the Local Government Commission, the forum will help local government officials, staff, developers, builders, architects, lenders, planners, and activists to learn about tools for creating vibrant, pedestrian- and transit-friendly communities that conserve our stunning landscapes, farmland, air and water quality, local economies, and quality of life.

Contact: LGC's Center for Livable Communities, ☎(800) 290-8202  
Location: Hotel del Coronado, San Diego

# Building Industry Institute Develops Model Green Builder Program for Govts., Builders

by Mike Hodgson  
President, ConSol

**T**he Building Industry Institute, the research and educational arm of the California Building Industry Association, is developing a voluntary Green Builder program that will provide benefits to local governments and participating builders. This model program can be adopted by local governments to help solve local mandates for extra energy efficiency, air quality improvements, reductions in solid waste (landfills), and/or additional water conservation.

The program can also save local governments money through reduced resource and time requirements for energy plan check and field inspections. It has strict requirements for homes to be designed to 30% more energy efficient than the 1993 Model Energy Code. There are mandatory requirements for mechanical design by a licensed engineer, and inspections



and/or diagnostics of all energy-related features by a certified Home Energy Rating System (HERS) rater. The California Energy Commission recently adopted (July 1, 1999) these stringent rating requirements.

The program is designed to encourage builder participation by providing time and/or cost savings for energy plan-check and energy inspections. One of the program's most distinguishing features is that

the homes built through the program are inspected and rated by an independent third party. This third-party verification is an extremely important component, bringing enhanced credibility to the program; it also provides the home builder with cost savings because it minimizes the possibility of future, costly "call-backs" and construction defect litigation.

Buyers of Green Builder homes can also enjoy benefits from improved financing of their homes. The energy savings documented in the HERS rating (compared to 1993 MEC) can be used by the homebuyer to buy more home, potentially increasing builder profits.

Because they are rated, the homebuyers can also easily compare the energy efficiency and other "green" features of their new homes to other homes that are not in the program. These program features may help encourage builder participation and encourage new construction to become more resource efficient.

The model Green Builder Program will be distributed to local governments in Southern California later this summer by the Building Industry Institute. ConSol, their subcontractor, will be available to work with local government staff to tailor the program to their needs.

For more information, call Bob Raymer, the Institute's Technical Director, ☎(916) 443-7933, or Mike Hodgson, ConSol, ☎(209) 474-8446.

## Save the Planet, Create New Jobs

**A** new study finds that aggressively combatting global warming pollution would not only clean the air but save the United States \$43 billion per year and create more than 870,000 jobs.

Produced jointly by the Tellus Institute and the World Wildlife Fund, *America's Global Warming Solutions* found that by using a mix of financial incentives, regulatory changes and market measures the U.S. could make reducing global warming an economic boon to the nation. The policies would double the emission cuts specified in the Kyoto climate treaty to 4 percent below 1990 levels.

Dispelling the notion that curbing global warming would damage the U.S. economy, the study found that 29 states would gain at least 10,000 jobs each by following the study's recommended policies. Californians would see the greatest economic benefit with nearly 95,000 new jobs produced. The complete study can be viewed at [www.worldwildlife.org/climate/pr\\_usrep.htm](http://www.worldwildlife.org/climate/pr_usrep.htm).

# Berkeley Energy Efficiency

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CESC in its mission to help small businesses is the Commercial Energy Conservation Ordinance. According to Flood, only a dozen or so other cities in the country have such ordinances – and none are located in California.

Here's how the program works: Before a sale or remodel of property involving \$50,000 in costs, an energy efficiency survey must be performed. Flood noted that this program intervenes into a potential sale or renovation just as the right time, since it is at the early stages of architectural design and financing.

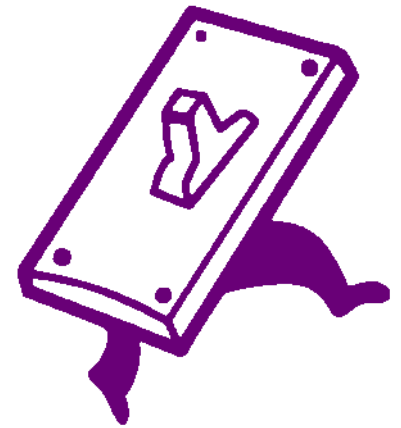
“Any incremental costs associated with energy efficiency upgrades can typically be folded into the final financial package,” he said. The goal of this program is to bring existing commercial building stock up to the level of energy performance required by the state's Title 24 energy efficiency building standards for new construction.

One of the most innovative recent programs offered by CESC is its Commercial Technical Assistance Program (CTAP). In an effort to wean the energy efficiency market off of the utility rebates that were

so predominant earlier this decade, this program is based on “buying down” the payback period for energy efficiency investments to a two year maximum. Energy audits identify high efficiency lighting improvements and calculate the time that the reduction in utility electricity cost will pay back for the investment. Incentives are then used to buy-down the pay-back period to two years. Each recipient's buy-down grant is limited to 35 percent of the total installation cost or \$1,500.

So far, most participants have been small retail stores whose grants fall in the \$250 to \$450 range. “This is a different approach to energy efficiency that becomes extremely relevant in the post-restructuring world,” said Flood. “It uses a simple business theory rather than a complex formula based on non-tangible ‘kilowatt hours’ and ‘therms’.”

Perhaps Flood's most interesting project is an alliance between Re-Energize East Bay and Episcopal churches. All 87 Episcopalian churches in the Bay Area region are currently participating in an effort to not only save energy, but to replace the electricity that is still



consumed with clean, renewable energy.

Episcopal Power & Light (EP&L) has been created to facilitate the “greening” of these churches. Among other ambitions, EP&L is negotiating procurement of 100 percent renewable-generated electricity for all of the churches through Green Mountain Energy Resources, a Vermont green power marketer. Here's how this deal works:

Green Mountain provides an incentive payment of \$250 to each

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## Top-Rated Appliances Now Online

**T**he American Council for an Energy Efficient Economy's (ACEEE) 1999 list of top-rated energy-efficient home appliances is now available on-line. The “best of the best” lists the top refrigerators, clothes washers, dishwashers, air conditioners, and heat pumps. Top-rated furnaces, boilers, and water heaters will be added this fall.

ACEEE notes that a resource-efficient clothes washer – usually front-loading– will save about 100,000 gallons of water and \$750 - \$1200 in energy and water bills during its lifetime. A top-rated central air conditioner consumes one-third less energy than a standard model. The list can be viewed on ACEEE's Consumer Guide web site at <http://aceee.org/consumerguide/mostenef.htm>.

## Did You Know?

**R**eplacing a typical 15-year-old refrigerator with a top-rated new model will typically save \$50-\$100 in electric bills and cut up to a ton of CO<sub>2</sub> emissions by the local utility annually.

# Berkeley Non-Profit's Energy Efficiency

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church that buys renewable power from them. This will go to ReEnergize to conduct energy audits. Parishioners of participating churches who purchase power from Green Mountain for residential use will receive a \$35 incentive which they can keep or donate to their church to help pay for energy-saving improvements. Churches may select CESC, which is a licensed general contractor, or another contractor to perform the work.

If CESC performs the work, the program will have a welfare-to-work component where CESC will provide on-the-job training to help welfare recipients master the necessary skills to become electricians.

"We are helping the Episcopal churches in getting this "affinity" pilot project off the ground, as it is intended that this becomes an interfaith effort open to all denominations," said Flood. "We'll be helping to build the program model that can then be replicated at other Rebuild America offices and to other church groups across the country."

Yet another CESC effort involving renewable energy is its current effort to boost the performance of aging solar water heaters, many of which were installed over a decade ago and have never been inspected for performance. Many of these systems have not been maintained, and since there is little financial

incentive for private contractors, Flood saw another niche to fill. "What is so great about this program is that the community reaps the environmental benefits of relying on solar energy, while motivated job seekers are provided with an excellent way to learn construction skills," said Flood.

To date, his best construction crew was comprised of five women that had been relying upon on the federal AFDC program for financial support. "All five of our 'moms' have since been hired in permanent construction jobs," said Flood proudly. "Those are the kind of highly motivated people we are looking for to install energy efficiency measures, too."

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## LOCAL GOVERNMENT COMMISSION

1414 K Street, Suite 250 ♦ Sacramento, CA 95814-3929  
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