

# CURRENTS

AN ENERGY NEWSLETTER FOR LOCAL GOVERNMENTS

## Local Governments Now

NOV/DEC 1999

## Among Top Green Power Consumers

by Peter Asmus

Few ventured to predict how local governments would respond to the new choices in green power supply now available in the California restructured electricity market. On the one hand, some local governments, such as the City of San Jose, have been known for their trend-setting work in energy efficiency and other environmental issues. On the other, local governments also have a reputation for moving slowly and cautiously since their decisions carry major ramifications for their diverse constituents.

payers money by switching power suppliers. What San Jose and other state consumers discovered is that rate savings are slim in the near term. San Jose, for example, saved at most \$250,000 during its first year with a new supplier – New Energy, Inc. – while its investments in energy efficiency yield savings of over \$4,500,000 in its annual power bill.

Like many othe consumers, San Jose is now investigating options for purchasing green

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Under the terms of AB 1890, local governments were empowered to play a larger role in shaping energy policy. Like other consumers, local governments such as the City of San Jose initially focused on trying to save local tax-

## The Real Value of Energy Efficiency in Competitive Power Markets

By Rich Ferguson

*Editor's note: A longer version of this story originally appeared in The Clean Power Journal.*

The mantra of electricity market restructuring is that competition will result in lower prices for consumers. Many local government officials concerned about the environment have long been accused of disliking restructuring for this reason, since lower prices can be expected to increase demand, and increasing demand for electricity would increase the need for additional power plants.

The ultimate goal is an electricity system that is environmentally sustainable in the long term. No matter what one elects to do on the supply-side, the first priority of any energy manager of a local government is to reduce demand, or at least reduce the rate of increase, by improving end-use efficiency.

Energy efficiency is a winner for both the economy and the environment. While the environmental benefits that the public receives in the form of reduced environmental impacts are hard to quantify, the economic benefits are not. An individual customer that reduces

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# Efficiency Values in Competitive Power Markets

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demand receives the private benefit of reduced bills. Since the market price at any time is a function of system demand, individual load reductions rendered by saving energy reduce this price, providing monetary benefits to all.

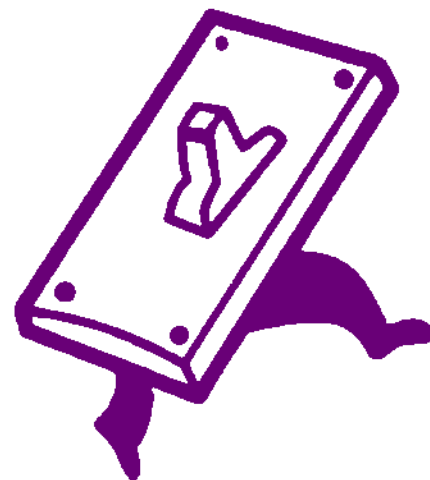
For example, consider a market clearing price of \$30/megawatt hours (MWh) for electricity when demand equals 10,000 MWh. If an individual buyer reduces demand by one megawatt-hour, he saves \$30, and in the process reduces total demand to 9,999 MWh. However, the load reduction also slightly reduces the market price paid by all buyers. At the \$30/MWh price in our example, the market price is increasing seven mills/megawatt-hour, for every megawatt-hour increase in demand. That is, a one-megawatt reduction in demand would reduce the market clearing price by \$0.007 to \$29.993/MWh.

Although the change in price is small, the volume affected by the change is large. The reduction in total cost is 9,999 MWh times \$0.007/MWh or \$69.99. In a rational system, customers would tax them-

selves up to \$70 to buy a reduction of one megawatt, since they would profit in the bargain.

The system monetary benefits vary with time. Obviously demand reductions are most valuable on peak, although these periods may be relatively infrequent. The value averaged over a year can be substantial. Initial estimates based on prices in the market run by the California Power Exchange (CalPX), the state's spot market for electricity, indicate average price reductions of the order of \$0.002/MWh for a one MWh reduction in demand. During peak summer hours, price reductions many times larger may be realized.

Since hundreds of millions of megawatt-hours are sold through the CalPX annually, even a fraction of a cent per MWh produces large savings. The most recent estimate for savings produced from a single megawatt reduction in baseload demand over the last 12 months is \$650,000, nearly three times the value of the energy saved. Clearly the potential savings to all customers are worth pursuing through collective demand-reduction efforts.



**I**t seems likely that in a regulated system, demand reductions have similar values that are difficult to quantify amid arcane details of utility ratemaking. With the advent of an efficient market with transparent prices such as that run by the CalPX, it is possible to compute the public value of demand reductions with some accuracy. The substantial monetary benefits of incentive programs for the early retirement of old air conditioners or industrial motors at municipal facilities can now be compared against the public cost of such programs. Indeed, so obvious are the system benefits of load reductions that markets for megawatts are beginning to develop in parallel with markets for megawatts.

While environmental values will continue to be more elusive, the development of markets and transparent prices on an hourly basis will allow for more effective use of public funds for demand reduction programs.

What does this information mean for local governments? The first step any local government should take is to reduce electricity consumption at its own facilities. Not

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## New and Improved Currents!

**S**tarting with this issue and for at least three more, *Currents* will include information about renewable energy (previous funding focused our coverage on energy efficiency). Under a contract with the Renewable Energy Marketing Board, the Local Government Commission will also help with a town hall meeting in Oakland in November and help coordinate meetings early next year with local governments on purchasing green energy.

Renewable energy is defined under California law as solar, wind, geothermal, biomass, and small hydropower (facilities less than 30 megawatts). These resources are termed "renewable" because they do not rely on burning dwindling reserves of highly polluting fossil fuels and are regularly replenished using the earth's own natural processes.

# Locals Are Top Green Power Consumers

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power in response to community preferences identified in local surveys and focus groups. Local governments concerned about the environment have an added incentive to switch to renewable energy. Since restructuring, the generic status quo electricity mix has become dirtier from an increase in electricity imports from out-of-state coal plants.

Given the complexity of the electricity business, it was no great surprise that no local government stepped out in front to purchase green power once the market was first opened in the spring of 1998. Corporations such as Toyota Motors Sales and Patagonia, Inc. were the first high-profile switches.

However, in 1999 local governments emerged as one of the major players in the green power market.

The most recent noteworthy purchase is that by the Association of Bay Area Governments (ABAG) Power, which represents 59 local government agencies in the greater San Francisco Bay Area. And while green power purchases can cost more, switching to "green" energy from the San Jose-based Calpine Corporation, which operates the world's largest geothermal power plant, will save participating local governments nearly \$1 million annually. Located in Sonoma and Lake Counties, The Geysers produces more power than the Diablo Canyon nuclear power plant.

Members of ABAG Power consume 63 MW of electrical capacity during periods of peak summer demand. Roughly half of that load is being served by green power.

Rebates through the California Energy Commission (part of the \$540 million set aside for renewable energy as part of AB 1890) will help make green power purchases cheaper for most ABAG Power local government accounts. Success of this rebate program (Customer Credit Subaccount) has depleted the available funds quicker than policy makers expected. This is another incentive for local governments to move quickly in securing a green power supply.

Members of ABAG Power join the City of Santa Monica, which last February became the first city in the nation to vote to purchase green power for all of its municipal needs. [See *Currents*, March/ April 1999].

**Y**et another large local government purchase through a power pool involves the San Diego Association of Governments (SANDAG) [See *Currents*, May/June 1999]. By the

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## Become an Earth Day 2000 City

**E**arth Day Network (EDN), a global alliance of environmental organizations, has big plans for Earth Day 2000. Under the banner "Clean Energy Now!" EDN is promoting a rapid transition from polluting and wasteful energy systems to efficient, safe and renewable energy sources.

As a key part of its Earth Day program, EDN is undertaking a campaign to launch energy efficiency and renewable energy projects in at least 500 cities around the U.S. by April 22, 2000.

Earth Day projects in cities could include: developing energy efficiency projects for residences and businesses, initiating commuting alternatives such as car pools and shuttle buses, implementing green building codes, shifting city vehicle fleets and public transit to alternative fuels, purchasing green energy, and planting trees to cool buildings.

EDN has a "Cities and Energy" guide that outlines a number of Earth Day green energy strategies.

In addition to celebrating their environmental achievements on Earth Day and launching sustainable energy projects, cities are encouraged to pass resolutions endorsing EDN's "Clean Energy Agenda" and to consider joining the "Cities for Climate Protection Campaign" sponsored by the International Council for Local Environmental Initiatives, EDN's national strategic partner.

For more information about becoming an "Earth Day 2000 City" or to receive the Earth Day Cities and Energy guide, the Clean Energy Agenda and sample Earth Day resolutions, contact Michael Closson at Earth Day Network: 91 Marion St., Seattle, WA 98104, ☎(206) 264-0114, or e-mail at [mclosson@earthday.net](mailto:mclosson@earthday.net). Earth Day Network's website is [www.earthday.net](http://www.earthday.net).



# Compact Fluorescent Floor Lamps Are Cool

**F**or the last ten years, halogen floor lamps (or torchieres) have been selling like hot cakes through the nation's discount stores and home improvement centers. More than 50 million units have been sold – one for every two households in America.

But these products have also proven to be dangerous and expensive. They've already caused at least 430 confirmed fires around the U.S. They also each waste about \$25 to \$50 worth of electricity per year. Their extremely high temperatures often cause their bulbs to fail more frequently than advertised as well, which leads to costly replacement purchases. On the whole, halogen torchieres cost more per year to run than their purchase price!

The problem is that each lamp consumes 300 to 500 watts of electricity, and turns about 90% of that directly into heat. If they come into contact with draperies, bedding, clothing, or hanging plants, they can cause very damaging fires. In fact, at least 31 deaths and 114 injuries have now been linked to halogen lamp fires.

In 1997, after years of research, manufacturers began introducing safer alternatives that utilize cool-to-the-touch fluorescent lamps instead. These products use about 75% less electricity as well, while offering a typical lamp life of about four to six years.

The latest generation of these new products has now reached the nation's retailers. These products bear the coveted federal ENERGY STAR label from the U.S. Environmental Protection Agency and Department of Energy, which assures that they provide high quality light and save energy. At least seven manufacturers have



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***The Program has launched a series of “Great Halogen Torchiere Turn-In” events to build awareness of the floor lamp problem and allow customers to recycle their old lamps.***

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begun offering ENERGY STAR-labeled torchieres, and more are entering the market all the time. Consumers, driven by a desire to improve safety and convenience, are increasingly choosing these fixtures as a superior alternative to energy-wasting halogens.

**E**lectric utilities have been critical to the success of ENERGY STAR, linking their incentive and promotion programs to qualifying products. Currently Southern California Edison (SCE), Pacific Gas & Electric Company (PG&E) and San Diego Gas & Electric Company (SDG&E) are participating in the California Statewide Lighting Program. This program is working throughout the state to increase consumer awareness and usage of ENERGY STAR lighting products. It also offers incentives of \$19 per torchiere directly to qualifying manufacturers, which makes it possible for consumers to buy the products for \$20 or to \$25 less than typical retail prices.

The California Statewide Lighting Program works to reinforce the

ENERGY STAR message with a simple slogan: “Save Everything, Compromise Nothing.” This tag line and the ENERGY STAR logo appears on brochures, banners, floor stickers, hangtags and product packaging in major retail outlets like Home Depot, Costco, Home Base and Eagle Hardware throughout the state.

The Program has also launched a series of “Great Halogen Torchiere Turn-In” events to build awareness of the torchiere problem and allow customers to recycle their old lamps. The first few hundred customers to return halogen lamps at each event typically receive an additional \$5 toward the purchase of an ENERGY STAR alternative. Torchiere turn-in events have already occurred in Fresno, Pleasant Hill, Sacramento, San Francisco and San Jose, removing thousands of dangerous halogen torchieres from consumers' homes. At the San Jose event, an amazing 1,500 Energy Star torchieres were sold in a single day, and an equivalent number of halogen models were recycled.

Folks in the Los Angeles area still have the opportunity to attend a turn-in event in Anaheim at Edison Field on Saturday, November 20th from 9 a.m.-3 p.m.

ENERGY STAR-labeled torchieres will be available at the turn-ins in a wide variety of styles, colors, and prices, with basic models priced at about the same cost as new halogen torchieres. For more information about the ENERGY STAR program or upcoming turn-in events, call Mark Newton with Ecos Consulting at ☎(415) 482-9726 or e-mail to newton@ecos consulting.com.

# Sustainable Gardens Conserve Energy, Water and Materials

On October 20th the UC Davis Department of Environmental Horticulture (UCDDEH) and the Western Center for Urban Forest Research and Education (WCUFRE) dedicated their “Sustainable Garden” on the UC campus. The garden is a model for energy conservation, water conservation and waste reduction. Although it was a sunny day in Davis, “rain” was provided by a fire hose to demonstrate the water conservation system.

In cities, the natural cycle of water, energy and materials are disrupted, resulting in air and water pollution, flooding, urban heat islands and overflowing landfills. The project’s goal is to demonstrate through design, management and monitoring that sustainable landscapes can regulate energy and material flows, and improve environmental quality.

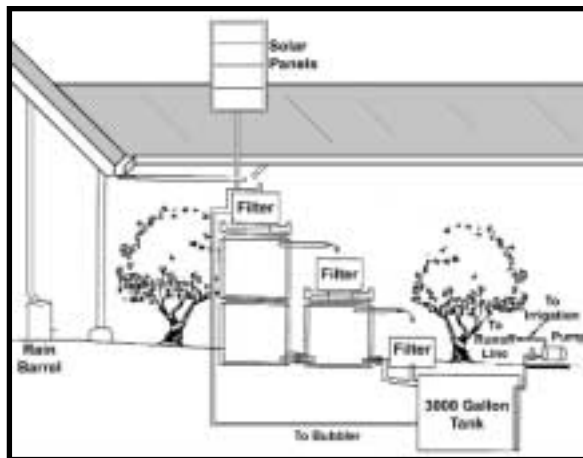
## ■ Energy Conservation

Light-colored paving and trees are included in the garden to reduce the urban heat island effect. Trees were strategically planted to shade building windows, and will also absorb air pollutants and sequester carbon dioxide.

## ■ Water Conservation

The water conservation system involves collection, filtration, storage and distribution segments. The roof provides 3,000 square feet of catchment area, with oversized galvanized steel gutters and aluminum pipes conveying rainwater to filters. Particles and debris are filtered by metal grates, gravel and rice hulls in three filters.

Filtered runoff is stored in concrete tanks, a polyethylene tank and rain barrels. Stored water will provide



about 50% of the amount needed for landscape irrigation.

Four solar panels convert sunlight to electricity to power the pump that irrigates the drought tolerant landscaping for a year. The panels face southeast to provide power to the pump for early morning irrigation when evaporative loss is low. Pervious paving and a dry swale and vegetative filter strip are also incorporated to treat surface runoff.

## ■ Waste Reduction

Concrete rubble and recycled green waste are part of the garden design. Rice hulls are included in the filter system, and benches in the garden are made from recycled plastic.

The Sustainable Garden began as a design project for landscape architecture students at UC Davis. Many of the ideas for this garden were developed during a 1997 four-day design charrette hosted in Los Angeles by TreePeople. The T.R.E.E.S. Program retrofitted a South Central Los Angeles residence to serve as a working model of rainfall harvesting, retention grading, driveway drywells and vegetated swales. Check out [www.treepeople.org/trees/index.htm](http://www.treepeople.org/trees/index.htm) for more information.

Rainwater harvesting is already happening in Austin, Texas where homeowners receive rebates for storage systems similar to the Davis design. For information on the Austin program, visit [www.ci.austin.tx.us/water-con](http://www.ci.austin.tx.us/water-con).

A model partnership between the university, government, business and private sectors, the Sustainable Garden workgroup also included the Teichert Foundation, the Stice family, Mountain States Nursery, the California Resources Agency, and the Pacific Southwest Research Station of the USDA Forest Service.

For more information on the Sustainable Garden, call ☎(530) 752-7636 or visit the website at [www.wcufre.ucdavis.edu](http://www.wcufre.ucdavis.edu).

*Online Resources for Tree Ordinances in Your Town*  
*Guidelines for Developing and Evaluating Tree Ordinances*, a publication that assists local governments in developing tree ordinances, is available online at [www.isa-arbor.com/tree-ord/ordintro.htm](http://www.isa-arbor.com/tree-ord/ordintro.htm)

# Oakland to Raise the Bar for Local Government Green-e Purchases?

**T**he City of Oakland could define the upper limit of environmental responsibility for a local government if it releases a draft Request for Proposals (RFP) seeking to purchase green power for at least one year for all of its municipal facilities – including administration and department buildings, street lights and traffic lights. Oakland's total municipal electricity load represents approximately 9 megawatts of capacity.

“Oakland could establish a model for local governments all across the nation to follow when developing a sustainable and community-based energy policy in this era of competition and choice,” said Kari Smith, a public education campaign coordinator for the Renewable Energy Marketing Board.

Among the concerns of the Oakland City Council's Public Works subcommittee who unanimously approved going forward with the green power RFP on October 19th were living wage issues and the need to recognize the full costs of energy supply choices. The draft RFP asks for power providers to provide bids for all municipal buildings and other accounts and to allow some flexibility and preferences of the city staff to shape final green power product offerings.

The draft RFP also requests bidders to try to incorporate distributed generation sources – such as solar photovoltaics and fuel cells – and describe how they could participate in a public outreach effort to entice Oakland's residential and

commercial constituents to also switch to green power.

CEERT and the Renewable Energy Marketing Board launched a public education campaign about renewable energy in Oakland on November 1st, the same day the City Council was scheduled to vote on the green power RFP.

CEERT will sponsor a town hall meeting on November 17th, 7 p.m., at Oakland City Hall to discuss the benefits of renewable energy and how residents and businesses can buy green power. Information about the City of Oakland's proposed green electricity RFP will also be provided. The public is encouraged to attend. For more information, call Kari Smith at ☎(415) 561-2120.

## Urban Forestry Grants Available

**A**pproximately \$1 million in urban forestry grants are available through the National Urban and Community Forestry Advisory Council's 2000 Challenge Cost-Share Grant Program. Pre-proposals for these grants must be received by December 14, 1999.

Grants of all dollar amounts will be awarded through the program to any non-Federal organization. All grant funds must be matched at least equally with non-federal funding. Through its Challenge Cost-Share Grant Program, the National Urban and Community Forestry Advisory Council works to support urban and community forestry activities that are national or widespread in their impact or application.

For more information about the grants program, call Suzanne M. del Villar, Executive Assistant to the Council, at ☎(209) 536-9201, or visit [www.treelink.org/connect/orgs/nucfac/2000\\_CCS\\_RFP.htm](http://www.treelink.org/connect/orgs/nucfac/2000_CCS_RFP.htm)



*Tree planting and stewardship programs provide opportunities for local residents to work together to build better communities.*

# Locals Are Top Green Power Consumers

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end of summer, 60 of the 78 local government agencies that comprise SANDAG also had switched almost half of all of their accounts to green power. Because ABAG Power was certified as an Energy Service Provider (ESP), it could enter into a direct wholesale power purchase with Calpine. SANDAG, however, did not get certified as an ESP and therefore could only buy from a retailer such as Commonwealth Energy of Orange County (which also gets its power supply from Calpine's geothermal power plants).

Chula Vista's City Council voted on June 29th to join SANDAG's cities of Coronado, Del Mar, El Cajon, Encinitas, Imperial Beach, La Mesa, Lemon Grove, Oceanside, Poway and Santee in purchasing a large portion of its electricity from The Geysers. It was Chula Vista Councilmember John Moot who challenged Commonwealth Energy to deliver a green power product that prompted the power marketer



to switch from peddling out-of-state coal to pushing green power this past January.

Since the switch in strategy, Commonwealth's business profits have increased ten-fold. "Many people told me deregulation of the electricity market would be a disaster for the environment," said Moot. "But I believe with every change, there comes opportunity. I think over the long-term, local governments can help create a market for investment in renewable energy," said Moot.

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***"With every change, there comes opportunity. I think over the long-term, local governments can help create a market for investment in renewable energy."***

**– Chula Vista Councilmember  
John Moot**

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**S**anta Monica's purchase is a bit better for the environment than either the ABAG or SANDAG purchases since a portion of its dollars goes to develop new geothermal power plants near the Salton Sea in Imperial County.

Part of the rationale for plugging into green power in Santa Monica and Chula Vista is the efforts these two cities have made to reduce air emissions linked to global climate change through the International Council for Local Environmental Initiative's Cities for Climate Protection Campaign. Other California local government partners include Berkeley, City of Los Angeles, Oakland, City of San Diego, San Francisco, San Jose, Santa Cruz, Santa Monica, and West Hollywood.

For more information about this campaign to put local governments in the energy policy driver's seat, check out the following web sites: [www.lgc.org/energy](http://www.lgc.org/energy), [www.iclei.org](http://www.iclei.org), and [www.cleanpower.org](http://www.cleanpower.org).

## *Holiday Cooking Tips: Slice the Turkey, Cut Your Energy*

If you use glass or ceramic pans, foods will cook just as quickly if you can turn your oven temperature down 25 degrees.

When cooking on top of your range, match the size of the pan to the heating element. A six-inch pan on an eight-inch burner, for example, will waste over 40% of the energy.

In an electric oven, you can turn the heat off several minutes before your food is fully cooked. As long as the oven door remains closed, enough heat will be stored inside to finish cooking your meal.

Opening the oven door lowers the temperature inside – by as much as 25 degrees – which increases cooking time and wastes energy. Use the oven light instead.

If you're baking or broiling small food items, a toaster oven is ideal because it uses one-third the energy of a bigger oven.

# Real Value of Energy Efficiency

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only will this reduce municipal electric bills, but it will also lower the overall cost of remaining electricity purchases for everyone in the community. A smart local government also would investigate how to access the state's public goods funds earmarked to perform energy efficiency upgrades.

The long-term administration of these energy efficiency funds remains up in the air. While under the jurisdiction of the California Public Utilities Commission and the California Board for Energy Efficiency for the last two years, a

new law (AB 1105) requires the California Energy Commission (CEC) to analyze how it could improve the effectiveness of spending public goods funding on energy efficiency. A public process is being conducted by the CEC to prepare a report for the California Legislature by the end of this year. To voice your views on how local governments can play a larger and more effective role in securing and/or delivering energy efficiency services, contact the California Energy Commission at [www.energy.ca.gov/publicbenefits](http://www.energy.ca.gov/publicbenefits).

## Tree Guidelines for South Coast

The Western Center for Urban Forest Research and Education and the Local Government Commission will release *Tree Guidelines for South Coast Communities* in early 2000. Designed for southern coastal climates stretching from Santa Barbara to San Diego, the guide will provide an extensive cost-benefit analysis that highlights the environmental, social, and fiscal benefits of urban forests. It will also offer siting and selection recommendations to reduce infrastructure conflicts and optimize benefits. Call ☎(877) 674-5159 to put your name on the waiting list.

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### LOCAL GOVERNMENT COMMISSION

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