

## SMUD provides the power -- on two fronts

### Gas-fired Cosumnes plant online

After months of start-up, commissioning and testing, SMUD declared the Cosumnes Power Plant to be in operation on Feb. 24.

The \$435 million plant is now operating at full load on a continuous basis so that SMUD dispatchers can utilize its production to meet customers' energy needs. With production capacity of 500 megawatts, the plant represents a major new supply of baseload power, capable of providing enough electricity to serve approximately 450,000 households.

"With the CPP in service, we'll be able to generate nearly three quarters of our customers' energy needs," said Bob Nelson, superintendent for thermal generation.

Fueled by natural gas, the plant uses combined-cycle technology to capture heat normally lost in the production of electricity. It has substantially higher fuel efficiency than most gas-fired plants in California, giving it a significant competitive edge.

The plant replaces power purchase contracts, reducing dependence on imported power, and will save a projected \$25 million to \$30 million annually compared with wholesale market prices.



Steam blows at SMUD's new natural-gas powered Cosumnes Power Plant in southern Sacramento County.

### Turbines to double wind capacity

Wind turbine generators taller than the Statue of Liberty will more than double SMUD's capacity to generate power with wind by May of this year.

Last month, towers that will support the generators' rotating blades arrived in 32 sections at the Port of Sacramento. They were transferred onto trailers for transport to SMUD's Solano Wind Project near Rio Vista, a trip that required special permits for oversized loads.

At Solano, SMUD is installing eight Vestas V90 wind turbine generators. Each wind turbine can produce three

megawatts, enough to power more than 1,000 homes a year. Each of the blades is nearly half as long as a football field. When one of the blades is vertical, the turbine assembly is 415 high, compared with Liberty's height of 305 feet.

"These will be the first wind turbine generators of this size in the western states," said Dick Wallace, SMUD senior project manager in Power Generation.

New roads and concrete foundations were constructed late last year in

**Continued on page 2**

# Wind power trends strong worldwide

Continued from page 1

preparation for the V90s. Vestas is expected to finish installing the towers with giant cranes in March.

In April, the blades, hubs and units that house the generators will arrive from Denmark on a container ship, Wallace said. Those components will then be assembled and hoisted atop the towers. Testing and commissioning will begin in late April, paving the way for 24 MW of new generation to be in commercial operation in time to help meet the summer's peak demand.

One of the fastest-growing energy technologies worldwide, wind generation is being fueled by strong demand, particularly in western Europe and the United States. As the technology has matured over the last 20 years, generating units have become larger and more efficient, making them more economical and competitive with established energy sources, including natural gas-fired generation.

The three-megawatt models SMUD is installing this year have more than four times the capacity of the 660-kilowatt models SMUD installed at Solano in 2003.

This year's expansion, known as Phase 2A, will boost capacity at Solano from 15 MW to 39 MW. Under the contract with Vestas, SMUD has an option to purchase 63 MW of additional generation for delivery in 2008.

And that could be just the beginning of a major expansion in wind power for SMUD as the District aims for 20 percent renewable energy by 2011.

"Wind is a very important piece of the puzzle here," said Mike DeAngelis, SMUD's program manager for Advanced Renewable & Distributed Generation Technology. "When you look at all of the renewable energy options, wind appears to be the least expensive of the options with large growth potential. We think SMUD can accom-

modate significantly more wind."

But wind power also presents challenges for utilities. For one thing, wind is variable and generation is hard to predict with precision. When the air is still, wind turbines don't generate power.

SMUD is studying how it could integrate more wind generation with its hydroelectric and gas combustion turbines, which can ramp up and down quickly.

"We want to understand how to best manage this resource, and how the costs change as we add more wind generation," DeAngelis said. "We want to know when it reaches the point that it's too costly and difficult to integrate more wind into SMUD's generation system."

Depending on the results of the integration study, which should be complete this summer, SMUD could add several hundred megawatts of wind generation in the next 10 years. SMUD's 6,000-plus acres at Solano can accommodate a total of at least 205 MW. SMUD already is researching more possibilities for development.

"We have investigated 86 potential sites on the West Coast and have narrowed it down to two that have the potential for several hundred megawatts of wind," DeAngelis said. "It will require a lot more study, environmental analysis and transmission solutions before we move forward, but these are possibilities."

Vestas is the world's largest supplier of wind turbine generators, and the international flavor of the industry is evident in the pedigree of its V90. The steel came from Korea, the towers were fabricated in Vietnam, blades and other components were fabricated in Denmark, where Vestas is based. After a five-year development program, the V90 is now considered commercial, and nearly 300 units are being installed around the world.

## Calendar

SMUD offers energy-education classes in its Energy and Technology Center, 6301 S St., Sacramento. For more information or to register, go to [smud.org](http://smud.org) and click on "Energy Education" or call **916-732-6738**.

All classes are free unless otherwise noted.

**Manual J Residential Load Calculations** (March 21, 8:30 a.m. to 4 p.m.)

**Sustainability in Architectural**

**Practice** (April 5, 8:30 a.m. to noon)

**Note:** The **Electric Service Reliability Committee Meeting** is at 8 a.m. at the Sacramento International Airport. Contact your account representative for more information.

# SMUD helps local firm see light -- and savings

Ted Pinnow, a facility maintenance supervisor for United Stationers, an office products distribution company in north Sacramento, remembers what he refers to as “snake oil salesmen” of the 1980s who tried to sell him on energy-efficiency measures that didn’t pan out.

That’s why he was skeptical when his SMUD representative told him about new energy-saving measures, products and programs that could help his company save money.

Now he’s glad he put his skepticism aside because SMUD energy efficiency recommendations reduced electrical consumption at United Stationers’ 250,000 square-foot Sacramento warehouse annex by 70 percent, and its neighboring 240,000-square-foot warehouse/office complex by 50 percent.

“SMUD gave us many ideas for reducing our electrical consumption,” Pinnow remembers. “The first was the removal of 800 metal halide fixtures from both of our facilities. With a simple change from these metal halides, to the new T-5s, we were able to cut our energy consumption in half with just a one-for-one retrofit. And with the addition of motion controls in the T-5 fixtures, we were able to go much deeper than the 50 percent reduction.”

SMUD’s efforts came at just the right time for Pinnow, who has worked in the business products industry for more than 20 years. In early 2004, the United Stationer’s national office in Chicago called for a War on Waste. The edict asked everyone in all of its facilities to look for ways to cut costs.

Pinnow called his SMUD major account representative, Mark Jagodzinski, and asked him what SMUD had to offer.

Jagodzinski wasn’t surprised by Pinnow’s skepticism because he comes across it from many facilities managers who were in the same line of work 20 years ago. Jagodzinski convinced Pinnow to talk to SMUD



**Ted Pinnow, left, facility maintenance supervisor at United Stationers’ Sacramento facilities, discusses energy savings with SMUD energy specialist John Brain, center, and SMUD major account representative Mark Jagodzinski, right.**

commercial services energy specialist John Brain, who toured the United Stationers campus and facilities and came up with several recommendations such as the installation of energy-efficient T-5 lights.

Another energy-saving measure was the installation of three extremely large fans that help keep one of the warehouses cool in the summer. These fans, which have 24-foot blades, took the place of 12 evaporative coolers, each run by 480-volt motors.

Pinnow raves about the Energy Profiler Online, or EPO, a

computer software program SMUD installed that tracks electrical consumption in the facilities. It monitors usage in real time, which can be somewhat mesmerizing. “It was hard to remain centered in my normal, daily responsibilities while watching the actual electrical consumption drop on a day-to-day basis,” Pinnow admits.

The EPO shows that SMUD’s recommendations are working and that the partnership with SMUD is a “huge success all the way around,” Pinnow says.

“If we can identify ways to use less electricity, it’s a win-win situation for both of us,” Jagodzinski explains. It’s a win for SMUD because it doesn’t have to go out and purchase more power in the higher-priced and volatile open energy market. It’s a win for the commercial customer because lower operating costs helps it stay in business.

The SMUD partnership with United Stationers was so successful that Pinnow, the onetime skeptic who initially didn’t think SMUD would be of much help, is now telling other businesses of the benefits of partnering with SMUD. He has spoken at a SMUD commercial customer forum. In addition, he offers tours of the United Stationers facilities to other SMUD commercial customers who want to see what SMUD did for his company.

For more information on how SMUD can help your business reduce energy consumption, call your account representative or visit [smud.org](http://smud.org).