

# SUSTAINABILITY E-NEWSLETTER

Photo Courtesy: DOE/NREL

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DEPARTMENT OF  
CENTRAL SERVICES,  
OFFICE OF FACILITIES MANAGEMENT

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## LEED Certification Sought at DHS Building

### INSIDE THIS ISSUE:

<a href="#">OG&amp;E Releases New Energy Rates</a>	2
<a href="#">Scheduling Around Peak Charges</a>	2
<a href="#">How Does It Work ? Installing A Geothermal System</a>	3
<a href="#">LEDs Shed Light on Capitol Complex</a>	3
<a href="#">LEED Certification Sought at DHS Building (continued)</a>	4
<a href="#">Energy Champion Spotlight</a>	4
<a href="#">Energy Champions List</a>	4

### Green Fingerprint

#### Sustainability Commitment:

*"We, the public servants of the state of Oklahoma, are hereby committed to the conservation of resources and the protection of future generations through the promotion and implementation of sustainable business practices."*



Teaming up with the Department of Human Services (DHS), OG&E, & Bergy Wind Company, the Office of Facilities Management has begun extensive renovation to the 23rd St. DHS building.

The project will incorporate water conservation equipment & techniques, the production and use of renewable energy, and numerous efficiency upgrades in an effort to achieve the highest-level of Leadership in Energy Efficiency & Design (LEED) certifica-



**THE DHS BUILDING (50 N.E. 23RD ST) WOULD BE THE FIRST STATE-OPERATED FACILITY WITH LEED CERTIFICATION**

tion possible. LEED certification is awarded by the U.S. Green Building Council (USGBC) which, according to the [USGBC website](#) is "aimed at improving performance across all the metrics that matter most: energy savings, water efficiency, CO2 emissions reduction, improved indoor environ-

mental quality, and stewardship of resources and sensitivity to their impacts."

High-performance roofing, windows, and premium insulation will reinforce the building's envelope. The improved envelope, in addition to a

*(Continued on page 4)*

## Energy Savings = No Increases in Rental Rates


Reduced operating budgets have inclined every state agency to find ways to minimize costs. The Office of Facilities Management (OFM) has reduced expenses associated with energy and water use through planning and scheduling the operations of state-owned facilities.

Sustainability projects have led to a 17% reduc-

tion of energy use from FY08 to FY09. These electrical and financial savings were crucial elements in leveling out a shrinking budget.

Escalating energy costs actually caused increases in dollars-paid for energy, despite decreased usage. During this time of inflated costs, efficiency upgrades directly contributed to over

\$672,000 in costs-avoided. Cost-avoidance is calculated by using last year's (FY08) energy savings at this year's (FY09) energy prices; the state would have paid an extra \$672,000 more this year if no action was taken.

These timely savings mean that there will not be any increases in rental rates for any agency housed in a DCS-operated building. 

## OG&E Releases New Energy Rates

Oklahoma Gas and Electric Company (OG&E) has released new rates for the next year effective August 3, 2009.

The 'on-peak' hours are the times when the most electricity is used (i.e. when the utility company must provide the most electricity to the most number of customers). It's no coincidence that this time frame corresponds with the hottest times of day; more cooling equipment is working harder during this time. Electricity used during on-peak hours is more expensive because more electricity must be provided to more customers.

New Energy Rates		
	OLD	NEW
Peak Season & Hours:	June–October 2pm–8pm	June 1 – Sept 30 2pm–7pm
On-Peak Demand:	\$10.73	\$6.35
Off-Peak Demand:	\$1.21	\$6.35
kWh Charge:	\$.0416	On – \$.1620 Off – \$.037
Power Factor:	80%	85%

Demand charges are the charges associated with how much energy the provider must have available to meet the energy needs of a customer. These charges are calculated using the highest 15-minute consumption during a billing period.

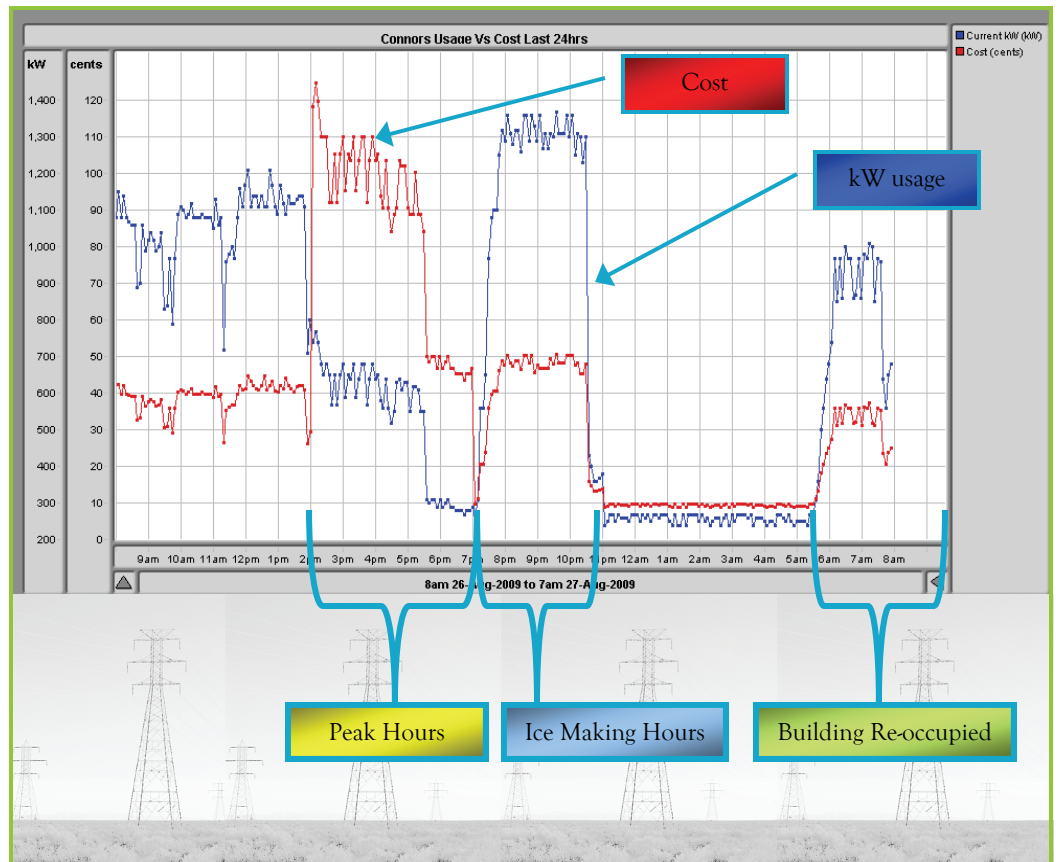
The power factor represents the "standard" for efficient use of the energy supplied by the utility provider. The current power factor, 85%, means that 85% of the power provided must be used in an efficient manner. Inefficient use of available energy can result in penalties and higher energy costs.

## Scheduling Around Peak Charges

The graph (right) is an actual screen-shot of the building automation system. The blue line shows the current kilo-watt (kW) usage; the red shows current cost for given usage.

Due to control strategies and the type of equipment in this facility, there is a noticeable drop in usage and jump in cost at 2 p.m. (peak begins). The cost & usage lines then flip positions at 7 p.m. (after peak).

Optimization of monitoring & scheduling abilities is crucial to avoid inflated peak charges and the most efficient way to operate a building's heating/cooling equipment. For example, some facilities make ice at night to help cool buildings during the day (called thermal storage). Ice is made after peak hours when kW cost is lower and used during peak hours when kW cost is higher.



## How Does It Work?: Installing Geothermal

Geothermal heating and cooling is the most efficient way to control the climate of a building. The technology utilizes ground wells, hot/cool piping loops, the constant temperature of the earth to minimize operation costs related to heating and cooling.

The traditional chiller and boiler combo is replaced with modular geothermal heat pumps. The pumps are placed inside of a building and water or an antifreeze solution is circulated through a closed loop system located in ground trenches.

Energy savings from a geothermal system are directly related to decreased heating/cooling workload in comparison to traditional methods. 🌱



1

A worker cutting through concrete in order to dig geothermal trenches



2

Beginning the process of digging out geothermal trench for piping



3

Trench dug to 4 foot depth



4

Piping laid out ready to be fused together and installed in trench



5

Geothermal well system fused together and ready to tie into building

## LEDs Shed Light on the Capitol Complex

The parking lots surrounding the Capitol have been converted to Light Emitting Diode (LED) technology. LED lights were an attractive option for the



Capitol parking lots not only because they use less energy, but also due to high maintenance costs.

Light poles in parking lots are tall and often difficult to access adding to the cost to replace just one bulb.

Most LED lighting devices, [depending on qual-](#)

[ity](#), will produce light for between 50,000 and 100,000 hours of useful life. Extending the life of each light fixture minimizes the frequency of maintenance and severely shrinks the cost of operation. Additionally, LEDs use significantly less energy, making them one of the most efficient lighting options available today.

All emergency tube light fixtures in the Will Rogers building that stay on 24 hours a day, every day of the week have also been converted to LED lighting .

The project which replaced 230 fluorescent light tubes (roughly 32 watts each) with 115 LED tubes (15 watts each) will reduce electricity consumption from these fixtures by 11,720 kWh annually.

Bulbs removed from fixtures during this project will be taken to the DCS warehouse where they will be recycled using the Bulb Eater. For more information on the BulbEater, visit the newsletter archives ([Issue 1.1; March 2](#)) on the Facilities Management Sustainability page. 🌱



**LED LIGHTS HAVE BEEN INSTALLED AT THE CAPITOL'S PARKING LOTS (ABOVE) AND IN SELECT AREAS OF THE WILL ROGERS BUILDING (BELOW).**



# LEAVING A GREEN FINGERPRINT FOR A SUSTAINABLE FUTURE

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## LEED...

(Continued from page 1)

geothermal heating and cooling system will provide an ideal environment for optimal efficiency during operation.

The building will feature renewable resources through the use of wind, solar, and geothermal energies. [Bergy Wind Power, Co.](#) will supply a 10-kWh wind energy system (pictured). Bids will be solicited for photovoltaic (PV) solar panels that will harvest the sun's energy from the roof of a covered parking structure.

Touchless faucets and super efficient hand dryers will minimize paper towel use and provide improved sanitation. Waterless urinals, ultra low-flow toilets, and aerated faucets will contribute to annual savings of approximately 59,000 gallons of water. [Calculated using [Zurn Water Usage Calculator](#)].

When the project is complete, the building will be one of the most energy-efficient & environmentally-friendly in the entire state. 🌱

## Energy Champions

Office of the State Auditor & Inspector	Georgia Godwin
Oklahoma Arts Council	Michele Gann
State Department of Education	Kent Tippin
Oklahoma Conservation Commission	Karla Beatty
Oklahoma Tax Commission	Paula Ross
Oklahoma Department of Human Services	Adele Jack
Treasurer's Office	Kathy Ernst/ Amy Sparks
Oklahoma Water Resources Board	Chris Neel
Office of Personnel Management	Terri Berry
Oklahoma Department of Environmental Quality	Fenton Rood
Office of the Secretary of the Environment	Amanda Storck
Office of the Secretary of Energy	Cassie Gilman
Teacher's Retirement System	Donna Spurrier
Department of Mental Health & Substance Abuse Studies	Shawn McCarty
Tourism & Recreation Department	Jessica Blackstock
Oklahoma Department of Career & Technology Education	Donna Sinnes

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E-NEWSLETTER ARCHIVES

## Energy Champion Spotlight



Kent Tippin  
State Department of Education

A CFL Exchange participant and daily recycler, Kent Tippin is the focus of this edition of Energy Champion Spotlight. He has worked for the State Department of Education for 24 years.

When asked why it's important to 'leave a Green Fingerprint' at work, Tippin simply submitted a photo of his daughters, Rylee & Hayden, during a vacation in Florida. "We need to leave [the environment] in the best shape possible," Tippin said.

You hit the nail on the head, Kent. Keep up the good work! 🌱

