

Your Energy CONNECTION

a newsletter from the South Carolina Energy Office

SC Schools Harness the Power of Energy Efficiency

As part of the American Reinvestment and Recovery Act of 2009 (ARRA), South Carolina's school districts were encouraged to develop energy efficiency projects with a return on investment of 2.5 percent or greater. The South Carolina Energy Office administered the stimulus funds to schools, colleges, and state agencies as State Energy Program (SEP) grants and loans. Most of the state's school districts used the stimulus funds for energy efficiency upgrades including the replacement of inefficient lightbulbs, the installation of new boilers and HVAC systems, and the creation of energy management systems that allow facility managers to control and track energy usage at all district locations from their main offices.

Lighting

While districts across the state are working to build new, state-of-the-art facilities, many do not have the resources or funding necessary to replace aging buildings. These older buildings have lighting that is not only outdated, but also underperforming, forcing children to learn in dimly-lit classrooms. SEP funding allowed more than 70 schools to upgrade to energy efficient lighting in classrooms and gymnasiums, with the bulk of upgrades involving the replacement of T-12 fluorescent bulbs with the more efficient T-8 bulbs. One primary difference between T8 and T12 fluorescent bulbs is the diameter of the bulbs and their bases. While both come in standard lengths, commonly four feet, the number 8 or 12 refers to the difference in the diameter of the bulb. T8s are one inch in diameter, while T12s have a larger diameter of one and a half inches. Another area in which the two differ is in their energy usage. A T8 bulb is 32 watts, while a T12 is 40 watts. This makes the T8 a more energy-efficient bulb to use. Over time both will begin to lose their intensity and brightness, however T8 bulbs have a slower period of decrease, losing only 10 percent of their initial brightness after 7,000 hours of use. In comparison, T12 bulbs can lose 20 percent, or double the T8 loss, after the same number of hours. In addition to lightbulb upgrades, districts also added motion sensors to lessen energy usage when classrooms and buildings were unoccupied.

Energy Management Systems

An energy management system (EMS) is a system of computer-aided tools used by operators of electric utility grids to monitor, control, and optimize the performance of the generation and/or transmission system. Fifteen school districts installed some form of EMS to equalize energy use across the district and to better monitor temperature, lighting, and energy usage. Thermostats with motion sensors were installed to prevent the HVAC units from running when classrooms are unoccupied and new system thermostats with temperature controls only allow for a ten degree temperature variance. Georgetown County used their EMS as an informational dashboard in the district office, as a supplemental education tool on science classroom smart boards, and as a tool available throughout the district on library and classroom computers. Through the use of energy management systems, the district can show real-time energy usage data for each school and comparison data between different schools, creating competition among schools and enhancing existing energy saving efforts. Educational displays and animations in the program show numerous techniques for energy efficiency and reduction.



Programmable thermostats keep temperatures consistent, reducing energy usage (top) and motion sensors installed in district classrooms help keep costs down while rooms are unoccupied (bottom).

SCEO Calendar of Events

July 2013

- 23 **ASCEM Graduate Class: Life Cycle Cost Analysis (for CEM graduates only)**
SCE&G Training Room
SCE&G Lexington Gas Operations
111 King Street
Lexington, SC
8:30 a.m. to 4:30 p.m.
To register contact Julia Parris: 803-737-9825

ASCEM Plans Unique Courses for Energy Managers

The Association of South Carolina Energy Managers (ASCEM) is offering a new graduate class for those who have completed the Certified Energy Manager (CEM) course. Dennis Knight, of Whole Building Systems, LLC, will be teaching the class on Draft Life Cycle Cost Analysis (LCCA) at the SCE&G training room in Lexington. The class will explain what LCCA is and how you can use it in retrofits, upgrades, and cost-benefit analyses. Attendees will learn how to use basic methods of calculating LCCA as well as web-based tools and modeling software. In order to attend, you must have completed and passed the Certified Energy Manager Course. If you have not yet completed the CEM courses, there are several opportunities coming soon! For more information on the LCCA class or to register to attend, please contact Julia Parris at 803-737-9825 or jparris@energy.sc.gov.

What: Life Cycle Cost Analysis CEM Graduate Class

When: Tuesday July 23, 2013

or

Tuesday August 13, 2013

Time: 8:30 a.m. to 4:30 p.m.

Where: SCE&G Training Room

SCE&G Lexington Gas Operations

111 King Street

Lexington, SC

Cost: \$35



2013 SOUTH CAROLINA
CLEAN ENERGY SUMMIT

The 2013 SC Clean Energy Summit will be hosted at the Columbia Metropolitan Convention Center (1101 Lincoln Street, Columbia) on Thursday, July 11, 2013. Sessions to include: Solar, Wind, Biomass, Hydrogen and Fuel Cells, Energy Efficiency, Clean Energy Project Finance, Clean Transportation, and Recycling.

The South Carolina Energy Office will sponsor a session on clean transportation which will include speakers from Clemson University's International Center for Automotive Research (CU-ICAR) and ICF International. Sen. Vincent Sheheen will deliver the keynote address.

The South Carolina Clean Energy Business Alliance (SCCEBA) has been tasked with building a broad-based business alliance that fosters the development of a clean energy industry in South Carolina. SCCEBA represents the needs and interests of this growing industry through policy development, educational outreach to decision makers, and strategic economic development.

For more information about the Clean Energy Summit or to register, visit SCCEBA online at www.scceba.biz.

Energy Emergency Assurance Planning for Local Governments

It is important for local governments to plan for the unexpected. In emergency situations, community leaders need to know what steps to take to get key services up and running. Having fuel and electricity is key to maintaining order and getting the community back on track. Energy assurance deals with restoring and maintaining electric generation stability, ensuring petroleum product supplies/delivery (natural gas, propane, and gasoline) and cyber security. Local government officials, including police and fire department personnel, gathered for two days in June for Energy Assurance training. With hurricane season underway, the importance of energy assurance was on everyone's mind. The training took place at Trident Technical College and Midlands Technical College.

The classes were led by the Public Technology Institute (PTI), a group that actively supports local government executives and elected officials through research, education, executive-level consulting services, and national recognition programs. As the only technology organization created by and for cities and counties, PTI works with a core network of leading local officials — the PTI membership — to identify research opportunities, share solutions, recognize member achievements and address the many technology issues that impact local government.

Super-Storm Sandy and the ensuing fallout was the main focus during the training. Attendees learned how to handle energy payments without electronic means, how to identify infrastructure interdependencies, and how to build relationships with energy brokers to solve shortage problems. The timing of an order for fuel, verifying emergency clauses to guarantee delivery, and making sure gas stations have generators to keep fuel flowing without using power grid electricity are also issues to keep in mind when verifying energy availability.

Tips for having a successful Energy Assurance Plan include discovering daily energy consumption, involving fleet staff in decision making, publicizing the plan, and involving the community in the planning process as much as possible. Maintaining energy continuity is a vital part of a recovery process, powering vehicles, and providing shelters. Valuable foresight should be used when making fuel orders, as it takes several days for gasoline to make it from the Gulf of Mexico to South Carolina. The South Carolina Emergency Management Division plans for the future include using a reverse 911 service to disseminate information to the general public and first responders, as well as the creation of an Emergency Common Operating Procedure (EMCOP), an electronic data map program that allows for real time updates and visualization of disaster areas.

To download the presentations and planning information from the Local Government Energy Emergency Assurance Training, please visit the PTI website: <http://www.pti.org/index.php/ptieel/more/878/>