

2010 Energy Conservation Report



STATE
UNIVERSITY
SYSTEM
of FLORIDA
Board of Governors

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BOARD OF GOVERNORS**

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This report summarizes the efforts and accomplishments of the State University System (SUS) in reducing campus energy consumption over the past three years. These reductions have afforded tremendous benefit to the SUS, and have resulted in significant operational savings. These efforts are being reported as required by Laws of Florida Chapter 2010-155, House Bill 5201, Section 30.

This legislation directed the following:

- (1) Each Florida college and state university shall strive to reduce its campus-wide energy consumption by 10 percent. While savings may be accrued by any means, the goal shall be to implement energy use policies or procedures or both and any equipment retrofits that are necessary to carry out this reduction. The reduction may be obtained by either reducing the cost of the energy consumed or by reducing total energy usage, or a combination of both.
- (2) Energy consumption expenditures incurred during the 2007-2008 fiscal year shall be used to establish the benchmark for the 10 percent goal. If a Florida college or state university can document that it has implemented energy use policies or procedures in the 2008-2009 fiscal year or the 2009-2010 fiscal year that resulted in reduction in energy usage or costs, those reductions may be counted towards the 10 percent goal.
- (3) Each Florida college and state university shall submit a report to the Governor, the Speaker of the House of Representatives, and the President of the Senate by January 1, 2011, describing how they have met or plan to meet the 10-percent energy consumption reduction goal.

A common reporting template was developed to ensure data would be consistently reported. The simplified form allowed rapid and efficient collection of both total energy consumption and total energy costs at all Florida state higher education institutions. This template was developed jointly by staff of the Florida College System and Board of Governors at no additional cost to the State of Florida. Research indicates that other states have spent thousands of dollars developing data collection methodologies, rather than focusing efforts on actual energy reduction practices.

State University System Comparison (2007-08 to 2009-10)

1. Absolute Energy Costs

From 2007-08 to 2009-10, the total amount spent on energy (electricity, natural gas, and other fuels) did **not** increase, even though the amount of conditioned space increased by over 6%, and student FTE increased by 3%.

2. Absolute Energy Consumption

Measured per thousand BTU's, total energy use increased by 3%, paralleling the increase in student FTE.

3. Energy Performance (EPI)

Using the national benchmark of the energy performance indicator (EPI), which is used by the Environmental Protection Agency (EPA) as part of its EnergyStar rating program, the State University System showed a 3% decrease, or reduction in the kBTU consumption per gross square foot of energy.

4. Cost per Square Foot and Cost per Student FTE

These are holistic indicators, showing our system is moving in the direction of reduced consumption and costs. Given the entrenched nature of energy use, which reflects both the physical nature of existing facilities, as well as current societal energy use norms, changing the absolute and relative direction of energy use will be an ongoing commitment.

5. Specific University Accomplishments and Goals

Each university has specific goals related to energy reduction, sustainability, green initiatives, etc; a link or links to appropriate college or university web-sites related to energy reduction for further information is provided. These include adoption of U.S. Green Building Council (USGBC) Leadership in Energy and Environmental Design (LEED) Certified standards (or equivalent alternative) for all major new construction and renovation projects, with schools typically adopting LEED silver or gold. All institutions are investing in utility infrastructure and operating improvements to increase chilled water production efficiencies, measure/manage electrical distribution and reduce distribution losses in other legacy utility systems, as further described below.

Each campus of the SUS independently pursues energy efficiency improvements and cost containment. The goal is to improve energy efficiency while

maintaining the desired level of service to the campus community. These efforts include vigorous participatory student and staff education and behavior modification efforts, including the following representative measures:

- Purchase natural gas on long term fixed price contracts when the price is down, and on market index pricing.
- Install heat recovery systems such as Heat Pumps in air handling units to reduce heating and cooling energy.
- Improve efficiency of chilled water distribution system with variable frequency drives for primary pumps, condenser water pumps, and shut off secondary and tertiary pumps.
- Convert valves at air handling units from 3-way to 2-way, to reduce flow and electricity use.
- Install and maximize use of the most efficient chiller systems available; Install optimization control programs.
- Install white solar reflective roofs during re-roofing, to reduce solar heat gain and to save on cooling costs.
- Replace 32 watt fluorescent lamps with energy efficient 28 watt lamps.
- Install motion sensors and controllers for lights.
- Install new energy efficient LED and Induction lighting for security, roadways and sidewalks.
- Modify design guidelines and Standards to increase energy, efficiency such as, increased insulation requirements, point-of-use water heaters, etc.
- Adjust electrical timers to reduce hours of parking lot and building exterior lighting.
- Install CO2 sensors in air handlers to reduce demand when classrooms are unoccupied.
- Raise chilled water temperature and lower hot water temperature to reduce cooling and heating energy.
- Lower hot water or electrical reheat set points to save electricity and heating energy.
- Transfer night custodians to day shift for building shutdown.
- Install 'energy miser' on vending machines to reduce electric usage.
- Install timers on fountains to reduce usage.
- Install thermal storage to reduce energy cost by manufacturing ice during off-peak periods.
- Conduct HVAC retro-commissioning.
- Conduct retrofit and re-lamping programs.
- Install occupancy sensors for lighting and air-conditioning in auditoriums.
- Install solar photo voltaic and hot water systems.
- Replace T-12 lamps with T-8s.
- Replace existing exit lights with LED exit lights.

- Add lighting controls for outdoor lighting to shut lights down during daylight hours.

6. Offices of Sustainability

Most of the universities have a dedicated website outlining the initiatives taking place on their campuses.

University of Central Florida: www.energy.ucf.edu/

University of Florida: www.sustainable.ufl.edu/

University of South Florida: <http://usfweb2.usf.edu/Sustainability/>

Florida State University: www.sesec.fsu.edu/

Florida Atlantic University: <http://www.fau.edu/facilities/sustain/>

University of West Florida: <http://uwf.edu/plantoperations/es.cfm>

New College of Florida: <http://www.ncf.edu/finance--administration>

Florida Gulf Coast University: <http://www.fgcu.edu/EHS/index.html>

Florida International University: <http://wordpress.fiu.edu/gogreen>