

Sustainable Energy

University Facilities (UF)

Internal Standard 03.A.02.01

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Introduction

Clemson University is committed to doing its part to reduce its carbon footprint and CO2 emissions. While the mission of the University depends on having energy-intensive lab, classroom, and office space available to learn, study, and research, there are numerous ways to mitigate the university's contribution to global warming. The goal of this policy is to create a realistic and comprehensive document that identifies energy and water conservation and efficiency as significant issues for the entire campus community. This document details steps that will be taken to address these issues and reach the energy efficiency goals of the University. This policy will be reviewed and updated periodically as public awareness, management techniques and technologies change.

Conservation Goals

It is the goal of Clemson University to reduce energy consumption per gross square foot of building space on average by 1% per year, with an ultimate goal of reducing energy consumption by twenty percent by the year 2020 relative to the fiscal year 2000 baseline. This goal is in alignment with the requirements of SC House Bill 4766 (Energy Conservation Plans) which became effective June 11, 2008.

Long Range Goal

It is also the goal of Clemson University to increase the sourcing of energy from renewable resources to 10% by fiscal year 2025.

Specific Measures

Buildings

Windows and doors of conditioned spaces shall be kept closed. Personal computers, other office equipment, lights, and window or standalone air conditioners shall be turned off when not in use. Power management features of personal computers shall be enabled. As time and funding allow, building mechanical systems will be added to the central building automated control system (BACS). This will permit greater control over operating schedules and temperatures, will reduce energy consumption, and will permit implementation of demand management strategies to reduce energy costs.

New Construction

In addition to achieving a minimum of a LEED Silver certification, new buildings shall be designed and built to minimize energy use by earning at least 40% of the available points for energy performance under the LEED Credit for Optimization Energy Performance. The design process shall include energy life cycle costing analyses. New construction shall be added to the existing building automated control system for enhanced energy management capabilities. Alternative energy sources such as passive solar heating and heat recovery shall be considered, as well as daylighting and other strategies for decreasing building energy consumption. Primary consideration shall be given to connecting and/or extending central systems for heating, cooling and other mechanical systems. Year-round cooling needs shall be met by utilizing the most energy efficient systems (for example plate-and-frame heat exchangers versus less efficient air-cooled systems.) All new buildings shall include extensive utility metering (electricity, natural gas, steam, and water) and sub-metering (lighting, HVAC, lab services, other) in order to determine how much and where energy is being consumed.

Lighting

Most lighting on campus is being retrofitted or upgraded to high efficiency LED lighting. Remaining areas shall be upgraded as funding is available. New construction and remodels shall use high efficiency LED lighting. Where cost effective, lighting occupancy sensors shall be installed. Interior decorative lighting shall be kept at a minimum and exterior decorative lighting shall be discouraged. Lighting levels recommended by the Illuminating Engineering Society Lighting Handbook shall be used as guidelines to avoid over-lit spaces. Increased use of daylighting and daylighting controls shall be considered because use of daylight spaces decreases energy costs and may improve productivity.

Heating

During the heating season, room temperatures shall be maintained at a minimum of 69°F when occupied. Whenever it is economically and technically feasible, night setback features of the BACS system will be

utilized to allow temperatures to drop to 65°F during unoccupied periods. The only exceptions to this policy are special areas such as animal care units or research facilities that require constant or warmer temperatures. The Chief Facilities Officer will evaluate requests for exemptions on an individual basis. University Facilities will utilize the most energy efficient means of supplying heat for approved off-hour/holiday requests. Individual electric space heaters are not allowed and will be confiscated. In situations where the building HVAC system cannot heat the space to 69°F, University Facilities will provide the appropriate supplemental heat source until the problem is resolved. Areas that are either too hot or too cold shall be reported as soon as possible to University Facilities at 656-2186.

Cooling

During the air-conditioning season, room temperatures shall be maintained at a maximum of 76°F when occupied. Whenever it is economically and technically feasible, night setback features of the BACS system will be utilized to allow temperatures to rise to 80°F during unoccupied periods. The only exceptions to this policy are special areas such as animal care units or research facilities that require constant or cooler temperatures. The Chief Facilities Officer will evaluate requests for exemptions on an individual basis. Supervisors are encouraged to accommodate reasonable requests from employees who wish to wear more casual clothing because of the increased temperatures. Areas that are too cold or too hot shall be reported to University Facilities at 656-2186.

Water Usage

Use of irrigation water shall be minimized through rainfall monitoring. The University shall also investigate collecting stormwater for non-potable uses on campus. Low water use flush valves and flow restrictors on faucets and showers shall be used in restrooms. No single-pass cooling water will be used on mechanical equipment in new construction or remodels. Existing equipment that uses single-pass cooling water will be eliminated as time and funding allows. Water leaks, dripping faucets and fixtures shall be reported to University Facilities at 656-2186

Transportation

Use of the Clemson Area Transit program and car/van pooling shall be promoted. Faculty, staff and students are encouraged to walk, bike or use public transportation to get around campus. Fleet and service vehicles used on campus shall not be left idling.

Acquisition of new University fleet vehicles shall be reviewed thoroughly, and vehicles shall be purchased with the highest fuel efficiency possible in accordance with state vehicle management policy.

Purchasing

Energy efficient products shall be purchased whenever possible. Refer to the University Sustainable Procurement Policy.

Computers

Please shut them down. Turn off your computers anytime you are not using them & eliminate the screen saver function - it uses more energy than the sleep mode. A computer left on all day uses nearly 1,000 kilowatt hours of electricity a year, producing more than a ton of carbon emissions.

Recycling

University Facilities is responsible for the campus recycling program. Disposal of materials in the solid waste stream represents an increasing expense for the University. Design of campus facilities shall incorporate the facilities necessary to make recycling feasible for University users. When economically feasible, recycling shall be expanded to include such things as green waste (for composting), construction waste, and used office waste such as computers. For more information on recycling at CU, please see the recycling web site.

Continued Success

There are several ongoing activities that will help ensure the success of CU's sustainable energy policy.

Monitoring

No energy conservation program will be successful if progress is not monitored on a continuing basis. Most buildings on campus have metering devices installed. Meter readings will be used to track utility consumption and the data used to locate problem areas as well as determine if conservation goals are being met.

Training

Training will be provided to ensure that both operators and service technicians have the skills and knowledge to effectively apply the technology used to achieve energy savings.

Maintenance

Mechanical system efficiency degrades over time. Priority will be given to performing preventative maintenance to ensure that systems operate as efficiently as possible. Repairs to systems that impact energy consumption will be given high priority.

Education

University faculty, staff and student cooperation and support of the energy policy are the keys to its success. An education program via a link on the University Facilities web site will provide information on utility costs and trends.

Suggestions

Any suggestions for ways of reducing energy consumption on campus should be addressed to the University Facilities Energy Manager at energysave@clemsun.edu.