

Summary of Greening of State Government Executive Orders

Energy Management

- By Fiscal Year 2011-2012 achieve at least a 20% reduction in energy consumption of state facilities below fiscal year 2005-2006 levels
- By January 2008 develop or update an energy management plan and ensure development of a study determining the feasibility of energy performance contracting for all state owned facilities
- On an ongoing basis, assess and implement where effective, the development of state renewable energy projects with the support of the Governors Energy Office

Materials and Resource Management

- By fiscal year 2008-2009, develop purchasing policies to reduce the state's environmental impact as a consumer of products and services
- Adopt a goal of "zero waste" from construction of new buildings and operation and renovation of existing facilities
- Achieve a paper use reduction goal of 20% by fiscal year 2011-2012 using fiscal year 2005-2006 as a baseline
- Achieve a reduction of water consumption goal of 10% by fiscal year 2011-2012 using fiscal year 2005-2006 as a baseline
- The Department of Personnel, in cooperation with the Department of Public Health and Environment, shall develop purchasing policies for selecting environmentally preferable products

Vehicle Petroleum Consumption and Fleet Efficiency

- By June 30, 2012, achieve a 25% volumetric reduction in petroleum consumption by state vehicles measured against a fiscal year 2005-2006 baseline, while increasing efficiency of the fleet (excluding vehicles used for law enforcement, emergency response, road maintenance and highway construction)
- By December 1, 2007, complete a transportation efficiency audit addressing methods for improving the environmental efficiency of the state fleet.

Background

Although the Governors Executive orders related to the Greening of State Government do not technically apply to Higher Education, the approach at UNC for many years has been to achieve similar goals.

As far back as the 1980's, UNC implemented extensive energy conservation measures to reduce energy usage in our buildings. UNC Design Guidelines have specified high efficiency motors, energy saving lighting, water saving plumbing fixtures and similar measures since the early 1990's. Many rebates have been received from our electric and water utilities due to implementation of these guidelines on our capital projects.

The UNC recycling program was created in 2002 and has grown steadily over the years.

In 2003, as part of several Energy Performance Contracts, UNC hired our first Resource Conservation Manager for the campus. The Resource Conservation Manager is charged with provide education to the campus occupants as well as monitoring energy usage and implementing new conservation projects on campus.

The Energy Performance Contracts included water conservation measures, lighting upgrades, HVAC and building automation upgrades in 15 major campus buildings.

We are in the process of implementing a new Energy Cap software program which will improve our ability to monitor and report on energy usage on campus.

Several campus buildings have been "re-commissioned", a process which systematically reviews HVAC and control systems for proper operation and sequence of control. Any portions of the system which are not functioning properly are then repaired and upgrades as needed.

Past consumption data <INSERT DAVE INFO>

Energy Conservation base line and target data for Executive orders. <INSERT DAVE INFO>

Energy Management

Electricity

Conservation Projects

- Occupancy sensors installed in classroom and other spaces
- Installed a 10kw solar PV system on McKee Hall
- Replaced over 20 older refrigerators with more efficient energy star rated units with a grant from the Governors Energy Office
- Building Automation system has been expended to provide many more equipment data points and allows building systems to be set back during unoccupied hours, weekends and holidays

- Most mechanical equipment now includes premium efficiency motors and variable frequency drives
- Dining services has replaced most ovens with Rational Combi Ovens providing increased efficiency and energy savings due to reduced cooking time
- Most vending equipment is equipped with occupancy sensors to shut off the lights during unoccupied times
- Most lighting on campus has been upgrades to more efficient lamp types such as compact fluorescent, induction and LED. Most incandescent lamps have been eliminated
- Exterior lights are controlled by a combination of photo sensors and the building automation system

Heating/Cooling

Conservation Projects

- Re-commissioned several building HVAC systems to optimize performance
- Upgraded the Heating Plant pumping arrangement to improve efficiency
- Expanded the building automation system campus to control additional equipment and implemented additional night, weekend and holiday temperature set backs
- Replaced one of the original boilers at the Heating Plant with a new unit including economizer capabilities
- Replaced the Campus Recreation Center chiller with a new high efficiency centrifugal chiller
- Installed VFD's on most pumps and cooling towers on campus
- Pump coolant lines have been re-piped to recycle the water as condenser water rather than dumping the water down the drain

Potable Water

Conservation Projects

- Installed low flow shower heads in all campus Residence Halls and athletic locker rooms
- Replaced all toilet and urinal flush valves with low flow units. The City of Greeley provided a significant rebate for the urinal flush valve project
- Installed bottle fill stations in campus residence halls, the Campus Recreation Center and Parsons Hall
- Increased the use of non-potable ditch water to irrigate the lawns on west campus and at the Jackson Sports complex. A joint project with the City of Greeley that would bring non-potable water onto the central campus is being planned

Materials and Resource Management

Green Purchasing

- Campus units are strongly encouraged to purchase Energy Star rated appliances and equipment
- Ecosoft Green Seal towels and Tissue are used on campus. Towels contain up to 73% post consumer wastepaper. The tissue product contains up to 49% post consumer wastepaper. Both product lines are made with de-inking and bleaching process that are free of chlorine and other harmful chemicals
- Custodial Services also uses Green Seal certified cleaning chemicals
- Paints and other products are specified as low VOC products
- Facilities Management is working toward a reduction in the use of pesticides and herbicides in the turf management program
- Pest management contractors are continuing their efforts to minimize the use of chemicals and pesticides where possible
- Housing provides information on conservation efforts and recycling as part of the student handbook

LEED Certification of New & Renovated Buildings

- Current state law requires that all state funded construction be designed, constructed and certified as at least LEED Silver. UNC design standards have included requirements that would meet the LEED goals for many years. Several of our buildings such as the new West Campus Residence Halls would meet the LEED standards but have not been certified
- The recent addition and renovation of Butler Hancock Hall received LEED Gold certification and is the first certified building on campus
- We are currently working on standards and policies that would enable us to achieve LEED certification for Operations & Maintenance in Existing Buildings

Paper Usage

- Information Technology instituted a pay for print system in the student computer labs
- Departments are encouraged to use double sided printing when available. IM&T is in the process of setting this as the default for most equipment
- Accounting has implemented electronic interdepartmental purchasing
- All employee pay advices and expense reimbursements have been converted to electronic
- Facilities Management billing is fully electronic
- <PAPERLESS BILLING?>
- <PAPERLESS REGISTRATION?>
- <TELEPHONE DIRECTORIES?>

Recycling

- Recycling on campus has grown steadily. Last year, approximately 450,000 pounds of materials were collected. The program has one full time employee and several student employees.
- Surplus items on campus are collected by Custodial Services and are made available for reuse by campus departments
- Surplus electronics are recycled rather than being sent to the landfill
- Bear Essentials is a program that collects unneeded furniture and other items at hall closing. Collected materials are then donated to local groups for reuse
- Surplus pallets from the warehouse are collected and recycled by a local pallet company
- Recycling for campus events was instituted in 2011
- UNC is assessing the costs and benefits of converting to a single stream recycling program

Dining Services

- Dining services has started a pilot composting program at Holmes Hall
- The compactor at Holmes Hall included a solar power control system
- Dining services includes sustainability requirements for their prime vendors
- Replacement equipment is energy star rated when available
- Grab N Go operations utilize compostable containers
- The UC food court uses biodegradable plates and utensils for their operation
- Dining menus are designed around seasonal products to reduce transportation requirements
- On earth day, dining sponsors a “Lights out lunch”
- Educational programs are offered to inform students about food waste in the dining halls

Vehicle Petroleum Consumption and Fleet Efficiency

Campus Fleet Efficiency & Petroleum Consumption

- UNC has purchased four hybrid vehicles. Two in Facilities Management, One for UNCPD and One assigned to the rental fleet
- The UNC fleet includes 30 alternative fuel vehicles capable of using E85
- Grounds, Athletics and IT use several gator and golf cart type vehicles on campus
- The Campus Recreation Center started a “Blue Cruiser” program as part of the student approved Quality of Life initiative. The program provides 100 cruiser bikes that can be checked out by campus occupants
- Five bike repair stations have been installed on campus
- As part of the Butler Hancock LEED project, several reserved parking spaces were identified for alternative fuel vehicles and are located in “M” parking lot on west campus
- Grounds is investigating the use of biodiesel for their mowers and other equipment