

Energy Data Management

Past Year Accomplishments	Measurement	Savings Actual or Calculated	Cost	Funding Source
KPI data updated.	Yearly.		8 manhours.	
Update utility data and charts posted on UNCG website for energy.	Yearly.		8 manhours.	
Replaced electric sub-meters in core campus buildings and added some additional sub-meters (84 total).	Monthly.		\$341,000	R&R funds.
Future Planned Activities	Measurement	Savings Estimated	Cost	Funding Source
Connect individual building electric meters to an Energy Management Software system to track energy usage.	Monthly.		\$10,000 per building.	TBD
Update KPI data.	Semi-annually.		8 manhours.	
Update utility data and charts posted on UNCG website for energy.	Yearly.		8 manhours.	
Replace and/or install new water sub-meters in core campus buildings.	Monthly.		\$500,000	TBD

Energy Supply Management

Past Year Accomplishments	Measurement	Savings Actual or Calculated	Cost	Funding Source
Work with electric utility to perform rate analysis.	Yearly.	~\$500,000	8-16 manhours.	
Sub-meter irrigation and cooling towers to receive non-sewer water credits from City of Greensboro.	Read meters and report data to City monthly.	46 million gallons of avoided water cost.	8 manhours per month.	
Work with natural gas marketer to purchase gas on wholesale market. Marketer negotiates interstate and local transportation costs.	Quarterly.	~5%		Utility Budget.
Phase I: Replace 50-70 year old steam and condensate underground distribution piping from steam plant throughout campus.		~1-3%	\$1,667,000	R&R funds.
Future Planned Activities	Measurement	Savings Estimated	Cost	Funding Source
Work with electric utility to perform rate analysis.	Yearly.	~\$500,000.	8-16 manhours.	
Continue to sub-meter irrigation and cooling towers to receive non-sewer water credits from City of Greensboro.	Read meters and report data to City monthly.	~1/4 of water consumption in avoided water cost.	8 manhours per month.	
Work with electric utility to verify non-metered accounts such as parking lot lighting, etc.	Semi-annually.		~8 to 40 manhours.	
Continue to work with natural gas marketer to get the lowest gas rates possible.	Quarterly.			
Replace 50-70 year old steam and condensate underground distribution piping from steam plant throughout campus in multiple phases.		~1-5%	~\$70,000,000	TBD

Energy Use in Facilities

Past Year Accomplishments	Measurement	Savings Actual or Calculated	Cost	Funding Source
Performance Contract for four campus buildings and main chiller plant.	Annual.	~\$500,000 per year for 12 years.	~\$500,000 per year for 12 years.	Utility Budget (Performance Contract)
Lower hot water system enable setpoint used for building reheat.	Quarterly.		8 manhours.	
Lower condenser water setpoint for McIver Street Chiller Plant.	Quarterly.		8 manhours.	
Re-Commission HVAC Controls of Music Building.	Quarterly.		\$50,000	
Replace T12s with T8s in all 5 racquetball courts of SRF Building.	Monthly.	~\$7,500 per year.	\$1,800	Student Fee Funded
Replace 41 metal halide light fixtures (250w) with compact fluorescent fixtures (108w) in McNutt Building.	Monthly.	~\$3,500 per year.	\$13,750	O&M funds.
Future Planned Activities	Measurement	Savings Estimated	Cost	Funding Source
Continue to upgrade DDC control system in conjunction with renovation projects.				R&R funds, Bond funds (Capital Projects).
Continue to seek low/no cost ways to improve utility operations system.	Annual.			Utility Budget.
Continue to establish a commissioning/re-commissioning/retro-commissioning program.	Annual.	~5-25% energy per building.	\$50,000 per building.	TBD
Benchmark energy usage in campus buildings and rank.	Annual.			O&M funds.
Select an Energy DashBoard software system.	Monthly.	~3-5%	\$50,000 per building.	TBD

Equipment Efficiency

Past Year Accomplishments	Measurement	Savings Actual or Calculated	Cost	Funding Source
Performance Contract for four campus buildings and main chiller plant. (Completed construction in September 2008)				
Installed Occupancy Sensors throughout Moore Nursing Building.	Monthly meter readings.	~3%	\$38,367	Department Funds.
Replaced hot water boiler, radiator heat, and window A/C with new gas-pack heat pump system and installed ductwork for the Family Research Center (Bldg #064).		~5-20%	\$11,320	O&M funds.
Future Planned Activities	Measurement	Savings Estimated	Cost	Funding Source
Boiler tune-up.	Annual.		\$5,000	O&M funds.
Upgrade and improve preventative maintenance program to include energy comparison and benchmarking of all facilities.	Quarterly.			TBD
Replace failed motors with high efficiency motors, and if possible, install a VFD.				O&M funds.
Replace exit signs with LED signs in renovation projects.				TBD
Install occupancy sensors in office renovation projects.			\$30,000	R&R Funds.
Install electronic ballasts and T8 lamps in renovation projects.				R&R Funds.
Install water-side economizer at Jackson Library chiller plant.			\$100,000	TBD
Install a Demand Ventilation Control System at Sullivan Science Building.		\$90,000 per year.	\$250,280	ARRA funds.
Per Cx report for Music Bldg, install CHW bridge, CO2 sensors for demand control ventilation, and install VFD's on AHU-1&2.	Re-Commission Bldg.	~\$40,000 per year.	\$30,000	R&R Funds.
Window Replacement Project for Campus Supply Bldg and HHP Bldg.			\$325,000	R&R funds.
Roof Replacement Project for Cone Art Bldg.			\$545,000	R&R funds.
Roof Replacement Project for Jackson Library (1951 Wing).			\$972,000	R&R funds.

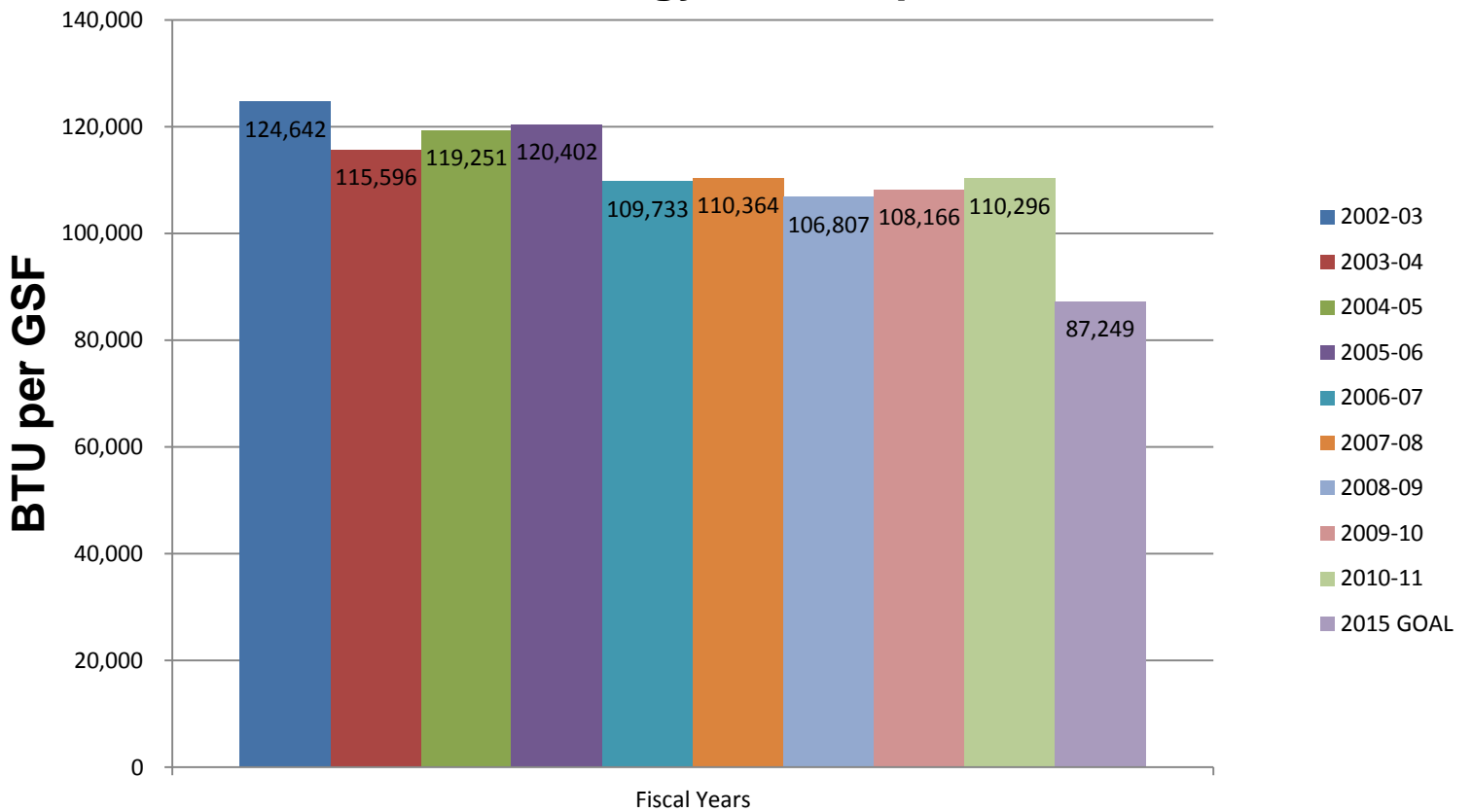
Organization Integration

Past Year Accomplishments	Measurement	Savings Actual or Calculated	Cost	Funding Source
Organized a University Committee on Sustainability with working groups for Dining Services, Health & Safety, Green Building, Transportation & Campus Access, Academics & Culture, Communication & Outreach, and Grounds Management.	Quarterly meetings.			
Update Energy Mandate.	Annual.			
Recruited full-time Sustainability Coordinator for Operations.				
Completed a Greenhouse Gas Emissions Inventory for Carbon Footprint plan.			\$10,000	
Future Planned Activities	Measurement	Savings Estimated	Cost	Funding Source
Establish a new Energy & Climate working group for University Committee on Sustainability.	Quarterly meetings.			O&M funds
Update Energy Mandate.	Annual.			O&M funds
Attend Energy Conference sponsored by SEO.	Annual.			O&M funds
Continue to participate in monthly USI meetings sponsored by SEO.	Monthly.			O&M funds
Work with Sustainability Coordinator and Education Specialist to create a "Behavioral" based Energy Conservation program.	Monthly.	~1-3%	~8-20 total manhours per month.	O&M funds
Prepare a University Carbon Action Plan using newly created Carbon Footprint.	Annual.			TBD

Water Management

Past Year Accomplishments	Measurement	Savings Actual or Calculated	Cost	Funding Source
Implement education awareness program for faculty, staff, and students.	Quarterly meetings.		Energy Manager, Sustainability Manager & Education Coordinator staff salaries.	
Install low flow flush devices, low flow faucets, and building water meters for buildings undergoing total renovation.				Bond project.
Sub-meter irrigation and cooling towers to receive non-sewer water credits from City of Greensboro.	Monthly.	46 million gallons of avoided water cost.	8 manhours per month.	
Future Planned Activities	Measurement	Savings Estimated	Cost	Funding Source
Implement education awareness program for faculty, staff, and students.	Quarterly meetings.		Energy Manager, Sustainability Manager & Education Coordinator staff salaries.	O&M funds
Install low flow flush devices, low flow faucets, and new water meters for buildings undergoing total renovation.				Capital projects
Sub-meter irrigation and cooling towers to receive non-sewer water credits from City of Greensboro.	Monthly.	~1/4 of water consumption in avoided water cost.	8 manhours per month.	
Upgrade water meters for automated metering or purchase new software system for better evaluating water usage data.			\$10,000 per building.	TBD

Total Energy Consumption



Total Water Consumption

