NORTH CAROLINA CENTRAL UNIVERSITY

FOUNDED 1910

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Strategic Energy and Water Plan

Fiscal Year 2012- 2013

Table of Contents

I. Executive Summary

North Carolina Legislative Session Law 2007-546 Senate Bill 668 mandates a reduction in energy consumption per gross square foot of 30% by 2015 from a baseline established in the 2002 - 2003 fiscal year. To achieve that goal North Carolina Central University (NCCU) has implemented a number of Energy Conservation Programs that have reduced energy consumption, energy operating costs, and their impact on the University and the environment. During the coming years, NCCU is committed to continuously identifying and implementing programs that will reduce energy and water consumption and use them more efficiently.

Energy consumption per gross square foot decreased by 7% during FY 2012-13 compared to total amount of energy consumed in FY 2011-2013. Despite an increase in the consumption of natural gas (additional heating days); an increase in the use of outdoor lighting (to improve security and in support of extended operating hours for outdoor sporting activities), and increased water usage, energy consumption per square foot decreased. This was due to a decrease in the number of cooling days (milder summer weather); new HVAC equipment; the Energy Performance Contract (EPC) project; the installation of more energy efficient lighting throughout campus; and other Energy Conservation Measures (ECMs).

For upgrading electrical delivery infrastructure, in January 2012, the North Carolina Utilities Commission (NCUC) approved a 7.2 percent rate increase to their North Carolina customers. In part due to increased storm water, water, and sewer rates from the City of Durham, energy and water costs increased caused overall utility costs even though the University used less electricity.

Energy conservation at NCCU continues to gain momentum. The University has decreased overall energy usage per square foot by 24% as measured from a baseline value established in FY 2002 – 2003. Both current and future energy conservation and sustainability projects, as summarized below, should result in a reduction of total energy consumption by at least another 6% by 2015, the University achieving a 30% reduction in energy usage per square foot as mandated by NC Senate Bill 668.

II. Consumption Data and Comparison. Fiscal Year: 2012-2013. Table 2.1, 2.2, 2.3, 2.4

II. Consumption Data and Comparison

TABLE 2.1

North Carolina Central University

NORTH CAROLINA CENTRAL UNIVERSITY
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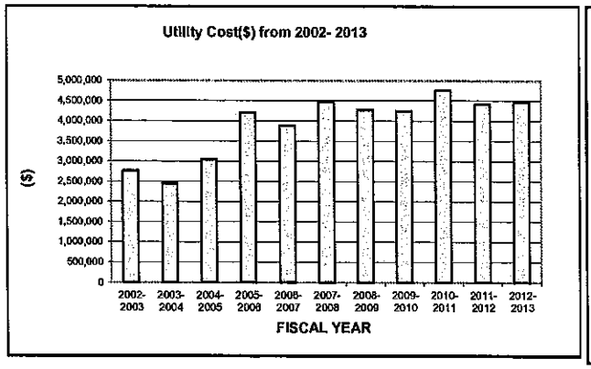
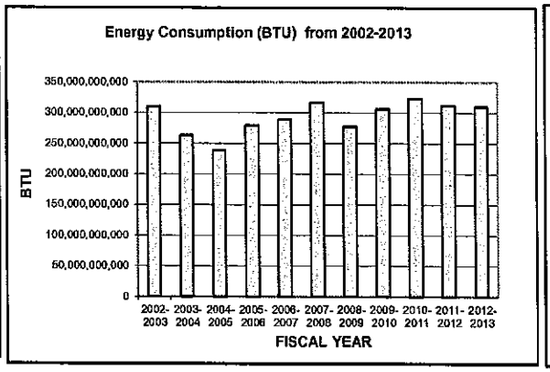
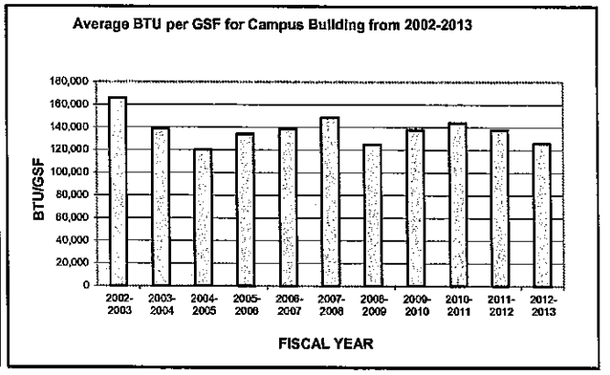
Summary of Utility Usage from Fiscal Years: 2002-2013

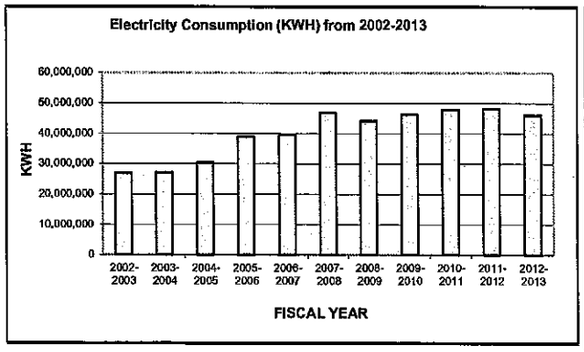
Fiscal Year	TOTAL UTILITY($)	TOTAL ENERGY($)	TOTAL Btu	WATER COST ($)	ELECTRICITY COST($)	N GAS COST($)	WATER mGallon	ELECTRICITY KWH	N GAS THERM	# 2 Fuel Gals	# 2 Fuel Cost	AREA GSF	Student Enrollment	Btu/SF	Gal/SF
2002-2003	$2,761,158	$2,761,158	310,242,277,360		$1,348,145	$1,270,790		26,958,780	1,925,440	183,678	$143,233	1,871,963	6,519	165,731	
2003-2004	$2,451,441	$2,451,441	263,084,750,240		$1,352,206	$1,099,235		27,148,520	1,704,540			1,895,963	7,191	138,760	
2004-2005	$3,044,435	$2,647,805	238,650,189,752	$396,631	$1,503,913	$1,143,892	69,874,000	30,439,445	1,347,908			1,986,980	7,727	120,107	35.17
2005-2006	$4,199,286	$3,813,257	279,437,231,084	$386,029	$2,162,900	$1,650,357	69,617,000	38,930,607	1,466,060			2,081,213	8,219	134,267	33.45
2006-2007	$3,877,920	$3,473,026	289,103,000,000	$404,894	$2,087,877	$1,385,148	71,500,000	39,627,667	1,538,936			2,081,213	8,675	138,911	34.35
2007-2008	$4,475,648	$4,077,103	316,954,200,256	$398,545	$2,471,030	$1,606,073	57,788,872	46,850,338	1,571,008			2,130,673	8,356	148,758	27.12
2008-2009	$4,273,373	$3,708,796	277,473,631,209	$564,577	$2,356,020	$1,058,906	66,485,766	44,156,326	1,267,990			2,217,465	8,035	125,131	29.98
2009-2010	$4,248,150	$3,647,951	306,255,166,776	$600,199	$2,614,799	$964,524	58,401,326	46,267,798	1,445,463	27,451	$68,628	2,224,214	8,587	137,691	26.26
2010-2011	$4,807,887	$4,172,218	323,538,072,000	$585,669	$3,029,995	$944,083	61,822,374	47,810,270	1,494,478	79,256	$198,140	2,243,714	8,500	144,211	27.55
2011-2012	$4,416,072	$3,821,344	312,483,761,936	$594,728	$3,012,430	$808,914	60,111,689	47,810,496	1,478,301	0	0	2,266,589	8,359	137,865	24.56
2012-2013	$4,480,204	$3,879,990	310,033,679,216	$600,213	$3,045,683	$834,308	71,560,756	46,100,668	1,527,382	0	0	24,466,426	8,604	125,702	29.01

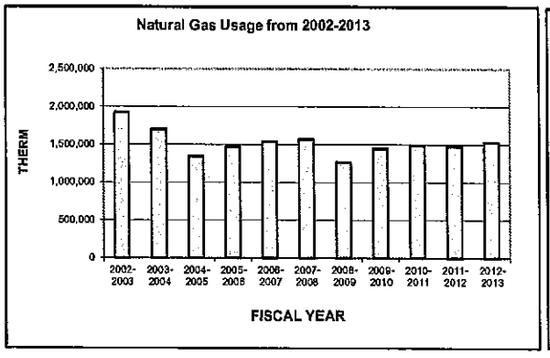
Summary by Charts

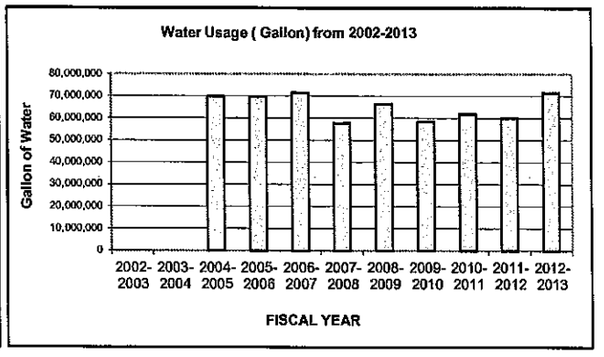








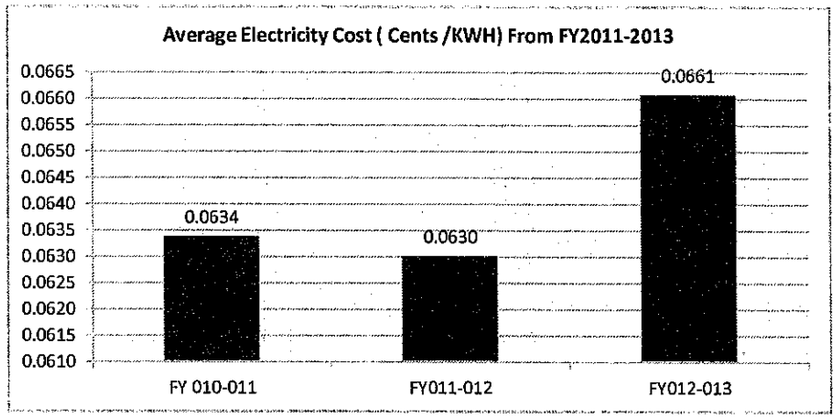


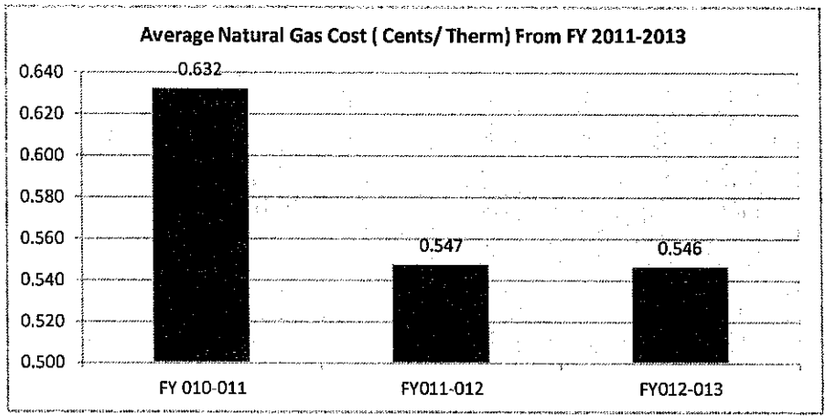


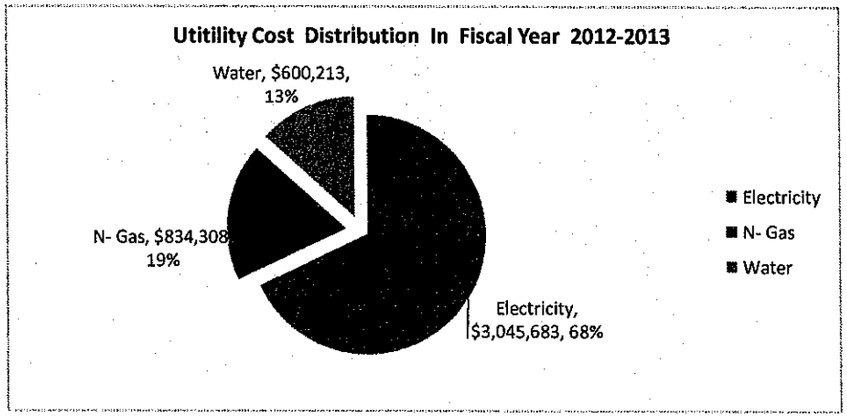
II. Consumption Data and Comparison

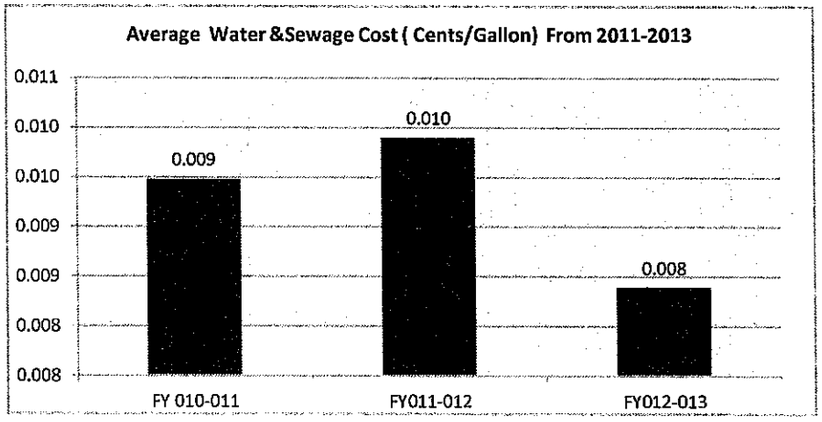
TABLE 2.2

UTILITY COST DISTRIBUTION AND COST PER UTILITY UNIT









Note: Water cost: Water & Sewage, Water for Irrigation, Cooling Tower Water, Storm Water

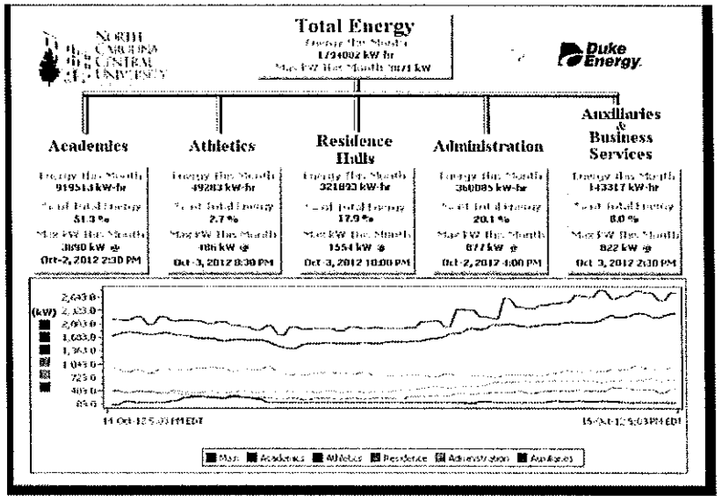
II. Consumption Data and Comparison.

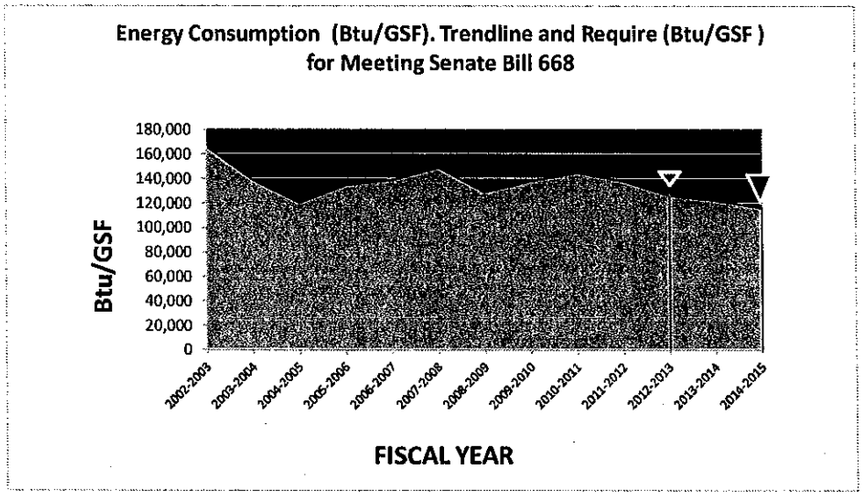
TABLE 2.3

Comparison of Current Energy Consumption with Base Line 2002-2003

Mandate by Senate Bill 668 . Energy Consumption & Reduction

A SNAPSHOT OF TRACKING ENERGY BY ELECTRICAL SUBMETER





Fiscal year	BTU/GSF	% Reduction from 02-03 base line	NOTE
2002-2003	165,602	BASE LINE	
2003-2004	138,760	16%	REDUCTION
2004-2005	120,107	27%	REDUCTION
2005-2006	134,267	19%	REDUCTION
2006-2007	138,911	16%	REDUCTION
2007-2008	148,758	10%	REDUCTION
2008-2009	128,545	22%	REDUCTION
2009-2010	137,675	17%	REDUCTION
2010-2011	144,211	13%	REDUCTION
2011-2012	137,865	17%	REDUCTION
2012-2013	125,702	24%	About 7% reduction from 011-012
[illegible]	[illegible]	[illegible]	Est. 3% reduction from 012-013
2014-2015	[illegible]	[illegible]	Est. 3% reduction from 013-014

PLAN TO REDUCE 30% ENERGY CONSUMPTION FROM THE BASE LINE 2002-2003

- Work with students in residental life buildings and key managers from Pearson Cafeteria and Student Union for further energy conservation in buildings.
  - To get closer to the Energy Benchmark of 115,921 BTU/GSF, NCCU has to achieve the following things.
- Apply more ECM (energy conservation measures) on Weekend , Holidays and enforce Campus Energy Policy
- New EPC lighting for remaining buildings on campus
- Budget R&R funding for HVAC Control Tune-Up, Test And Balance (TAB) for high energy consumption buildings
- Provide in- house Energy Training Classes for HVAC staff, Electricians and monthly UT meeting with Facilities Services and Residential Life trade staff and facilities management managers

HIGH ENERGY CONSUMPTION BUILDINGS IN NCCU CAMPUS	HVAC Control System By
1) BBRI (Research Lab , Animal facility and Office building)	SIEMENS
2) BRITE (Research, Labs, Classrooms, Offices building)	SIEMENS
3) Mary Townes Science Complex (Research Lab, Classroom, and Office building)	SCHNEIDER ELECTRIC
4) School of Education (IT campus server room, Classrooms and Offices)	SIEMENS
5) Turner Law (Offices, Class Rooms and Law Library)	CMS
6) Shepard Library (Network Operating Center and Library)	SIEMENS
7) Walker Complex (Gym , Offices, Swimming pool)	CHAMPION

II. Consumption Data and Comparison.

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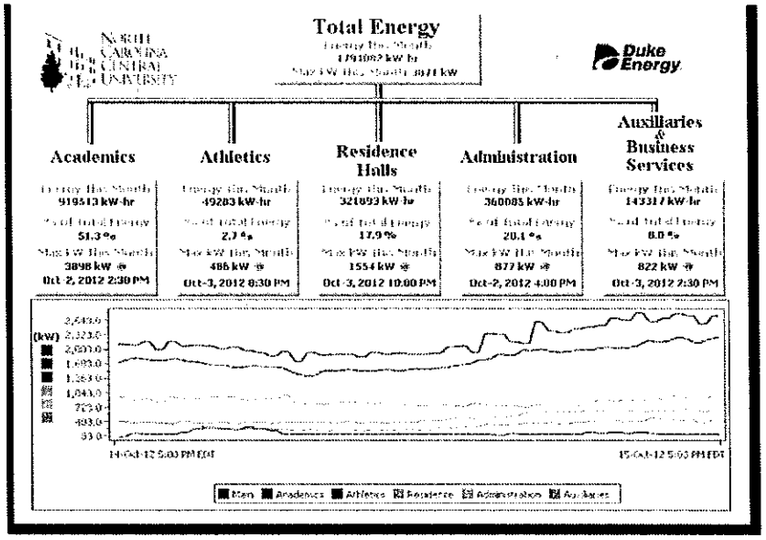
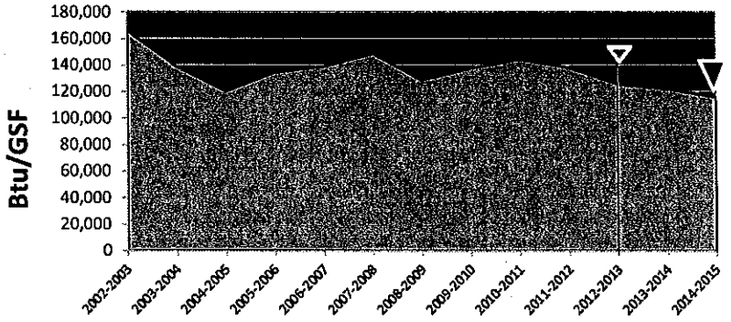
A SNAPSHOT OF TRACKING ENERGY BY ELECTRICAL SUBMETER





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2011-2012	137,865	17%	REDUCTION
2012-2013	125,702	24%	About 7% reduction from 011-012
2013-2014	121,930	26%	Est. 3% reduction from 012-013
2014-2015	118,174	30%	Est. 3% reduction from 013-014

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7) Walker Complex (Gym , Offices, Swimming pool)	CHAMPION

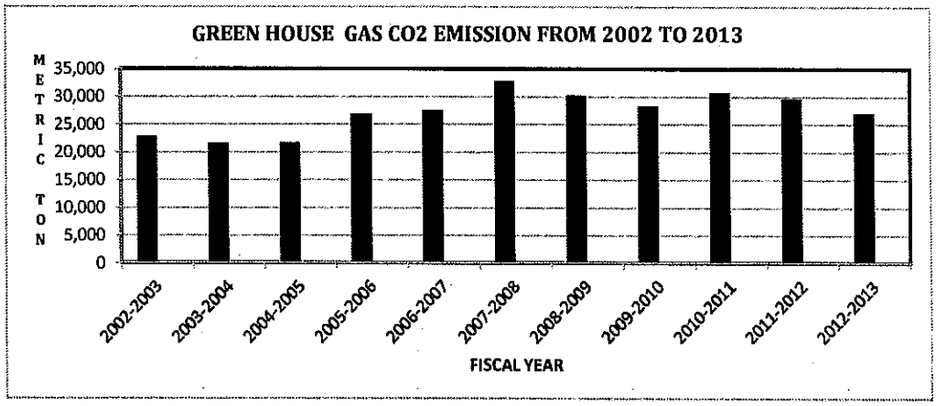
II. Consumption Data and Comparison.

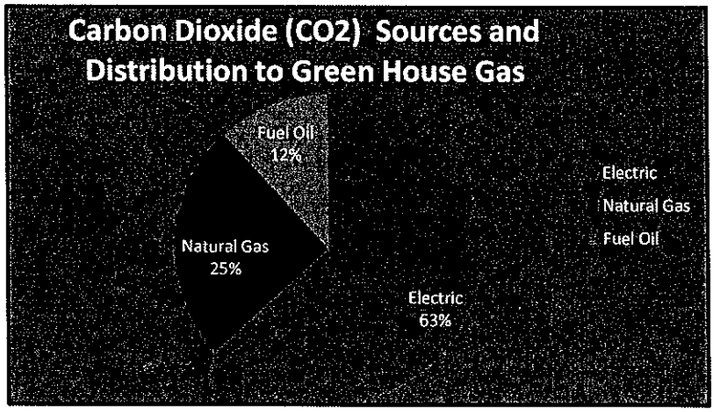
TABLE 2.4 . NCCU Green House Gas Emission (CO2) from 2002-2013

No	Emission Sources	2002-2003 Metric Ton CO2	2003-2004 Metric Ton CO2	2004-2005 Metric Ton CO2	2005-2006 Metric Ton CO2	2006-2007 Metric Ton CO2	2007-2008 Metric Ton CO2	2008-2009 Metric Ton CO2	2009-2010 Metric Ton CO2	2010-2011 Metric Ton CO2	2011-2012 Metric Ton CO2	2012-2013 Metric Ton CO2
1	Electricity	13,210	13,031	14,915	19,465	19,814	24,831	23,844	20,821	22,471	22,198	19,362
2	Natural Gas	9,627	8,523	6,740	7,330	7,695	7,855	6,340	7,227	7,472	7,391	7,636
3	Fuel Oil No.2	na	na	na	na	na	na	na	279	805	0	3,593
TOTAL		22,837	21,554	21,655	26,795	27,509	32,686	30,184	28,326	30,747	29,589	30,591

NOTE: Unit: Metric Ton . Gas: CO2-Carbon Dioxide or C02 Equivalent. Conversion factors from Greenhouse Gas . US. EPA Sources
CO2 source: Duke Energy Carolina's CO2 Carbon Intensity (Dwight Moore Sept. 2012)

SUMMARY OF CARBON DIOXIDE (CO2) EMISSION FROM FISCAL YEARS 2002- 2013





III. Utility Assessment and Practice

The Energy Performing Contract project is ongoing in 10 buildings realizing savings from the installation of more efficient lighting, improved HVAC mechanical system, and a new Building Automation System (BAS). The ARRA lighting improvement project is ongoing in other campus buildings. The implementation of the 2012-2013 NCCU Strategic Energy and Water Plan will result in a continued downward trend in consumption of energy and water per square foot.

A. 2012 – 2013 Energy Reduction and Sustainability Projects

1. **Leadership in Energy and Environment Design (LEED) Certified Buildings**

   During the last fiscal year, the University began using the Chidley North Residence Hall, a four story, 134,000 square foot residence hall containing 515 beds. It was certified Leadership in Energy and Environmental Design (LEED) Gold by the Green Buildings Council in Energy and Environmental Design in August 2012 – the first building on the NCCU campus to receive this certification. The new Nursing Building is rated as a LEED Silver building.

2. **Energy Waste and Management Plan**

   NCCU Facilities Management has worked with key members of the University to develop and publicize an Energy & Waste Management Plan that demonstrates NCCU's commitment to good stewardship of state resources and the environment. That plan not only serves as a guide toward conserving and reducing energy consumption, but it also helps to increase energy awareness on campus.

3. **Energy Performance Contract (EPC)**

   In fiscal year 2012-2013, an EPC project has reduced energy consumption in ten campus buildings. Among the energy conservation measures installed were more energy efficient lighting, water conservation devices and fixtures, new chillers, pumps, energy efficient electric motors, new boilers, and new HVAC control systems.

4. **Energy Efficient Solar Windows**

   Approximately 790 square feet of a high efficiency thermal protective film was installed at the Edwards Music Building on 64 windows, that receive direct sunlight to reduce the heating load in the rooms. This project has resulted in an

improvement in the level of comfort in those spaces, and reduced the amount of heat transmitted by ~ 70%.

5. **Energy Efficient Lights**

   With funding from the ARRA grant, older T12 lamps and fixtures were replaced with more efficient T8 lamps, fixtures, and ballasts. Also many emergency lights were replaced with energy efficient LED lights.

6. **Sub-Metering System**
   In addition to the primary utility main meter for campus, NCCU continues to upgrade and expand the sub-metering system on campus for monitoring electrical consumption. The aforementioned EPC has also installed additional sub-meters in the buildings included in that project.

7. **Energy Usage Monitoring and Analysis**
   In an effort to reduce costs, utility bills and energy usage (using the aforementioned sub-metering system), electrical power consumption is carefully monitored to identify billing errors and identify where better to concentrate limited resources to reduce energy consumption and correct problems promptly.

B. Current and Planned Energy Reduction and Sustainability Projects

1. Reduction of Electricity Energy Consumption

a. Monitoring and controlling electricity consumption by installing sub-meters for 60 buildings on campus with Internet access and real time data.
b. Improve existing BAS on campus through retro-commissioning.
c. Expand the use of BAS set-backs/scheduling to minimize energy consumption in buildings when they are not occupied.
d. Continue replacing inefficient light fixtures throughout campus.

2. Efficiency Improvements to Natural Gas & Electrical Systems

a. Continuing to improve the preventative maintenance of Heating, Ventilation and Air Conditioning (HVAC) equipment and systems throughout campus.
b. Continue to upgrade steam infrastructure through a tune up program, equipment upgrades, and improvements to the condensate return system.
c. Retro-commissioning of two laboratory buildings on campus.
d. Continue to provide comprehensive training to HVAC and Electrical staff.

3. **Energy Best Practices in New Buildings and Repair and Renovation (R&R) Projects**

    a. Implement best practices in sustainable design in any new construction and repair and renovation projects.
    b. Facilities Management project managers will continue to work closely with Facilities Services staff in the new Nursing Building and Chidley North Residence Hall buildings to ensure that those buildings will continue to met their LEED energy specifications.

4. **Water Conservation**

    a. Expand the use of wells for watering flora and ensuring that any new plants placed on campus are more sustainable – lower maintenance and watering requirements.
    b. Expand existing automated irrigation system throughout campus to reduce water consumption and to take full advantage of existing wells.

5. **Energy Performance Contracting (EPC)**

    a. Construction of the EPC at NCCU was completed on October 31st in 2012. The campus buildings that are included in EPC project are:

        i. Mary Townes Science Complex
        ii. Music building and Art Museum
        iii. Criminal Justice Building
        iv. Edmond Classroom Building
        v. Taylor Education Building
        vi. Farrison Newton Communication Building
        vii. William Jones Building
        viii. B N Duke Building
        ix. Central Steam Plant
        x. Fine Art Building

    b. Our goal is to provide adequate mechanical and control maintenance, and verify the energy savings in the above noted buildings.

6. **Sustainability Programs To Which NCCU Is Committed**

    a. American Colleges and Universities President's Climate Commitment
        i. The University Chancellor has signed the letter supporting this program.
        ii. The University will develop and enforce the programs and initiatives in support of climate neutrality.

    b. Appalachian Energy Summit Initiatives

i. Support UNC General Administration sustainability initiatives
ii. Support the NCCU student led Green Team's efforts to promote sustainability and energy awareness throughout campus.

c. Education and awareness programs.

i. Support the Annual Earth Day observance on campus.
ii. Support the Homecoming Parade with electric vehicles used in Facilities Services for the promotion of energy savings and sustainability.

IV. Accomplishments in Fiscal Year 2012-2013, Table 4.1, P1

V. Goals for Fiscal Year 2012-2013, Table 5.1

VII. Energy Mandate Signature

IV. TABLE 4.1.1 ACCOMPLISHMENT IN FY 2012-2013. Campus Green Team - North Carolina Central University .

NORTH CAROLINA CENTRAL UNIVERSITY
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Mission Statement

To help promote a healthy environment by encouraging NCCU students, falculty and staff to reduce, reuse, and recycle .

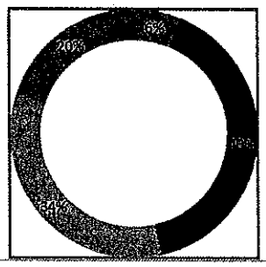
Campus Recycle Material Data From FY 2009 to 2013

YEAR	Recycle Company Name	Beverage Containers Lbs	Paper Fiber Lbs	Mixed paper Lbs	Old Book Lbs	Totals Lbs
2009	Orange Recycle	9,532	66,041	33,028		108,599
2010	Orange Recycle	9,443	72,164	37,584		119,191
2011	Orange Recycle	9,005	61,552	30,353	17,442	118,352
2012	Orange Recycle	9,748	67,311	32,596		109,655
2013	Orange Recycle	9,737	46,669	29,591	153,400	239,397
TOTAL		47,465	313,737	361,202	153,400	695,194

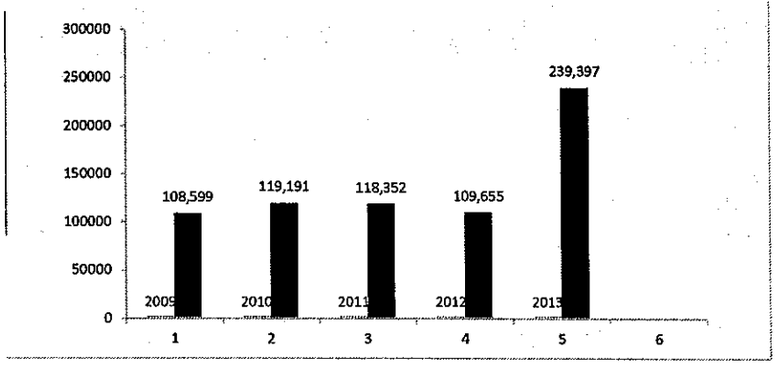
NOTE: NCCU Green team is sworking with State Waste Reduction Partners for establishing campus cardboard recycle center and grants. (Medley, Graham and Tran)

Distribution of Recycle Materials from 2009-2013

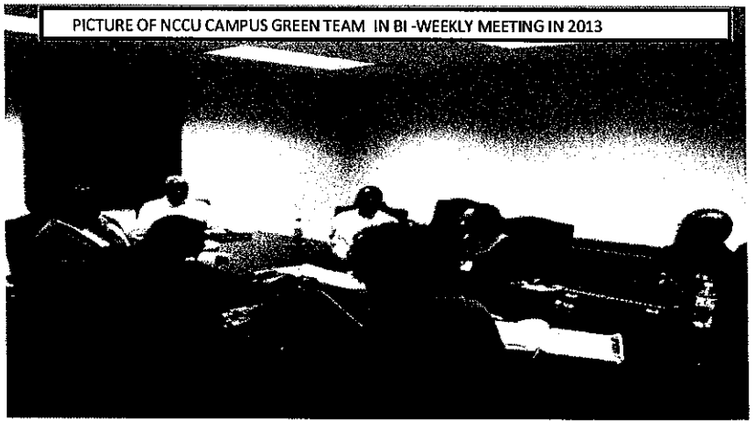
■ Beverage container ■ Paper Fiber ■ Mixed paper ■ Old Book

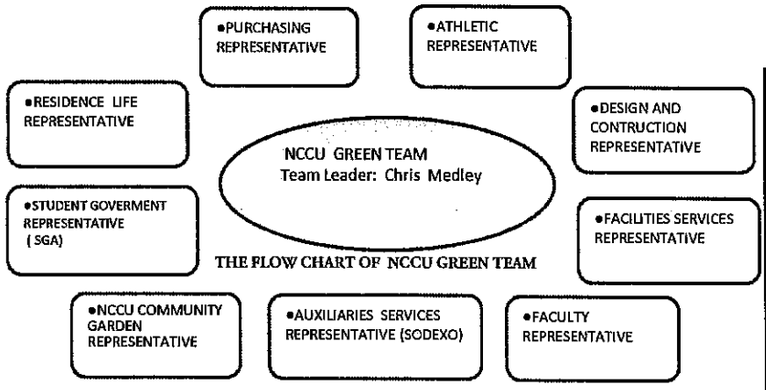


NCCU Campus Recycle Weight (Lbs) from 2009 to 2013



PICTURE OF NCCU CAMPUS GREEN TEAM IN BI -WEEKLY MEETING IN 2013





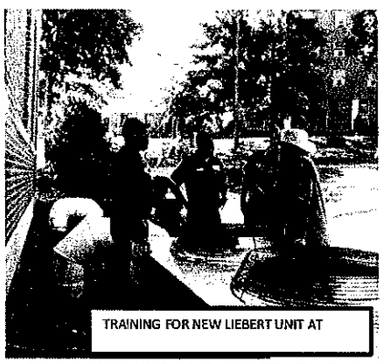
THE FLOW CHART OF NCCU GREEN TEAM

Timeline of Campus Recycle Program

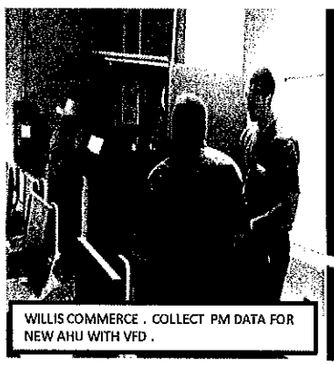
NCCU BUILDING	2009	2010	2011	2012	2013	2014
□ Academic and Support Buildings						
•Chidley Resident Hall						
•All Resident Halls (100%)						
□Auxiliaries Services Building						
•Pearson Cafeteria						
•Student Union						
•Eagle Nest Food Court						
□ Athletic Building						
•McDougal Gym						

IV. ACCOMPLISHMENT IN FY 2012-2013

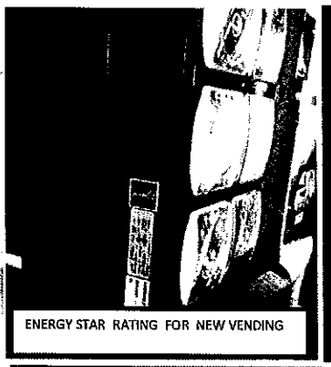
PICTURE TABLE 4.2. ENERGY CONSERVATION PROJECTS



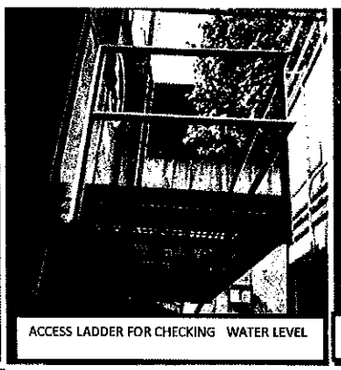
TRAINING FOR NEW LIEBERT UNIT AT



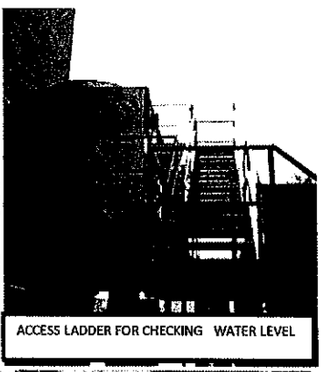
WILLIS COMMERCE . COLLECT PM DATA FOR NEW AHU WITH VFD .



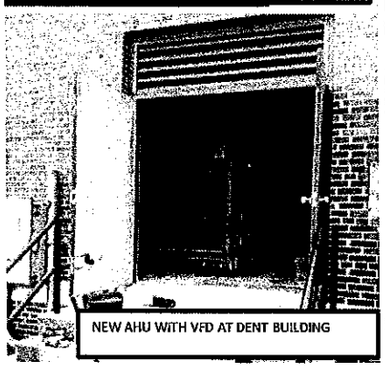
ENERGY STAR RATING FOR NEW VENDING



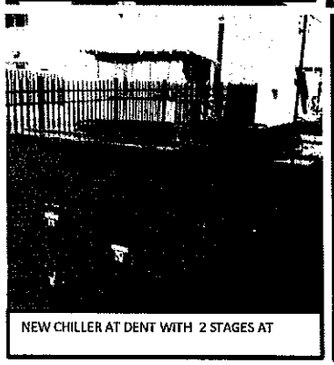
ACCESS LADDER FOR CHECKING WATER LEVEL



ACCESS LADDER FOR CHECKING WATER LEVEL

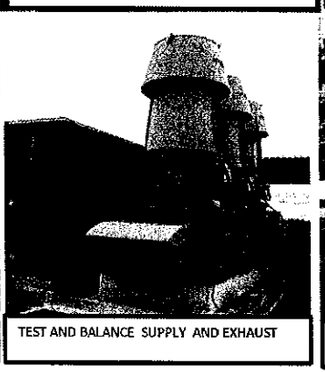


NEW AHU WITH VFD AT DENT BUILDING



NEW CHILLER AT DENT WITH 2 STAGES AT

CHECK AIR FLOW AND ADJUST ROOM



TEST AND BALANCE SUPPLY AND EXHAUST

CONTROL INSPECTION AT BRITE BUILDING .

IV. Accomplishments in FY 2012-2013

TABLE 4.3 CARRY FORWARD FUNDING APPROVED BY UTILITY SAVING INITIATIVE(USI) OFFICE IN FY2012-2013

NORTH CAROLINA CENTRAL UNIVERSITY
FOUNDED 1910

Energy Conservation Measures (ECMs) for HB1292 / General Statute 143-64.12(a)

Revised: 5/5/2013

			FY2012/2013					FY2013/2014 Forecast			
Project ID	**ECM #**	**Short ECM Description**	**Contract Date**	**Completion Date**	**Actual/Estimated/Projected**	**ECM or Project Cost ($)**	**ECM Savings ($)**	**ECM Cost ($)**	**ECM Savings ($)**	**Verification Method**	**Comments/Assumptions**
ECM12-1	ECM12-1	•Additional year one EPC savings	12/24/010	12/ 14/012	$56,364.00	$520,416.00	$5,164.00	$531,740.00	$57,363.00	Measured and Stipulated	Please see attached project documentation
ECM12-2	ECM12-2	•SIEMENS Control Tune-up for BRITE offices/Class rooms/ Research Labs	6/2012	7/2012	$22,588	$9,700.00	$22,588.00	$0.00	$22,588.00	Comparison of utility meter data	9% Electricity reduction after control Tune-up
ECM12-3	ECM12-3	•STOPPED COMPRESSED AIR LEAK School of Education Mechanical Room. Air Compressor dryer		11/2012	$799.00	$75.00	$799.75	$0.00	$799.00	Estimated	Air loss information 90 PSI, DIA: 1/8" 8760 hours/year $0.061/KWH Energy Engineer Handbook
ECM12-4	ECM12-4	•Lock in a lowest N-Gas transportation cost . Est. saving $.20 /DEC.THERM		5/1/2013	$0.00	$0.00	$0.00	$0.00	$25,335.00	Estimated	AVG of transportation cost for 12 months:$.59 Locked in : $.39 Saving :$.20/DEC THERM
ECM12-5	ECM12-5	•ECM for Holidays. CAMPUS WIDE	12/20/013	1/5/013	$0.00	$0.00	$4,349.05	$0.00	$0.00	Comparison of utility meter data	Compared 2 years data at same period Dec 20 to Jan 5th.
ECM12-6	ECM12-6	•20 Motion sensors in Lee Biology, Robinson Science buildings Project is in progress. (50% completion)	1/2013	6/2013	$1,000.00	$1,000.00	$634.23	$0.00	$1,268.47	Estimated	Save $109/Month Schedule for completion in 6/013
ECM12-7	ECM12-7	Occupancy sensor to control exhaust fan and lights in Physical Plant's bathroom	6/2012	7/2012	$375.61	$0.00	$375.61	$0.00	$375.61	Estimated	Cost information as per SEO website For cost per CFM
ECM12-8	ECM12-8	Replacement of 8,065 older lamps with T-8 lamps and LED safety fixtures	08/19/2010	12/19/2011	$499,248	$499,248.00	$66,318.44	$0.00	$0.00	Measured & Estimated	ECM savings per M&V report from Griffin Engr dated 3/7/2012.
•TOTAL COST OF AND SAVINGS FROM FROM ECMS AT NCCU FOR FISCAL YEAR 2012-2013						$1,030,439.00	$100,229.08				

4. **Accomplishments in FY 2012-2013. Table 4.1, PAGE 2/2**

Rough Draft

ECM Saving Area	Accomplishments	Participate By	Qty Est.	Estimate Cost($) In-house cost	Status	Note
►ENERGY MANAGEMENT TRAINING	• Attended Annual Sustainble Conference in Raleig (OUT OF CAMPUS)	Zack Abegunrin Phillip Powell Tim McMullen Eric Frazier Ondin Mihalcesu Tuy Tran	1	$600	Finished	Received Energy training and networking in energy field
	• Attended Bi-Annual Energy Appalachian Summ at A&T university in Greenboro (OUT OF CAMPUS)	Zack Abegunrin Phillip Powell Tim McMullen Eric Frazier Ondin Mihalcesu Tuy Tran	1	No Cost	Finished	Received Energy training and networking in energy field
	• Attended Annual Energy Apalachian Summit at Appalachian State University (OUT OF CAMPUS)	Zack Abegunrin Phillip Powell Tim McMullen Eric Frazier Ondin Mihalcesu Tuy Tran	1	No Cost	Finished	Received Energy training and networking in energy field
	• LED lighting and control (IN CAMPUS)	Thomas Johnson Billy Deaver Philipp Powell Zack Abegunrin Tim McMullen Eric Frazier Ondin Mihalcesu Tuy Tran	1	No Cost	Finished	Received training for new lighting technology
	• Honneywell VFD and building temperature control system (IN CAMPUS)	Craig Williams Robinson Daniel Billy Brockinton Cliff Gibson De Andrea Jimmy Espada	1	No Cost	Finished	Received training for new Honeywell control in campus.
	• SIEMENS control for Buidling Automation (BAS) (OUT OF CAMPUS)	Craig Williams Robinson Daniel Billy Brockinton Cliff Gibson De Andrea	1	No Cost	Finished	Received training for SIEMENS control
►WATER ECM	•Monthly monitor water consumption , billing and c of water consumption of all buildings in campus	Tuy Tran Latonya Smith Billy Deaver McMillian Vaugh Chris Medley Phillip Poe Phillip Powell Zack Abegunrin Donnie Batten Mike Logan	1	No Cost		Reviewed monthly water consumption and cost for all accounts Detected abnormal billing cost arrived at Account Payable Dept. Investigated, corrected water leaks in all buildings Investigated and corrected water leaks in Resident halls Investigated and corrected water leaks in Residendent halls Investigated and corrected water leaks in Resident halls Detected and reported underground water leaks Detected and reported underground water leaks Investigated and corrected water leaks in all buildings Detected and reported cooling tower leak at SOE
►EPC	•Energy Performing Contract for 10 buildings. Achieved a first year saving of $ 5,164 •Buildings are under EPC will have a a minimum o 10% of Energy reduction in coming years. 1) Mary Townes Science Complex 2) Music and Art Museum 3) Criminal Justice building 4) Edmond Classroom building 5) Taylor Education building 6) Farrison Newton Communications building 7) William Jones building 8) BN Duke building 9) Steam Plant 10) Fine Art building	Tim McMullen Zack Abegunrin Eric Frazier Phillip Powell Tuy Tran	10	$6,532,959	Finished	Rate:4.8%(3.13% Building America Bond, 35% subsidy) Term 15 years. First year saving: $5,164 Energy Saving in 1st year. See page 4-1
	•New Energy Performance Contract for Campus lighting	Zack Abegunrin Tim McMullen Mihalcesu Phillip Powell	1	NA	In Progress	Will provide energy saving in next fiscal years

5. Goals for FY 2013-2014. TABLE 5.1

Rough Draft

Future Planned ECMs	PLAN for 2013-2014	Responsible By	Qty Est.	Estimate Cost($) In-house cost	Status	Note
►ENERGY MANAGEMENT TRAINING	• Attend energy training for engineers and managers	Tim McMullen Phillip Powell Zach Abegunrin Eric Frazier Ondin Mihalcesu Tran	1	No Cost	Plan	Provide by State
	•Conduct HVAC training classes for HVAC staff	Williams	12	No Cost		In- house training by contractors or vendors
	•Energy Training for HVAC and Electrician staff	Williams, Johnson	1	No Cost		In-house training by USI staff
►WATER	•Install building water sub-meters at Residence halls and academic buildings	Batten, Medley, Powell, Tran	3		Plan	Need funding
	•Repair leaks at cooling towers	Williams, Deaver		$6,500	Plan	ASAP
►EPC	•Monitor and provide proper maintaining HVAC equipment and control in EPC builings	HVAC and Electrical Shop. Frazier, Tran	10	No Cost	In Progress	
	•Work with Johnson Control for campus lighting Energy Performance Contract	Ondin Mihalcesu Tim McMullen Phillip Powell Zach Abegunrin	1	NA	In Progress	
► LIGHTING	• Complete Robinson Science motion sensor in bath rooms of 3 floors	Deaver, Johnson	1	$500	In Progress	It is an energy conservation project that applied for carry forward funding in next fiscal year
	•Continue to purchase and install occupancy sensors in class rooms and offices campus wide	Powell, Deaver, Tran, Johnson	200	$5,000		Funding by Facilities Services
	•Use house keepers to check building lights at nigh for academic and support buildings	Powell, Marsh	1		Plan	
	•Continue to replace high power consumption lightings with new efficiency lightings for outdoor lighting: fixtures	Johnson, Deaver, Powell	1	$10,000	Plan	Funding by Facilities Services
	•Continue replace incandescent lights with LED or fluorescent lights in building mechanical rooms	Johnson, Deaver, Powell, Williams, Tran	1	$1,500	Plan	Use Carry forward funding from last year.
►HVAC	•Control inspection and retro commissioning for high energy consumption buildings in campus BBRI, BRITE,MTS,TURNER LAW, LIBRARY.	Tim McMullen Phillip Powell Zach Abegunrin Tran, Deaver Ondin Mihalcesu	5	$400,000	Plan	Funding by R&R
	• Control inspection and TAB student union	Tran, Deaver, Williams	1	$15,000	Plan	Funding by Auxiliary Services
	•Continue weekly meeting with Resident Life representative for HVAC issues in Resident Halls and buildings under EPC.	Tuy Tran, Billy Deaver ,Phillip Powell, and Chris Medley	1	No Cost		HVAC weekly meeting
►STOP LEAK •Water • Monitor UT bills	•Ensure water tower leak check daily by HVAC st • Continue monthly billing review	Craigs Williams Billy Deaver Latonya Smith Gladys Robison Tuy Tran	12 70	No Cost No Cost	Continue In	Prevent overflow water in water towers Monitor monthly water usage and abnormal bill
	•Work with Durham City to close inactive accounts	Tran, Durham City, Batten	2	No Cost	Progress	Savings to be realized in next fiscal year
►REVIEW E-RATE	•Meet with Duke energy Rep for reviewing Electricity rate of Martha Apt	Tran,Powell, Frazier	1	No Cost	Plan	Tran will conntact Mr.Dwight Moore, Duke Energy Representative
	•Review monthly electrical bills and usages	Tuy Tran	16	No Cost	In Progress	Provide UT data to Mrs. Robinson
►REVIEW WATER METERS	•Review campus water distribution and building meters.	Chuck Batten Tuy Tran Vaugh McMillian Billy Deaver Phillip Powell		No Cost	Plan	Monitor and control water usage in campus buildings . Check with City Durham for Annieday water meter
►HOLIDAY SET BACK	•Reduce Temperature and apply energy conservation in campus buildings in holidays	Craigs Williams Thomas Johnson Billy Deaver Tuy Tran Chris Medley	1	No Cost	Plan	Energy conservation measures

Energy Mandate

I have read the Strategic Energy & Water Plan for my Organization . The plan, as presented, supports the reductions required in Session Law 546.

Implemented this ..... day of October, 2013

Tuy Tran, CEM

Energy Manager

Phillip Powell

Director of Facilities Services

Zack Abegunrin, PE

AVC of Facilities Management

Davis Wendell

V C of Administration and Finance