Winthrop University Energy Conservation Plan

Purpose:

Section 48-52-620, Code of Laws of South Carolina, requires all state agencies, school districts and public colleges and universities to develop energy conservation plans to reduce their energy consumption by one percent annually during fiscal years 2009-2013 and by a total of a 20 percent reduction in energy use by 2020, as compared to 2000 levels. These plans are to be submitted to the South Carolina Energy Office.

Section I: Facility/Site Description

Building Information

BUILDING	AGE	CONDITION	SIZE GROSS/NET	BUILDING ENVELOPE	HVAC SYSTEMS	LIGHTING SYSTEMS	CONTROL SYSTEMS	HOURS OF OPERATION	METERING
Residence Halls									
Bancroft	1909 / 100	73	86796 / 45,494	Brick	Two pipe hydronic	Standard / Fluorescent	Tridium	24 hrs.	None
Margaret Nance	1895 / 114	90	59,352 / 31,270	Brick	Two pipe hydronic	Standard / Fluorescent	Tridium	24 hrs.	None
Roddey	1920 / 89	95	62,118 / 35,378	Brick	Two pipe hydronic	Standard / Fluorescent	Tridium	24 hrs.	None
Courtyard	2003 / 6	95		Brick	Split systems	Standard / Fluorescent	Tridium	24 hrs.	None
Wofford	1968 / 41	91	92,794 / 60,595	Sandstone	Two pipe hydronic	Standard / Fluorescent	Tridium	24 hrs.	None
Richardson	1966 / 43	85	87,020 / 55,527	Sandstone	Two pipe hydronic	Standard / Fluorescent	Tridium	24 hrs.	None
Thompson	1964 / 45	85	85,434 / 52,445	Brick	Two pipe hydronic	Standard / Fluorescent	Tridium	24 hrs.	None
Phelps	1943 / 66	83	90,799 / 59,855	Brick	Two pipe hydronic	Standard / Fluorescent	Tridium	24 hrs.	None
Lee Wicker	1962 / 49	84	69,382 / 46,652	Brick / Stone	Two pipe hydronic	Standard / Fluorescent	Tridium	24 hrs.	None
Academic Buildings									
McLaurin	1901 / 108	86	53,660 / 27,312	Brick	Two pipe hydronic	Standard / Fluorescent	Tridium	7:00AM – 10:00 PM	None
Rutledge	1906 / 100	85	52,289 / 33,747	Brick	Hot-cold deck / dampers	Standard / Fluorescent	Tridium	5:00 AM – 11:00 PM	None

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West Center	2007 / 2	100		Brick	VAV	Fluorescent / Occupancy	Tridium	6:00 AM – 11:00 PM	Electric, Gas, Water CHW, Steam
Owens Hall	2008 / 1	100	32,300	Brick / Sandstone	VAV	Fluorescent / Occupancy	Tridium		None
BUILDING	**AGE**	**CONDITION**	**SIZE GROSS/NET**	**BUILDING ENVELOPE**	**HVAC SYSTEMS**	**LIGHTING SYSTEMS**	**CONTROL SYSTEMS**	**HOURS OF OPERATION**	**METERING**
Kinard	1929 / 80	84	77,156 / 38.901	Brick	Two pipe hydronic	Standard / Fluorescent	Tridium	6:30 AM – 9:00 Pm	None
Conservatory of Music	1939 / 70	85	35,662 / 22,240	Brick	Air Handlers	Standard / Fluorescent	Tridium	7:00 AM – 9:00 PM	None
Sims	1961 / 48	100	57,696 / 39,100	Brick	VAV	Standard / Fluorescent	Tridium	7:00 AM – 10:00 PM	None
LSB	1999 / 10	100	65,417 / 35,612	Brick	VAV	Standard / Fluorescent	Tridium	7:00 AM – 10:00 PM	None
Thurmond	1939 / 70	68	62,057 / 36,174	Brick / Stone	Two pipe hydronic	Standard / Fluorescent	Tridium	5:00 AM – 10:00 PM	None
Withers	1892 / 117	77	101,805 / 62,593	Brick / Stone	Two pipe hydronic	Standard / Fluorescent	Tridium	7:00 AM – 10:00 PM	None
Dacus Library	1969 / 40	69	90,612 / 75,251	Brick / Concrete	Air handlers	Standard / Fluorescent	Tridium	7:00 AM – 11:00 PM	None
Carroll Hall	2009 / 1	100		Brick		Programmable			None
Johnson	1920 / 89	95	62,425 / 42,852	Brick	Hot-cold deck / dampers	Standard / Fluorescent	Tridium	7:00 AM – 10:00 PM	None
Office/Support Buildings									
Tillman Hall	1894 / 115	57	115,264 / 67,502	Brick / Stone	Two pipe hydronic	Standard / Fluorescent	Tridium	7:00 AM – 6:00 PM	None
Facilities Mgmt.	1968 / 41	60	2,860 / 2,531	Brick	Split systems	Standard / Fluorescent	None		None
Central Energy				Brick	None	Fluorescent / HPS	None		None
Crawford	1896 / 113	73	16,038 / 9806	Brick	Two pipe hydronic	Standard / Fluorescent	Tridium	6:00 AM – 11:00 PM	None
Student Activity Center	1996 / 11	85		Brick	Air handler	Standard / Fluorescent	Tridium	8:00 AM – 5:00 PM	None
Dinkins	1967 / 42	95	46,450 / 37,612	Brick	VAV	Standard / Fluorescent	Tridium	6:00 AM – 11:00 PM	None
Operations Center				Brick	Split system	Standard / Fluorescent	None		Electric, Gas, Water
Bookworm				Sandstone	Air handlers	Fluorescent / HPS	None		Electric, Gas, Water
Joynes	1926 / 83	78	30,077 / 16,718	Brick	Two pipe hydronic	Standard / Fluorescent	Tridium	24 hrs	None

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President's House	1890 / 119	91	9,151 / 7,156	Brick	Split systems	Standard / Fluorescent	None	24 hrs.	None
Good House	1950 / 59	90	2,810 / 2.411	Brick	Split systems	Standard / Fluorescent	None	24 hrs.	None
Culp Chiller Plant	1969 / 40	90	2,754 / 2,713	Brick	none	Standard / Fluorescent	Tridium	24 hrs.	None
Thomson Cafeteria	1964 / 45	73	26,859 / 22,356	Brick	Air Handler / Split system	Standard / Fluorescent	Tridium	24 hrs	Electric
Winthrop Lodge	1966 / 43	60	35,763 / 30,837	Brick	Thru-wall units/ air handler	Standard / Fluorescent	none		Electric
BUILDING	**AGE**	**CONDITION**	**SIZE GROSS/NET**	**BUILDING ENVELOPE**	**HVAC SYSTEMS**	**LIGHTING SYSTEMS**	**CONTROL SYSTEMS**	**HOURS OF OPERATION**	**METERING**
Assembly									
Byrnes Auditorium	1939 / 70	82	68,422 / 45,157	Brick	Air handlers	Incandescent	Tridium	8:30 AM – 9:00 PM	None
Little Chapel	1823 / 186	90	1,339 / 1,090	Brick	None	Standard / Fluorescent	None		None
McBryde	1894 / 115	80	44,903/ 37579	Brick	Two pipe hydronic	Dimmer	Tridium	7:00 AM – 10:00 PM	None
Old Stone House	1900 / 109	90	3,990 / 2,879	Stone	Split systems	Standard / Fluorescent	None		None
The Shack	1900 / 109	84	5,836 / 5,272	Siding	Split systems	Standard / Fluorescent	None		None
McFeat	1939 / 70	95	6,718 / 4,744	Brick	Split systems / two pipe hydronic	Standard / Fluorescent	Tridium		None
Stand Alone Office Buildings									
Stewart House	1895 / 114	88	8,307 / 4,982	Sandstone	Split systems	Standard / Fluorescent	None	8:00 AM – 5:00 PM	Electric, Gas, Water
Sykes House	1930 / 79	77	5,627 / 4,133	Brick	Split systems	Standard / Fluorescent	None	8:00 AM – 5:00 PM	Electric, Gas, Water
Sellers House	1930 / 79	93	2,020 / 1.557	Brick	Split systems	Standard / Fluorescent	None	8:00 AM – 5:00 PM	Electric, Gas, Water
Athletics									
Tennis Complex		95		Brick	Split systems	Standard / Fluorescent	None		None
Coliseum	1982 / 27	87	166,441 / 95,923	Faux Brick / Stucco	Air Handlers	Fluorescent / HPS	Tridium	6:00 AM – 11:00 PM	Electric, Gas, Water

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Ball Park Facility	1994 / 15	100		Brick	Split systems / Through the wall units	Standard / Fluorescent	Tridium	9:00 AM – 5:00 PM	Electric
Soccer	1997 / 12	80		Brick	Split systems	Standard / Fluorescent	None		None
Irwin Belk Track Facility	1997 / 12	95		Brick	Split systems	Standard / Fluorescent	None		Electric
Softball Facility	1981 / 28	85	35,662 / 22,240	Brick	Split systems	Standard / Fluorescent	None		Electric
Recreation Sports Facility	2004 / 5	100		Brick	Split systems	Standard / Fluorescent	None		Electric
Golf Course Club House	1963 / 46	90	531 / 531	Brick	Split System	Standard / Fluorescent	None		None

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Section II: Energy Team Overview

A. Description of Energy Team

The Energy Team is comprised of (8) members and 2 ex-officio members from the following departments and functions within the organization: Facilities Management, Operations and Maintenance, University Advancement, Students, Residence Life, Athletics, College of Visual and Performing Arts, College of Arts and Science, Department of Accreditation, and the President's Office. The Energy Team was established in November of 2008 and meets monthly to discuss management issues, such as organization wide energy use reduction policies, maintenance issues, purchasing issues and establishing other energy savings policies.

B. List of Energy Team members (including name and title or role within the organization)

Dave Rentschler, Chair – Operations and Maintenance – Director of Operations & Maintenance
Nathan Bourdeau – Student (Off Campus)
Chad Dresbach – College of Visual and Performing Arts – Associate Professor/Department Chair
Susan Gunderson – University Advancement Administration – Administrative Specialist
India LeeVan – Student (On Campus)
April Lovegrove - College of Arts and Sciences – Assistant to Dean
Dan Murray – Athletics – Assistant Athletic Director
DeeAnna Brooks – Office of the President – Assistant to the President for University Events
Walter Hardin – Facilities Management – Associate Vice President of Facilities Management
Maria Massey – Department of Accreditation, Accountability and Academic Services, Academic Space and Scheduling Coordinator
Howard Seidler – Residence Life – Associate Director
Gina White – Dacus Library – Director of Archives

C. Policy statement or goals developed regarding energy use reduction

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1. Energy Policy – Approved by the executive officers on 6/9/09. See attached.
2. No-Idleing Policy – in progress
3. Energy Plan

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Section III: Energy Plan Elements

Goal A: Implement all appropriate energy conservation measures.

Strategies	Actions	Resources	Current Status/Comments
1. Evaluate lighting and implement.	a. Replace bulbs with more energy efficient bulbs (CFLs, etc.)	Electrical staff, contractors	In process / 95 % complete
	b. Install motion detectors in copy rooms, restrooms, etc.	Electrical staff, contractors	Installed in most restrooms, West Center, Owens Hall, Carroll Hall
	Install LED exit lights	Electrical staff, contractors	Completed
2. Evaluate controls re HVAC, .	Install programmable thermostats where possible	HVAC Technicians / contractor	Started
	Adjust time schedules to better reflect building usage	HVAC Technicians / contractor	Completed
	Adjust temperature settings for more efficient operation	HVAC Technicians / contractor	Ongoing
3. Evaluate IT/computer management energy use.	Purchase Energy Star computers, printers, copiers, etc.	IT staff / procurement	Started

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4. Evaluate central energy plant for energy conservation opportunities.	Replace old boiler with two energy efficient gas boilers	Facilities Management Staff / Contractor	Completed
	Install electrode boiler (99% efficient)	Facilities Management Staff / Contractor	Completed
	Initiate steam trap plan and replace faulty traps	Facilities Management Staff / Contractor	Started / ongoing
	Replace 2 old Chillers at Culp Chiller plant with high efficiency Chillers	Facilities Management Staff / Contractor	Completed
	Replace 2 old chillers at Coliseum with high efficiency Chillers	Facilities Management Staff / Contractor	Completed
5. Evaluate domestic hot water system(s) for energy conservation measures.	Install two tank-less hot water heaters in Thomson to replace tank storage system	Facilities Management Staff / Contractor	completed
	Install one tank-less hot water heater in Roddey to replace tank storage system	Facilities Management Staff / Contractor	Ordered

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6. Evaluate building envelope(s) for energy conservation measures.	Install new energy efficient windows in buildings	Facilities Management Staff / Contractor	75 % complete / ongoing
6. Evaluate building envelope(s) for energy conservation measures.	Install storm doors or windows where appropriate.	Facilities Management Staff / Contractor	
7. Evaluate the use of an energy savings performance contract for all previously stated strategies.		Facilities Management Staff / Contractor	In process

Goal B:Integrate energy use considerations into capital improvement plans.

Strategies	Actions	Resources	Current Status/Comments
1. Incorporate energy efficiency considerations into procurement of equipment.			
2. Incorporate energy efficiency	Build to high efficiency standards (as	Energy Team, VP of Facilities Management, administration.	

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considerations into new construction.	per legislation)		

Goal C: Integrate energy use considerations into maintenance plans.

Strategies	Actions	Resources	Current Status/Comments
1. Enhance preventative and routine maintenance procedures to maximize energy efficiency.	Perform filter changes for HVAC @ regular intervals	Facilities Management	Ongoing
	Re-commission high energy use equipment	Facilities Management Staff / Contractor	Currently doing the Coliseum
2. Integrate energy considerations into cleaning/janitorial activities.	Utilize cleaning products that reduce energy and water consumption	Facilities Management Staff	We have gone to 100 % Green cleaning
3. Evaluate high efficiency replacements of all equipment.	Replace all failed motors with premium efficiency motors	Facilities Management Staff	Ongoing
	Replace all failed appliances with Energy Star as a minimum standard	Facilities Management Staff	Ongoing

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Goal D: Integrate energy use considerations into operations.

Strategies	Actions	Resources	Current Status/Comments
1. Integrate energy use considerations into operations.	Schedule classroom / room usage in same building (consolidation)	Energy Team, faculty, administration, energy management operator	Started
	Schedule usage to reduce hours of operation.	Energy Team, faculty, administration, energy management operator	Ongoing

Goal E: Foster a culture of energy awareness throughout the organization.

Strategies	Actions	Resources	Current Statue/Comments
1. Create an Energy Team comprised of representatives from throughout the organization.	Created Team	Campus Faculty and Staff	Completed
	Hold regular meetings of Energy Team to discuss campus wide integration of energy, financial, and strategic goals	Campus Faculty and Staff	Started / ongoing
2. Encourage energy efficient behavioral changes through various actions.	Hold an informal seminar on energy efficiency. (lunch and learn)	Energy Team, Faculty, Staff	Completed
	Set up a system of energy monitors. (e.g. people who issue “oops tickets” for lights	Energy Team, Faculty, Staff	
	Discourage excessive driving (carpooling, not drive to lunch, etc.)		

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Goal F: Improve fleet vehicle efficiency.

Strategies	Actions	Resources	Current Statue/Comments
1. When replacing vehicles, consider fuel efficiency.	Purchase flex fuel vehicles (per legislation)	Facilities Management / Administration	
	Utilize electric vehicles and carts for maintenance needs	Facilities Management / Administration	Ongoing
2. Encourage walking and bicycle use	Install bike racks	Facilities Management / Energy Team	Completed campus wide

Goal G: Reduce water consumption.

Strategies	Actions	Resources	Current Statue/Comments
1. Consider plumbing efficiency	Install low flow toilets and shower heads	Facilities Management / Contractor	90 % completed
	Fix leaking faucets	Facilities Management	Ongoing

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2. Consider water efficiency in landscaping	Install water sensors on irrigation systems	Facilities Management	