

University of Central Arkansas

RESPONSIBLE UCA COMMITTEE (Cost Containment)

MINUTES April 21, 2011

Meeting was called to order at 1:40 PM in Wingo Hall 210 by Jack Gillean, Co-Chair; Agenda attached.

Attendees Present:

Jack Gillean, Co-Chair
Diane Newton, Co-Chair
Larry Lawrence, Administrative Representative
Patty Phelps, Faculty Senate Representative
Laura Young, Administrative/Faculty Representative
Kyle Boyd, Student Representative
Larry Burns, Staff Senate Representative
Ray Owens, Staff Senate Representative

Absent:

Bunny Adcock, Community Representative
Brad Lacy, Community Representative
Harold Helton, Alumni Representative

Invited Guest:

Terri Canino

Discussion Items:

- Presentation of Utilities/Energy Costs by Larry Lawrence and Paul Crosmer; Handout
 - District cooling
 - Gas transportation; consult with TME
 - Act 1494 – State mandate to reduce energy and water consumption
 - Reduce by 20% - 2014
 - Reduce by 30% - 2017
 - LED lighting
 - Moving from T12 to T8 or T5 lamps
 - Energy star portfolio manager
 - Metering of individual buildings and chillers
 - Retrofitting light fixtures – an example of low hanging fruit, i.e., a cheap way to save energy
- Promote Work of Committee
 - Partnership with SGA to promote work
- Cost Saving Campaigns
 - Monthly e-mail with tips
 - Turn lights off and adjust thermostats
- Website
 - Comments submitted go to Diane Newton
 - Get Responsible UCA listed on A-Z Index (also list as Cost Containment)

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Notes:

- Larry Burns will allow us to use his summer student workers to help put information together to get word out to the campus
- Diane will have Leslie Chronister help mine for information
- Have Paul Crosmer provide a list of two or three projects that involve a payback due to energy savings
- Hand dryers vs. paper towels

Topics and Presentations requested by the Responsible UCA Committee to be provided for future discussions:

- Campaign to promote Responsible UCA
- Lighting projects from Paul Crosmer/Larry Lawrence
- Meals – reimbursement at per diem level vs. actual expenses
- Mileage

Next Meeting: Scheduled for May 19th, 2011, X-period (1:40-2:30), Wingo Hall 210; meeting was later changed to Thursday, May 26th at 10:00 AM in Wingo Hall 210.

Meeting adjourned at 2:30 PM.

AGENDA

Responsible UCA

April 21, 2011

Wingo 210, 1:40 pm (X-period)

1. Presentation from Larry Lawrence and Paul Crosmer
 - a. Energy usage and cost

2. Discussions
 - a. Promotion of the work of the committee
 - b. Cost saving campaigns
 - c. Website

3. Future presentations

Responsible UCA Meeting Notes - Utilities/Energy Costs

E&G Utilities budget 2010/2011– \$ 1, 700,733

Projected Annual Utilities Costs: 2010/2011

Utility	Total UCA \$	E & G \$	NON E&G \$
Electric	2,377,291	1, 672,363	707,928
Gas	596,965	402,066	194,899
Water/ Sewer	329,002	210,767	118,235
District Cooling	0	\$0	210,967
Sanitation	60,000	23, 700	36,300
Cable	12,650	8,450	4,200
Totals	3,375,908	2,317,346	1,272,529

Non E & G Costs include Athletics, Housing, and AETN

Athletics portion is roughly \$150,000

AETN's portion is roughly \$120,000

Housing's utilities are the rest, approximately \$1, 000, 000

- Gas – Purchased from Centerpoint (20%) & (via transport) Constellation Energy (80%)
Transport gas pricing is hedged by locking in the pricing as much as 12 months ahead.
- Electric -Purchased from Conway Corp. We get a large user rate for the main campus. Off campus structures pay a higher rate. The same holds true for water, cable, and sanitation.

Non E&G reimburse us for their utilities cost and they pay a share of the District Cooling maintenance costs if they are connected to it.

Projects = Savings (Examples)

- Change T-12 lights to T-8 (Bernard)
- Changing out large energy inefficient boilers to a series of instantaneous water heaters where not all in the series have to be on at one time depending on use.
- Installation of FCUs with Variable Fan speeds
- Added buildings to District Cooling System
- Changing Athletics fields to AstroTurf

Energy Consumption

- Energy for all on campus buildings has been entered into Energy Star Portfolio Manager going back to July 2007 through February 2011. For our 2.3 million square feet of interior space, monthly energy consumption was entered for Gas, Electricity, and Water.
- At the end of Fiscal Year, July 2008, our Energy Intensity (or 1000 btu's per square foot) was 84.7.
- By the end of Fiscal Year, July 2010, our Energy Intensity dropped to 77.5.
- Our Energy Intensity here at UCA is well below the National Average.

University	Location	Site Energy *	Source Energy	Htg Deg D	Clg Deg D	Total Deg D	Undergrad Students	Grad & other Students	Total students	Total Area (SF)
Univ. of Missouri	Columbia, MO	22.0		5177	1246	6423	21046	5527	26573	
Goshen College	Goshen, IN	73.0		6294	813	7107	951		951	
CENTRAL ARKANSAS	Conway, AR	77.5	185.0	3147	1917	5064	9909	1406	11315	2.3 million
Sam Houston State	Huntsville, TX	84.7		1862	2654	4516	20908	6026	26934	
Kansas University	Lawrence, KS	86.0		4734	1565	6299	2235		2235	
Clark Univ.	Worcester, MA	87.5	149.6	6831	371	7202	21004	5260	26264	
Univ. of Nevada Los Vegas	Los Vegas, NV	95.1		2239	3168	5407	42933	7342	50275	
Univ. of Central Florida	Orlando, FL	101.0	271.0	580	3457	4037	6155	621	6776	
Angelo State	San Angelo, TX	104.6		2396	2390	4786	13949	2838	16787	
Northern Arizona Univ.	Flagstaff, AZ	119.6		6999	126	7125	41626	9855	51481	
Arizona State Univ.	Tempe, AZ	121.8		1464	3530	4994	18058	2929	20987	
Univ of Calif Santa Barbara	Santa Barbara, CA	126.6	252.4	2121	482	2603	12973	6440	19413	
Georgia Tech	Atlanta, GA	127.0		2827	1810	4637	29719		29719	
Univ. of Arizona	Tucson, AZ	127.8		1578	3017	4595	10989	1206	12195	
U. of North Carolina Wilmington	Wilmington, NC	138.3		2429	2017	4446	17895	10672	28567	
Univ. of North Carolina	Chapel Hill, NC	145.3		3802	1233	5035	13588	1387	14975	
Univ. of Calif. Santa Cruz	Santa Cruz, CA	148.0		2969	148	3117	31626	6621	38247	
Indiana Univ.	Bloomington, IN	170.0		5309	1068	6377	25300	11311	36611	
UCLA	Los Angeles, CA	170.0		928	1506	2434			9999	
Carnegie Mellon Univ.	Pittsburg, PA	174.8		5829	726	6555	2079		2079	
Williams College	Williamstown, MA	177.0		7060	293	7353	13510	6290	19800	
Cornell	Ithaca, NY	180.0		7207	288	7495	25205	4732	29937	
Colorado Univ.	Boulder, CO	183.0		5554	649	6203	23107	5315	28422	
Texas Tech	Lubbock, TX	184.6		3508	1777	5285	20339	3539	23878	
Univ. of Calif. San Diego	San Diego, CA	262.0		1063	866	1929	19878	8731	28609	
Univ. of Tennessee Knoxville	Knoxville, TN		254.9	3690	1450	5140	26083	14959	41042	29 million
Univ. of Michigan	Ann Arbor, MI	163.3		6187	936	7123				

*Site energy (in 1,000s BTU/sf/yr) measured at user end. Source energy includes total energy input to the power plants supplying energy.

KB 12/15/08
 FIN 8/4/1
 WKS

"GREENING UCA"
ENERGY CONSERVATION IMPROVEMENTS ACCOMPLISHED AT UCA SINCE 1996
Compiled by Physical Plant Engineering
As of September 2010

03 New Hall – Installed condensing type instantaneous water heaters for domestic hot water system.

17 College Square Independent Living Center – Replaced conventional boilers with condensing instantaneous water heaters for building heat.

19 Math/Technology – Replaced metal halide lighting with more efficient compact fluorescents in entry way.

22 Burdick – Replaced fan coil units with variable speed FCUs and converted from 3-way valves to 2-way valves on the FCUs. Connected to district cooling and removed chiller and cooling tower. Replaced chilled water coil in air handler serving the Computer Center, reducing air flow friction loss and improving cooling efficiency. Replaced some T12 magnetic ballast fluorescent lighting with T8 electronic ballast lighting.

23 Mashburn – Replaced obsolete steam boiler system with high efficiency hot water boilers. Installed digital controls on two air handlers. Connected to district cooling.

24 Farris Center– Installed electronic digital controls on all (24) air handler units. Replaced malfunctioning steam valves and chilled water valves, eliminating simultaneous heating and cooling. Replaced one large steam boiler with smaller more efficient boiler for use during the non-heating seasons. Installed variable speed pump on the swimming pool filters. Connected to district cooling and replaced two obsolete chillers with high efficiency, variable primary, variable speed chiller and new high efficiency cooling tower. Replaced metal halide gym lighting with high efficiency, dimmable, high bay T5 fluorescent lighting. Used waste heat from mechanical room air conditioner to supplement pool heating. Shut off steam to air handlers during air conditioning season.

26 Prince Center – Replaced high pressure sodium lights in the gym with fluorescent T8 system. Put electronic digital controls on all air handlers. Replaced all boilers with more efficient multi-stage boilers. Replaced the HVAC system with a variable volume system on the south half of the building. Connected to district cooling.

27 Harrin – Connected to the district cooling system. Installed condensing heating boiler.

28 Doyne Health Science – Replaced the obsolete steam boiler with a modular condensing hot water system. Connected to district cooling. Lighting and air conditioning in remodeled areas was modernized to use more efficient equipment. Will be installing a more efficient cooling tower to replace 2 obsolete cooling towers in 2010. Have purchased and will be installing variable speed fan coil units throughout the building.

29 Schichtl – Installed digital controls on the all the air handlers. Installed heat recovery ventilation on the second floor studios. Will be replacing the heating boiler with condensing instantaneous water heaters and connecting to district cooling in 2010.

31 Laney – Connected to district cooling. Replaced fume hood controls with digital variable flow system that greatly reduces introduction of unconditioned air to building. Installed vegetative green roof system.

32 Irby – Upgrading digital controls in 2010.

33 Lewis Science – Replaced large obsolete steam boiler with a modular hot water boiler system. Replaced pneumatic controls with electronic digital controls on air conditioning in the north half of the building. Installed heat recovery ventilation system in the animal research lab. Replaced the T12 magnetic ballasts fluorescent lights with dimmable T8 electronic ballast lighting and installed occupancy sensors in the south half of the building. Removed the two obsolete absorption chillers and connected to district cooling via Farris.

34 McAlister – Replaced the boiler system with a more efficient boilers. Installed heat recovery ventilation in the photo lab.

37 Meadors – Removed steam radiator system and installed heat pumps.

38 Old Main – Connected to district cooling. Installed a high efficiency condensing boiler system. Modernized some lighting.

39 President's Home – Installed more efficient modular boiler system.

41 Snow Fine Arts – Replaced incandescent lights with LED lighting in the Recital Hall. Replaced all T12 magnetic ballast fluorescent lighting with electronic T8 lighting and occupancy sensors. Connected to district cooling and installed high efficiency boiler system. Installed electronic digital controls on the practice rooms. Installed variable speed heat recovery ventilation system on the Recital Hall. Replaced metal halide lights with high bay fluorescent lighting in Band Room and modernized lighting in Choir Room with high bay T8 fixtures.

42 Torreyson Library – Connected to district cooling. Eliminated steam boiler system. Replaced fan coil units in book area with VAV system. Replaced two obsolete cooling towers with single high efficiency tower. Modernized the lighting in the book area.

44 West Chiller Plant - This is a modern variable primary highly efficient chiller plant installed to eliminate the use of less efficient small chillers around campus, which saves \$500 a day versus the old systems. The plant makes use of state of the art controls, uses fiber glass piping throughout. (It was designed Green)

51 Arkansas Hall – Modernized the AC system with variable speed 4 pipe fan coil units. Connected to district cooling. Installed digital controls in mechanical room.

52 Bernard Hall – Replaced steam boilers with more efficient hot water boilers. Connected to district cooling.

53 Carmichael – Connected to district cooling. Installed digital controls in mechanical room.

54 Christian Cafeteria – Connected to district cooling. Eliminated the use of steam and removed an old steam boiler system. Installed solar collector system to supplement domestic hot water heating. Installed digital controls on all AC and mechanical systems. Modernized the lighting.

55 McCastlain – Connected to district cooling. Installed digital controls on basement fan coil units. Remodeled half of the first floor with modern lighting and variable volume air conditioning with digital controls. Installed high efficiency condensing boiler system.

56 Conway Hall – Connected to district cooling. Installed digital controls in mechanical room.

57 Denney Hall – Connected to district cooling. Interconnected Short and Denney heating systems. Installed digital controls in mechanical room.

58 Hughes Hall – Connected to district cooling. Installed digital controls in mechanical room.

61 Short Hall – Connected to district cooling. Installed digital controls in mechanical room. Installed new boiler.

62 State Hall – Connected to district cooling. Installed digital controls in mechanical room.

63 Student Center – Connected to district cooling.

65 Wingo Hall – Entire building was remodeled and expanded using state of the art lighting and digital controls. Connected to high efficiency hot water system in McCastlain and connected to district cooling.

66 Baridon Hall – Connected to district cooling. Installed digital controls in mechanical room.

72 UCAPD – Modernized lighting

Parking Lot Lighting – Installed efficient 100,000-hour induction lighting in the parking lots west of Physical Plant and by Student Health.

District Cooling System – Constructed underground district cooling network connecting nearly every building on campus. This system incorporates variable primary pumping and the highest efficiency chillers available. It consists of more than six miles of corrosion free fiberglass reinforced piping sized to for low friction losses and thus keep pumping costs to the minimum possible. The district cooling system supplies chilled water using about half of the electric energy formerly required by the individual chillers installed in each building.

Saves about \$200,000 per year.