

**THE
UNIVERSITY
OF
KANSAS**

FACILITIES OPERATIONS

UTILITY MANAGEMENT

ANNUAL REPORT

FISCAL YEAR 2006

July 2005 to June 2006

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EXECUTIVE SUMMARY

The University of Kansas purchases electricity, natural gas, water, stormwater management and trash removal services from outside utility suppliers. The university, however, owns and maintains the infrastructure used to distribute electricity, steam and water to the many buildings on campus. This infrastructure includes:

- Three electrical distribution systems (one on the main campus and two smaller systems on the west campus);
- Chilled water piping to five buildings served by a central chiller plant;
- Piping to distribute steam produced by four boilers with a combined capacity of 216,000 lb/h to 54 buildings and to return condensate to the boilers; and
- Water lines for distributing water to buildings on the main and west campuses.

Costs for the purchased utilities in fiscal year 2006 totaled \$10,372,694, an increase of \$1,712,624 over the previous year. These cost increases were a result of both rate increases and newly constructed buildings on campus. The rate increases, as detailed below, contributed about 83% or \$1,450,000 of the total cost increase.

- Electricity: unit cost rose from \$0.0464/kWh for the first half of FY06 to \$0.0586/kWh in the second half (a 26% increase);
- Natural Gas: unit cost rose from \$7.49/MMBtu in FY05 to \$9.34/MMBtu in FY06 (a 24% increase); and
- Water/Sewer: combined unit cost rose from \$5.92/thousand gallons in FY05 to \$6.38 in FY06 (a nearly 8% increase).

Newly constructed and renovated space on campus resulted in an increase of 148,785 gross square feet. Newly constructed space includes the Multidisciplinary Research Building, Structural Biology Addition, and the Allen Fieldhouse Addition. Significant renovation of spaces also occurred at Malott Hall and Haworth Hall. These additions and renovations accounted for about \$300,000 in added utility costs for FY06.

The net effect of the rate increases and newly constructed spaces was an increase in the average cost per square foot from \$1.30 to \$1.64. These increases were, however, offset by savings generated from the Energy Performance Contract and by mild winter weather.

Given the higher utility costs, efforts to promote energy efficiency and conservation have continued. University and Chevron Energy Solutions personnel are both working to maintain buildings at the temperatures set by the Provost's Energy Policy and to find other means of reducing energy costs. Any suggestions or comments on energy use at KU should be directed to the University's energy manager, Cindy Strecker, at 864-5695 or strecker@ku.edu.

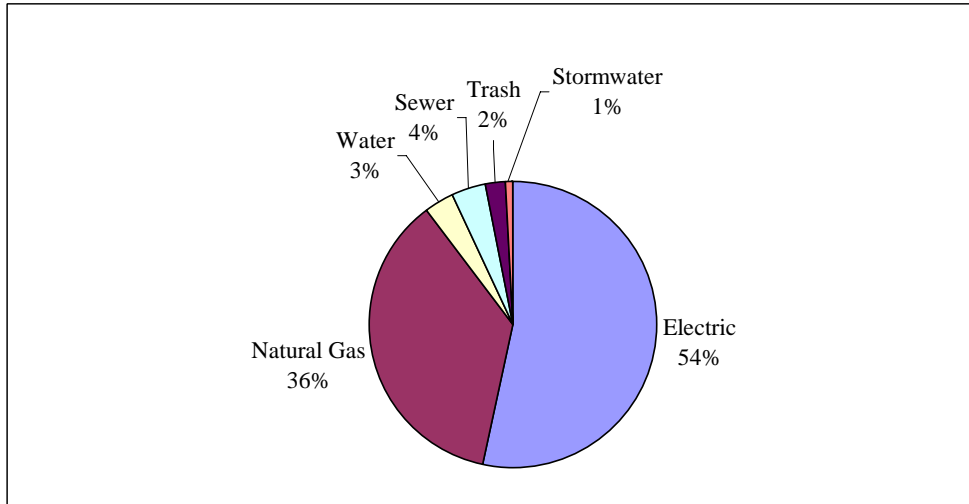
I. FY06 BUDGET OVERVIEW

In FY06, the University spent a total of \$10,372,694 for electric, natural gas, water, sewer, storm water and trash services for general-use funded buildings. The following figures show these costs by type of utility.

Figure 1: FY06 Utility Expenditures

	Use	Cost
Electric (kWh)	107,481,859	\$5,535,688
Natural Gas (MMBtu)	407,957	\$3,774,201
Water (gallons)	153,856,215	\$335,652
Sewer (gallons)	102,831,789	\$410,665
Stormwater		\$90,378
Trash		\$226,110
Total Cost		\$10,372,694

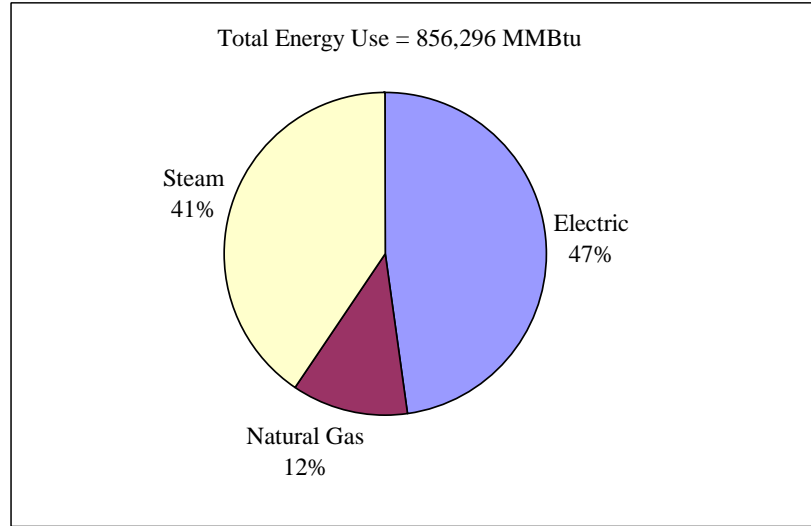
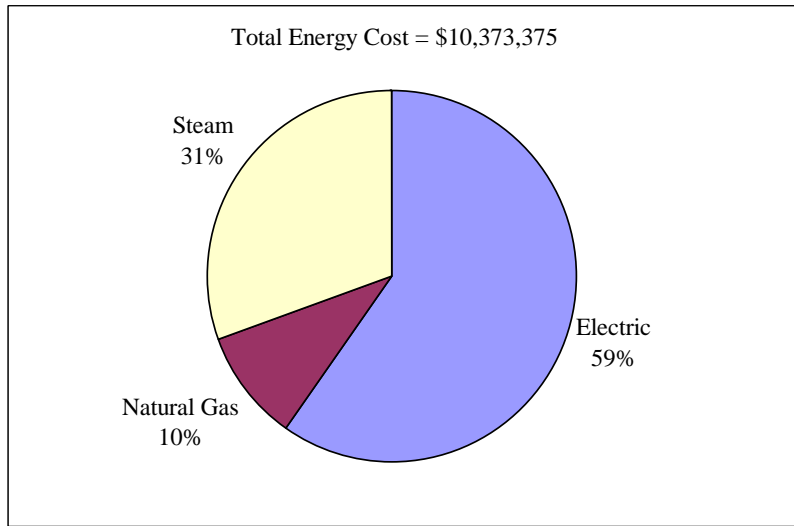
Figure 2: FY06 Utility Cost Distribution



Electricity continues to be the University's largest expenditure at 54% of the total cost of utilities purchased during FY06. However, this has decreased from 58% in FY04 and 60% in FY03 as a result of rate increases in natural gas, water and sewer.

According to Figures 3a and 3b (see next page), electricity accounts for 59% of the total energy (electricity and natural gas) costs but only 47% of the total energy use. Despite the increases in natural gas rates, electricity remains a more expensive form of energy. The steam cost percentage is calculated as the cost of natural gas used to produce steam in the Power Plant boilers.

Figures 3a and 3b: Energy Source and Cost Distribution



Projected utility costs for FY07, as made in May 2006, are shown in Figure 4. The electric use is expected to remain relatively constant, with no new buildings expected to come on-line. Costs, however, are expected to be significantly higher due to the February 2006 rate increase. Natural gas use is expected to be somewhat higher, given that the weather in FY06 was significantly below normal. At the same time, we have not projected an increase in gas costs, on the belief that prices will not be as high and that we will have positioned ourselves well by using the Cornerstone Managed Procurement Fund (see Section V.C.). Water use is expected to be somewhat lower, but costs will not be significantly lower due to a water/sewer rate increase expected to take effect in January 2007. Stormwater and trash costs should remain relatively constant.

Figure 4: FY07 Utility Projections

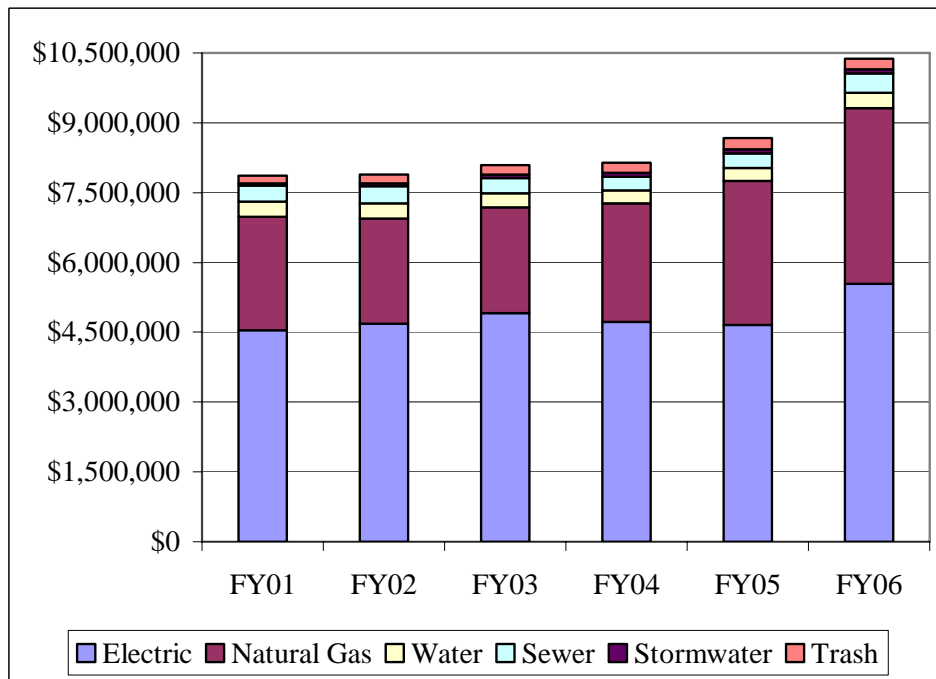
	Use	Cost
Electric (kWh)	106,942,600	\$6,439,967
Natural Gas (MMBtu)	414,317	\$3,763,215
Water (gallons)	147,902,974	\$330,083
Sewer (gallons)	97,335,184	\$420,561
Stormwater		\$90,375
Trash		\$235,125
Total Cost		\$11,279,326

II. HISTORICAL COMPARISONS

A. Total Cost Comparison

Total utility expenditures rose by \$1,712,624 in FY06 over FY05 (see Figure 5). As previously mentioned, this is due in part to rate increases in electricity, natural gas, water and sewer. The largest cost increase was nearly \$900,000 in electrical costs. However, natural gas costs also contributed nearly \$700,000 to the increase.

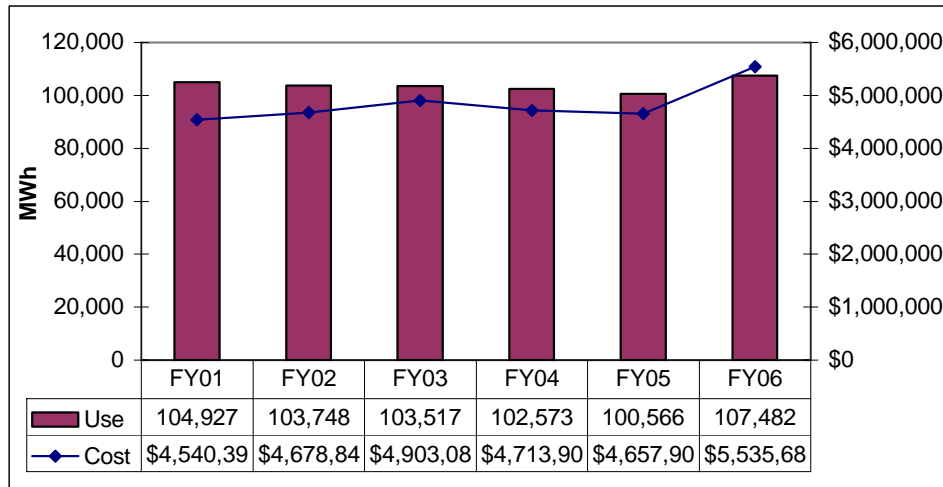
Figure 5: Six Year Comparison of Total Utility Costs



B. Electric Use Comparison

Figure 6 shows annual electric consumption and cost for the past six years. Annual electric consumption decreased slightly through FY05 and then saw a significant increase in FY06. Energy conservation policies, the energy performance contract and weather (with fewer cooling degree days) all contributed to the decreased consumption. Nearly all of the increased use in FY06 (as compared to FY05) can be attributed to construction and renovation of the following buildings: MRB, Structural Biology Addition, Allen Fieldhouse Hall of Athletics, Malott Hall and Haworth Hall. This construction and renovation resulted in cost increases of around \$300,000. The remaining \$600,000 increase is a result of the rate change that was made effective in February 2006.

Figure 6: Six Year Comparison of Electric Use

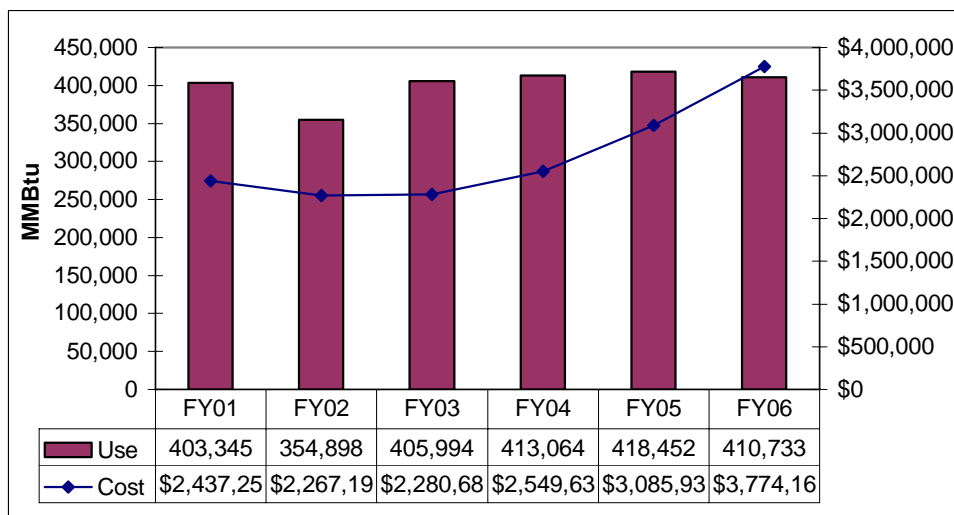


C. Natural Gas Use Comparison

Natural gas consumption has moved up and down over the last six years, due mainly to weather-related heating demand (see Figure 7). The large decrease in FY02 is likely a result of a drop in heating degree days (HDD), from 5,465 in FY01 to 4,432 in FY02. FY06 saw a decrease in HDD which more than offset the increase resulting from new construction and renovation.

Unit costs for natural gas have also been increasing. In FY06 the unit cost rose to an annual average of \$9.34/MMBtu, up from \$7.49/MMBtu in FY05 - an increase of nearly 24%. (The low for the last five years was \$5.62/MMBtu in FY03.) The unit cost increase accounts for nearly all of the FY06 cost increase.

Figure 7: Six Year Comparison of Natural Gas Use

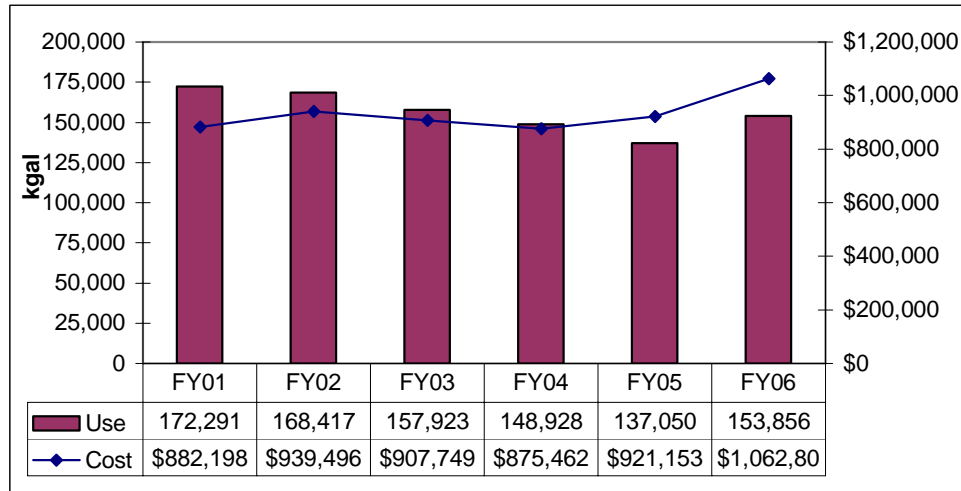


C. Water Use Comparison

Water use has been decreasing since FY2001 (see Figure 8). Weather, both through rainfall amounts and temperatures, has an effect on campus water consumption. In addition many low flow flush valves and faucet aerators as well as equipment to reduce water use in laboratories were installed late in the summer of 2003 as part of the performance contract. Much of the FY06

increase is for use at the new MRB and Structural Biology buildings on West Campus. Increases in the cost of water and sewer (approximately \$140,000) are a result of both increased use and increased unit costs.

Figure 8: Six Year Comparison of Water Use

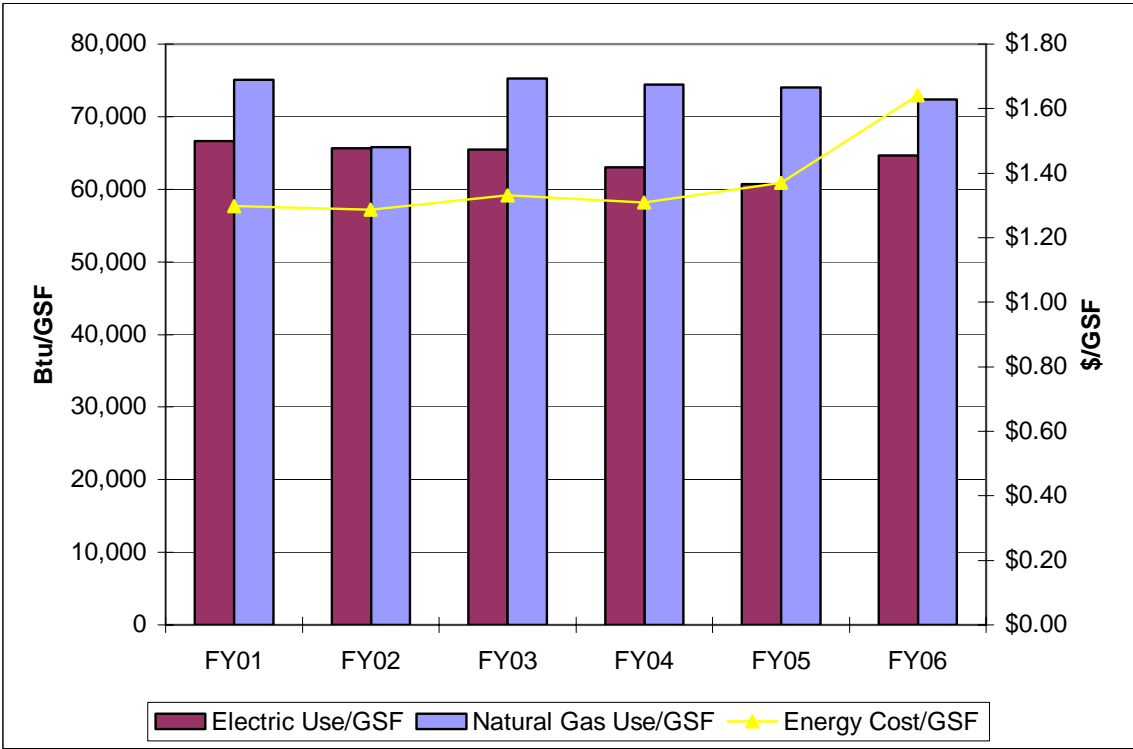


D. Energy Use and Building Gross Square Footage

Since FY01, building space on campus has grown by 428,304 gross square feet (about 8%) of which 148,785 was added between FY05 and FY06. Much of the new construction is energy-intensive research space that is costly to operate. The Multidisciplinary Research Building (MRB) was first occupied mid-way through FY06. Despite not being open for an entire year, MRB electric and natural gas costs were \$378,702. Utility information by building can be found in Appendix I.

Figure 9 shows the total energy use and total cost (natural gas and electricity) divided by the total gross square footage on campus for general-use funded buildings. While energy costs per gross square foot had been around \$1.30/GSF, they increased sharply to \$1.64 in FY06, as a result of rate increases. Natural gas use on a per gross square foot basis also followed the same general trend of total natural gas use due to milder weather.

Figure 9: Total Energy Use and Cost as a Function of Gross Square Feet



III. ELECTRICITY

A. Electrical Distribution System

There are three electrical distribution systems on campus that are served by Westar. The largest system is for the main Lawrence campus where power is supplied through two feeds – one at Burt Hall and a second at the Boiler Plant – at 12470 volts. A smaller system was installed on the south end of West Campus (Higuchi Building, Pharmaceutical Chemistry, McCollum Labs, Simons Bioscience, Bridwell, Foley, Smissman, Structural Biology, Parker and Moore Halls) in November 2004. This is served by Westar through a meter located at 21st and Iowa Streets. A second distribution system was put in place in early FY2006 on West Campus that serves Nichols Hall, Multidisciplinary Research Building, EHS Building, Kurata Laboratory, and the Library Annex. In addition, there are several individual accounts/meters for buildings that are off the main systems (including Printing Services, Facilities Operations buildings on the west campus, Baehr Audio-Reader/KPR, and others). The university has 63 public-utility electrical accounts and 122 university-owned electric submeters.

B. Rates

Most University electric bills include both consumption and demand charges. Most of the larger Westar electric accounts (including the main campus distribution account) include the following components:

1. A tiered consumption charge based on usage in kilowatt-hours and the maximum demand;
2. A capacity charge based on the billing capacity (defined as the highest capacity in kW divided by the power factor and not less than 80% of highest capacity established in most recent July, August or September prior to current billing month, 50% of the contract capacity or 200 kVA);
3. A Franchise Fee of 4%;
4. A Property Tax Surcharge.

However, the most recent rate change for Westar Energy went into effect in February 2006. The main components of the new rate schedule for the main campus distribution system are a capacity charge, an energy charge, a transmission delivery charge and a fuel adjustment charge. Similar to the previous rate schedule, the capacity charge is the maximum of either the current capacity (adjusted only if power factor is less than 90%) or 85% of the previous summer peak capacity. The fuel adjustment charge is a variable, pass-through charge that has ranged from \$0.016216/kWh to \$0.027651/kWh.

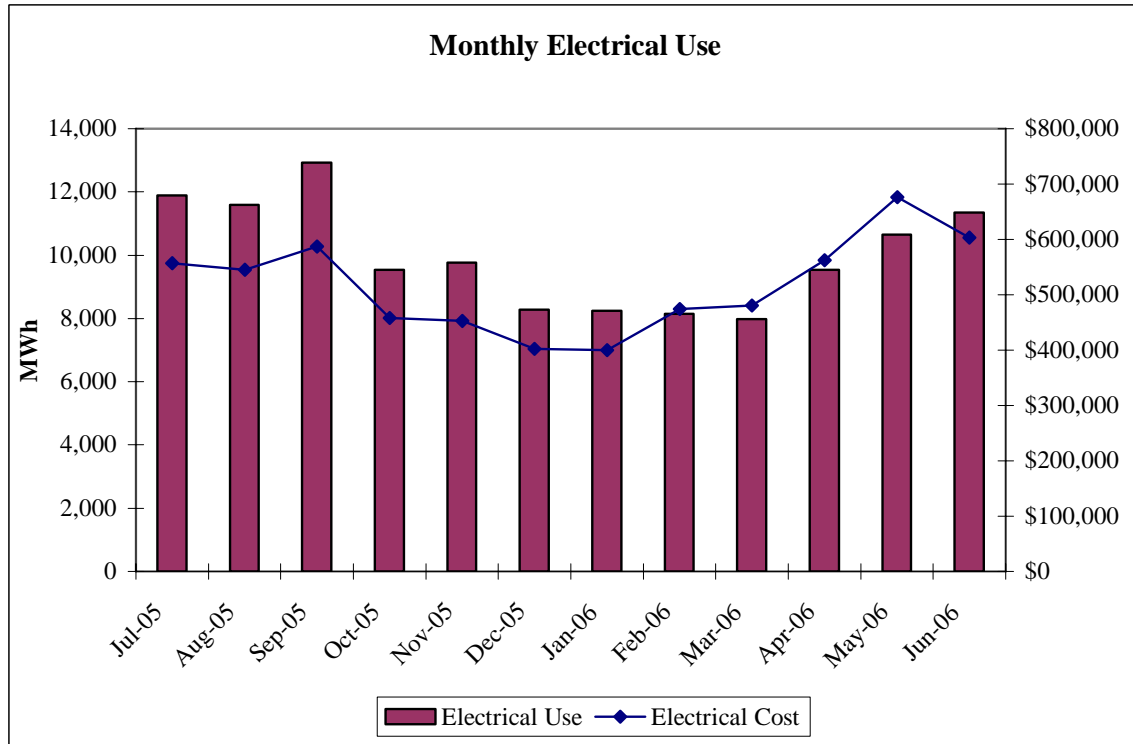
For the first seven months of FY2006, the average rate paid by the University for the main distribution account was \$0.0464/kWh. The average rate for the last five months of FY06, after implementation of the new rate schedule, was \$0.0586/kWh. (The average for the year was thus \$0.0515/kWh.) The fluctuation in the fuel adjustment charge will make it more difficult to budget electrical costs, as a \$0.005/kWh change equates to an annual cost difference of \$600,000.

C. Monthly Electrical Use and Costs

As expected, monthly electrical consumption peaks in the summer and falls to its lowest levels in the winter (see Figure 10). Peak demand is typically set in August or early September, when temperatures are high and the students have returned to campus. Peak demand for the main campus distribution system for FY06 was set in August 2005 and was 19,189 kW. The lowest

monthly demand for this system was 11,880 kW set in December 2005, a difference of 7,309 kW. The February 2006 rate increase is easily identifiable, as the cost jumped while usage actually decreased slightly. Summer costs have been significantly higher, with a large spike in May 2006 when the fuel adjustment charge was high.

Figure 10: Monthly Electrical Use



D. Submetering

A majority of the electrical use supplied through the two main Westar feeds on the main campus is submetered. Facilities Operations reads meters monthly to provide a record of campus consumption on a building-by-building basis. The electrical use and cost for the main campus distribution system for FY06 was 94,636,800 kWh and \$4,822,366. Of this 87,841,375 kWh or 93% was accounted for in submetering. The remainder can be attributed to buildings and equipment that are not metered (such as Lippincott Hall and the chiller at Summerfield Hall), failed meters, and system losses.

IV. NATURAL GAS

A. Natural Gas Use and Steam Distribution System

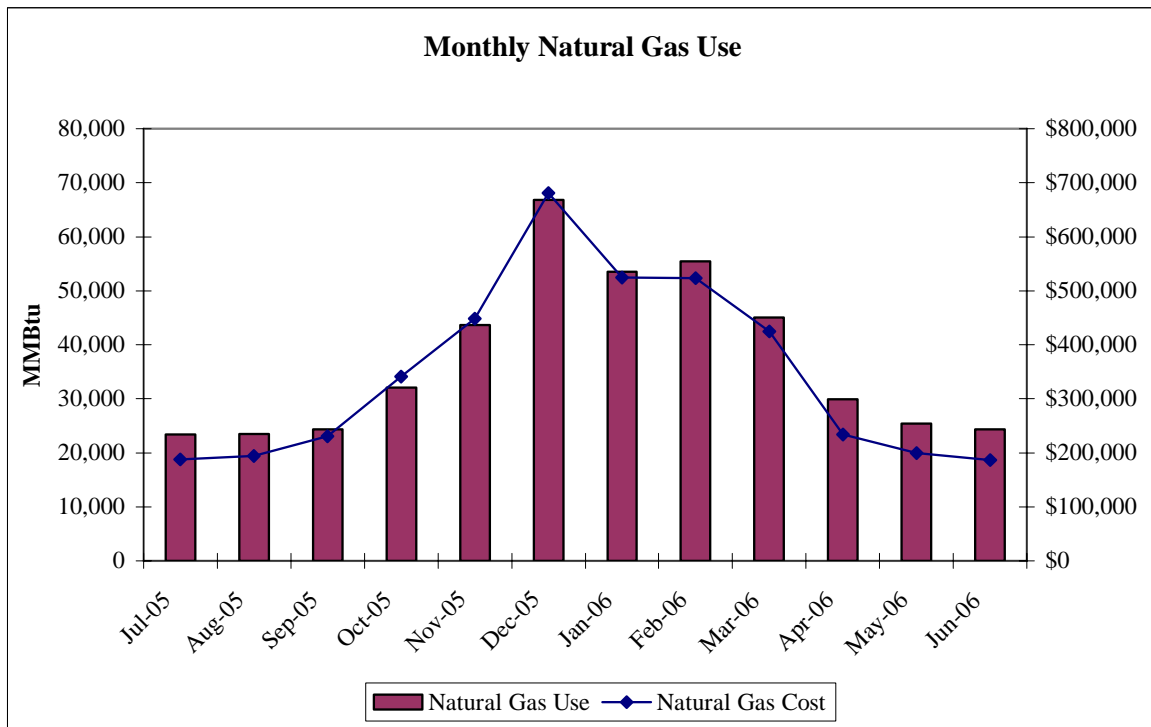
Natural gas is used in the Power Plant to produce steam in four large boilers with a combined capacity of 216,000 lb/h. Natural gas is typically used to fire the boilers; however, they are capable of burning #2 fuel oil as a backup. The 90 psig steam is then distributed through more than 16,000 lineal feet of tunnel systems that cross the main campus. The steam is used for heating and hot water in most buildings on the main campus. Much of the steam condensate is returned to the Power Plant through the same tunnel system.

Buildings not on the main steam distribution system use natural gas for heating and to produce hot water within the building. The university has 75 public-utility natural gas accounts and 57 university-owned steam and condensate submeters and two natural gas submeters (natural gas is used in some laboratories located within buildings on the steam distribution system).

B. Monthly Natural Gas Use and Costs

Natural gas use is very weather dependent (see Figure 11). Monthly summertime consumption is about 23,700 MMBtu. Usage typically peaks in December or January, depending on the weather. This year usage peaked in December due to the cold weather in December and very warm weather in January and February. Gas costs mirrored usage, with the highest prices being paid in October, November and December (above \$10/MMBtu).

Figure 11: Monthly Natural Gas Use



C. Rates

Natural gas was purchased using several different contracts, depending on the size of the account. For the largest two users on campus, the Power Plant and Simon's Bioscience, natural gas was purchased from Cornerstone Energy, a natural gas marketer, with transportation costs paid to Aquila, the local distribution company. For most of FY2006, 40% of the natural gas used at these two facilities was purchased at the Conerstone Managed Procurement Fund supply price.

For November 2005 through March 2006, the remaining 60% was purchased on a special winter managed procurement fund, with this same 60% being purchased at index pricing for July 2005 to October 2005. The managed procurement fund runs from April to March, so for the next twelve-month period (April 2006 to March 2007), 60% of our volumes were placed in the fund, with 40% remaining at index pricing. The Managed Procurement Fund is a diversified portfolio fund program uses a variety of purchasing options (fixed price, call options, monthly index pricing, daily index pricing and discretionary pricing) to manage the volatility of natural gas prices. Figure 12 shows the Fund pricing for the year, along with the Southern Star index price and the average price paid for the commodity only at the Power Plant. This also shows that the Fund has performed as expected, keeping the price per MMBtu relatively constant and eliminating the winter peaks.

Figure 12: Natural Gas Pricing for the Power Plant

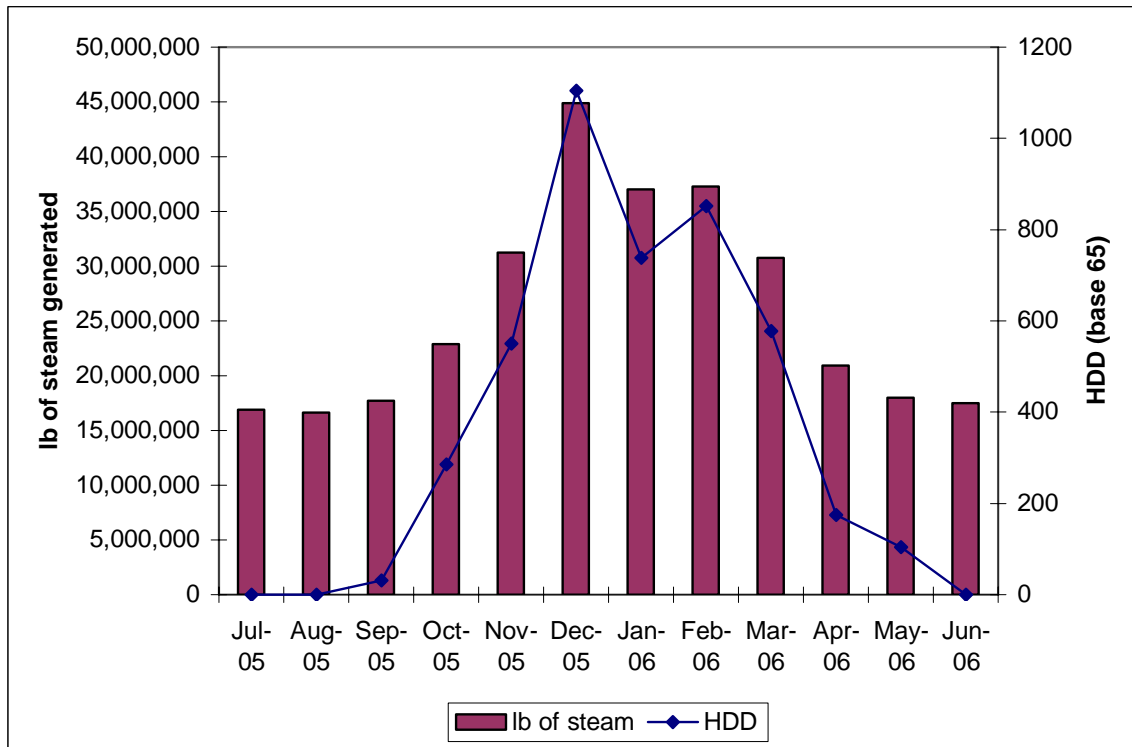
	Managed Procurement Fund	Winter MP Fund	Southern Star Index	Average Price Paid
Jul-05	\$0.6645		\$0.6440	\$0.6476
Aug-05	\$0.6743		\$0.6600	\$0.6613
Sep-05	\$0.7201		\$0.8500	\$0.7963
Oct-05	\$0.7510		\$1.0190	\$0.9126
Nov-05	\$0.6815	\$0.9960	\$1.0590	\$0.8829
Dec-05	\$0.7305	\$0.9312	\$0.8890	\$0.8571
Jan-06	\$0.6660	\$0.8919	\$0.8860	\$0.8051
Feb-06	\$0.6526	\$0.8532	\$0.6870	\$0.7762
Mar-06	\$0.6421	\$0.8476	\$0.6270	\$0.7663
Apr-06	\$0.6344		\$0.5820	\$0.6101
May-06	\$0.6561		\$0.5730	\$0.6192
Jun-06	\$0.6665		\$0.5020	\$0.5962

The next group of buildings falls into the Small and Large Volume Pool category. These buildings were enrolled in the same Managed Procurement Fund offered by Cornerstone Energy for 100% of their natural gas purchases. As with the other accounts, transportation costs were paid to the local distribution company. Remaining accounts managed in the Lawrence area purchased gas directly from the local distribution company. These are accounts that did not use enough natural gas in a one-year period to qualify for the small volume pool.

D. Submetering

In FY2006, nearly 312 million pounds of steam were produced in the main “Power Plant”, with steam production peaking in December, which was also the month with the highest number of heating degree days (see Figure 13 on the following page). Of this, 83% (259 million gallons) was submetered. There are several reasons why not all steam is submetered. One, condensate meters are used due to the higher cost of purchasing and maintaining steam meters, and not all condensate is returned to the Power Plant (i.e. cage washers and laundry facilities). Secondly, steam leaks and trap failures are unavoidable in such an extensive system of steam and condensate piping. Third, boiler blowdown is not accounted for in the steam production. Finally, there are meters that have failed and are not repaired immediately.

Figure 13: Monthly Steam Generation with Heating Degree Days



V. WATER/WASTEWATER/STORMWATER/SANITATION

A. Water Distribution

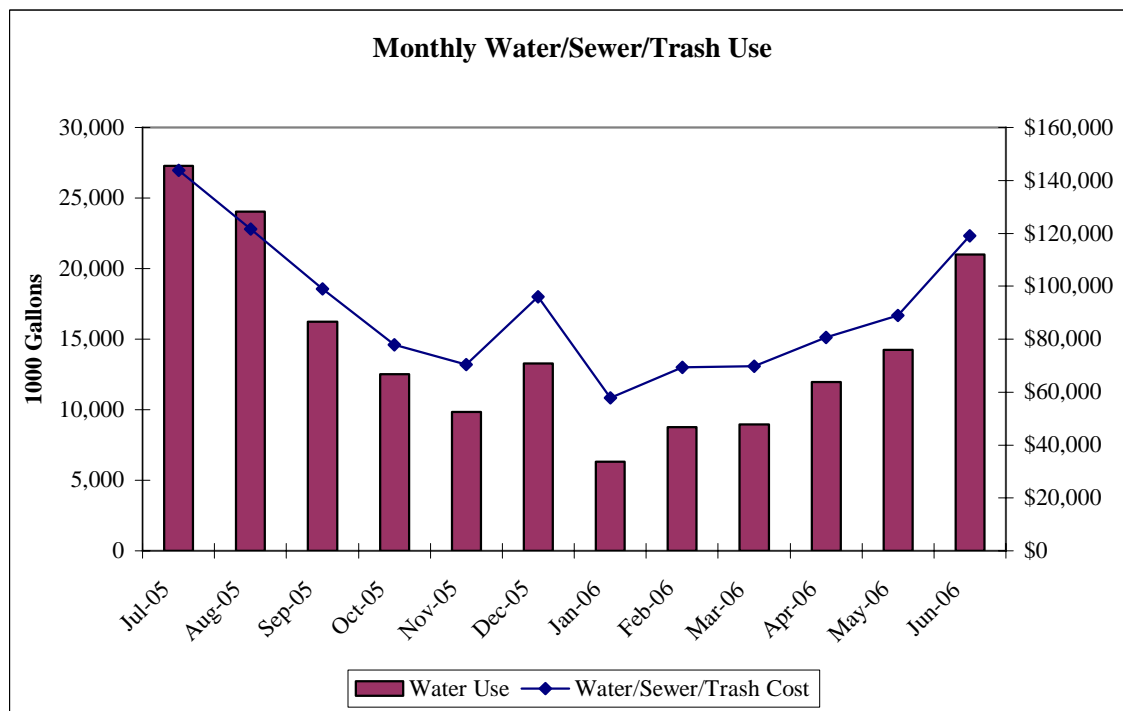
Most water used by the University of Kansas is supplied by the City of Lawrence through two main meters. The main campus is served by one twelve-inch water meter, while west campus is served by one ten-inch meter. In addition to sub-metering water use in most buildings, water that is used and not returned to the sewer system (such as cooling towers, irrigation systems and fountains) is also metered. This information is submitted to the City of Lawrence in order to receive a credit on sewer charges. As sewer rates continue to increase, this becomes even more important to track. In FY2006, \$174,984 was saved by applying for the sewer credit. The university has 37 public-utility water/sewer accounts and 132 university-owned water submeters (57 of which are sewer credit meters).

The City of Lawrence also provides sanitation services and charges a fee based on impervious surface area for stormwater management. There are a few areas on campus where the City trash trucks are not able to reach. To service these buildings, a KU-owned truck takes dumpsters directly to the landfill for tipping.

B. Comparison of Water Use and Cost

Water use on campus varies with the seasons (see Figure 14). The highest water use comes in the summer months, when water is used for cooling towers and irrigation. Peak usage occurred in July 2005 and was nearly 27,300,000 gallons. The December spike resulted from efforts to minimize pipe damage during extreme cold weather.

Figure 14: Annual Water/Sewer/Trash/Stormwater Comparison



C. Rates

Water and sewer rates were again increased effective January 2006. The average rate the University pays for water and sewer combined increased to \$6.38 per 1000 gallons, up from \$5.92 in calendar year 2005 and \$4.81 in calendar year 2004. Sanitation and storm water rates remained unchanged from the previous year.

D. Submetering

Much of the water provided through the two campus master meters is sub-metered. In FY06 water use for the two master meters was 131,710,000 gallons and 17,290,100 gallons for the main and west campuses, respectively. Of this, 112,252,469 gallons or 85.2% was sub-metered on the main campus. Only 10,932,930 gallons or 63.2% was metered on the west campus. This is due to delays in getting the water meter at the Multidisciplinary Research Building functioning. Other sources of water use that are not sub-metered include some irrigation systems on campus, clean up water at the Power Plant, construction of new buildings, and failed meters.

VI. CONSERVATION MEASURES

VI.A. Performance Contracting

In November 2001, the University of Kansas entered into a twenty-year partnership with Chevron Energy Solutions in the form of an energy performance contract. An initial audit was conducted, a list of energy conservation measures was agreed upon, and an eighteen-month construction period was completed in June 2004. Thus, FY2006 was the second year of guaranteed energy performance. During this year, KU saw energy savings of 13,449,831 kWh of electricity and 54,532 MMBtu of natural gas. Using contractual energy rates, the dollar savings were \$880,590 in guaranteed energy savings and \$84,684 in water savings. Using the actual, average unit costs for FY2006, the energy savings were \$1,204,140.

While these savings are significant, they are short of expected savings by \$550,216. As a result Chevron is continuing to explore additional opportunities for conserving energy.

VI.B. Provost Conservation Measures

In May 2004, the Provost updated the winter and summer conservation guidelines in an effort to curb utility costs. These policies are included below.

VI.B.1 Energy Conservation Measures for the Cooling Season

The following energy conservation guidelines are in effect:

- The temperature in occupied rooms should be maintained at 76 degrees.
- Where possible, Facilities Operations (FO) will utilize the night setback feature of the building automated control system to set room temperature at 85 degrees during periods when facilities are unoccupied (nights, weekends, or other times when buildings are closed). Facilities that require constant or specific temperatures or humidity levels are exempted; the Provost Office evaluates requests for exemptions on a case-by-case basis.
- In facilities where individual occupants are responsible for controlling temperature settings for central air conditioning units, thermostats should be set at 76 degrees during the day and at 85 degrees at the end of each business day and over the weekend.
- In spaces cooled by window air conditioning units, thermostats should be set at 76 degrees when the space is occupied. Temperature levels should be raised manually or the unit should be turned off when the space is not in use.
- Employees should contact Facilities Operations (4-4770) if areas are either too hot or too cool.
- Day lighting should be used when possible. When rooms or buildings are unoccupied, lights not needed for safety and security purposes should be turned off.
- Keep outside doors and windows closed when cooling equipment is in use.
- The power management (PM) features of computers should be activated so that when a computer is left unused for a set period of time (five minutes recommended), the machine powers down and “goes to sleep.” The Environmental Protection Agency generally recommends that PM be set to enter sleep mode after 15 to 30 minutes of inactivity. Employees who need assistance in setting their computers to enter sleep mode should contact the technical support person for their areas.

- Computers and monitors should be turned off if employees are going to be away from their desks for several hours because computers and monitors continue to draw some power even when in the sleep mode.
- Computers that are not accessed remotely should be turned off at the end of the business day and on weekends.
- Computer printers that do not go into sleep mode when not in use should be turned off at the end of the workday.
- Copiers that do not automatically turn off after a period of inactivity should be turned off at night and during the weekend.
- All persons using research equipment that requires water for cooling and other similar purposes should use the minimum amount of water required and should cut off the water supply when the equipment is not in use.
- Water leaks, dripping faucets, and fixtures that do not shut off should be reported to FO.
- The electrical current to all equipment such as copy machines, floor lamps, radios, hot plates, coffee pots, printers and computers, etc., should be cut off when not in use and at the end of each work day.

In addition to the steps above, Facilities Operations will manually or centrally control HVAC systems across campus in one of the following manners to further achieve a reduction of use in electrical energy.

- When outside temperatures rise above 90 degrees, Facilities Operations will monitor electrical demand and reset chilled water temperatures in cooling systems, or manually control chiller loads, in buildings with multiple chillers, thus increasing the building temperature.
- Where voluntary steps above have not been taken, Facilities Operations will shut off window and small air conditioning systems in buildings after normal business hours, except in research and humidity-sensitive areas.

-

VI.B.2 Energy Conservation Measures for the Heating Season

The following conservation guidelines are in effect for the winter (heating) season:

- The temperature in occupied rooms should be maintained at 69 degrees.
- Where possible, Facilities Operations (FO) will utilize the night setback feature of the building automated control system to set room temperature at 55 degrees during periods when facilities are unoccupied (nights, weekends, or other times when buildings are closed). Facilities that require constant or specific temperatures or humidity levels are exempted; the Provost Office evaluates requests for exemptions on a case-by-case basis.
- In facilities where individual occupants are responsible for controlling temperature settings, thermostats should be set at 69 degrees during the day and should be set back to 55 degrees at the end of each business day and over the weekend.
- Windows should be firmly closed and locked to prevent air seepage. Doors should be closed when rooms are not in use.

- Employees should contact Facilities Operations (4-4770) if areas are either too hot or too cool. This is especially important in areas where both heating and cooling systems are used to control the temperature.
- FO will provide plastic film to cover single-pane windows or window air conditioner units at no charge to departments. If departmental staff are not able to install the film, FO will provide installation as a billable service.
- Use of electric space heaters should be minimized.
- Day lighting should be used when possible. When rooms or buildings are unoccupied, lights not needed for safety and security purposes should be turned off.
- Blinds and curtains should be shut at night.
- The power management (PM) features of computers should be activated so that when a computer is left unused for a set period of time (five minutes recommended), the machine powers down and “goes to sleep.” The Environmental Protection Agency generally recommends that PM be set to enter sleep mode after 15 to 30 minutes of inactivity. Employees who need assistance in setting their computers to enter sleep mode should contact the technical support person for their areas.
- Computers and monitors should be turned off if employees are going to be away from their desks for several hours because computers and monitors continue to draw some power even when in the sleep mode.
- Computers that are not accessed remotely should be turned off at the end of the business day and on weekends.
- Computer printers that do not go into sleep mode when not in use should be turned off at the end of the workday.
- Copiers that do not automatically turn off after a period of inactivity should be turned off at night and during the weekend.
- All persons using research equipment that requires water for cooling and other similar purposes should use the minimum amount of water required and should cut off the water supply when the equipment is not in use.
- Water leaks, dripping faucets, and fixtures that do not shut off should be reported to FO.

The Provost’s Office will announce any temperature adjustments that may occur during the winter break when classes are not in session. If you have any comments, concerns, or suggestions, please forward them to Vice Provost Jim Long (jlong@ku.edu).

APPENDIX I: UTILITY COST PER GROSS SQUARE FOOT BY BUILDING

GSF		Electric (kWh)	Chilled Water Electric (kWh)	Natural Gas (Mcf)	Steam (lb)	Water (gal)	Sewer (gal)	Total Utility Cost (\$/yr)	FY06 Energy Cost per GSF	FY06 Energy Use per GSF	FY05 Energy Use per GSF
MUSEUM/LIBRARY											
27,150	201 DOLE INSTITUTE	1,504,547		5,731		2,124,700	91,000	\$132,455	\$4.80	400,170	431,267
91,085	152 SPENCER MUSEUM OF ART	3,332,500			7,160,468	2,200,700	321,550	\$270,526	\$2.89	239,365	204,170
149,720	179 ANSCHUTZ SCIENCE LIBRARY	2,767,200			13,525,956	2,929,100	1,448,600	\$332,727	\$2.13	194,681	188,261
107,730	100 SPENCER RESEARCH LIBRARY	2,310,000			5,182,093	751,160	1,074,880	\$192,179	\$1.71	143,242	124,624
107,530	005 DYCHE HALL AND MUSEUM	1,446,380		3	2,863,021	1,300,700	284,680	\$116,673	\$1.04	84,711	92,699
189,760	022 WATSON LIBRARY	2,678,940			Not Available	2,140,200	879,300	\$149,246	\$0.72	#VALUE!	88,408
23,275	006 SPOONER HALL	0			928,712	73,000	73,000	\$14,649	\$0.54	58,133	69,281
SPORTS FACILITIES											
103,905	205 STUDENT REC CENTER	2,380,550		9	6,809,775	2,536,000	1,135,490	\$222,252	\$2.02	173,743	183,791
43,484	173A ANDERSON STRENGTH CENTER	1,011,700			1,862,588	1,198,400	1,198,400	\$84,309	\$1.77	141,788	111,363
57,255	189 WAGNON STUDENT ATHLETE CENTER	1,913,040			271,308	1,461,000	1,461,000	\$110,158	\$1.77	120,908	116,446
222,435	094 ROBINSON HEALTH & PHYS ED CENTER	3,020,810			14,275,121	2,985,000	1,279,500	\$355,672	\$1.55	139,836	138,029
4,335	188 HOGLUND-MAUPIN STADIUM BLEACHERS			463				\$5,680	\$1.31	106,759	154,521
217,810	059 ALLEN FIELDHOUSE	1,938,150		160	10,514,459	10,794,800	5,805,000	\$285,663	\$1.10	101,425	100,548
22,640	197 HOREJSI ATHLETIC PRACTICE FACILI	319,130		773		87,700	87,700	\$24,344	\$1.05	82,220	91,250
23,955	174 PARROTT ATHLETIC CENTER	200,640		502	409,753			\$22,323	\$0.93	74,458	73,494
245,050	050 MEMORIAL STADIUM	3,143,619		1,120		7,599,200	7,596,000	\$220,372	\$0.71	48,340	46,965
108,506	173 ANSCHUTZ SPORTS PAVILION	474,430		1,085		80,300	86,300	\$35,266	\$0.32	24,922	31,720
SCIENCE/RESEARCH											
48,650	195 SIMONS BIOSCIENCES RESEARCH LABS	2,694,400		10,274		2,985,000	969,200	\$259,079	\$5.01	400,150	429,466
17,085	212 STRUCTURAL BIOLOGY CENTER	1,033,680		2,039		268,900	127,670	\$80,973	\$4.68	325,766	316,061
42,655	136 INTER X (CENTER FOR RESEARCH)	1,703,347		10,548		2,109,400	2,153,560	\$210,890	\$4.60	383,536	285,067
17,530	141 MCCOLLUM LAB	672,600		2,662		723,300	723,300	\$66,432	\$3.46	282,790	274,824
2,400	117 ENTOMOLOGY RESEARCH LAB	27,440		514				\$7,686	\$3.20	253,302	312,310
279,690	104 HAWORTH HALL	6,550,880	476,468	31	39,051,040	11,241,900	10,003,800	\$943,473	\$3.12	289,256	252,892
331,925	058 MALOTT HALL	7,446,560	2,492,358	589	36,211,343	19,771,300	17,275,300	\$1,123,040	\$2.99	262,880	226,376
14,000	157 SMISSMAN RESEARCH LAB	429,600		1,156		301,100	301,100	\$35,514	\$2.41	187,285	217,285
71,430	135 NICHOLS HALL	2,234,800		2,350		1,452,700	1,452,700	\$146,382	\$1.89	139,649	226,538
46,850	139 MOORE HALL	1,060,800		2,929		755,300	755,300	\$92,224	\$1.80	139,768	148,849
7,470	121 HIGUCHI PHARMACEUTICAL CHEM LAB	143,920		449		68,070	68,070	\$13,552	\$1.62	125,844	152,540
5,070	120 BOTANY GREENHOUSE	758				66,980	66,980	\$7,746	\$1.45	510	141,065
225,115	088 LEARNED HALL	3,954,050		38	9,024,722	4,395,000	2,811,200	\$349,148	\$1.43	118,507	144,081
8,970	098 BRIDWELL BOTANY RESEARCH LAB	112,160		249		9,800	9,800	\$9,153	\$1.01	70,400	87,346
5,430	190 KURATA THERMODYNAMICS LAB	48,357		152		38,590	38,590	\$5,496	\$0.84	58,305	70,251
5,000	163 FOLEY HALL	49,880		67		159,090	159,090	\$5,513	\$0.73	47,378	54,103

GSF	Electric (kWh)	Chilled Water Electric (kWh)	Natural Gas (Mcf)	Steam (lb)	Water (gal)	Sewer (gal)	Total Utility Cost (\$/yr)	FY06 Energy Cost per GSF	FY06 Energy Use per GSF	FY05 Energy Use per GSF
OFFICE/CLASSROOM										
10,835	140 NUNEMAKER HALL	255,240		2,598	39,900	39,900	\$40,198	\$3.61	320,155	297,303
84,735	204 EATON HALL	2,118,300		4	7,986,804	1,334,107	\$217,301	\$2.52	222,665	280,243
50,010	017 BLAKE HALL	840,000	-289,972		5,707,716	1,206,600	\$110,567	\$2.08	203,805	280,387
91,730	039 BUDIG HALL (HOCH AUDITORIUM)	2,438,840			3,707,683	1,730,000	\$185,922	\$1.91	149,603	118,418
19,155	085 BURT HALL	227,760		0	1,426,929	48,500	\$31,974	\$1.62	149,110	147,953
86,255	412 REGNIER HALL, 12610	1,237,840		6,021	1,245,000	1,288,100	\$148,167	\$1.61	118,774	126,549
25,460	086 YOUNGBERG HALL	453,520		1,180	354,600	274,300	\$42,824	\$1.51	107,121	108,649
55,370	410 REGENTS CENTER, 12600	992,814		2,301	1,835,100	2,000,600	\$95,140	\$1.49	102,734	108,349
38,480	046 MILITARY SCIENCE BUILDING	325,200			2,573,137	114,100	\$54,592	\$1.32	126,257	127,708
6,420	185 UNIVERSITY PRESS OFFICES	75,090		279	508,800	508,800	\$12,594	\$1.32	83,334	85,819
181,635	132 WESCOE HALL	1,175,870	1,480,690		7,239,603	2,126,000	\$260,690	\$1.28	107,972	105,916
132,965	180 DOLE HUMAN DEVELOPMENT CENTER	1,280,170	453,306	70	5,415,333	768,000	\$170,903	\$1.22	104,343	91,847
98,240	040 SNOW HALL	2,188,660			420,665	1,570,100	\$123,471	\$1.19	82,253	83,242
55,225	041 MARVIN HALL	715,150			2,167,466	1,414,600	\$75,888	\$1.18	101,365	115,144
159,300	151 ART AND DESIGN	2,374,850		936	4,288,284	2,331,400	\$210,595	\$1.18	95,961	135,199
101,970	150 GREEN HALL	1,371,600			3,700,186	1,273,240	\$127,200	\$1.17	98,761	103,694
86,200	042 LINDLEY HALL & OBERVATORY	1,261,000		3	2,678,095	330,600	\$104,030	\$1.16	95,214	125,429
33,395	199 CONTINUING EDUCATION	549,960		803		1,322,400	\$48,577	\$1.16	80,220	81,723
50,315	077 CARRUTH O'LEARY HALL	698,260		2	1,354,448	376,400	\$60,658	\$1.07	86,600	99,270
67,085	035 BAILEY HALL	644,760			2,489,837	229,700	\$71,427	\$1.02	86,865	95,910
176,070	037 STRONG HALL	1,388,030			8,156,736	1,230,200	\$192,071	\$1.01	94,391	73,743
6,180	064 VARSITY HOUSE	43,397		238		39,200	\$6,464	\$0.99	62,487	65,055
190,615	076 MURPHY HALL	2,241,770			4,494,035	2,554,600	\$188,107	\$0.92	74,476	77,700
6,825	018 TWENTE ANNEX (Watkins Home)				459,316	277,720	\$7,822	\$0.90	98,048	101,907
124,095	097 FRASER HALL	902,940	289,972		3,347,827	547,000	\$112,815	\$0.86	72,103	94,735
91,925	079 SUMMERFIELD HALL	855,140			2,542,316	698,600	\$88,328	\$0.85	72,033	77,327
143,020	080 JOSEPH R. PEARSON HALL	1,584,300		0	2,868,019	928,700	\$130,906	\$0.83	67,012	81,265
42,220	034 STAUFFER-FLINT	114,002	322,609		810,342	137,600	\$35,544	\$0.78	63,247	72,644
7,840	044 BROADCASTING HALL				434,743	32,400	\$6,158	\$0.76	80,788	78,311
19,745	193 OLDFATHER STUDIOS	115,440		736		45,900	\$15,671	\$0.74	57,219	63,706
12,805	155 WESLEY BUILDING	79,297		473		108,600	\$9,552	\$0.68	58,091	64,651
15,935	122 PARKER HALL	195,360		from Moore Hall			\$10,640	\$0.67	41,830	54,697
32,565	008 LIPPINCOTT HALL				1,460,249	127,500	\$20,205	\$0.60	65,329	83,515
30,060	019 TWENTE HALL	0			1,222,551	488,800	\$19,886	\$0.55	59,253	75,835
20,205	021 SMITH HALL	215,613				159,800	\$12,219	\$0.55	36,410	37,784
15,750	083B VISITOR'S CENTER	26,132		141		147,100	\$5,151	\$0.22	14,608	18,033
FACILITIES OPERATIONS										
12,000	176 FO VEHICLE MAINTENANCE SHOP	128,581		682		87,400	\$15,705	\$1.25	93,377	113,089
20,540	177 FO CONSTRUCTION/LANDSCAPE SHOP	150,080		1,165		29,100	\$20,312	\$0.97	81,649	84,791
45,350	202 FO WAREHOUSE & SHOPS	311,938		1,955		108,400	\$65,387	\$0.96	66,581	66,213
24,720	030 FACILITIES OPERATIONS MAIN BLDG.	155,734			801,929	189,300	\$20,841	\$0.76	68,758	76,950
1,780	003 CHILLER BUILDING	5,225,431		352		8,553,200	\$286,884			
17,845	024 POWER PLANT	1,387,770				5,880,000	\$84,424			
	187 FO SALT/SAND BARN			425			\$5,146	#DIV/0!	#DIV/0!	#DIV/0!

GSF		Electric (kWh)	Chilled Water Electric (kWh)	Natural Gas (Mcf)	Steam (lb)	Water (gal)	Sewer (gal)	Total Utility Cost (\$/yr)		FY06 Energy Cost per GSF	FY06 Energy Use per GSF	FY05 Energy Use per GSF
MISCELLANEOUS												
1,505	092 SUDLER HOUSE ANNEX	51,923		317				\$6,701		\$4.45	328,413	348,486
9,075	182 PARKING GARAGE AND OFFICES	718,880		186		326,600	65,600	\$47,477		\$4.37	290,779	318,466
1,150	112 ENVIRONMENTAL HEALTH & SAFETY	12,131		303				\$4,534		\$3.94	299,210	344,163
7,930	089A ELLSWORTH TELECOM ANNEX	378,960		1,067		48,800	48,800	\$31,551		\$3.93	297,568	343,360
106,000	220 MULTIDISCIPLINARY RESEARCH FACIL	3,693,340		18,913				\$378,702		\$3.55	297,306	
1,440	321 NELSON BERM BLDG (AQUATIC LAB)	27,768						\$4,211		\$2.92	65,795	56,322
47,630	153 COMPUTER SERVICES FACILITY	2,225,870				919,400	290,400	\$122,102		\$2.41	159,451	151,662
80,150	184 LIED PERFORMING ARTS CENTER	2,362,429		6,949		1,141,000	-33,080	\$191,240		\$2.31	187,273	188,015
79,715	147 WATKINS STUDENT HEALTH CENTER	1,181,180		39	6,289,150	1,529,300	741,230	\$154,913		\$1.81	165,992	165,299
1,500	331 FITCH FARM RESIDENCE	40,068				36,000		\$2,950		\$1.67	91,141	97,117
17,860	156 BAEHR AUDIO-READER /KPR	367,400		535		158,000	158,000	\$29,715		\$1.51	100,155	115,322
11,360	014 CHANCELLOR'S RESIDENCE	127,140		46	746,951	963,500	213,100	\$19,978		\$1.51	138,049	165,671
17,684	196 CHILD CARE FACILITY	332,970		796		631,100	631,100	\$28,659		\$1.40	109,257	117,852
4,230	126 AIRPORT HANGAR # 2	93,440						\$5,771		\$1.36	75,371	75,790
2,160	343 GROUNDWATER TREATMENT BUILDING	45,000						\$2,894		\$1.34	71,083	69,346
3,554	209 PINET HOUSE	15,423		289		42,200	42,200	\$5,292		\$1.33	96,011	29,119
48,250	158 BURGE UNION	874,000			1,022,924	1,406,100	1,406,100	\$66,561		\$1.20	92,692	102,810
5,925	143/143A/143B CHAMNEY RESIDENCE & BARN	7,842		404		16,300		\$7,595		\$1.16	72,617	84,569
2,664	138 BURTON HOUSE	6,832		191		2,000	2,000	\$3,205		\$1.15	80,334	77,732
1,480	323 NELSON MAINTENANCE BLDG	13,294						\$1,631		\$1.10	30,648	31,759
233,935	002 KANSAS UNION	3,125,660			4,247,954	6,155,000	4,384,720	\$248,516		\$0.93	72,044	71,540
35,175	116 PRINTING SERVICES	234,720		0		12,800	12,800	\$35,757		\$0.81	22,768	101,864
2,155	013 CHANCELLOR'S GUEST HOUSE			105				\$1,446		\$0.67	48,538	57,355
727	181 SHENK RESTROOM FACILITY			16		10,800	10,800	\$735		\$0.60	22,558	17,194
19,270	125 AIRPORT HANGAR # 1	1,137				274,000		\$12,182		\$0.56	201	76,103
800	350 ADAMS CAMPUS - REC SERVICES BLDG	2,496						\$427		\$0.53	10,645	18,676
6,305	091 MAX KADE CENTER	25,817				174,000	174,000	\$3,583		\$0.27	13,971	14,275
11,590	191 GEOLOGICAL CORE LIBRARY			286				\$2,962		\$0.26	24,642	40,526
3,385	137 GRIDER HOUSE	276		37		0	0	\$2,461		\$0.23	11,238	15,084
14,470	027 HALL CENTER (not complete year)	50,153				618,422	27,822	\$4,360		\$0.20	11,826	
240,935	200 PARKING GARAGE # 2	546,150				379,700		\$29,335		\$0.12	7,734	7,361
3,145	099 REC SERVICES BLDG (OLD SCHOOLHS)	2,414				3,000		\$301		\$0.09	2,619	2,058
37,075	162 GSP/CORBIN PARKING GARAGE	41,705						\$2,566		\$0.07	3,838	4,297
1,125	192 KANU TRANSMITTER BUILDING	433,800						\$22,975				
19,155	420 REGENTS CENTER, 12520	28,107				106,000	345,000	\$3,095				
	093A MCCOLLUM HALL TELECOMMUNICATIONS			8		65,300	65,300	\$829				
	178 QUIGLEY FIELD STORAGE SHED	192,800		104		71,600	71,600	\$12,220				
	183 UNIVERSITY PRESS WAREHOUSE	22,186		0				\$1,858				
	214 LIBRARY ANNEX	55,000		758		2,098	2,098	\$12,918				
	310 ROCKEFELLER TRACT					4,000		\$331				
	320 NELSON TRACT					468,000		\$2,295				
	322 NELSON TRAILER (CARETAKER RES)	19,964						\$2,408				
	911 WATSON LIBRARY STORAGE	6,792		152		200	200	\$2,886				
	915 WATSON LIBRARY STORAGE #2	12,486		76		100	100	\$2,389				
	FOUNT ALL FOUNTAINS ON CAMPUS					310,740		\$656				
	IRR CAMPUS IRRIGATION					444,300		\$931				