Texas Tech University Energy Savings Program
October 2012 Update

The Texas Tech Energy Savings Update is being submitted in accordance with Governor's Executive Order RP-49, Energy Conservation by State Agencies and Health and Safety Code, § 388.005(f).

A. Energy Goals

1. University Energy Use

Energy units are converted to thousands of BTUs per square foot (kbtu/ft^2) to allow for comparisons of the various energy forms. Goals and energy use are therefore stated in kbtu/ft^2. Estimated savings are based on energy consumption for the same time period from the previous year normalized to current energy costs and campus square footage.

Through fiscal year FY12, the campus consumed 161.02 kbtu/ft^2, a decrease of 2.9% and a savings of $194,851 compared to FY11.

For FY12 reporting period, gas usage is down 6.0%. About 4% is attributable to savings from the Free Cooling project at CHACP 1. The remaining 2% is due to a 3.8% increase in cogeneration steam received, selective operation of efficient equipment at the central plant, and milder weather than we experienced in the previous two years. Cogeneration steam, provided *at no cost* to the university by a local utility company, is tabulated in the balance of university energy use, but dollar savings are not reported on the cogeneration line since they would be realized as a reduction of natural gas use.

In Table I, the campus energy use is broken down by utility type.

Table I: University Energy Use (kbtu/ft^2): September '11 – August '12

Utility	FY11 Actual	FY12 Actual	% Change from previous year	Estimated Savings
Electricity	58.85	58.45	Down 0.7%	$ 60,124
Natural Gas	86.93	81.73	Down 6.0%	$ 134,727
Cogeneration Steam	20.06	20.83	Up 3.8%	NA
Total	165.84	161.01	Down 2.9%	$ 194,851

2. House Bill 3693, Regular Session, 2007

In compliance with House Bill 3693, Texas Tech University has set a goal to reduce total electrical consumption by 2.5% for FY12. Table II shows the kilowatt hours per square foot (kwh/ft^2) for the campus in Lubbock County.

Through FY12, electrical consumption totaled 17.3747 kwh/ft^2. This consumption is down 0.9% compared to the previous year.

Table II: Campus Electricity Use (kwh/ft^2): September '11 – August '12 (Lubbock County)

Whole Campus Electricity Use in kwh/ft^2	FY 11 Reference Data in kwh/ft^2	2.5% Reduction Goal in kwh/ft^2	FY 12 Actual Consumption in kwh/ft^2	Percent Increase/Decrease from previous year, by quarter
1st Quarter	4.4471	4.3359	4.3765	Down 1.6%
2nd Quarter	4.2825	4.1755	4.2699	Down 0.3%
3rd Quarter	4.2171	4.1116	4.2089	Down 0.2%
4th Quarter	4.5877	4.4730	4.5194	Down 1.5%
Yearly Total	17.5344	17.0960	17.3747	Down 0.9%

3. Fleet Fuel Management Plan (Vehicles)

In FY06, Governor Perry's Executive Order RP-49 required agencies to establish an energy conservation program by setting a percentage goal for reducing its consumption of electricity, gasoline and natural gas.

As a result of that order, Texas Tech University established the following goals related to vehicles:

- Reduce fuel consumption by 5% per year
- Maintain an average miles per gallon (MPG) of 12.1

Our average MPG for FY12 is 11.2, which is a decrease of 0.3 MPG from the previous year, and a shortfall of 0.83 mpg of our intended yearly goal.

Table III: Historical University Vehicle Fleet Data

	FY11 MPG	5% Reduction	FY12 MPG	Efficiency %
1st Quarter	12.3	12.9	10.9	Down 11.4%
2nd Quarter	10.8	11.3	11.1	Up 2.8%
3rd Quarter	11.7	12.3	11.9	Up 1.7%
4th Quarter	11.1	11.7	11.0	Down 0.9%
Average	**11.5**	**12.1**	**11.2**	**Down 2.6%**

B. Energy Reduction Measures

1. Campus Energy Use

a. Educational and General Space

1) Free Cooling Project at CHACP 1 – Equipment installation is complete and operating. Measurements indicate this project has saved the university approximately 2.7 kbtu/ft^2 for the year, a value of approximately $32,000.

2) Performed in-house performance tuning for air handlers in Biology building.

3) Installed and validated occupancy sensors in basement corridors of Civil Engineering.

4) Completed retrofit of the HVAC controls in West Hall to allow 161 fan coil units to be secured at night.

5) Energy Management facilitated a complete review of the Freeze Protection Protocol and tracked Freeze Protection Square Foot Hours for this past winter. These efficiency measures minimized energy costs for freeze protection.

6) Completed a project to upgrade AHU dampers in Architecture building to allow it to go into economize mode.

7) Facilities Planning and Construction completed construction of the Rawls College of Business Administration which went into operation January 2012. The building is being reviewed for LEED certification.

b. Auxiliary Space

Housing has just completed a new dormitory which will be reviewed for LEED certification.

c. Energy Audits

In FY12, Texas Tech completed 19 detailed energy audits at Foreign Language, Holden Hall, Human Sciences, International Cultural Center, Maedgen Theater, Livermore, Math, McClellan, Petroleum Engineering, Psychology, Landscape Architecture and Range and Wildlife, Doak Hall, Rawls COBA, Health Exercise and Sports Science, Civil Engineering, English/Philosophy, Education, Engineering Technology Labs and Experimental Science.

2. Fleet Management

Texas Tech University tactics to achieve this goal are:

1) Continue the aggressive Preventive Maintenance program to maintain all vehicles at their peak efficiency.

   Monthly maintenance notices are sent to all vehicle custodians advising when preventive maintenance services are needed on their vehicles.

2) Continue to utilize the State's Fleet Data Management System.

   Texas Tech continues to maintain an average 98% accuracy rate in the State Fleet Data Management System.

3) Educate personnel on the efficient use of university vehicles.

   New initiatives will continue to be collected and shared with appropriate vehicle custodians and operators.

4) Document agency best practices for operation and maintenance.

   New initiatives will continue to be collected and shared with appropriate vehicle custodians and operators.

C. Energy Reduction Feasibility Studies

Texas Tech is conducting ongoing studies of energy conservation measures such as HVAC controls upgrades, adjusting sequences of operation for HVAC systems, and adding demand controlled ventilation to buildings where possible. Response will be based on feasibility, available funding and favorable payback.

D. Fuel Consumption Reduction Plans

The Vehicle Fleet Management office will network with vehicle custodians to exchange information on vehicle efficiency and solicit additional best practices and other creative initiatives for the university vehicle fleet.