

## Texas Tech University Energy Savings Program February 2008 Update

The Texas Tech Energy Savings Update is being submitted in accordance with Governor's Executive Order, RP 49, Electric Conservation by State Agencies. Energy numbers come from the Energy Report filed with SECO semi-annually. Texas Tech is slightly above where we were the first quarter of last year (45.7 vs 43.8 kbtu/sq ft).

### A. Energy Goals

#### 1. Campus Energy Use (E&G)

Energy units are converted to kbtu to allow for comparisons of the various energy forms. Goals and energy use are then stated in kbtu/sq ft. 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 the first quarter of FY08 the campus consumed 45.7 kbtu/sq ft, an increase of 4.8% from FY07.

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

**Table I: Campus (E&G) Energy Use (kbtu/sq ft): September-November**

Utility	FY07 Actual	FY08 Actual	% Change	Est. Savings
Electricity	12.5	13.1	Up 4.8%	\$(69,298.56)
Natural Gas	4.0	3.5	Down 12.5%	\$ 22,716.70
Steam	13.0	12.5	Down 3.8%	\$36,302.42
Chillwater	14.3	16.6	Up 16.1%	\$(141,098.84)
<b>Total</b>	<b>43.8</b>	<b>45.7</b>	<b>Up 4.8%</b>	<b>\$(151,378.28)</b>

Since RP 49 first went into effect, we have reported the above Campus Energy Use data (Table I) for only E&G buildings. In complying with both RP 49 and HB 3693, and in order to maintain continuity with our previous reporting practices, we will continue to report E&G.

## 2. House Bill 3693

In compliance with House Bill 3693, Texas Tech University has set a goal to reduce total electrical consumption by 2.5% for FY08. Table II shows the kilowatt hours per square foot for the whole campus, i.e. both E&G and Auxiliaries.

**Table II: Whole Campus Electricity Use (kwh/sq ft): September-November**

<b>Whole Campus Electricity Use in kwh/Sq Ft</b>	<b>Previous Year Reference Data</b>	<b>2.5% Reduction Goal</b>	<b>Actual Consumption</b>	<b>Percent Increase/Decrease for the Reporting Period</b>
<b>1<sup>st</sup> Quarter</b>	4.1003	3.9978	4.2791	+ 4.4%
<b>2<sup>nd</sup> Quarter</b>	3.6038	3.5137		
<b>3<sup>rd</sup> Quarter</b>	3.7942	3.6994		
<b>4<sup>th</sup> Quarter</b>	4.0384	3.9374		
<b>Yearly Total</b>	15.5367	15.1483	4.2791	

## 3. Fleet Fuel Management Plan (Vehicles)

- a. 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 usage 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%
- Average miles per gallon 12.4

As noted in the chart below, in FY2004 the Texas Tech University vehicle fleet consumed 201,186 gallons of fuel and traveled 2,279,692 miles. In FY2005 Texas Tech University consumed 196,059 gallons of fuel while traveling 2,307,849 representing a reduction of 2.5% compared to FY04 figures. In FY2006, the fleet consumed 191,260 gallons of fuel and traveled 2,293,599 miles. This figure represents a

4.9% decrease compared to FY2004 data. In FY2007, the Texas Tech University vehicle fleet consumed 207,867 gallons of fuel and traveled 2,385,964 miles. These figures represent a .2% increase in fuel consumption compared to FY04.

It is important to note that the Texas Tech University vehicle fleet increased by 6.3% in FY07 compared to FY04.

*In the first quarter of 2008, Texas Tech vehicles consumed 63,868 gallons of fuel and traveled 662,092 miles. These figures represent 8% increase in fuel consumption. Additionally, there was an increase of 12% for the number of miles traveled.*

**Table III: Annual Miles Driven – Fuel Consumption**

	<b>Miles</b>	<b>Fuel</b>	<b>Increase/Decrease</b>
<b>FY 04</b>	2,279,692	201,186	--
<b>FY 05</b>	2,307,849	196,059	2.5% decrease
<b>FY 06</b>	2,293,599	191,260	4.9% decrease
<b>FY 07</b>	2,385,964	207,867	3.33% increase

The table below reflects the efficiency of the University fleet during FY2007. The figures below represent an increase in vehicle efficiency compared with FY04 data.

**Table IV: Historical University Vehicle Fleet Efficiency (mpg)**

<b>MPG</b>	<b>1st Q</b>	<b>2nd Q</b>	<b>3rd Q</b>	<b>4th Q</b>	<b>Annual</b>
<b>FY 04</b>	10.0	11.5	12.5	11.7	11.3
<b>FY 05</b>	11.7	10.8	11.9	12.6	11.8
<b>FY 06</b>	11.9	12.2	12.3	11.6	11.9
<b>FY 07</b>	11.3	11.5	10.9	12.2	11.5
<b>FY 08</b>	10.4				

## **B. Current Energy Reduction Plans**

### **1. Campus Energy Use**

- a. Texas Tech has received funding from TPFPA using the Master Lease Purchase Program for two energy projects.
  - 1) AHU VFD Project – Estimated cost of \$600,000 with a payback of 2.3 years.
  - 2) International Textile Center Performance Contract - \$573,000 with a 6 year payback.
- b. Perform a minimum of 1 detailed energy audit per month beginning with the largest consumers of energy.
  - 1) To date we have completed 10 detailed audits.

### **2. Fleet Management**

- a. The Texas Tech University tactics to achieve this goal are:
  - 1) Improve overall fuel efficiency of fleet vehicles by replacing older, inefficient vehicles with newer, more efficient vehicles.  
*Texas Tech University has acquired seventy new, more efficient vehicles since the Governor's executive order.*
  - 2) Continue the aggressive Preventative Maintenance program to maintain all vehicles at their peak efficiency.  
*The Preventive Maintenance program for all Texas Tech University vehicles will continue to be monitored. Routinely, notices are sent to all vehicle custodians advising when preventative maintenance services are needed.*
  - 3) Continue to utilize the State's Fleet Data Management System.  
*The Texas Tech University Vehicle Fleet Management office will continue to use the Fleet Focus database to monitor vehicle utilization, efficiency, maintenance and accuracy of vehicle reporting. Any discrepancies will immediately be addressed with appropriate vehicle custodians.*
  - 4) Educate personnel on the efficient use of University vehicles.  
*The Vehicle Fleet Management office of Texas Tech University initiated a letter from the Vice-President of Operations to all vehicle custodians in December 2005, advising Governor Perry's Executive Order and the university's established goal of 12.4 mpg.*

*Additional information included individual vehicle miles per gallon data for FY2005 and tips for improving vehicle efficiency.*

- 5) Document agency best practices for operation and maintenance. *New initiatives will continue to be collected and shared with appropriate vehicle custodians and operators through the Vehicle Fleet Management quarterly newsletter.*

**C. Future Energy Reduction Plans**

1. AHU Controls Upgrade – Estimated cost of \$500,000 with an estimated payback of 6 years.
2. Boiler Side-stream Heat Recovery – Estimated cost of \$500,000 with an estimated payback of less than 5 years.

**D. Fuel Consumption Reduction Plans**

1. 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.