

## Texas Tech University Energy Savings Program November 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.

### 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.

For the fourth quarter of FY08 the campus consumed 42.36 kbtu/sq ft, a decrease of 4.8% from FY07. For the Fiscal Year to date, campus energy use is down 2.1%.

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

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

Utility	FY07 Actual	FY08 Actual	% Change from previous year	Est. Savings
Electricity	49.13	48.41	Down 1.5%	\$ 161,600
Natural Gas	18.59	16.19	Down 12.9%	\$ 124,200
Steam	65.33	59.47	Down 9.0%	\$ 410,600
Chillwater	55.51	60.54	Up 9.1%	\$ (327,830)
<b>Total</b>	<b>188.56</b>	<b>184.61</b>	<b>Down 2.1%</b>	<b>\$ 368,570</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. For the fourth quarter this fiscal year we are down 7.6% over the same quarter last fiscal year. For the Fiscal Year to date, campus electrical use is down 1.0%. The exceptional decline of electricity use in the later quarters is attributed to two energy projects which were in progress throughout the year.

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

<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 from previous year, by quarter</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	3.6156	+0.3%
<b>3<sup>rd</sup> Quarter</b>	3.7942	3.6994	3.7309	-1.7%
<b>4<sup>th</sup> Quarter</b>	4.0384	3.9374	3.7516	-7.1%
<b>Yearly Total</b>	15.5367	15.1483	15.3772	-1.0%

## 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% per year

- Average miles per gallon 12.4

In the fourth quarter of 2008, Texas Tech vehicles consumed 57,835 gallons of fuel and traveled 671,156 miles. These figures represent a decrease in fuel consumption and miles traveled compared to the previous quarter.

For the full fiscal year 2008, the Texas Tech University vehicle fleet consumed 222,367 gallons of fuel and traveled 2,594,309 miles. Overall fuel efficiency increased from 11.5 mpg in FY07 to 11.75 in FY08.

#### Historical University Vehicle Fleet Data

	<b>Miles</b>	<b>Fuel</b>	<b>Miles Per Gallon</b>
<b>FY07-1</b>	<b>600,613</b>	<b>52,987</b>	<b>11.3</b>
<b>FY07-2</b>	<b>496,083</b>	<b>43,274</b>	<b>11.5</b>
<b>FY07-3</b>	<b>616,358</b>	<b>56,345</b>	<b>10.9</b>
<b>FY07-4</b>	<b>672,910</b>	<b>55,261</b>	<b>12.2</b>
<b>FY08-1</b>	<b>662,092</b>	<b>63,868</b>	<b>10.3</b>
<b>FY08-2</b>	<b>546,135</b>	<b>42,657</b>	<b>12.8</b>
<b>FY08-3</b>	<b>714,926</b>	<b>58,007</b>	<b>12.3</b>
<b>FY08-4</b>	<b>671,156</b>	<b>57,835</b>	<b>11.6</b>

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

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

- a. Texas Tech has received funding from TPFPA using the Master Lease Purchase Program for four energy projects.
  - 1) AHU VFD Project – Estimated cost of \$600,000 with a payback of 2.3 years. Project is 90% complete and should be finished by December 2008.
  - 2) International Textile Center Performance Contract - \$573,000 with a 6 year payback. Project is 100% functional and should be complete in October 2008.
  - 3) CHACP I Stack Heat Recovery - \$800,000 with an estimated 1.9 year payback. Funding is in place.
  - 4) CHACP II Stack Heat Recovery - \$500,000 with an estimated 3.6 year payback. Funding is in place.

- b. Perform a minimum of 1 detailed energy audit per month beginning with the largest consumers of energy.
  - 1) Texas Tech completed 10 detailed energy audits this past year.

## **2. Fleet Management**

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.

Routinely, notices are sent to all vehicle custodians advising when preventive maintenance services are needed.
- 3) Continue to utilize the State's Fleet Data Management System.
- 4) Educate personnel on the efficient use of University vehicles.
- 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**

Texas Tech is currently evaluating several energy reduction projects such as exterior LED lighting retrofits, building commissioning and re-commissioning procedures, boiler blowdown heat recovery and air-handler upgrades. We will go forward with engineering analysis and take action 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.