



March 31, 2008

Ms. Donna Geiger  
Office of the Governor  
1100 San Jacinto  
Austin, Texas 78701

Mr. John O'Brien  
Deputy Director  
Legislative Budget Board (LBB)  
Robert E. Johnson Bldg. – 5<sup>th</sup> Floor  
1501 North Congress  
Austin, Texas 78701

RE: RP-49, FY 2008 – 2<sup>nd</sup> Quarter Update

The Texas Tech University Health Sciences Center (TTUHSC) Energy Savings Update is being submitted in accordance with Governor's Executive Order, RP 49, Electric Conservation by State Agencies. TTUHSC continues to promote energy conservation measures and strategies and seek new ideas to reduce consumption and improve building system efficiencies.

#### **A. Energy Consumption & Goals**

Attached is Exhibit I where our 2<sup>nd</sup> Quarter FY2008 consumption breakdowns can be found. Exhibit I also includes previous quarters, overall totals for each utility and energy equivalents to facilitate comparisons between quarters and annual totals.

Additionally, Table I (Page 2) shows a breakdown for each type of utility in kBtu per square foot. The energy units were converted to kBtu to allow for comparisons of the various energy forms and then divided by the appropriate campus square footage to obtain an energy utilization index in kBtu/square foot. A negative number indicates a % decrease in consumption, while a positive number indicates a % increase compared to the previous year.

In the 2<sup>nd</sup> Quarter FY2008, the campus consumed 56.33 kBtu/sq ft, an increase of 5.55 % compared to the 2<sup>nd</sup> Quarter FY2007. Steam consumption per square foot has decreased by more than 10 % as compared to the 2<sup>nd</sup> Quarter FY2007. Overall energy consumption for 2<sup>nd</sup> Quarter FY08 has increased 17 % due to an increase in square footage by 14% compared to 2<sup>nd</sup> Quarter FY07. The increase is due to the addition of a new building with a considerable amount of research space at the TTUHSC El Paso campus. Due to the unique and complex infrastructure requirements, research space has significant higher energy consumption per square foot compared to other more basic buildings. Our overall institutional goal is to reduce our energy utilization index by 2.5% for the period from FY2008 to FY2013, with the base being FY2007.





**Table I: Campus Energy Use (kBtu/Sq ft): December - February**

Utility	FY07 Actual	FY08 Actual	% Change
Electricity	14.54	15.21	04.61 %
Nat. Gas	7.75	12.31	58.84 %
Steam	20.12	17.96	- 10.74 %
Chilled Water	10.96	10.85	- 01.00 %
Total	53.37	56.33	05.55 %

Refer attached 'EXHIBIT 1' for further details of campus energy use.

**B. Current Energy Reduction Plans**

Texas Tech University Health Sciences Center has identified the following tactics and measures for potential consideration in reducing the campus energy consumption. Projects will be prioritized based on a variety of factors including return on investment, cost and availability of funding. The successful implementation and funding of these and other projects will form the basis of the energy reduction goal of 2.5% per year reduction in energy utilization index for the period of FY2008 through FY2013. Below is a partial list and status of ongoing projects that are currently being evaluated.

1. Installation of pressure independent control valves for chilled water flow control to the air handling unit. *Project in design development.*
2. Installation of lighting occupancy sensors. *Project in design development.*
3. Installation of vending machine occupancy sensor controls. *Project in design development.*
4. Lighting retrofit to replace rest of the electromagnetic ballasts and T12 lamps by new energy efficient and environmental friendly electronic ballast and T8 fluorescent lamps. Incandescent lamps would also be replaced by compact fluorescent lamps. *Project for Lubbock HSC interstitial in design development. Design completed for Phase A implementation.*
5. Installation of an energy recovery system for the Medical Science Building at TTUHSC El Paso. This would recover energy from exhaust air and transfer to the outside air being consumed by the air handling units. *Project in design development.*
6. Installation of a dual duct air distribution system for TTU Health Sciences Center at El Paso to operate the air handling units according to the design intent. *Pending funding approval.*
7. Installation of a smaller boiler at the Medical Science Building at TTUHSC El Paso to meet the minimum load during the summer season. *Project in design development.*





8. Develop insulation replacement project to identify and replace damaged, missing, or inadequate insulation. *Contract awarded. Project in progress.*
9. Operational improvements such as implementation of Computer Maintenance Management System to track maintenance work and improvements. *Project in design development. Researching various software packages to determine the best fit.*

**C. Future Energy Reduction Plans**

TTUHSC has identified various energy conservation projects which are projected to cost about \$1,907,980 with an estimated payback of less than 5 years. The details of which are included in the 'Resource Efficiency Plan' in accordance with 34 TAC, Chapter 19.

**D. Fuel Consumption Reduction Plans**

TTUHSC continues to emphasize energy conservation awareness with strategies such as regular preventative maintenance, and an emphasis on tire pressure and conditions to gain economies. Overall Fuel consumption climbed 1.6% from FY2007, but the total cost was up 38.6% compared to the 2<sup>nd</sup> Quarter of 2007. The average MPG for the 2<sup>nd</sup> Quarter FY2008 was 17.47, up from 15.98 MPG in FY2007.

Your consideration of this update and information is appreciated.

Sincerely,

George G. Morales, P.E.  
Assistant Vice-President for Physical Plant & Support Services

Enclosure: EXHIBIT 1

XC:

1. Elmo Cavin  
Executive Vice-President of Finance & Administration
2. Director, State Energy Conservation Office  
Comptroller of Public Accounts  
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**EXHIBIT I**

**FY2007 ACTUAL ENERGY CONSUMPTION**

<b>ENERGY</b>	1st Quarter <u>FY 2007</u>	2nd Quarter <u>FY 2007</u>	3rd Quarter <u>FY 2007</u>	4th Quarter <u>FY 2007</u>	Total <u>FY 2007</u>
ELECTRICITY, kwh	10,314,526	8,572,930	9,911,544	12,126,183	40,925,183
NATURAL GAS, ccf	140,998	151,664	86,703	52,484	431,849
STEAM, mlb	19,787	39,251	23,022	12,197	94,257
CHILLED WATER, tn- hr	<u>2,309,839</u>	<u>1,898,332</u>	<u>2,257,151</u>	<u>3,781,994</u>	<u>10,247,316</u>
THERMAL ENERGY*, mbtu	49,939,352	66,858,857	52,939,563	59,081,159	228,818,931
ENERGY EQUIVALENT, mbtu	<u>99,637,405</u>	<u>111,709,326</u>	<u>95,680,734</u>	<u>105,863,202</u>	<u>412,890,667</u>

\*Natural Gas is used to produce the Thermal Energies of Steam and Chilled Water

**FY2008 ACTUAL ENERGY CONSUMPTION**

<b>ENERGY</b>	1st Quarter <u>FY 2008</u>	2nd Quarter <u>FY 2008</u>	3rd Quarter <u>FY 2008</u>	4th Quarter <u>FY 2008</u>	Total <u>FY 2008</u>
ELECTRICITY, kwh	11,236,578	10,336,536			21,573,114
NATURAL GAS, ccf	185,272	277,589			462,862
STEAM, mlb	21,643	37,072			58,715
CHILLED WATER, tn- hr	<u>2,745,312</u>	<u>2,095,668</u>			<u>4,840,980</u>
THERMAL ENERGY*, mbtu	57,248,721	66,779,670	0	0	124,028,391
ENERGY EQUIVALENT, mbtu	<u>114,645,138</u>	<u>130,594,461</u>	<u>0</u>	<u>0</u>	<u>245,239,600</u>

\*Natural Gas is used to produce the Thermal Energies of Steam and Chilled Water

