



March 30, 2010

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 2010 – 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 FY2010 consumption breakdowns can be found. Exhibit I also includes previous quarters, overall totals for each utility and energy equivalent 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 % change indicates a decrease in consumption, while a positive number indicates an increase compared to the previous year.

In the 2<sup>nd</sup> Quarter FY2010, the campus consumed 70.26 kBtu/sq ft, an increase of 12.4 % compared to the 2<sup>nd</sup> Quarter FY2009. Increase in energy consumption is mainly due to addition of research space and increase in overall occupancy. Texas Tech University Health Sciences Center continues to undergo significant capital improvements and steady growth, which are expected to increase the overall energy consumption. Additionally, the Heating Degree Days (HDD) increased by 35% for the 2<sup>nd</sup> Quarter FY2010 as compared to 2<sup>nd</sup> Quarter FY2009, resulting in increased energy use for the period.





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

| Utility       | FY09 Actual | FY10 Actual | % Change |
|---------------|-------------|-------------|----------|
| Electricity   | 17.63       | 17.05       | -03.29 % |
| Nat. Gas      | 15.50       | 18.37       | 18.52 %  |
| Steam         | 19.16       | 22.54       | 17.64 %  |
| Chilled Water | 10.24       | 12.30       | 20.12 %  |
| Total         | 62.53       | 70.26       | 12.36 %  |

Refer attached 'EXHIBIT I' 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 FY2009 through FY2013. Below is a partial list and status of ongoing projects that are currently being designed and evaluated.

1. Mechanical system modifications to reduce energy consumption at the Medical Science Building, El Paso. *Project completed.*
2. Installation of a dual duct air distribution system for TTU Health Sciences Center at El Paso to operate the HVAC system according to the design intent. *Project is currently in design.*
3. Implementation of centralized Computer Maintenance Management System to effectively manage maintenance work orders and renovation projects. *Project in implementation phase.*
4. Relamping to install new energy efficient T8 fluorescent lamps, to comply with the lighting power density requirement of the state energy code. *Pending funding approval.*
5. Lighting retrofit for LB Institute for Women's Health in Amarillo. *Pending funding approval.*
6. Complete installation of occupancy sensors for lighting control, and vending machine operation. *Pending funding approval.*





**C. Future Energy Reduction Plans**

TTUHSC Engineering Services has conducted energy audits and identified various energy conservation projects which are projected to cost about \$3,310,028 with an estimated payback of less than 8 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.

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, Interim President  
Executive Vice-President of Finance & Administration
2. Director, State Energy Conservation Office  
Comptroller of Public Accounts  
111 E. 17<sup>th</sup> Street, Suite 1114, Austin, Texas 78774





## EXHIBIT I

| FY2009 ACTUAL ENERGY CONSUMPTION                                                |                                           |                                           |                                           |                                           |                                 |
|---------------------------------------------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|---------------------------------|
| <b><u>ENERGY</u></b>                                                            | <b><u>1st<br/>Quarter<br/>FY 2009</u></b> | <b><u>2nd<br/>Quarter<br/>FY 2009</u></b> | <b><u>3rd<br/>Quarter<br/>FY 2009</u></b> | <b><u>4th<br/>Quarter<br/>FY 2009</u></b> | <b><u>Total<br/>FY 2009</u></b> |
| ELECTRICITY, kwh                                                                | 12,332,590                                | 11,993,848                                | 12,922,585                                | 15,786,198                                | 53,035,221                      |
| NATURAL GAS, ccf                                                                | 195,297                                   | 350,110                                   | 276,546                                   | 190,348                                   | 1,012,301                       |
| STEAM, mlb                                                                      | 22,840                                    | 39,612                                    | 19,895                                    | 12,335                                    | 94,681                          |
| CHILLED WATER, tn-hr                                                            | <u>2,359,557</u>                          | <u>1,980,452</u>                          | <u>2,535,335</u>                          | <u>4,513,676</u>                          | <u>11,389,020</u>               |
| THERMAL ENERGY*,<br>mbtu                                                        | 53,963,521                                | 68,249,329                                | 52,765,892                                | 68,016,362                                | 242,995,104                     |
| ENERGY EQUIVALENT,<br>(mbtu)                                                    | <u>116,131,174</u>                        | <u>145,175,663</u>                        | <u>125,299,597</u>                        | <u>141,462,406</u>                        | <u>528,068,840</u>              |
| *Natural Gas is used to produce the Thermal Energies of Steam and Chilled Water |                                           |                                           |                                           |                                           | -                               |

| FY2010 ACTUAL ENERGY CONSUMPTION                                                |                                           |                                           |                                           |                                           |                                         |
|---------------------------------------------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-----------------------------------------|
| <b><u>ENERGY</u></b>                                                            | <b><u>1st<br/>Quarter<br/>FY 2010</u></b> | <b><u>2nd<br/>Quarter<br/>FY 2010</u></b> | <b><u>3rd<br/>Quarter<br/>FY 2010</u></b> | <b><u>4th<br/>Quarter<br/>FY 2010</u></b> | <b><u>YTD<br/>Total<br/>FY 2010</u></b> |
| ELECTRICITY, kwh                                                                | 13,396,554                                | 12,238,116                                |                                           |                                           | 25,634,670                              |
| NATURAL GAS, ccf                                                                | 291,888                                   | 437,774                                   |                                           |                                           | 729,662                                 |
| STEAM, mlb                                                                      | 24,483                                    | 49,162                                    |                                           |                                           | 73,645                                  |
| CHILLED WATER, tn-hr                                                            | <u>2,672,699</u>                          | <u>2,510,310</u>                          |                                           |                                           | <u>5,183,009</u>                        |
| THERMAL ENERGY*,<br>mbtu                                                        | 59,566,797                                | 85,332,646                                | 0                                         | 0                                         | 144,899,443                             |
| ENERGY EQUIVALENT,<br>(mbtu)                                                    | <u>135,295,322</u>                        | <u>172,104,503</u>                        | <u>0</u>                                  | <u>0</u>                                  | <u>307,399,825</u>                      |
| *Natural Gas is used to produce the Thermal Energies of Steam and Chilled Water |                                           |                                           |                                           |                                           | -                                       |

