TEXAS TECH UNIVERSITY
HEALTH SCIENCES CENTER™

January 15, 2013

Mr. Elmo Cavin,
Executive Vice-President of Finance & Administration
TTUHSC

RE: FY 2013 – 1st Quarter Update

Texas Tech University Health Sciences Center (TTUHSC) Physical Plant continues to promote energy conservation measures and strategies and seek new ideas to reduce consumption and improve building system efficiencies. We continue to undergo significant capital improvements and steady growth, which are expected to increase the overall energy consumption.

A. Energy Consumption & Goals

Attached is Exhibit I where our 1st Quarter FY2013 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 % change indicates a decrease in consumption, while a positive number indicates an increase compared to the previous year.

In the 1st Quarter FY2013, the campus consumed 59.23 kBtu/sq ft, an increase of 1% compared to the 1st Quarter FY2012. Cooling Degree Days (CDD) for the 1st Quarter FY2013 has decreased by 13% compared to 1st Quarter FY2012. Heating Degree Days (HDD) for the 1st Quarter FY2013 has decreased by 14% compared to 1st Quarter FY2012.

Table I: Campus Energy Use (kBtu/Sq ft): September - November

Utility	FY12 Actual	FY13 Actual	% Change
Electricity	19.57	20.61	05.31%
Nat. Gas	11.64	11.17	-04.04%
Steam	12.12	11.86	-02.15%
Chilled Water	15.33	15.59	01.70%
Total	58.66	59.23	00.97%

B. Current Energy Reduction Plans

We have 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. Below is a partial list and status of projects that are currently being designed and/ or implemented.

1. Install centralized control system at the Southwest campus, Lubbock. *Project is currently in implementation phase.*
2. Replace 15 inefficient motors with premium efficiency motors at the HSC building, Lubbock. *Project is currently in implementation phase.*
3. Replace two air handling units in Lubbock HSC, which are old, inefficient and under capacity, by newer energy efficient air handling units. *Project is being planned and implemented.*
4. Install 15 variable frequency drives for air handling units which operate at partial load frequently. *Project is currently in implementation phase.*
5. Install new direct digital control (DDC) system at the WHRI building, Amarillo. Project includes air handling unit upgrade. *Project is currently in design phase.*
6. Install chiller optimization module in the PFSOM and MSB1 facilities, El Paso. *Project is currently in implementation phase.*
7. Re-commissioning of air handling units at the HSC building, Lubbock. *Project is currently in implementation phase.*
8. Boiler energy recovery system in the Medical Science Building, El Paso. *Project is currently in design phase.*
9. Replace exterior building lights by LED wallpacks, LED floodlights, and LED bulbs. *Project is currently in planning and implementation phase.*
10. Replacement of roof, El Paso ASB. *Project is currently in implementation phase.*

11. Complete installation of occupancy sensors for automatic lighting control. *Project is being implemented through new construction and renovations.*
12. It's our operating policy to use F28T8 lamps for office/laboratory/classroom and other such areas, and F25T8 lamps for hallway/toilet and other areas which need less illumination. This is being done to comply with the lighting power density requirement of the state energy code.
13. New energy efficient LED lights are being tested for performance and reliability.

C. Future Energy Reduction Plans

ESA Energy Systems Associates conducted a walk-through energy analysis of HSC buildings at Lubbock and Amarillo campus. This is provided through a program sponsored by the State Energy Conservation Office (SECO). The preliminary energy assessment report identified twelve energy conservation projects which are projected to cost up to $2,582,141 with an estimated payback of 9-1/2 years. ESA also conducted a preliminary energy conservation opportunities survey at MSB, El Paso and presented a report summarizing three projects which are estimated to cost $357,860 with an estimated payback of 7-1/2 years.

In addition to above, TTUHSC Engineering Services has conducted periodic energy audits and identified various energy conservation projects which are projected to cost more than four million dollars with significant energy savings. The details of which are included in the 'Resource Efficiency Plan' in accordance with 34 TAC, Chapter 19.

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

EXHIBIT I

FY2012 QUARTERLY ENERGY CONSUMPTION					
ENERGY	1st Quarter FY 2012	2nd Quarter FY 2012	3rd Quarter FY 2012	4th Quarter FY 2012	Total FY 2012
ELECTRICITY, kWh	14,331,009	13,255,010	14,120,483	16,646,197	58,352,699
NATURAL GAS, ccf	282,779	434,049	285,639	195,424	1,197,891
STEAM, mlb	26,954	45,085	28,586	19,884	120,509
CHILLED WATER, tn-hr	3,190,138	2,822,240	3,586,715	5,062,718	14,661,811
ENERGY EQUIVALENT, (kBtu)	146,532,413	174,356,921	152,699,556	159,985,406	633,574,295
N:B: Natural Gas is used to produce the Thermal Energies of Steam and Chilled Water					

FY2013 QUARTERLY ENERGY CONSUMPTION					
ENERGY	1st Quarter FY 2013	2nd Quarter FY 2013	3rd Quarter FY 2013	4th Quarter FY 2013	Total FY 2013
ELECTRICITY, kWh	14,957,979				14,957,979
NATURAL GAS, ccf	269,197				269,197
STEAM, mlb	27,847				27,847
CHILLED WATER, tn-hr	3,423,810				3,423,810
ENERGY EQUIVALENT, (kBtu)	151,082,935	0	0	0	151,082,935
N:B: Natural Gas is used to produce the Thermal Energies of Steam and Chilled Water					