



January 1, 2014

Mr. Elmo Cavin,  
Executive Vice-President of Finance & Administration  
TTUHSC, Lubbock and Regional Campuses

RE: FY 2014 – 1<sup>st</sup> 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 capital improvements and steady growth, which are expected to increase the overall energy consumption.

#### A. Energy Consumption & Goals

Attached is Exhibit I where our 1<sup>st</sup> Quarter FY2014 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 1<sup>st</sup> Quarter FY2014, the campus consumed 60.62kBtu/sq ft, a increase of 6.5% compared to the 1<sup>st</sup> Quarter FY2013. Cooling Degree Days (CDD) for the 1<sup>st</sup> Quarter FY2014 has increased by 35% compared to 1<sup>st</sup> Quarter FY2013. Heating Degree Days (HDD) for the 1<sup>st</sup> Quarter FY2014 has increased by 31% compared to 1<sup>st</sup> Quarter FY2013. The reason for the increase in consumption is due to higher heating and cooling degree days, and occupancy density.





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

Utility	FY13 Actual	FY14 Actual	% Change
Electricity	16.51	15.11	-08.48%
Nat. Gas	05.29	06.02	13.80%
Steam	15.18	18.19	19.83%
Chilled Water	19.95	21.30	06.77%
Total	56.93	60.62	06.48%

**B. Current Energy Reduction Plans**

We have identified the following projects for potential consideration in reducing the campus energy consumption. Projects will be prioritized based on acceptable payback period and availability of funding. Below is a partial list and status of projects that are currently being planned, designed and/ or implemented.

1. Install new direct digital control (DDC) system at the Women’s Health and Research Institute (WHRI) building, Amarillo. Project includes replacement of two air handling units and associated terminal boxes, upgrade of four air handling units, and four pumps. *Project is currently in construction phase.*
2. XCEL Energy has offered at no cost for re-commissioning or retro-commissioning of buildings in Amarillo. Accordingly we have submitted preapproval application and letter of authorization to Willdan Energy Solutions for two of our buildings in Amarillo. *Project is currently in review 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 currently in implementation phase.*
4. Replace exterior building lights by LED light fixtures at the HSC buildings in Lubbock. *Project is currently in implementation phase.*
5. Complete installation of occupancy sensors for automatic lighting control. *Project is being implemented through new construction and renovations.*
6. 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. *Project is ongoing.*





7. New energy efficient LED lights, for both interior and exterior building use, are being tested for performance and reliability. *Project is in testing and analysis phase.*
8. Upgrade pneumatic control systems by direct digital control systems. This is being done as and when funding is available.
9. Install energy (Btu) meters for chilled water and hot water flow at JW Clinic, Midland. *Project is currently in construction phase.*

### C. Future Energy Reduction Plans

We have identified various energy conservation projects (ECPs) which are projected to cost up to 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. Plan is to obtain funding for implementation of ECPs, improve existing building system performance, and continue implementation of LED lighting for exterior use.

Semiannually, Fleet fuel consumption is to be reported in the April and October reports.

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

<b>FY2013 QUARTERLY ENERGY CONSUMPTION</b>					
<b>ENERGY</b>	1st Quarter FY 2013	2nd Quarter FY 2013	3rd Quarter FY 2013	4th Quarter FY 2013	Total FY 2013
ELECTRICITY, kWh	9,961,497	9,281,450	9,451,056	10,142,533	38,836,536
NATURAL GAS, ccf	105,983	188,840	139,483	69,027	503,332
STEAM, mlb	27,847	45,730	30,454	19,735	123,766
CHILLED WATER, tn-hr	3,423,810	2,878,852	3,136,115	4,546,264	13,985,041
ENERGY EQUIVALENT, (kBtu)	112,910,024	131,837,252	113,400,174	113,059,768	471,207,218
N:B: Natural Gas is used to produce the Thermal Energies of Steam and Chilled Water					

<b>FY2014 QUARTERLY ENERGY CONSUMPTION</b>					
<b>ENERGY</b>	1st Quarter FY 2014	2nd Quarter FY 2014	3rd Quarter FY 2014	4th Quarter FY 2014	Total FY 2014
ELECTRICITY, kWh	9,116,782				9,116,782
NATURAL GAS, ccf	120,690				120,690
STEAM, mlb	33,370				33,370
CHILLED WATER, tn-hr	3,656,414				3,656,414
ENERGY EQUIVALENT, (kBtu)	118,365,875				118,365,875
N:B: Natural Gas is used to produce the Thermal Energies of Steam and Chilled Water					

