



April 1, 2014

Office of the Governor
1100 San Jacinto
Austin, Texas 78701

Mrs. Ursula Parks, Director
Legislative Budget Board (LBB)
Robert E. Johnson Bldg. – 5th Floor
1501 North Congress
Austin, Texas 78701

RE: **Biennial Energy Report, FY2014**

The Texas Tech University Health Sciences Center (TTUHSC) Biennial Energy Report for FY-2014 is being submitted in accordance with Governor's Executive Order, RP 49, Senate Bill 700, and State Energy Conservation Office directives. TTUHSC continues to promote energy conservation measures and strategies and seek new ideas to reduce consumption and improve building system efficiencies.

A. Energy Consumption & Cost

During first half of the FY2014, the institution consumed 261,344,296 kBtu. The energy utilization index (EUI) is 127 kBtu/sq ft, an increase of 5% as compared to first half of FY2013. The energy cost index (ECI) is \$1.53/sq ft, an increase of 11% as compared to first half of FY2013. The consumption increase is mainly due to the weather conditions, and the cost increase is due to increase in utility unit cost.

The gross area (gsf) of the institution during this period has remain unchanged as compared to FY2013. However, Heating Degree Days (HDD) has increased by 12% and Cooling Degree Days (CDD) has increased by 36% for the first half of FY2014 as compared to FY-2013. This is due to change in weather conditions. Also, rate increases from Amarillo campus utility providers were implemented.

TTUHSC continues to undergo steady programmatic growth and increase in overall occupancy density. So it's expected to increase the overall energy consumption. Energy consumption and cost breakdowns for the first half of FY2014 are shown in the table below. It includes FY2013 energy consumption, cost, and energy equivalents for the same period to facilitate comparison.





ENERGY CONSUMPTION AND COST (September to February)				
ENERGY TYPE	CONSUMPTION		COST	
	FY 2014	FY 2013	FY 2014	FY 2013
ELECTRICITY, kWh	18,549,612	19,242,947	\$ 1,214,752	\$ 1,181,797
NATURAL GAS, ccf	305,953	294,822	\$ 196,301	\$ 151,463
STEAM, mlb	89,926	73,577	\$ 945,872	\$ 740,670
CHILLED WATER, tn-hr	6,673,423	6,302,662	\$ 799,306	\$ 776,613
TOTAL ENERGY (kBtu), COST (\$)	261,344,296	249,088,750	\$ 3,156,231	\$ 2,850,543

N:B: Natural Gas is used to produce the Thermal Energies of Steam and Chilled Water

B. Energy Conservation Plan & Action

TTUHSC has a continuous program to educate the faculty and staff regarding energy conservation. TTUHSC Engineering Services Department maintains specific operating policy and procedure relating to the energy conservation program and utility review. Operating policy and procedures make the responsibility of energy conservation the obligation of every employee. A key element of the plan is to prevent waste and assure the conservation of resources.

TTUHSC Engineering Services has identified several projects for potential consideration in reducing the campus energy consumption. Projects were prioritized based on a variety of factors including return on investment, and cost. Projects that were implemented in the past were listed in the previous annual reports. Below is a partial list and status of projects that are completed in FY-2014 or currently being designed and/ or implemented.

1. Replace DX air handling units which exceeded expected service life, and install centralized control system at the Southwest campus, Lubbock. *Project is completed.*
2. Upgrade electrical power systems including reliability at Lubbock HSC, which include panel and breaker upgrades, improved protection of transformers, testing and inspection of equipment. *Project is currently in implementation phase.*





3. Complete installation of occupancy sensors for automatic lighting control. *Project is being implemented through new construction and renovations.*
4. Replace inefficient motors with premium efficiency motors. *Motors are being replaced at the end of their service life.*
5. Replace air handling units in Lubbock HSC which are inefficient and beyond their expected service life, by newer energy efficient air handling units. *Project is being planned and implemented at a rate of up to two new units per year.*
6. Install new direct digital control (DDC) system at the WHRI building, Amarillo. Project includes upgrade of air handling units, terminal boxes, and pumps as funding allows. *Project is currently in construction phase.*
7. Re-commissioning of air handling units at the HSC building, Lubbock. *Project is currently in TAB phase.*
8. 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.*
9. New energy efficient LED lights are being tested for performance and reliability. *Project is in testing and analysis phase.*

C. Future Energy Reduction Plans

Energy Systems Associates (ESA) conducted an in-depth visit of two of our HSC buildings in Amarillo campus, in the month of February 2014. This preliminary assessment was provided through a retro-commissioning program sponsored by the XCEL Energy. The preliminary energy assessment report is in progress.

TTUHSC Engineering Services is reviewing a proposal from BEE USA for re-commissioning of HVAC systems in the HSC building at Lubbock. In addition to the above, we are planning to use sensor driven LED fixtures for all parking lot lighting.

D. Fuel Consumption Reduction Plans

TTUHSC continues to emphasize automobile fuel conservation awareness with strategies such as group travel via automobile vs airplane, regular preventative maintenance, and an emphasis on tire pressure and conditions to gain economies. TTUHSC has several remote regional campuses in West Texas.





Fuel (gasoline/propane/diesel) Data:

FY14 Consumption	FY14 Cost	FY13 Consumption	FY13 Cost
14,458 Gallons	\$ 42,453	12,864 Gallons	\$ 42,606

The total miles driven have increased by 5% during first half of the FY-2014 as compared to FY2013.

Your consideration of this update and information is appreciated.

Sincerely,

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

XC:

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

2. Director, State Energy Conservation Office
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