The Angelo State University Energy Savings Update is being submitted in accordance with Governor’s Executive Order, RP 49, Energy Conservation by State Agencies.

1. Energy Goals
	* 1. Campus Energy Use

Energy units are converted to kBtu to allow for comparisons of electricity and natural gas usage. Goals and energy use are then stated in kBtu/sq ft. Estimated savings are based on energy consumption for the same time period from the previous year normalized to current energy costs and campus square footage. It does not take into consideration the climate difference between periods.

In the fiscal year for 2008 the entire campus used 86.5 kBtu/Sq Ft. That was a decrease of 17% from the previous year with an estimated savings of $376,612.81. The savings is even greater if the fact that FY08 was a hotter and dryer year than FY07, thus increasing the demand on electricity, was considered.

In Table I, the campus energy use is broken down by utility type. The percent change column is the energy usage change from fiscal year 2007 to 2008.

 Table I: Campus Energy Use (kBtu/Sq ft): FY2006-FY2008

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Utility | FY06 | FY07 | FY08 | % Change | Est. Savings |
|  Electricity | 71.3056 | 64.9719 | 62.6497 | Down 3.57% |  $ 133,205.12  |
|  Nat. Gas | 41.1805 | 39.5364 | 23.8601 | Down 39.65% |  $ 243,407.69  |
|  Total | 112.4861 | 104.5083 | 86.5098 | Down 17.22% |  $ 376,612.81  |

In Table II, the campus energy is broken down to compare only the first quarter of FY 2009 to the same time the previous year. The increased usage in natural gas usage is due to the energy efficient improvements at the Central Plant. The plant was shut down during September 2007, but running the entire time in FY2009. The first quarter of FY09 had over a 4% decrease in total usage as compared to the first quarter of FY08.

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| Table II: Campus Energy Use (kbtu/sq ft): Sept. – Nov. For the First Quarter of the Fiscal Year |
| Utility | FY 2008 | FY 2009 | % Change | Est. Savings |
| Electricity | 17.21 | 15.48 | Down 10.05% | $63,090 |
| Nat. Gas | 4.06 | 4.89 | Up 20.44% | -$21,683 |
| Total | 21.27 | 20.37 | Down 4.23% | $41,407 |

* + 1. House Bill 3693

In Compliance with House Bill 3693, Angelo State University set a goal to reduce total electrical consumption by 2.5% for Fiscal Year 2009. Table III below shows the kilowatt hours per square foot for the entire campus quarterly. This is all electrical usage whether it is in a building or on the grounds. It shows a reduction of just under 5% in electrical consumption for the first quarter of Fiscal Year 2009 as compared to the previous year. It also shows almost a 10% reduction from Fiscal Year 2006 to 2008.

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| Table III: Entire Campus Electricity Usage in kwh/sq ft |
| Fiscal YearQuarter | FY 2006 | FY 2007 | FY 2008 | FY 2009 | % change from previous year |
| 1st Qtr | 5.60 | 5.27 | 5.00 | 4.70 | -4.98% |
| 2nd Qtr | 5.04 | 4.65 | 4.36 |   |   |
| 3rd Qtr | 4.96 | 4.40 | 4.38 |   |   |
| 4th Qtr | 4.70 | 4.77 | 4.57 |   |   |
| Yearly Total | 20.29 | 19.09 | 18.32 |   |   |

* + 1. Fleet Management

In FY2007 Angelo State University consumed 23,580 gallons of fuel and traveled 272,780. In FY2008 Angelo State University consumed 25,318 gallons of fuel and traveled 298,905. This represented a 2% increase in the fuel efficiency of the fleet bringing the miles per gallon to 11.8.

In Table IV the vehicle fleet is broken down by number of vehicles, miles driven, gallons used, cost of those gallons, cost per mile and miles per gallon for fiscal years 2006 thru 2008.

Table IV: Fleet Vehicle Usage: FY2006 - FY2008

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Vehicles | Number | Miles | Gallons | Cost | Cost PerMile | Miles PerGallon |
| FY2006 | 58 | 245,217 | 20,311 | $51,113 | $0.2084 | 12.0731 |
| FY2007 | 61 | 272,780 | 23,580 | $57,770 | $0.2118 | 11.5683 |
| FY2008 | 60 | 298,905 | 25,318 | $81,288 | $0.2720 | 11.8060 |

At the end of FY2008 there were 60 vehicles in the university’s fleet. Over half of the fleet is 9 years old or older. 16 of the vehicles are 5 years old or newer with 7 of them being 2007 models or newer. As the university continues to replace older vehicles and use electric carts for simpler tasks the efficiencies will increase.

At the end of the first quarter of FY2009 there were 68 vehicles in the universities fleet. Six of those vehicles are new passenger vans. This makes 22 vehicles that are 5 years old or newer – 32% of the fleet. Having the percentage of newer vehicles grow will help improve our efficiencies.

B. Current Energy Reduction Plans

1. Campus Energy Use
	1. Continue to monitor the upgrades/replacements to air handlers, electrical equipment and items at the central plant as according to the performance contract Angelo State University has with Tour Andover Controls (TAC). This is a $13 million dollar energy savings project for the university that is to be paid over the next 15 years with the money saved from the improvements. The installations started in late 2006 and are now scheduled to be completed by February 2009.
	2. TAC has already finished retro fitting the outdoor lighting and building lighting across campus to more efficient fixtures and bulbs. They replaced faucets, showers, and toilets to low flow models. They also replaced some of the boilers and chillers for the central plant and many air handlers across campus. These changes are showing significant reductions in our usages.
	3. Maintain consistent temperatures across campus and don’t deviate to please individuals. For Cooling, a set point of 73 degrees. For Heating, a set point of 70 degrees. This was adopted by the university in September of 2008.
	4. Closely monitor the utility meters for discrepancies and unexpected usage amounts. Verify anomalies and correct problems.
2. Fleet management
	1. Improve overall fuel efficiency of fleet vehicles by replacing older, inefficient vehicles with newer, more efficient vehicles.
	2. Continue the aggressive Preventative Maintenance program to maintain all vehicles at their peak efficiency.
	3. Continue to utilize the State’s Fleet Data Management System. The Fleet Management office will continue to use the Fleet Focus database to monitor vehicle utilization, efficiency, maintenance and accuracy of vehicle reporting.  Any discrepancies will immediately be addressed with appropriate vehicle custodians.
	4. Educate personnel on the efficient use of University vehicles. The Fleet Management office has informed all vehicle custodians of Governor Perry’s Executive Order and the university’s established goal of 12 mpg.
	5. Continue to expand the use of electric carts. ASU already has newer carts on order that are more efficient and plans to continue expanding the usage of carts over gas powered vehicles in years to come.

C. Future Energy Reduction Plans

1. Continue gathering data on the use of roof top solar cells for lowering the costs of electricity.
2. The continued infrastructure improvements under the performance contract with TAC.
3. Start a quarterly newsletter that shows energy savings and gives tips as to how each employee can help conserve energy.
4. Explore the possibilities of hiring a firm to audit our utility bills.

D. Fuel Consumption Reduction Plans

1. The Fleet Management office will network with vehicle custodians to exchange information on vehicle efficiency and solicit additional best practices and other creative initiatives to improve the efficiency of the university vehicle fleet.
2. For all parties to encourage facility technicians and other departments to use electric carts when at all possible.
3. The Fleet Management office will continue to use off site shops to keep the vehicles in the best condition possible to increase fuel efficiency.
4. When funds are available acquire new vehicles and dispose of older less efficient ones.