A. The extent to which the agency has met the percentage goal it established for reducing its usage of electricity, gasoline, and natural gas:

- Energy consumption per gross square foot has been reduced by 42% (364 mBtu per GSF to 211 mBtu per GSF) over a twelve year period from FY02 – FY14. The goal in the 2005 Energy Conservation Plan was to achieve an EUI of 275 by FY10 which was achieved and surpassed.

- Total real energy consumption has decreased 25 percent over this same eleven year period, from 6.7 trillion Btu in FY02 to less than 5.0 trillion Btu in FY14, while the campus grew by over 28 percent, from 18.5 million GSF to 23.6 million GSF.

- Energy consumption reduction measures over this same twelve year period (FY02 – FY14) have generated $180 million in avoided cost. Texas A&M University has provided exemplary leadership in the area of energy efficiency improvement and conservation with these accomplishments. (see attached charts).

- The most recent energy consumption data comparing FY11 at 5.26 trillion Btu to FY14 at 4.98 trillion Btu, reflects a real energy consumption reduction of over 5 percent in the last three years alone, with much of this reduction resulting from the startup of a newly completed combined heat and power (CHP) plant.

B. The steps the agency may take to increase the percentage goal for reducing its usage of electricity, gasoline, and natural gas:

- Texas A&M University has established and actively manages an Energy Action Plan (EAP) 2015 which targets further reduction of energy consumption per gross square foot over five years - from FY10 through FY15. The goal of EAP 2015 is to reduce the overall campus Energy Use Index (EUI) from the FY10 baseline of 238 mBtu/GSF to 200 mBtu/ GSF by the end of FY15, or a reduction of 16% per GSF over 5 years. (see attached “Energy Action Plan 2015” and “EUI Chart”)

- In January 2012, Texas A&M completed a $15 million energy efficiency project with Siemens acting as the Energy Services Company (ESCO) that included consumption reduction measures in 18 buildings and 5 parking garages. These efficiency improvements in the facilities included lighting upgrades, building automations system retrofits, and HVAC system improvements. The first year (FY12) energy consumption reductions in the buildings far exceeded the guarantee for avoidance by 173% for electricity, 182% for chilled water and 145% for heating hot water and similar results have been seen in FY13.

- In September, 2013, the University has embarked on Phase 3 of the SECO loan projects and began implementation of an additional $4.1 million in HVAC and lighting improvements in 10 buildings with a total of 802,000 GSF. This project is anticipated to avoid 5 million kWh of electricity, over 30,000 mmBtu of chilled water and almost 10,000 mmBtu of heating hot water.
The Energy Stewardship Program, or ESP, continues to pay dividends by closing the gap between organizational needs and operational efficiencies. The University currently has six full-time Energy Stewards, each assigned an average of 2.6 million GSF. The stewards proved invaluable as the recent $15 million SECO loan project was implemented by facilitating the construction process and enabling additional cost avoidances to be achieved. Instead of the construction project simply making modifications and walking away from the project, the stewards identified additional opportunities through scheduling and setbacks that allowed the project to exceed expectations by more than 50%.

An updated Utilities & Energy Services Capital Plan was completed in 2012, which documented and justified $46 million in production and major infrastructure improvements that are required over the next five years. These projects were placed on the University Capital Plan for the period of FY13 – FY17. The Texas A&M Board of Regents has approved design and construction on the first and second phases of capital improvements and has approved design on the third phase. The initial FY13 utility production upgrade project has a $12 million budget and will increase capacity for a growing campus, replace aging equipment, and generate $1.25 million annually in cost avoidance through improved operating efficiency. The FY14 project has a $20 million budget and will continue upgrading campus production facilities to meet the growing demands of the campus while cost avoiding over $1 million annually. The FY15 project has a $7.4 million budget that will round out the production capacity improvements.

The scope of capital upgrades approved for construction include:

- Replacement of Chiller 103 @ SUP1
- Replacement of Chiller 09 @ CUP
- Addition of Heat Recovery Chiller @ SUP2
- CUP / SUP1 Cooling Tower Upgrades
- Chilled Water Production Optimization @ CUP, SUP1, SUP2 & SUP3
- Installation of Chiller 206 @ SUP2

The scope of capital upgrades that are in design include:

- Installation of Thermal Energy Storage
- Replacement of Chiller 12 @ CUP
- Replacement of Chillers 301 and 302 @ SUP3
- Cooling Tower Upgrade @ SUP3
- Addition of a Heating Hot Water Capacity @ SUP1
- Refurbishment of Chillers 10 & 11 @ CUP
- Cooling Tower Upgrade @ SUP2
- Replacement of Chiller 201 @ SUP2
C. Any additional ideas the agency has for reducing energy expenditures relating to facilities:

- The University has established an energy efficiency design guideline that targets new facilities to demonstrate the ability exceed ASHRAE 90.1-2010 by 14% for new construction and 11% for renovation. An associated energy impact review, coupled with life cycle cost modeling will enable the University to make the best long term decisions regarding operational efficiency of campus facilities.

- In addition to identifying opportunities to improve operating efficiency of building HVAC, BAS, and lighting systems, UES is evaluating opportunities to more precisely regulate the face velocity associated with over 1,000 fume hoods located on the Texas A&M University campus – to ensure safe operation with improved energy efficiency.

- The University is currently developing the plans for a phase 4 energy initiative using SECO loan funding. The project plans include building HVAC and lighting as well as a comprehensive efficiency upgrade to the campus exterior lighting.

D. Any additional ideas the agency has to minimize fuel usage in all vehicles and equipment used by the agency.

The following procedures remain in effect:

- Focus on efficiencies when developing bus routes
- Work to retire older, less efficient vehicles by providing vehicle contacts with maintenance data
- Photocell lighting used on exterior of all garages
- Replaced lights in automotive shop with more efficient fixtures
- Photocell lighting used at the fuel island
- Preventive maintenance schedules have been increased from two to three times per year, resulting in improved fuel efficiency
- Signs have been posted at the fuel center with helpful tips encouraging customers to conserve fuel
- Conservation tips have been posted on our website
- A brochure has been produced regarding fuel conservation
- Continue to communicate efforts with Communication Representative from EAP 2015 Advisory Committee and offer assistance where needed for University-wide conservation
- Promote the purchase of hybrid vehicles through our website
- Provide charges for plug-in vehicles on campus
- Replaced lighting in heavy equipment shop with more efficient fixtures
- Continue to investigate use of hybrid and electric vehicles in the fleet

### University Fleet Fuel Consumption (provided by Transportation Services)

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**Reduction from FY04**:

-46% (447,355)

**Total Reduction**: 46% (447,355)