A. The following are the steps taken for PVAMU in regards to energy reduction measures for its usage of electricity, gasoline and natural gas.

- The Prairie View A&M system has created a master five year plan which includes several new building developments. The goal of this EAP is to aid in reduction and efficiency of the overall campus consumption and optimization over the next five years.
- Recently the PVAMU and Texas A&M system completed a capital plan investment which encompassed the following to aid in optimization and life cycle of equipment for HVAC and Central Plant during the FY 2011-2014.
- The scope of these Capital Improvements includes
  - Replacement of 1200 ton chiller #5 at the Central Plant
  - Replacement of a 1300 HP Boiler #7 at the Central Plant
  - Replacement of 30 AHU’s at the Billy Nicks Field House
  - Replacement of 12 AHU’s at Evans Hall
  - Replacement of 4 AHU’s at Anderson Hall
- For the upcoming 2015-2019 FY PVAMU has set aside $3 million annually deferred maintenance to upgrade campus infrastructure. The scope for these designs include:
  - Replacement of 1200 ton chiller #1 at Central Plant
  - Installation of New North side PRV station for steam
  - Redesign of the Southwest PRV station for Steam
  - Design to replace De-alkalizer to RO system and install automatic blowdowns on boilers at the Central Plant
  - Replace feeders 400 & 600 in main switchgear room
  - Replacing Chill Water and Hot Water building flow meters for more accurate measuring methods
B. Additional measures PVAMU have taken to reduce energy expenditures relating to facilities:
- Implemented HVAC scheduling through our BAS system for off demand hours
- Created standardization for set points at 74-70 for heating and cooling for occupied and 84-65 for unoccupied
- Working to create BAS programming for building demand on Chill Water and Hot Water to ensure optimization of secondary pump control in facilities

C. Future ideas for PVAMU for energy reduction are as follows:
- Removing last remaining buildings of pneumatic air controls and upgrading to full electronic DDC for the BAS system
- Continuous life cycle replacements of air handling units, Exhaust fans, Pumps, Variable Frequency drives and Fan coil Units campus wide
- Retrofitting campus pathway lighting on 13ft poles and street lighting on 32ft poles to LED technology
- Upgrading 69 lab hoods and controls in New Science Building ( EE O’banion)
- Central Plant Chiller Optimization programs
- Repair all underground steam, chill water and condensate return leaks to avoid waste

D. In addition to HVAC, BAS and lighting systems PVAMU has set aside efforts to upgrade the waste water treatment plant. These are as follows:
- Install new well #9 next to well #8 near Hobart Taylor with additional ground storage tank
- Replace and upgrade mechanical bar screening at Waste Water treatment plant

E. PVAMU’s ideas to minimize gasoline fuel usages over the next five years:
- Reduce fleet vehicles- retiring old ones and upgrading to more economical vehicles when applicable
- Utilizing golf carts and reducing fleet size where available
- Increasing Preventive Maintenance on golf carts and vehicles to ensure proper operation and improve efficiency
F. Account strategy Planning

**Strategy Initiative:** First Responder & Customer CMMS Requests

**Strategy Owner:** SSC with entire Campus Community

**Description**

SSC first responders from Central Utilities work closely with students, faculty, staff, building occupants, departmental representatives, facility managers, building proctors, and technical staff to educate, inform and raise awareness about opportunities for improving energy efficiency and conservation, obtaining feedback to ensure customer needs are met while improving building operating conditions, eliminating waste, and effectively stewarding the responsible use of energy.

**Implementation Plan / Schedule**

1. Educate and raise awareness about the cost and environmental impact of energy and water consumption at PVAMU.
2. Establish and maintain trusting relationships with customers, ensuring both customer needs and goals to reduce cost and environmental impact are met.
3. Educate users on campus building space temperature standards and help ensure standards are properly maintained.
4. Identify, report, and correct problems with HVAC, mechanical, electrical, and plumbing systems to improve service, optimize performance, and eliminate waste.
5. Promote energy conservation and efficiency and enroll all members of the campus community to be effective stewards of these essential resources, through programs such as the Green Office Campaign, Energy Action Team, Sustainability Pledge, etc.
6. Educate and inform the campus community on plans, programs, initiatives, and accomplishments in the areas of energy efficiency and conservation.
7. Maintain ongoing communication and dialogue with building occupants, facility managers, building proctors, and departmental representatives. Obtain feedback and coordinate to ensure energy requirements for cooling, heating, electrical power, water supply, steam, etc. are efficiently and cost-effectively achieved.
8. Coordinate with departmental representatives, facility managers, and users to establish HVAC run time and setback schedules to meet customer needs while reducing unnecessary energy consumption.
Strategy Title Initiative 2: Comprehensive Building Automation System and HVAC Management
Strategy Owner: SSC

Description
Leverage the building automation system to achieve an optimal balance of occupant comfort and energy consumption through effective building automation and control. A building automation system is the integrating component to fans, pumps, and air handling units, with components such as flow control valves, air dampers, mixing boxes, instrumentation and thermostats. Monitoring and optimizing temperature, pressure, humidity, and flow rates (both air and water) are key functions of effective building occupant comfort, safety, and efficiency.

Implementation Plan / Schedule
Target Tactic Description
1. Respond to all customer comfort (hot/cold) calls in a timely manner – meeting comfort needs while ensuring efficient operation of building energy systems. Document results.
2. Closely coordinate with Prairie View Faculty and Staff to achieve prompt repair of building mechanical, electrical, and plumbing (MEP) systems as required.
3. Significantly reduce Facilities Services work load related to first response and comfort calls, thereby freeing up resources to allow them to proactively perform more preventive, predictive, and reparative maintenance.
4. Ensure that campus temperature, humidity, and air flow standards are clearly understood by customers and effectively maintained

Strategy Title Initiative 3: Precise Utility Metering, Data Management and Cost Recovery
Strategy Owner: SSC & PVAMU

Description
Leverage the existing campus-wide utility metering capabilities and database to raise awareness and reduce consumption. Use available data to raise awareness about energy cost at the department, college, and building levels through reporting metered data for commodities such as electricity, chilled water, heating hot water, domestic water, domestic hot water, and steam. Cost recovery based on actual consumption and cost, together with useful data and information, encourages conservation.

Implementation Plan / Schedule
1: Communicate the cost associated with operating a large teaching and research campus using available data and reports.
2: Provide insight to Division of Finance, individual colleges, auxiliaries, and agencies about utility cost associated with facility operation. Meet to discuss and identify ways to optimize service, consumption, cost, and efficiency.
3: Use data to raise awareness of students and faculty on the cost and environmental
impact of operating classrooms and labs and identify specific ways they can help reduce energy consumption.

4: Use data to raise awareness of researchers, students, and academic departments about the high cost to operate labs and research facilities, and ways energy consumption can effectively be reduced.

5: Provide utility statements to Division of Finance and E&G departments to raise awareness of consumption, cost, and savings achieved.

6: Continue providing accurate, easy to read utility statements and billing. Educate customers and raise awareness about billing and ways that consumption and cost can be reduced

**Strategy Title Initiative 4: Utilities and Energy System Capital Planning**

**Strategy Owner: SSC & PVAMU**

**Description**

The purpose of this initiative is to keep the PVAMU Capital Plan current and broaden the scope to include a comprehensive plan for all utilities and energy. Ensure campus needs are met and provide effective support for the Action 2015 Strategic Plan, Academic Master Plan, and Campus Master Plan.

**Implementation Plan / Schedule**

1: Thoroughly evaluate and document utility infrastructure requirements and establish plan with schedule for completion for capital replacement and upgrade.

2: Establish energy efficiency standards for construction of new university facilities and renovation of existing facilities.

3: Identify and recommend specific projects to optimize operating efficiency for utility production and distribution (supply-side), and energy consumption (demand-side).