

# Energy Action Plan 2015

## Purpose:

In support of the Texas A&M University *Vision 2020: Creating a Culture of Excellence* and *Action 2015: Education First* Strategic Plan, the Energy Action Plan (EAP) 2015 has been established to continue improving the efficiency and effectiveness of mission-critical utility and energy services. Building on an annual energy efficiency improvement of 35 percent per square foot achieved since 2002, EAP 2015 has a goal to continue improving services while reducing energy consumption per square foot by an additional 20 percent for the five year period of FY11 through FY15. This goal is challenging but can be accomplished through implementation and management of the following comprehensive plan.

<b>Strategy Title</b>	<b>Initiative 1: Energy Stewardship Program (ESP)</b>
<b>Strategy Owner</b>	UEM, together with entire Campus Community
<b>Strategy Description</b>	<i>Energy Stewards 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.</i>
<b>Implementation Plan / Schedule</b>	
<b>Target</b>	<b>Tactic Description</b>
Ongoing	<b>Objective 1.1:</b> Educate and raise awareness about the cost and environmental impact of energy and water consumption at Texas A&M University.
Ongoing	<b>Objective 1.2:</b> Establish and maintain trusting relationships with customers, ensuring both customer needs and goals to reduce cost and environmental impact are met,
Ongoing	<b>Objective 1.3:</b> Educate users on campus building space temperature standards and help ensure standards are properly maintained.
Ongoing	<b>Objective 1.4:</b> Identify, report, and correct problems with HVAC, mechanical, electrical, and plumbing systems to improve service, optimize performance, and eliminate waste.
Ongoing	<b>Objective 1.5:</b> 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.
Ongoing	<b>Objective 1.6:</b> Educate and inform the campus community on plans, programs, initiatives, and accomplishments in the areas of energy efficiency and conservation.
Ongoing	<b>Objective 1.7:</b> 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.
Ongoing	<b>Objective 1.8:</b> 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.

<b>Strategy Title</b>	<b>Initiative 2:</b> Energy Awareness, Education, Outreach, and Engagement
<b>Strategy Owner</b>	UEM, Marketing & Communications, Office of Sustainability
<b>Strategy Description</b>	Develop a comprehensive program in support of ESP to engage energy consumers, raise awareness, and gain involvement to meet objectives essential for success of the EAP. This involves developing promotional material such as an EAP website, videos, presentations, charts, data, and written correspondence to communicate goals, objectives, accomplishments, challenges, and results.
<b>Implementation Plan / Schedule</b>	
<b>Target</b>	<b>Tactic Description</b>
FY12	<b>Objective 2.1:</b> Provide educational & informational videos and communications.
Ongoing	<b>Objective 2.2:</b> Regularly present for students, faculty, staff, and the departments in which they work and learn.
FY12	<b>Objective 2.3:</b> Install energy kiosks in high traffic areas in campus buildings to raise awareness of energy consumption and cost, to promote broader participation and support for energy conservation.
Ongoing	<p><b>Objective 2.4:</b> Heighten awareness of energy consumption and cost avoidance :</p> <ul style="list-style-type: none"> <li>• Develop marketing and promotional materials</li> <li>• Membership program to establish Energy Action Team</li> <li>• Active engagement using social media networks</li> <li>• Energy consumption, cost, and environmental impact reporting using kiosks and other indicators</li> <li>• Advertising program (Battalion, Eagle, bus ads, TAMUtimes, Distribution A)</li> <li>• Scheduled tours of utility plants, building mechanical equipment &amp; HVAC automation systems for students, faculty, staff and stakeholders</li> </ul> <p>Energy Conservation Alerts Request help to reduce energy consumption during periods of peak load and high energy cost</p>

<b>Strategy Title</b>	<b>Initiative 3:</b> Comprehensive Building Automation Management
<b>Strategy Owner</b>	UEM
<b>Strategy Description</b>	Leverage the building automation system to achieve an optimal level 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 automation systems.
<b>Implementation Plan / Schedule</b>	
<b>Target</b>	<b>Tactic Description</b>
Ongoing	<b>Objective 3.1:</b> 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.
Ongoing	<b>Objective 3.2:</b> Closely coordinate with Facilities Service to request and achieve prompt repair of building mechanical systems as required.
Ongoing	<b>Objective 3.3:</b> Significantly reduce Facilities Services work load related to first response and comfort calls, thereby freeing up resources to proactively perform more preventive and reparative maintenance.
Ongoing	<b>Objective 3.4:</b> Ensure that campus temperature, humidity, and air flow standards are clearly understood by customers and effectively maintained.

<b>Strategy Title</b>	<b>Initiative 4:</b> Utility Metering and Data Management, Billing, and Reporting
<b>Strategy Owner</b>	UEM
<b>Strategy Description</b>	Leverage the existing campus-wide utility metering capabilities and database to raise awareness and reduce consumption, while effectively managing ~\$75 million annual cost recovery associated with energy procurement, production, distribution, and 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.
<b>Implementation Plan / Schedule</b>	
<b>Target</b>	<b>Tactic Description</b>
Ongoing	<b>Objective 4.1:</b> Communicate the cost associated with operating a large teaching and research campus using available data and reports.
Ongoing	<b>Objective 4.2:</b> Provide insight to individual colleges and business units about utility cost associated with facility operation. Meet to discuss and identify ways to optimize service, consumption, cost, and efficiency.
Ongoing	<b>Objective 4.3:</b> 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.
Ongoing	<b>Objective 4.4:</b> 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.
FY12	<b>Objective 4.5:</b> Provide utility statements to E&G departments to raise awareness of consumption, cost, and savings achieved.
Ongoing	<b>Objective 4.6:</b> Continue providing accurate, easy to read utility statements and billing. Educate and raise customer awareness about billing and ways that consumption and cost can be reduced.

<b>Strategy Title</b>	<b>Initiative 5:</b> Building System Retro-Commissioning and Optimization
<b>Strategy Owner</b>	UEM, with support from Facilities Services and Energy Systems Laboratory
<b>Strategy Description</b>	Optimize efficiency of heating ventilation and air conditioning (HVAC), mechanical, and electrical systems, together with building automation systems. The primary focus is to optimize building energy consuming systems and ensure efficient operation of both building systems and campus distribution/delivery systems, while meeting customer needs efficiently and effectively.
Implementation Plan / Schedule	
Target	Tactic Description
FY12	<b>Objective 5.1:</b> Test and optimize building chillers, boilers, and HVAC system reliability and operating efficiencies.
Ongoing	<b>Objective 5.2:</b> Raise awareness of retro-commissioning and system optimization process and educate others about the benefits, while obtaining input and support to identify needs and ensure they are met.
Ongoing	<b>Objective 5.3:</b> Post reports on buildings before, during, and after retro-commissioning process to raise awareness of results achieved.

<b>Strategy Title</b>	<b>Initiative 6:</b> Server Room Consolidation and Virtualization
<b>Strategy Owner</b>	CIS with support from UEM, Facilities Coordination, and Facilities Services
<b>Strategy Description</b>	Identify and implement opportunities to improve efficiency of operation and reliability of electrical power and environmental control in server rooms and data centers across campus. An essential step to accomplish this is to identify the high cost associated with operating multiple small server rooms on campus and raise awareness about the savings and higher reliability of service available through consolidation and virtualization. Establish a shared vision and common goal with broad support for a university-wide server room/data center consolidation program.
Implementation Plan / Schedule	
Target	Tactic Description
Ongoing	<b>Objective 6.1:</b> Raise awareness of the ~300 server rooms located around campus and the cost associated with this inefficient use of space and energy.
FY12	<b>Objective 6.2:</b> Support College of Engineering server room consolidation plan and leverage success of recent consolidations to gain support for campus-wide program.
FY12	<b>Objective 6.3:</b> Estimate potential campus energy savings to develop justification and gain support for campus-wide initiative.

<b>Strategy Title</b>	<b>Initiative 7:</b> Utilities and Energy Master Plan
<b>Strategy Owner</b>	UEM
<b>Strategy Description</b>	The purpose of this initiative is to update the Utility Infrastructure Master Plan completed in 2005 and broaden the scope to include a comprehensive plan for all utilities and energy - to ensure effective support for the Action 2015 Strategic Plan, Academic Master Plan, and Campus Master Plan.
Implementation Plan / Schedule	
Target	Tactic Description
Dec 2011	<b>Objective 7.1:</b> Thoroughly evaluate and document utility infrastructure requirements and establish plan with schedule for completion for capital replacement and upgrade.
Dec 2011	<b>Objective 7.2:</b> Establish energy efficiency standards for construction of new university facilities and renovation of existing facilities.
Dec 2011	<b>Objective 7.3:</b> Identify and recommend specific opportunities to optimize operating efficiency for utility production and distribution (supply-side), and energy consumption (demand-side).

<b>Strategy Title</b>	<b>Initiative 8:</b> Utility Production & Distribution Optimization
<b>Strategy Owner</b>	UEM
<b>Strategy Description</b>	The purpose of this initiative is to ensure that the production and distribution facilities are operated in the most safe, reliable, and efficient manner, with clear standards of service to campus.
Implementation Plan / Schedule	
Target	Tactic Description
FY12	<b>Objective 8.1:</b> Create performance measures for each facility and track performance. Continue to optimize production and distribution infrastructure.
Ongoing	<b>Objective 8.2:</b> Make highly effective and timely “Make or Buy” decisions for electricity on a daily basis and closely coordinate nominations.
Ongoing	<b>Objective 8.3:</b> Fully leverage on site Combined Heat and Power generation as an energy and cost-saving system as well as an educational and environmentally beneficial system.

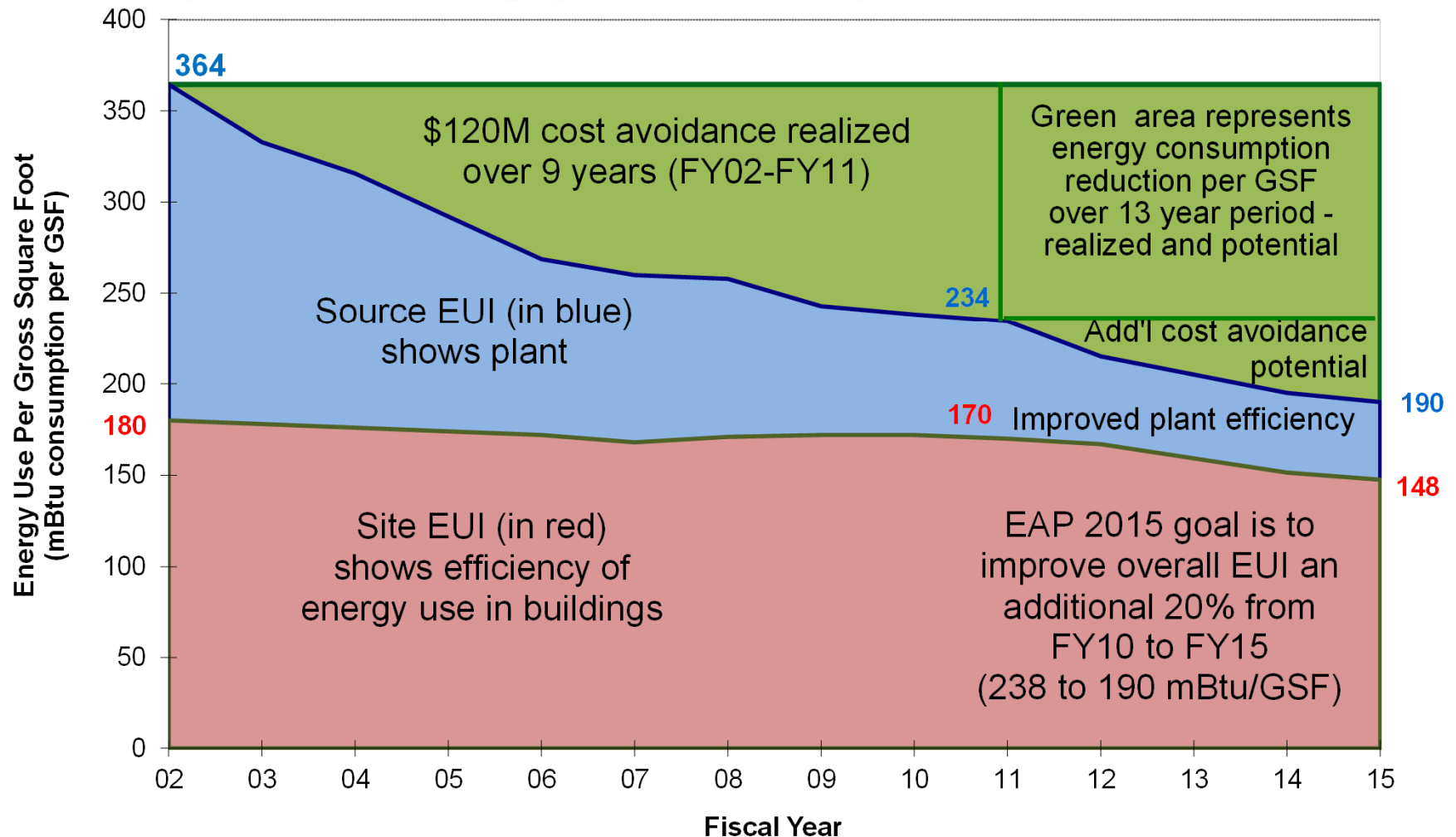
<b>Strategy Title</b>	<b>Initiative 9:</b> Smart Energy Campus Initiative (SECI)
<b>Strategy Owner</b>	Mladen Kezunovic with support from UEM and other departments
<b>Strategy Description</b>	Partner with academic and research departments to provide support for grant proposals and smart energy campus initiatives such as those listed below.
Implementation Plan / Schedule	
Target	Tactic Description
Ongoing	<ul style="list-style-type: none"> <li>Objective 9.1: Partner with academic and research departments on:                             <ul style="list-style-type: none"> <li>photovoltaic (PV) system installations</li> <li>electric vehicle (EV) charging station infrastructure</li> <li>smart metering and monitoring</li> <li>building efficiency optimization</li> <li>load shedding strategy and program</li> <li>more efficient utilization of assigned building space</li> </ul> </li> </ul>

<b>Strategy Title</b>	<b>Initiative 10:</b> Building Energy Efficiency Capital Upgrades
<b>Strategy Owner</b>	UEM with support from Facilities Services and FPC
<b>Strategy Description</b>	The purpose of this initiative is to fully leverage available funding to improve the performance of the building HVAC, automation, MEP systems, envelope, and lighting, paying for improvements and debt service through reduced purchased energy cost.
Implementation Plan / Schedule	
Target	Tactic Description
Q1 2012	<b>Objective 10.1:</b> Initial \$15 million project to increase energy efficiency and improved standards in 24 facilities (19 building and 5 garages).
Ongoing	<b>Objective 10.2:</b> Update and modernize the building automation systems and improve facility lighting quality.
Ongoing	<b>Objective 10.2:</b> Ensure that building operating efficiency and optimization are given full consideration when prioritizing and implementing the deferred maintenance program.

<b>Strategy Title</b>	<b>Initiative 11:</b> Environmental Benefit and GHG Reduction
<b>Strategy Owner</b>	UEM and Office of Sustainability
<b>Strategy Description</b>	Develop specific goals and reduction targets for the Green House Gas (GHG) emissions produced, directly and indirectly, by the university. Monitor and report emission levels and results achieved.
<b>Implementation Plan / Schedule</b>	
<b>Target</b>	<b>Tactic Description</b>
Ongoing	<b><u>Objective 11.1:</u></b> Raise awareness of the campus GHG footprint, contributing sources, and ways the campus community can help reduce emissions.
Ongoing	<b><u>Objective 11.2:</u></b> Use existing GHG emission baseline with target reduction established for FY15 and beyond to intentionally reduce GHG emissions.
Ongoing	<b><u>Objective 11.3:</u></b> Publish GHG data from previous years and track progress toward goal attainment.
Ongoing	<b><u>Objective 11.4:</u></b> Actively manage emission reduction program to identify innovative ways to continue improving and enrolling others to help establish and achieve established goals.



## Energy Use Index (consumption per GSF) (actual FY02 - FY11, projected FY12 - FY15)



Notes: New combined heat and power (CHP) generation and Energy Action (EAP) 2015 starting in FY12.