Strategic Energy Plan (StEP)

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Section I: Energy Team Overview:

A. The Southern Arkansas University Tech Energy Team includes Administration, and Staff members with experience in facilities and operations.
B. The Energy Team is involved with new construction projects on campus along with future plans for facility renewal.
C. The Energy Team members:

1. Physical Plant Director: Gerald Manning
2. Asst Physical Plant Director: Mike Larkins
3. Skilled Trades Worker: J.C. Rhinehart
4. Vice Chancellor of Finance and Administration: Gaye Manning
5. Administrative Specialist II: Patricia Box
6. Faculty Member: possible faculty senate chair
7. Classified Member: possible classified chair
8. Student: appointed by Chancellor or Student Life
9. IT Services Director: Laura Johnson
10. Chancellor: Dr. Corbet Lamkin
11. Fire Academy Director: Rachael Nix
12. Environmental Academy Director: Randy Harper
13. Administrative Staff Member: possible chair

D. The Energy Team's primary focus is the planning, implementation and monitoring achievements of specific energy cost avoidance goals. This is the first step to on-going facility renewal and establishing application standards for all major facilities and major renovations.
E. The intent of the Energy Team is to continually monitor and make known the results of energy goals to the faculty, staff, students and the community at large.
F. An annual energy review will be conducted by reviewing all aspects of facility operational and maintenance procedures. This information will serve the Energy Team in developing and evaluating continual recommendations for reducing energy usage. All energy data, programs and outcomes will be submitted to the SAU Tech Administration for final review before forwarding to the Arkansas Energy Office and making public through the SAU Tech website.

Section II: Facility / Site Description:

Located in Appendix A, titled Facilities Audit Program, is a list of facilities, major use and other pertinent information as per requirements stated in Act 1494.

Section III: Energy Plan Elements

Goal 1: Reduce the College's annual maintenance and operating budget devoted to energy consumption (usage) in accordance with Executive Order 09-07 and Act 1494 of 2009.

As stated in Act 1494, energy use in all existing state buildings shall be reduced by twenty percent (20%) by 2014 and thirty percent (30%) by 2017, based on energy consumption for the 2007 - 2008 fiscal years, if the savings can be justified by a life cycle analysis.

Strategy 1.1: Establish energy and water use trending methodologies for all facilities owned by the college.

> **Objective 1.1.1:** Currently individual facilities on campus are under evaluation by the Energy Team as to meter requirements for all utilities entering the facility.
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> **Objective 1.1.2:** All campus utilities are now being evaluated by an independent energy analysis firm that specializes in utility bill auditing. The firm's findings can be located in Appendix B. The Energy Team plans to have all buildings individually metered in order to establish better energy savings behaviors among all building occupants.
>
> **Objective 1.1.3:** Comply fully with best practices established in order to streamline data collection for submission to the Green.Arkansas.gov website. The frequency of the reporting will be at the direction of the AEO.

Strategy 1.2: Develop planning and implementation schedules to include outsourced business partners experienced in reducing cost and usage.

> **Objective 1.2.1:** Determine feasibility of hiring energy companies with experience in providing energy saving technologies, sustainable energy generation, energy savings behavior modification and utility bill analysis.

Objective 1.2.2: Establish definitive policies that instill good energy behaviors and clear understanding of the continually measured results.

Strategy 1.3: Define utility reductions using basic categories as to College building types.

Objective 1.3.1: Develop utility usage models by category for residence life, E&G lab buildings, E&G classroom buildings and auxiliary buildings.

Objective 1.3.2: Establish definitive policies that instill good energy behaviors and clear understanding of the continually measured results.

Goal 2: Promote College operations and practices that will reduce, to the extent practicable, the environmental impact of the College's overall operation.

Strategy 2.1: Materials, Products and Services. Develop and promote standard practices to address the following objectives:

Objective 2.1.1: Awareness of bio-based products as cited in Act 542 of 2005.

Objective 2.1.2: Awareness of compatibility with the EPA, Energy Star Qualified Products and affiliations.

Objective 2.1.3: Emphasize importance of adherence to the purchase of products that are recycled or made with recycled materials.

Strategy 2.2.1: Fuel Efficient Fleet. Continually evaluate new methods of fuel efficiency for the use of all College modes of transportation.

Objective 2.2.1: Evaluate the use of electric vehicles where applicable.

Objective 2.2.2: Develop a fuel feasibility analysis for all vehicle replacements.

Strategy 2.3: Recycling Program. Encourage and support the existing recycling programs on campus.

Objective 2.3.1: Benchmark current recycling efforts against other Colleges to ascertain areas for improvement.

Objective 2.3.2: Benchmark purchase contracts with other state Colleges to develop continual process improvement.

Strategy 2.4: Lighting Systems. Enter into a lighting retrofit contract as soon as funds are available.

Objective 2.4.1: Install occupancy sensors where applicable in conjunction with the evaluation of daylight harvesting opportunities.

Objective 2.4.2: Replace or modify light fixtures as per the pending lighting study recommendations.

Objective 2.4.3: Evaluate light levels in all building categories in order to provide the most energy efficient and user friendly color renditions for optimal light quality at the lowest possible energy consumption.

Objective 2.4.4: Retrofit exit signs to use LED lamps or wattage lower than six watts per fixture. This will be included in the lighting retrofit project.

Objective 2.4.5: Replace fluorescent lamps and inefficient ballasts with lower wattage lamps and efficient electronic ballasts. Evaluate light levels and color rendition in one or more locations on campus through sample installations before final lighting design is complete.

Strategy 2.5: Heating, Ventilation, and Air Conditioning Systems. Evaluate all possible methods to improve HVAC infrastructure helping to establish the lowest possible cost per square foot and meet the goals established in **Act 1494 of 2009.**

Objective 2.5.1: Establish Retro-Commissioning practices to all College facilities developing new operating schedules and parameters in conjunction with energy conservation measures developed by the Energy Team.

Objective 2.5.2: Evaluate implementation options as funds are available and time permits.

Objective 2.5.3: The facilities network infrastructure will require periodic upgrades as does any microprocessor system. The Energy Team will determine the most efficient use of technology that includes the life cycle cost of the mechanical and electrical equipment; the associated automated building controls; and the SAU Tech Physical Plant maintenance programs.

Objective 2.5.4: Facility renewal projects will also include evaluating all HVAC related improvements that can impact the Energy Team's reduction goals. In turn, these improvements will affect other attributes such as improving air quality and extending the life cycle of mechanical equipment.

Strategy 2.6: Computer Equipment. Establish regular workshops with the College IT Department. The intended outcome of the workshops is to better establish standard operating procedures, and if needed, hardware enhancements that can reduce computer energy usage while not in active use.

Objective 2.6.1: Encourage accountability to all College departments when purchasing computer equipment and accessories to meet the Energy Star ratings.

Objective 2.6.2: Evaluate software or hardware enhancements that can control and monitor network activities to minimize energy usage.

Strategy 2.7: Paper Usage: Establish regular communications with purchasing and recycling to evaluate the best use of paper from start to finish.

Objective 2.7.1: Reduce paper consumption by 25% by July 1st, 2012.

Objective 2.7.2: Encourage campus employees and students to minimize paper use and encourage paperless communication when possible.

Objective 2.7.2: Minimize the number of printer stations on campus through encouraging multi user print stations, copiers and scanners.

Strategy 2.8: Reducing Non-essential Electricity Usage. Evaluate the reduction of all plug loads with special emphasis on electronic components consuming electricity even when the device is in the off position.

Strategy 2.9: Training / Culture of Energy Awareness. Deliver the message of energy awareness across campus. Before the training process begins, the importance of improving energy efficiency will be shared with all employees.

Objective 2.9.1: Develop an energy policy that promotes behavioral changes and the reasons why they are important to not only the individual, but to the community.

Objective 2.9.2: Promote energy efficiency awareness to the community and request advisors from the student body, faculty and staff to participate in program development.

Objective 2.9.3: Recognize and communicate the impact of individual efforts to energy conservation and the outcome to the environment.

Objective 2.9.4: Communicate the environmental impact of the energy efficiency program in place at SAU Tech to the campus employees and community.

Strategy 2.10: Plant Efficiency. Modify the methods of cooling and heating in current operation.

Objective 2.10.1: Evaluate best methods for upgrading HVAC infrastructure while retaining as much equipment as possible that can be renewed.

Objective 2.10.2: Evaluate best methods for on-going maintenance, staffing and outsourced support resources.

Objective 2.10.3: Develop plans for optimal delivery of chilled water, heating water and other utility services that can provide the greatest return on investment with the longest life cycle possible. This evaluation will include the use of district delivery; individual building dedicated equipment; or a combination of both.

Objective 2.10.4: Repair and or replace all critical HVAC equipment as funds are available in order to achieve energy reduction goals.

Objective 2.10.5: Develop commissioning practices for SAU Tech staff in conjunction without outsourced commissioning consultants.

Strategy 2.11: Hot Water System(s). Evaluate the domestic hot water use and needs in all College owned facilities.

Objective 2.11.1: Insulate all domestic hot water tanks where applicable.

Objective 2.11.2: Evaluate use of Solar Thermal or Solar Photovoltaic for domestic hot water production.

Objective 2.11.3: Connect domestic hot water equipment controls to the network facility management computer for campus control and monitoring.

Strategy 2.12: Building Envelope. Evaluate all building envelope issues with specific attention to roofs, windows and building penetrations.

Objective 2.12.1: Audit all SAU Tech owned facilities and assess the life cycle of existing buildings. In addition, the Energy Team will encourage the use of green, sustainable materials for all new facilities built on campus.

Objective 2.12.2: Evaluate the cost of facility renewal compared to the cost of replacement in all College owned facilities.

Strategy 2.13: Water Conservation. Evaluate all funding and conservation possibilities to meet the water conservation goals of **Act 1494.**

Objective 2.13.1: Assess existing water distribution points including irrigation, cooling towers, kitchen and bathroom facilities.

Objective 2.13.2: Develop an implementation plan.

Objective 2.13.3: Establish a measurement and verification plan for each improvement.

Goal 3: Integrate energy use considerations into maintenance plans.

Strategy 3.1: Enhance preventive and routine maintenance procedures to maximize energy efficiency.

Objective 3.1.1: Evaluate all utility distribution equipment or energy consuming equipment critical to campus operations under a retro-commissioning study. This study will include the frequency and methods of maintenance service.

Objective 3.1.2: Document and archive maintenance procedures.

Strategy 3.2: Integrate energy considerations into cleaning / janitorial activities.

Objective 3.2.1: Evaluate cleaning methods and frequency.

Objective 3.2.2: Encourage use of green materials for all cleaning products.

Objective 3.2.3: Evaluate clean schedules to encourage minimal building conditioning in occupied mode.

Strategy 3.3: Evaluate high efficiency replacements for energy consuming devices.

Objective 3.3.1: Inventory all potential energy consuming devices and categorize by criticality to campus operations. Evaluate replacement availability with higher efficiency rated components.

Objective 3.3.2: Use Energy Star rating systems when applicable.

Goal 4: Integrate energy use considerations into capital improvement plans.

Strategy 4.1: Evaluate all possible funding methods to encourage facility renewal.

Objective 4.1.1: Evaluate capital lease purchase, bond issuance, and energy savings performance contracting procurement options and compare pro forma documents.

Strategy 4.2: Incorporate energy efficiency into all renovations and new construction projects.

Objective 4.2.1: Design all new major facilities or major renovations projects to meet the legislative requirements.

Objective 4.2.2: Provide details for building growth and expected renovation projects over the next 5 years that fall under the guidelines of **Act 1494 of 2009.**

Objective 4.2.3: Use all possible energy rebate grants and revolving loan funds to facilitate necessary modifications.

Strategy 4.3: Water systems in new construction projects shall be designed and constructed to use at least twenty percent (20%) less potable water as per Act 1494.

Goal 5: Promote StEP Timeline:

Strategy 5.1: Develop a timeline for implementation of the StEP that is within a realistic time frame.

Objective 5.1.1: Prepare policies, standards and technical guidelines to ensure compliance with Act 1494.

Objective 5.1.2: Develop an audit process and life cycle analysis of critical equipment.

Objective 5.1.3: Develop procedures for energy conservation.