Energy Conservation Management Plan

Campus Planning & Facilities

Energy Management Plan Purpose

The purpose of the UWG Energy Management Plan is to provide a safe and comfortable environment for learning while managing energy consumption in a cost-effective and environmentally sustainable manner. This Energy Management Plan will help the University achieve its goal of becoming the best comprehensive university in America – sought after as the best place to work, learn, and succeed!

UWG Facilities will comply with the Georgia Energy Challenge that establishes the energy management goal for State agencies in committing to reduce energy consumption by 15 percent in its facilities by 2020. For more information about the Georgia Energy Challenge, please visit the webpage located at http://www.georgiaenergychallenge.org/AboutUs.aspx.

Energy Management Plan

We will continue to report overall campus energy usage (total electrical and natural gas consumption) and rates to the Board of Regents annually as required by the Georgia Governor's Energy Challenge 2020.

The Georgia Board of Regents Sustainable Energy Management Plan defines UWG's Seasonal Temperature Guidelines and it is based on ASHRAE's standard 90.1 energy code (pg. 17, USG Sustainable Energy Management Plan, 2007). UWG Facilities understand the need to ensure the best Indoor Air Quality for our faculty, staff, and students and has developed the following recommendations for indoor air temperature set-points with the goal of moving the comfort level of building occupants to meet the most efficient heating or cooling set-point possible.

UWG Facilities recommends that a minimum Cooling temperature for a space shall be set at no less than 74°F; any space that remains comfortable for the occupants at 78°F shall remain at the set point to achieve energy savings.

UWG Facilities recommends that a maximum heating temperature for a space shall be set at no more than 72°F; any space that remains comfortable for the occupants at 68°F shall remain at that set point to achieve energy savings.

Buildings temperatures will be maintained at a minimum of 60°F and a maximum of 80°F during extended unoccupied periods to achieve energy savings. These periods include but

are not limited to Campus Closures, Holidays, and after-hour operations during otherwise occupied times.

Energy Efficient Equipment and Buildings

All new energy consuming equipment purchased must meet or exceed the following guidelines:

- ASHRAE/USGBC/IESNA Standard 90.1 and 189
- Department of Energy's, Energy Star Compliance Requirements
- Georgia Peach Energy Standards Program Compliant

Facilities will consistently seek to increase the efficiency of the Building Envelope (Roof, Windows, Insulation, etc.) through routine maintenance and through Major Renovation and Repair (MRR) projects including but not limited to the following:

- Audit Energy Consumption of Campus Buildings
- Verify Accuracy of Utility Billing by consistent tracking measures
- Read and Record Campus Meters on a monthly basis
- Continue to install building Level sub-metering of all electrical, natural gas, and domestic water.
- UWG Facilities' campus standard for lighting on all new construction projects is LED energy efficient fixtures. Facilities will continue replacing existing campus interior and exterior lighting with LED fixtures.
- Give preference to installing heating and cooling equipment with the highest possible efficiency rating (eg. SEER, % efficiency) when replacing existing equipment

Energy Efficient Standard Operating Procedures

- Maintain daily and periodic changes to building schedules
- Monitor daily systems via Building Management Software systems
    - Automated Logic Controls Web Control Software
    - Siemens Apogee Insight Software
- Daily verify that campus HVAC systems are:
    - Operating at maximum efficiency
    - Operating according to occupancy schedules
    - Operating at correct temperatures
    - Operating on outdoor air reset for supply temperatures
- Make proper adjustments to space temperatures to balance occupant comfort with energy efficiency.
- Identify and repair improperly operating HVAC equipment.

Energy Conservation Tips for Building Occupants

- Please turn off lights when leaving room.
- Please keep all windows and doors closed.
- Please shut down or power down any equipment that is not being used for a prolonged period.
- Please remember that personal space heaters and electrically operated fans are not approved equipment as part of UWG's Energy Management Plan.

Energy Audit Plan Consumption of Campus Buildings

UWG Facilities will perform and Energy audit to measure the energy consumption of High Energy Use buildings. The energy audit will then be used to develop a mitigation plan for managing High Energy Use buildings.

Steps in the High Energy Use Mitigation plan for buildings include:
Step 1: Identification – Buildings with very high and/or increasing energy consumption, or buildings that appear to have higher energy consumption than similar buildings, will be noted, and energy consumption monitored in an energy log.
Step 2: Analyze – High energy use buildings will be subject to an energy audit completed by our campus energy manager to identify potential areas of unnecessarily high energy use. Upon identifying such a building an analysis will be done to identify the main contributors to this consumption in these building. The result will be noted in the energy log.
Step 3: Prioritize – The energy audit will prioritize a list of potential projects to improve energy efficiency and provide an estimate budget for the project. In the buildings identified as higher than average energy consumers, UWG Facilities will give a higher priority to funding these energy efficiency projects.
Step 4: Plan – If a fix to high-energy consumption building or piece of equipment is identified, and this fix requires significant resources, then this fix will have to be considered in the longer term planning of facilities management.
Step 5: Return on Investment – A return on investment analysis must be conducted on capital renewal projects to ensure the effective payback is reached in an effort to reduce energy consumption. The University recognizes that a capital renewal project must achieve an energy savings ROI of 5 years or less in order for the capital renewal project to become a priority. Return on investments that are longer should be considered during renovations and equipment replacement. The energy log should be consulted when renovations or large equipment purchases take place.

Water Conservation Management Plan

Campus Planning & Facilities

At the University of West Georgia, we recognize the need to manage our water usage and conserve this valuable natural resource whenever and wherever possible so that we provide a sustainable campus for both our current and future students, faculty, and staff.

As the first step in our plan in establishing a successful water management program, the University of West Georgia will select a team to develop a comprehensive strategic plan. The goals of the team in developing the comprehensive strategic plan will be:

1. Set specific water use reduction targets
2. Provide a written policy statement that ties water efficiency to the long-term operating objective of the facility or organization.
3. Obtain financial resources to track water use, maintain equipment, and implement cost-effective projects to reduce water usage.

The next step in our plan will be to continue to assess the current water use and costs.

1. We will continue to report overall campus water and sewage usage and rates to the Board of Regents annually as required by the Georgia Governor's Energy Challenge 2020 (GGEC 2020).
2. The GGEC 2020 established 2007 as a baseline year and allows us to measure our water usage per square foot at a total campus level to establish trends and seasonal patterns for water usage.

The next step in our plan will be to focus on sub-metering our campus at the building level in order to measure and audit our water usage per building. Obtaining water usage information at a building level will help us to develop a Water Balance where we assess the areas of high water usage or areas where the measurements and billing have discrepancies. This Water Balance exercise will help us focus on the following areas:

- Water leaks in distribution systems or equipment. (E.g., a water leak between the meter and the building)
- Inaccuracies in the engineering estimates used to determine equipment water use.
- Discover accounting errors causing discrepancies such as unit conversion problems or errors such as poorly calibrated water meters.

After completing the Water Balance evaluation, the next step is to assess water efficiency opportunities and economics.

We will investigate the following areas as suggested by the Federal Energy Management Program (https://www.energy.gov/eere/femp/developing-water-management-plan).

Based on the outcome of the water balance evaluation, our next step is to find ways to increase water efficiency and reduce water use. We will use the FEMP BMPs for water efficiency as a starting point to identify operations and maintenance, retrofit, and replacement options for:

- Distribution System Audits, Leak Detection, and Repair
- Water-Efficient Landscaping
- Water-Efficient Irrigation
- Toilets and Urinals
- Faucets and Showerheads
- Boiler and Steam Systems
- Single-Pass Cooling Equipment
- Cooling Tower Management
- Commercial Kitchen Equipment
- Laboratory and Medical Equipment
- Other Water-Intensive Processes
- Alternative Water Sources

After we identify the water efficiency opportunities, we will perform an economic analysis to determine if the projects are life cycle cost-effective. At the completion of this step we will have developed a five-year plan of projects that prioritize the water efficiency opportunities to be implemented as funding allows.

After these steps are completed, we will then develop an Implementation Plan. The goals of this plan once again area best expressed by FEMP.

- Assign teams to be responsible for implementation
- Prioritize projects based on targeted end uses
- Project a date for installing efficiency measures
- Project annual water use based on implemented efficiency projects
- Identify potential funding sources.

We will measure our progress by continuing to record and submit the data recorded to the Board of Regents. We will go beyond the GGEM 2020 guidelines and measure water usage at the building level as funding permits for the sub-metering at the building level.

We will develop policies to ensure that water conservation is part of the focus of new building design and construction by using the following features.

- Low flow faucets (< 1gpm)

- Low flow toilets and urinals (< 1.6gpm)
- Low flow showerheads (< 1.5gmp)
- Installing branch water valves to isolate and repair leaks more quickly
- Installing bottle filling water stations
- Utilizing well water for irrigation

Finally, we will plan for contingencies by developing water emergency and drought contingency plans describing how we will meet minimum water needs during emergencies, drought, or other water shortages.

PLAN APPROVED

_____ _____
Fred Ricketson, Director Date
Facilities & Grounds

_____ _____
Brendan Bowen, Associate Vice President Date
Campus Planning & Facilities

_____ _____
James R. Sutherland, Senior Vice President Date
Business & Finance

REVISION HISTORY

Final Version	3/2/18	Daniel McKinley