



Energy and Water Management Plan

Section 1: Instructions

[Texas Government Code §447.009](#) requires each state agency and institution of higher education to set and report percentage goals for reducing its usage of water, electricity, transportation fuel, and natural gas. Per [34 Tex. Admin. Code §19.14 \(2016\)](#), these goals must be included in a comprehensive energy and water management plan (EWMP) submitted every fiscal year to the State Energy Conservation Office (SECO) by **Oct. 31**. This requirement is intended to streamline and standardize the energy reporting requirements of state agencies and institutions of higher education.

Please complete Section 2: Agency Information and Section 3: Providing Agency or Section 4: Tenant Agency, as applicable, for **Fiscal Year 2021**. Save this form as "EWMP-Agency-FY2020.docx" and return this form by email to seco.reporting@cpa.texas.gov no later than **Oct. 31**.

Please visit the [SECO's Energy and Reporting website](#) for more information. For questions about reporting, please contact seco.reporting@cpa.texas.gov or call 844-519-5676.

Section 2: Agency Information

Please provide the name and number (if applicable) of the agency that is submitting an Energy and Water Management Plan.

Agency Name: Midwestern State University

Agency Number: 735

Please provide the contact information for the person(s) responsible for implementation of the recommendations in the plan and the contact information for the person(s) responsible for reporting and submitting the plan, if different.

Implementation Contact

Name: Kyle Owen

Title: Associate Vice President for Facilities Services

Email: kyle.owen@msutexas.edu

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Reporting/Submission Contact

Name: Kyle Owen

Title: Associate Vice President for Facilities Services

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Section 3: Providing Agency

Does your agency occupy or manage a state-owned building and pay the utilities?

Yes No

If NO, please skip to [Section 4: Tenant Agency](#).

If YES, please complete the following:

Have you submitted, or will you be submitting by October 31, FY 2021, energy and water usage data for your agency and properties using the [ENERGY STAR Portfolio Manager](#) tool?

Yes No

Progress Report

The Progress Report section must outline the progress of activities related to the implementation of projects from the previous Energy and Water Management Plan (if applicable), including continuation of or new preliminary energy audits, a summary of the results, utility efficiency and cost savings. Agencies should periodically conduct preliminary energy audits to identify new utility savings opportunities.

Midwestern State University (MSU) provided an energy management master plan to the LBB in November 2012 in compliance with Executive Order RP 49 and updated the plan in a submission to the LBB in October 2017. An update on recommendations from the 2017 report are as follows:

1. Construction projects for renovations in J.S. Bridwell 108 and the Daniel Building (now referred to as the Bridwell Activities Center) are incorporating modern energy code standards as part of these projects.
2. Continuing efforts to replace compact fluorescent bulbs with LEDs when they burn out:
 - a. D. L. Ligon Coliseum: Replaced 56 fluorescent fixtures with LEDs (rooms 111, 131, 201, 223).
 - a. Clark Student Center: Replaced 156 - 2'x4' fixtures with LED fixtures.
 - b. Fain Hall: Installed six LED fixtures.
 - a. Bolin: Replaced 56 fluorescent fixtures with LEDs (Rooms 209, 212, 213, 304, 312, 320).
3. A significant effort to begin replacing fluorescent bulbs in campus buildings was initiated in FY21. LED light fixtures were installed in ~60% of Prothro-Yeager-Beawood-O'Donohoe (\$98k), all of J.S. Bridwell Hall (\$75k), and the remaining portion of Moffett Library's first floor (\$50k).
4. Wichita Falls Museum of Art at MSU: MEP firm evaluated the HVAC systems to better understand potential improvements for indoor air quality and HVAC controls in the galleries, and reduce noise and energy use. Will be implementing these ideas over the next ~8 months.
5. As part of MSU's continued efforts to reduce energy costs, Ameresco conducted an equipment and energy audit of several campus buildings in September 2020 over a three day period and delivered their recommendations in December 2020. MSU's ongoing efforts over the last ~10 years to reduce energy costs has eliminated many of the traditional cost effective energy reduction options. Ameresco's highest recommendation was for LED lighting retrofitting in all campus buildings at a cost of \$3 million. The payback for the retrofitting was too long (20 years) so MSU is pursuing such replacements at a price we can afford of ~\$100k per year.

Energy savings results are as follows: For FY21 compared to FY20, MSU observed a 3.0% decrease in electricity usage, an 1.9% decrease in gas usage, and a 25.5% decrease in water usage. It is not known how much of the reductions were a result of energy savings efforts versus shutdowns related to Covid-19, although it is suspected the vast majority was a result of Covid-19 and less overall demand. FY21 compared to FY16, MSU observed a 6.6% increase in electricity usage, a 2.4% decrease in gas usage, and a 8.1% decrease in water usage. MSU had an increase of 18% in square footage between FY16 and FY21.

Goals

The Goals section must summarize the future goals for utility conservation. Pursuant to [Texas Government Code §447.009](#), each state agency and institution of higher education shall set percentage goals for reducing the agency's or institution's use of water, electricity, transportation fuels and natural gas. The percentage goal should state a target year and reference the target goal relative to a benchmark year.

Utility	Target Year	Benchmark Year	Percentage Goal
Water	FY2021	FY2016	1%/year
Electricity	FY2021	FY2021*	1%/year
Transportation Fuels		FY2016	1%/year
Natural Gas	FY2021	FY2016	1%/year

*[Texas Government Code Section 388.005\(c\) and \(f\)](#). Entities who began energy conservation tracking prior to September 1, 2007 or in attainment areas, may substitute their own electricity benchmark year.

Strategy for Achieving Goals

The Strategy section must describe how the agency or institution plans to prioritize and implement cost effective utility efficiency measures in order to meet the established utility conservation goals.

MSU has been active in pursuing energy reduction technologies and procedures for ~15 years including a SECO loan in 2011 to save gas and electrical energy, and replacement of natural grass athletic fields with artificial turf in 2015 to reduce water consumption. In the fall of 2019 and in response to Health and Safety Code Section 388.005C passed by the 86th Legislature, MSU updated the energy master plan which was included in last year’s submission. The consulting firm that developed the 2019 energy master plan determined the only financially feasible option for saving energy was to pursue LED light retrofitting (reference pages 4 and 5 of the master plan) at a cost of \$4.1 million. By retrofitting all campus lighting with LEDs, it is anticipated energy savings of 5.1% could be achieved. However, funding limitations restrict MSU’s ability to invest \$590k per year necessary to realize the 5.1% savings at the end of seven years. Instead, MSU plans to invest ~\$100k per year for the foreseeable future to retrofit lighting.

With the continued pursuit of energy reduction in mind, MSU requested an energy usage report from Ameresco which was delivered in December of 2020. Ameresco suggested LED lighting retrofits, upgrades to plumbing fixtures to low-flow technology, additional insulation for steam pipes, variable speed pumping for heating water hot water pumps, upgrades to fume hoods/fans for energy conservation, rehabilitation of cooling towers, replacement of an older boiler, and replacement of air handlers in two buildings (Hardin, Bolin) at a total of almost \$9 million with a twenty year payback. The payback is too

long so MSU is pursuing LED retrofits at a price we can afford of ~\$100k per year and fixing the aging concrete cooling tower in FY22.

While it is our goal and intent to reduce utility costs by 1% per year, the economically feasible opportunities to achieve this goal is extremely limited due to years of continued efforts to reduce costs and install more energy efficient systems.

Implementation Schedule

The Implementation Schedule section must outline a proposed timeline for implementing utility cost reduction measures and a strategy for monitoring utility savings of the installed utility measures.

MSU will continue efforts of retrofitting LED fixtures in two campus buildings in FY22: Moffett Library (second and third floors) and Prothro-Yeager-Beawood-O’Donohoe (second floor corridors and offices). Portions of buildings will have their lighting converted to LEDs each year for the foreseeable future.

Finance Strategy

The Finance Strategy section must describe how the agency or institution plans to obtain funding for the recommended utility cost reduction measures. This section should show the estimated cost of all projects and the funding sources to be used.

The cost of the lighting retrofit project for FY22 is \$123k and is being funded with HEAF funds. Future years will continue to use \$100k per year of HEAF to fund additional lighting retrofit efforts.

Transportation Fuel Consumption (if applicable)

*If your agency maintains one or more state-owned vehicles and **does not** report fuel usage via the [Texas Fleet System](#), document the total gallons of transportation fuel used by your facility and fleet vehicles below.*

Does your agency maintain one or more state-owned vehicles? Yes No

Does your agency report its fuel usage via the [Texas Fleet System](#)? Yes No No Vehicles

Transportation Fuel Type	Amount
Unleaded Gasoline*	
Diesel	
Bio-Diesel	
E85 (Flex Fuel)	
Compressed Natural Gas (CNG)	
Unleaded for Gas Hybrids	
Liquified Petroleum Gas (LPG)	
Ethanol	

*Do not include unleaded gasoline for gasoline hybrids

Employee Awareness Plan

The Employee Awareness Plan section must outline how the agency will make employees aware of utility cost reduction measures, both directly (affecting change in behavior) and indirectly (not designed to affect behavior).

New construction for the Bridwell Activities Center and the renovation of Bridwell 108 are including lighting control systems and motion sensors to reduce the use of electricity in these areas.

Section 4: Tenant Agency

Progress Report

The Progress Report section must outline the progress of the implementation of projects from the previous Energy and Water Management Plan or Resource Efficiency Plan (if applicable), including a summary of the results of the projects in terms of utility efficiency and cost savings.

Transportation Fuel Consumption (if applicable)

If your agency maintains one or more state-owned vehicles and **does not** report fuel usage via the [Texas Fleet System](#), document the total gallons of transportation fuel used by your facility and fleet vehicles below.

Does your agency maintain one or more state-owned vehicles? Yes No

Does your agency report its fuel usage via the [Texas Fleet System](#)? Yes No No Vehicles

Transportation Fuel Type	Amount
Unleaded Gasoline*	
Diesel	
Bio-Diesel	
E85 (Flex Fuel)	
Compressed Natural Gas (CNG)	
Unleaded for Gas Hybrids	
Liquified Petroleum Gas (LPG)	
Ethanol	

*Do not include unleaded gasoline for gasoline hybrids

Employee Awareness Plan

The Employee Awareness Plan section must outline how the agency will make employees aware of direct utility consumption. Plans might include employee training, signage or recognition programs.