



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 2020**. 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: Texas A&M University

Agency Number: 711

Other Agency's data in the report because of their location on the Texas A&M University campus include the following. This data has been historically reported with the College Station campus:

100% of Texas A&M Health Science Center (709) and the Brazos County constituents of the following: Texas A&M AgriLife Research (556), Texas A&M AgriLife Extension (555), Texas A&M Forest Service (576), Texas A&M Veterinary Medical Diagnostic Laboratory (557), Texas A&M Engineering Extension Service (716), Texas A&M Transportation Institute (727), Texas A&M Engineering Experiment Station (712), RELIS

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

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Title: Director for Utilities & Energy Services

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Reporting/Submission Contact

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Title: Director for Utilities & Energy 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 2020, 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.

Texas A&M monitors energy consumption on a routine basis and uses the Source Energy Use Index (EUI) (Total Energy Use / Total GSF) as an indicator of performance along with total energy consumption. The FY02 source EUI for the campus was 364 and for FY20 was 188 or a reduction of 48%. Similar success can be seen in the overall energy consumption as compared to campus size. The total energy consumption in FY02 was 6.74 million mmBtu to serve 18.5 million GSF and for FY20, the total energy consumption was 5.67 million Btu to serve a campus that is 30.2 million GSF in size. Even though the campus grew by 63%, the overall energy consumption was reduced by 16%. It is estimated that the avoided cost over this period is in excess of \$285 million.

Texas A&M has seen equally impressive results for water conservation and water use reduction efforts. In FY91, the campus used 3,462 million gallons of water annually with a campus size estimated to be 12.5 million GSF. In FY20, the campus used 1,759 million GSF for a campus size of 30.2 million GSF or a volume reduction of over 50% while the campus grew by 140%. Using the more recent FY02 baseline of 18.5 million GSF, the campus used 1,787 million gallons. In FY20, the campus size grew to 30.2 million GSF and consumed 1,759 million gallons of water for a relatively flat consumption profile while the campus grew by 63%.

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.

The 2018 Texas A&M University Sustainability Master plan calls for an EUI reduction of 192 in FY17 to 174 in FY28. The EUI reduction includes both natural gas and electricity so the target year, benchmark year and percentage goal for both is the same which is 9%. Is important to point out that when compared to the original baseline of FY02, the reduction percentage goal is an outstanding 50% for the 25-year performance period.

Water consumption has been dramatically reduced by 50% since FY91 while the campus grew by 140%. Additional water reduction is not likely with the continued campus growth.

Fleet fuel consumption has been down by about 9% due to the impact of COVID in FY20. For the two prior years, fuel consumption was down about 2%.

Utility	Target Year	Benchmark Year	Percentage Goal
Water	FY28	FY20	0%
Electricity	FY28	FY18	9%
Transportation Fuels	FY26	FY19	5%
Natural Gas	FY28	FY18	9%

*[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.

The most recent Utilities & Energy Services Master Plan was completed in 2017, which documented and justified \$47 million in production and major infrastructure capital improvements and replacements that are required over the next five years. The plan also focused on ensuring that the Building Automation Systems (BAS) in the campus buildings are up to date. There are some buildings on campus in which the BAS panels are older and no longer available which can lead to reliability issues. This project is currently in construction. The BAS is crucial in maintaining building environmental conditions and energy conservation.

In FY16, the University went operational with a chilled water optimization program. This program optimizes chiller performance and greatly reduces the pumping energy required by the campus by carefully monitoring the building loads and only moving the water required to meet load. With two campus chilled water loops that both exceed one million gallons, this has led to significant energy savings.

In addition to identifying opportunities to improve operating efficiency of building HVAC, BAS, and lighting systems, UES is evaluating opportunities to more precisely regulate the face velocity associated with over 1,000 fume hoods located on the Texas A&M University campus – to ensure safe operation with improved energy efficiency.

The University uses the EnergyCAP program to track all utility cost by building, by utility, and by customer across the College Station campus. In addition, the campus uses the Schneider PME system to make data from all meters across the campus available in real-time to provide feedback to technicians when making efficiency improvements.

The Energy Stewardship Program (ESP) continues to focus its Energy Stewardship team and other resources on Top 50 campus buildings, which consume 50% of the campus energy. This strategy allows a more detailed focus on identifying and correcting the issues to reduce overall energy consumption. While the other buildings will still be carefully managed, this more focused approach will lead to improved performance on a campus that exceeds 30 million GSF.

The Energy Performance Improvement (EPI) program operates in close coordination with departments from select buildings, and was designed to reduce energy consumption and avoid cost. In total, the four buildings in the pilot program combined to reduced utility cost by \$500,000 during the one year program. Based on the success of the pilot program, an expanded EPI Program was implemented in FY19. The Energy Performance Improvement (EPI) Program has two primary objectives: 1) Raise awareness and identify opportunities for improved efficiency and sustainability through engagement with facility occupants and stakeholders, 2) Implement energy system technical solutions, with occupant engagement and participation, to improve facility operating efficiency and reduce energy consumption and cost. EPI begins with getting ‘buy-in’ from department leadership for any modifications proposed in the facility, with participating departments incentivized by sharing in the cost avoidance achieved through energy consumption reduction. The next step is a meeting with occupants about the building’s energy consumption - to brainstorm and identify solutions for reducing unnecessary building consumption and cost. An essential aspect of the EPI Program is that initiatives are discussed and agreed upon up front, with any changes to building operation monitored closely to achieve positive results. As of September 30, 2020, the program included (9) buildings that have avoided over \$4.2 million in cost, or a total of \$2.4 million when program operating cost is deducted.

For fuel consumption reduction, the campus continues to work on “rightsizing” the fleet by working with departments to replace older vehicles and assist departments in finding replacement vehicles that not only fit the department’s needs but also have better fuel economy. It is recommend to replace the fleet with electric and hybrid vehicles when applicable. For FY21, the Transit operation will be replacing thirty-eight older 2001 and 2002 model transit buses with 35 new diesel buses and three all electric buses.

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.

All five ESCO projects implemented at the university have performed as expected. Texas A&M University has installed meters on all buildings over 5,000 GSF in size and monitors and records the energy and water consumed in these buildings. On a monthly basis, this consumption is compared to modeled consumption to find any deviations from the baseline. Furthermore, all campus consumption is billed to the E&G, auxiliary, or agency function housed in the space to ensure not only proper cost recovery but also to raise awareness of the cost to operate the facility and allow for needed tuning and adjustment.

The new buses will arrive in FY21 and fleet replacement is an on-going process.

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.

Texas A&M has leveraged the SECO loan program to implement many of the energy efficiency results in the buildings. To date, the University has leveraged five loans that total over \$29 million since January 2012. In addition, the University invests in production and distribution upgrades that are capitalized and recovered through utility rates that are charged to all campus agencies, auxiliaries and E&G functions.

For fleet purchases, the campus continues to utilize cooperative purchasing contracts and the TxSmartbuy to purchase vehicles. Outreach is also made to pursue grant opportunities to assist in the purchase of electric vehicles.

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*	274.86
Diesel	530.76
Bio-Diesel	0.00
E85 (Flex Fuel)	1.37
Compressed Natural Gas (CNG)	0.00
Unleaded for Gas Hybrids	0.6778
Liquified Petroleum Gas (LPG)	0.00
Ethanol	0.00

*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).

Texas A&M University has two programs that focus on Employee Awareness and Engagement. The first is the Energy Stewardship Program or ESP. ESP continues to focus its Energy Stewardship team and other resources on Top 50 campus buildings, which consume 50% of the campus energy. This strategy allows a more detailed focus on identifying and correcting the issues to reduce overall energy consumption. While the other buildings will still be carefully managed, this more focused approach will lead to improved performance on a campus that exceeds 30 million GSF.

The other program is the Energy Performance Improvement (EPI) program. Working in close coordination with departments from select buildings, the pilot program was designed to reduce energy consumption and avoid cost. In total, the four buildings in the pilot program combined to reduced utility cost by \$500,000 during the one year program. Based on the success of the pilot program, an expanded EPI Program was implemented in FY19. The Energy Performance Improvement (EPI) Program has two primary objectives: 1) Raise awareness and identify opportunities for improved efficiency and sustainability through engagement with facility occupants and stakeholders, 2) Implement energy system technical solutions, with occupant engagement and participation, to improve facility operating efficiency and reduce energy consumption and cost. EPI begins with getting ‘buy-in’ from department leadership for any modifications proposed in the facility, with participating departments incentivized by sharing in the cost avoidance achieved through energy consumption reduction. The next step is a meeting with occupants about the building’s energy consumption - to brainstorm and identify solutions for reducing unnecessary building consumption and cost. An essential aspect of the EPI Program is that initiatives are discussed and agreed upon up front, with any changes to building operation monitored closely to achieve positive results. As of September 30, 2020, the program included (9) buildings that have avoided over \$4.2 million in cost or a total of \$2.4 million when program operating cost are deducted.

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.

Does not apply

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*	click to enter use in kgal

Diesel	click to enter use in kgal
Bio-Diesel	click to enter use in kgal
E85 (Flex Fuel)	click to enter use in kgal
Compressed Natural Gas (CNG)	click to enter use in kgal
Unleaded for Gas Hybrids	click to enter use in kgal
Liquified Petroleum Gas (LPG)	click to enter use in kgal
Ethanol	click to enter use in kgal

*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.

[click to enter your agency's Employee Awareness Plan](#)