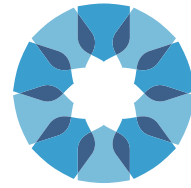


ENERGY EFFICIENCY FRAMEWORK

Maximizing classroom dollars by utilizing
energy efficiency best practices.



CCOSA

The Cooperative Council for
Oklahoma School Administration

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Disclaimer: Although CCOSA and OASA have taken reasonable steps to ensure that the information contained within this document is correct, you should be aware that the information contained within it may be incomplete, inaccurate, or may have become out of date. Therefore, CCOSA and OASA make no warranties or representations of any kind as to the content of this document or its accuracy, and accept no liability whatsoever for errors or omissions in it. Any person or entity that makes use of this document does so at their own risk, and it is recommended that they seek professional advice from their own advisor whenever appropriate.

FOREWORD

April 2020

Message to CCOSA Members:

For over a decade, Oklahoma public schools faced budget shortfalls and constant scrutiny centered around school budgets. During that time, several school leaders searched for innovative ways to save money in order to avoid having to reduce staff and services to students. Now, more than ever, is the time to look at ways to save money. School leaders recognize that utility costs are usually the school's second-largest expense, trailing only salaries. By implementing energy-saving practices and investing in energy-saving equipment, these schools have saved hundreds of thousands of dollars, which has helped them weather financial uncertainties.

CCOSA is proud to represent these school leaders and sees it as a responsibility to develop Quality School Frameworks that will guide all Oklahoma schools in implementing best practices that will benefit students. This CCOSA Energy Efficiency Framework is the second Framework, following the successful launch of the CCOSA Blended Learning Framework.

The following principles reflect CCOSA's stance on energy efficiency:

- Public school leaders must be stewards of taxpayer dollars and should implement strategies that maximize dollars spent on student learning.
- CCOSA believes that one of the best ways to maximize dollars for students and the classroom is by eliminating unnecessary dollars spent on electricity, natural gas, and water.
- All programs at schools must be led by a trained Energy Manager and can be a learning experience for students; therefore, students should be involved in implementing energy efficiency measures in their local schools.

This document would not be possible without the innovative school leaders who have found creative ways to save money during years of unprecedented cuts to education. Strategic partners such as the Oklahoma School Plant Manager Association (OSPMA), OG&E, PSO, and CLEARResult have worked with schools during these challenging times to improve and build upon the cost-saving practices cited in this Efficiency Framework. Their contributions were vital in the construction of this Framework.

On behalf of CCOSA, OG&E, CLEARResult, and the entire committee, we hope that this Framework will be a consistent tool that is utilized by every school in the state to make Oklahoma's public schools the most energy-efficient institutions in the state of Oklahoma!

Dr. Pam Deering,
CCOSA Executive Director

STRATEGIC INITIATIVE

CCOSA ENERGY EFFICIENCY FRAMEWORK



Mission

To provide public schools with a framework to guide them in the development and implementation of an energy efficiency plan that is educational and sustainable.



Vision

All Oklahoma public schools will experience energy efficiency savings that will maximize educational dollars for student learning.



STRATEGIC INITIATIVE

DISTINGUISHING CHARACTERISTICS AND DEFINITIONS

CCOSA believes students deserve the highest quality instruction available. High-quality instruction requires adequate resources. Application of the principles of the CCOSA Energy Efficiency Framework frees up money to provide needed classroom resources. The following distinguishing characteristics outline the key areas that differentiate the CCOSA Energy Efficiency Framework from other energy efficiency programs:

- ③ Energy efficiency guidelines are designed specifically to meet the needs of all sizes of Oklahoma public schools.
- ③ Energy efficiency measures in electricity, natural gas, and water will maximize school savings.
- ③ Documentation process demonstrates how savings translate to increased classroom spending.
- ③ It incorporates an educational component, not only for staff but also for students, as they become part of the energy-saving solution for their school.
- ③ It is developed by Oklahoma schools with proven results for operating in a highly energy-efficient manner, without negatively affecting the classroom learning environment.

Definitions

- ③ **Benchmarking**—The practice of comparing the measured performance of a device, process, facility, or organization to itself, its peers, or established norms, with the goal of informing and motivating performance improvement.
- ③ **Cost avoidance**—The actual cost savings measure when variables that affect savings such as student occupancy, square footage, outside temperatures, etc. are figured into the measurement.
- ③ **Energy conservation**—The process(es) and/or behavior(s) that result(s) in the use of less energy.
- ③ **Energy efficiency**—The use of technology that requires less energy to perform the same function.
- ③ **Energy Manager**—A person who communicates, monitors, and manages the energy efficiency of a facility or organization by implementing conservation measures, monitoring energy consumption, assessing business decisions for sustainability, and seeking out opportunities for increasing energy efficiency.
- ③ **ESCO**—Energy Services Companies are fee-based or energy savings-sharing companies that will work with schools on implementation of energy efficiency efforts.
- ③ **Greenhouse gases (GHG)**—Gases that trap heat in the atmosphere making the planet warmer.
- ③ **Indoor Environmental Quality (IEQ)**—The quality of a building's environment in relation to the health and wellbeing of those who occupy space within it. IEQ is determined by many factors, including lighting, air quality, and damp conditions.
- ③ **Net Zero/Net Positive**—The concept of designing educational buildings that generate as much energy as they consume.
- ③ **Plug loads**—Energy used by equipment that is usually plugged into an outlet.
- ③ **Portfolio manager**—A tool that an organization can use to measure and track energy and water consumption, as well as GHG emissions to benchmark the performance of one building or a whole portfolio of buildings.
- ③ **ROI**—Return on investment is a ratio between net profit (over a period of time) and cost of investment (resulting from an investment of some resources at a point in time).
- ③ **Standby power (phantom load)**—The electrical energy that is used by devices even when they appear to be turned off.



STRATEGIC INITIATIVE

SAMPLE GOVERNING POLICY

ENERGY MANAGEMENT EFFICIENCY POLICY

_____ Public School recognizes the importance of being good stewards of taxpayer dollars. It is everyone's responsibility to make energy efficiency a vital part of the sound financial management of the school.

This responsibility for full implementation of this policy involves all stakeholders, including the board members, administrators, staff, students, and patrons, and its primary purpose is to maximize district dollars for classroom use.

The district will collect and maintain accurate records of energy consumption and cost in the areas including, but not limited to: electricity, natural gas, and water. The district will provide accurate information on the progress of the program to the board and patrons on a regular basis.

The district will appoint an Energy Manager to work with all staff to ensure accountability and sustainability of the program.

The following general areas of emphasis will be adopted:

1. All district personnel will contribute to the energy efficiency program.
2. Energy efficiency program implementation may be considered as a part of the district and site administrator evaluations.
3. The Energy Manager, with the input of all stakeholders, will develop Energy Efficiency Guidelines that identify the role of all stakeholders at the school.
4. Staff and students will be kept comfortable, with the goal that the majority of savings will be obtained when the buildings are unoccupied.
5. A preventative maintenance plan to monitor all facilities' HVAC, building envelope, and moisture management will be developed.

The Energy Manager will involve staff, patrons, and students in the development and full implementation of the Energy Efficiency Plan.



STRATEGIC INITIATIVE

REASONS TO CONSIDER ENERGY MANAGEMENT

- ④ Public schools throughout the United States have experienced financial hardship due to static or declining state revenues (Oliff, Mai, & Leachman, 2012).
- ④ Declines in state revenues may be a continual cycle, and these declines in revenue adversely affect public schools.
- ④ Oklahoma public schools, since 2001, have had to deal with state budget shortfalls and unknown state allocations.
- ④ Due to the turbulence and fluctuation of state budgets, sound funding, competent budgeting practices, and good organizational management remain vital in operating a school system (Maguad, 2007).
- ④ To help stabilize budgets, utilities comprise an expense that public schools should take into consideration.
- ④ According to the United States Environmental Protection Agency (EPA), in most U.S. school districts, the cost of energy consumption remain second only to salaries.
- ④ The United States Department of Energy (DOE) notes that a typical school district will spend \$400,000 annually on utility bills, while those in large metropolitan areas may spend \$20 million or more.
- ④ The DOE states that although energy costs can be high, they represent an expense a school can actually control.
- ④ Since a substantial amount of a school's operating budget is earmarked for utility costs, administrators may need to ensure their schools are using energy in a conservative and efficient manner.
- ④ Energy management is a trusted and relied upon cost containment strategy.
- ④ The EPA notes that public schools can reduce their energy use by 20–30% with a variety of behavioral and operational strategies.
- ④ Findings from the DOE and ENERGY STAR® data suggest potential savings could be greater than 30%.
- ④ Several districts in Oklahoma have accomplished these results by becoming more energy efficient through policy development, operational and behavioral strategies, retrofitting existing schools with energy-efficient technologies (LED lighting, HVAC energy management systems, etc.), and constructing new energy-efficient school facilities.
- ④ Schools must demonstrate good stewardship over state allocations and natural resources.

Source: Used with permission from Myers, J. (2019, January). Launching and Sustaining an Energy Conservation Program. District Administrator.



DESIGN



Step 1: Energy Efficiency Awareness Training for Stakeholders



Step 2: Energy Manager and Energy Efficiency Team Selection



Step 3: Energy Efficiency Audit and Action Plan/ Policies



Step 4: Identification of Free or Low-Cost Energy Efficiency Strategies and Energy Efficiency Investments

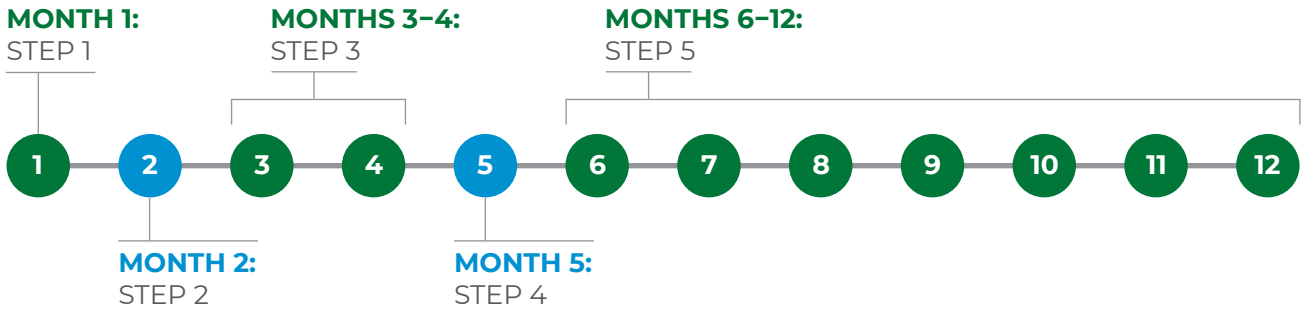


Step 5: Measuring Success (Quality Rubric)



EXAMPLE TIMELINE

COMMUNICATIONS AND ENGAGEMENTS EVENTS



PROGRAM CALENDAR

START:	Energy Efficiency (EE) training
Month 1:	Energy Management Efficiency Policy Development (STEP 1) EE Awareness Training for Stakeholders
Month 2:	(STEP 2) Selection of Energy Manager and Energy Team
Months 3-4:	(STEP 3) EE Audit and Action Plan Development a) Benchmarking data collection and goal setting b) Energy Manager plan responsibilities c) Reporting and communicating d) Guidelines and expectations of Building Leaders
Month 5:	(STEP 4) Identification of Projects
Months 6-12:	Complete projects Measure results Celebration (STEP 5) Measuring Success (Quality Rubrics)
Month 12:	Review previous year Update plan



STEP 1: ENERGY EFFICIENCY AWARENESS TRAINING FOR STAKEHOLDERS

Energy-efficient practices are the responsibility of everyone associated with a public school. Administration, staff, board of education, patrons, parents, and students all have a role. For this Framework to be successful in a school, all of these stakeholders must be aware of the need for and know their role in energy conservation.

Administration – Administrators are tasked to lead, enact, and manage change. When administrators really value energy-efficient practices, they will designate people to make the practices a priority.

Staff – Staff members are truly the key to realizing the full potential of the Energy Efficiency Framework. Making staff aware of the need, involving them in best practices, and encouraging them to include students comprises one of the most vital components of energy efficiency success.

Board of Education – One cannot underestimate the importance of the role of the Board of Education in the Framework. Their role is more than just in adopting a policy. If the board is educated about the energy program and sees results through regular reports, then the program has a greater opportunity to be sustained for many years as administrators and staff come and go.

Patrons – Everyone in the community supports their public school by paying their tax dollars, attending events or providing services. It is vital that patrons learn about the energy-saving efforts and how the savings can benefit students. When patrons are informed, the program has a better chance of being sustained. Moreover, helping the community understand this value leads to greater confidence in the energy-saving measures and helps to build trust in the district's research and results, providing a return on investment.

Parents – Parents have the same role as patrons, but that role is elevated when their own children are affected. Parents who are educated about the school's energy-saving efforts will be more likely to encourage their children to fulfill their role in saving energy as students at the school.

Students – The most important stakeholders in the school are the students. A student's role is to learn the importance of energy conservation, not only for their school's cost savings, but also for their own benefit in the future. They are future citizens who must sustain these efforts for years to come.

For a comprehensive student energy team program, visit need.org/curriculum.

Read about an example program out of Oregon here:

oregongreenschools.org/wpcontent/uploads/2011/09/blueprintschoolenergyteamfinal4_1_102.pdf

The following article is written by committee member Dr. Jon Myers for District Administrator Magazine: "Launching and Sustaining an Energy Conservation Program."

districtadministration.com/launching-and-sustaining-an-energy-conservation-program.



ITEMS TO DISCUSS AND FOCUS ON DURING INITIAL STAGES OF ENERGY EFFICIENCY IMPLEMENTATION, INCLUDING SOME BEST PRACTICES

Focus on the low hanging fruit. These are the tasks that can be implemented easily to start generating monetary savings through energy conservation. Also, these quick wins build momentum and faster engagement.

Examples of low hanging fruit:

- ④ Focus on times of day when classrooms and facilities may be unoccupied. These times are usually late afternoon through early mornings, weekends, holidays, and extended breaks (Fall, Thanksgiving, Winter, Spring, and Summer).
- ④ Ensure proper setback daily of HVAC, lights, and computer equipment. This includes turning thermostats up or down according to the weather to save energy.
- ④ Ensure proper setback during extended breaks of HVAC, lights, computer equipment, personal mini-fridges, and all other non-necessary appliances/equipment.
- ④ During occupied times, look for opportunities to lower energy waste. This may include closing windows and doors when HVAC is running, fixing HVAC settings out of compliance, ensuring gym lights are turned off during non-use, and so on.
- ④ Ensure outside security lights are programmed correctly.



- ④ Policy alone is not enough. Employees are more willing to assist an energy efficiency program if they know their actions are helping the district save money, successful energy efficiency programs are communicated on a regular basis, and the programs are monitored for compliance. For more on this, see Dr. Myers' article "Launching and Sustaining an Energy Conservation Program." districtadministration.com/launching-and-sustaining-an-energy-conservation-program
- ④ An effective Energy Manager is a vital component to any energy efficiency program.





STEP 2: ENERGY MANAGER AND ENERGY EFFICIENCY TEAM SELECTION

Once all stakeholders are educated on the vocabulary and benefits of developing an energy efficiency plan, the next step is to select a district Energy Manager. This staff person does not have to be a facility support person. **Depending on school size, the position could be stipend-based or a full-time position. If it is a stipend-based position, the stipend should compare with the highest stipends paid in the district. The right Energy Manager can more than pay their stipend in energy bill savings.** Basic expectations for an Energy Manager include:

- ➔ Great people skills
- ➔ An interest and/or passion for energy conservation
- ➔ Computer skills
- ➔ Flexibility of time and physical ability to complete the requirements of the role

The Energy Manager's first priority should be to form a team of key individuals to assist him/her in the development and implementation of a unique district plan.

Team members should include, but not be limited to: a building administrator from each site, a facility staff member, a teacher or staff member from each site, and a student from each site.

See Appendix B for Energy Manager Job Description.



DESIGN

STEP 3: ENERGY EFFICIENCY AUDIT AND ACTION PLAN/POLICIES

Every school will be unique in its makeup and needs regarding an action plan. A common need for all schools is a comprehensive audit of all the facilities. CCOSA and the OSSBA have developed a Building Assessment Tool (BAT) in conjunction with the 2019 For the People – Vision for Oklahoma Education.

The BAT was designed by architects and will allow school staff to build a report that gives vital information about the building envelopes, roofing systems, HVAC units, water meters and shutoffs, gas meters and shutoffs, lighting, and electrical panels and shutoffs. All of this information is important in the development of the action plan and for future construction or renovation. Access the BAT here:

[ousurvey.qualtrics.com/jfe/form/SV_88iIKQdRYeWa4vj](https://survey.qualtrics.com/jfe/form/SV_88iIKQdRYeWa4vj).

Once the BAT is complete, the Energy Manager can perform the energy audit. This can be done with the assistance of an energy service company or energy management company (a cost may be associated), or school staff can use the tools and references provided in this framework.

SOME COMMON ENERGY CONSULTING COMPANIES USED BY OKLAHOMA SCHOOLS:

- ➔ **CLEARResult:** provides free consultation for schools whose electric service provider is OG&E. See clearResult.com.
- ➔ **Cenergistic:** fee-based. See cenergistic.com/who-benefits/k-12-districts.
- ➔ **Honeywell:** fee-based through sales of equipment. See honeywell.com.

Other DOE certified ESCOs can be found at:

energy.gov/eere/downloads/department-energy-qualified-list-energy-service-companies

For information about energy savings programs from these Oklahoma energy companies:

OG&E – oge.com/ceep

ONG – oklahomanaturalgas.com/rebate-programs/rebates

PSO – powerforwardwithpsoc.com/my-business



DESIGN

SAMPLE CHECKLIST



Initial Building Monitoring Survey

DATE:

TIME:

Classroom	Room #	Lights	Computer monitors	Printers	Personal Appliances	HVAC Units	Doors Closed	Windows Closed	Total ✓	Total x
Non-classroom	Room #	Lights	Computer monitors	Printers	Personal Appliances	HVAC Units	Doors Closed	Windows Closed	Total ✓	Total x

Time Codes:
 BS = Before School
 LR = Lunch/Recess
 AS = After School

Record Key:
 ✓ = off/positive energy use
 x = on with no people/negative energy use



DESIGN

ACTION PLAN

Once the audit is complete an action plan can be developed. This action plan should consist of four components:

1. Establish benchmark year data and savings goal.
2. Develop a short-term plan with guidelines for Energy Manager.
3. Develop guidelines for building leaders, staff, and students to follow and participate in the program.
4. Monitor and report energy consumption.

EXAMPLE BUILDING AUDIT WALK-THROUGH REPORT

Energy Conservation Report (Building Audit)

Building: High school

Date: 08/23/2019

Time: 4:30 p.m.

Building status and security: Unoccupied. The upstairs was secure. Exterior doors locked and secured.

Computers and Electrical Equipment: Unoccupied.

Lights – all other areas: Lights on as needed.

HVAC systems and settings: Operational and normal. Stats had accurate readings.

Overall comments and suggestions: 104–teacher monitor not shut off. 105–printer not shut off. 111–teacher monitor not shut off.

Keep up the good work.

Notes:

With the fluctuating weather, heating needs, and security concerns: Please keep the classroom doors closed for efficiency and safety. Consider turning off lights that are not essential.

Please be mindful of all extra energy usages.

The halls were clean and well-tended. The rooms looked good and clean.

Thank you for all that you do to save on energy costs in our district!

District Energy Manager



ESTABLISH BENCHMARK YEAR DATA AND SAVINGS GOAL

Benchmark data can be obtained by inputting prior year's monthly usage information from the school's electric, natural gas, and water bills into a monitoring software program. There are free and low-cost third-party software tools available for this input.

The gold standard practice endorsed by this Framework would involve inputting not only the usage figures, but also variables such as weather, building square footage, and occupancy loads. By taking these variables into consideration, a school can get a more accurate measure of the usage per square foot. These inputs will change as weather changes or as schools add onto the square footage of the buildings.

This cost avoidance measure is easily converted from usage per square foot to price per square foot, and is a more accurate measure to compare to the benchmark year than just for example comparing the price of one August electric bill to another.

See options for energy usage software in Appendix D.



A **savings goal** is essential and with proper implementation of the plan a true savings should be expected. The first year usually yields the greatest savings, but it is important to keep improving the practices so the school will see savings every year after.

A savings of 20% from the benchmark year (i.e., the year prior to the program start) is possible. A goal would be to maintain that savings, continue to build on it in future years, or reinvest it. Of course, goal setting (and achievement) varies based on several factors. Three key factors are:

1. The school's starting level for energy efficiency. What is your baseline? Where are you in the rubric (see STEP 5, page 22).
2. The effort applied each year to energy efficiency efforts.
3. The acceptance and speed of the "energy efficiency culture" through the district.



DESIGN

DEVELOP A SHORT-TERM PLAN WITH GUIDELINES FOR ENERGY MANAGER

Most of the expectations for the Energy Manager are listed in the job description and expectations. Every school can set their own, but a high-quality school will include the following expectations of their Energy Manager in their action plan:

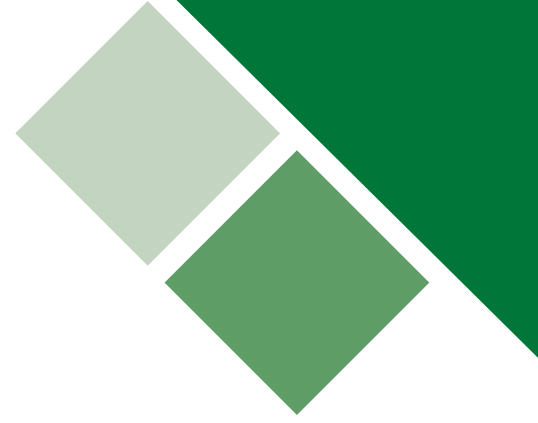
- ⊕ Prepare and communicate clear guidelines for student and staff.
- ⊕ Weekly walk-through checks of all buildings during or after school hours.
- ⊕ Reports and feedback as listed previously.
- ⊕ Monthly inputs of electric, natural gas, and water usage into monitoring software.
- ⊕ Monthly inputs of variables into monitoring software.
- ⊕ Intentional engagement of students in plan implementation and to address educational goals and objectives. See need.org for more on this.
- ⊕ Provide energy-saving advice and input in all district meetings involving facility usage, renovation, or construction.
- ⊕ Provide ROI retrofit information for administration consideration.

See FTG Staff Guideline Example in Appendix A.

Another sample energy audit walk-through checklist can be found at:

energy.gov/sites/prod/files/2014/06/f16/efficiency_energyauditchecklist.pdf.





GUIDELINES AND EXPECTATIONS OF BUILDING LEADERS, STAFF, AND STUDENTS

Building leaders must be accountable and hold staff accountable for the program to succeed. The energy savings program is designed to provide more resources to staff and the classrooms. The following are expectations of building leaders:

- ④ Superintendent should include energy management implementation progress in the building administrator goals and evaluations.
- ④ Building administrators will address with appropriate staff any issues noted in the weekly energy reports.
- ④ Building administrators should assist in reporting positive results to staff and public.
- ④ Staff and students must be active participants within the energy management plan.
- ④ Staff and students must assist in the adherence of the plan.



MONITORING AND REPORTING

Reporting results and **communicating** those results to stakeholders are vital to the success and sustainability of the plan. This reinforces the importance of the program and makes it a part of the school culture.

The following reports should be performed at a minimum:

- ④ Weekly feedback to staff on how their building is performing in the areas of turning off lights, faucets, and devices.
- ④ Periodic and seasonal setback or shutdown reminders to staff before school breaks or holidays.
- ④ Bi-yearly reports to the superintendent and board of education on cost-avoidance usage and savings.
- ④ Bi-yearly energy-saving progress reports to the public via print media and social media.



STEP 4: IDENTIFICATION OF FREE OR LOW-COST ENERGY EFFICIENCY STRATEGIES AND ENERGY EFFICIENCY INVESTMENTS

Long-Term Plan

1. Establish Net Zero (see definition of Net Zero in vocabulary) type considerations for future construction or renovation.
2. Set an energy-saving retrofit plan to be ready when money is available (via carry-over funds, bond issues, or energy grants). Utilize ROI figures to establish priorities on the retrofit schedule.
3. Utilize energy conservation educational resources to educate students to be energy-wise adults.

See Energy Efficiency Awareness Resources on page 10. For more on construction and renovation Net Zero considerations, see Stanfield, Kenny, AIA, LEED, AP, Learning By Design Summer 2018, page 16:

[pubs.royle.com/publication/?i=499402&p=&pn=#{\"issue_id\":499402.\"page\":18}](https://pubs.royle.com/publication/?i=499402&p=&pn=#{\)

Find an example of an ROI report for a lighting retrofit program in Appendix E.



DESIGN

STEP 5: MEASURING SUCCESS (QUALITY RUBRIC)

CCOSA believes in quality. The following rubric serve as guidelines for schools to plan for and evaluate the level of quality within their program. It is understood that most schools cannot reach the highest level in all areas due to financial constraints. This rubric serves as a guideline for schools to define quality areas and give realistic targets for schools.

- ➔ *See CCOSA Energy Efficiency Quality Rubric*
- ➔ *See Appendix F Reports on Savings Example*







CCOSA ENERGY EFFICIENCY FRAMEWORK QUALITY RUBRIC

	Gold 4 pts for each item checked	Silver 3 pts for each item checked	Bronze 2 pts for each item checked	Developing 1 pt for each item checked
Action Plan Preparation Check the highest-level measures from this row that apply to your school.	Gold <ul style="list-style-type: none"> Detailed audit of all facilities. School educates stakeholders on energy conservation. Energy Manager with strong people skills and appropriate stipend. School utilizes an energy consumption monitoring tool. School collects benchmark year data for electric, natural gas, and water usage. 	Silver <ul style="list-style-type: none"> Detailed audits of key buildings. School educates stakeholders on energy conservation. Energy Manager with small stipend. School utilizes an energy consumption monitoring tool. School collects benchmark year data for electric, natural gas, and water usage. 	Bronze <ul style="list-style-type: none"> General information of some buildings is available. School educates Energy Manager on energy conservation. Energy Manager is appointed. School tracks energy usage on bills. School compares current usage to last year's usage. 	Developing <ul style="list-style-type: none"> A staff member is knowledgeable about school facilities Energy conservation is being discussed. Energy Manager is being considered. Energy usage tracking method is in works. Current energy usage data is collected.
Action Plan Details Row Check the highest-level measures from this row that apply to your school.	Gold <ul style="list-style-type: none"> Energy Manager does weekly walk-through audits at each site. Elec., gas, and water consumption data is entered into monitoring tool monthly. Weather, occupancy, and sq. footage are entered into monitoring tool. Accountability measures are in place for administration and staff. Students have key roles in Action Plan. 	Silver <ul style="list-style-type: none"> Energy Manager does weekly after-hours walk-through audits at each site. Elec., gas, and water consumption data is entered into monitoring tool monthly. Weather, occupancy, and sq. footage are entered into monitoring tool. Administration and staff are given roles but no accountability measures in place. Students may participate in Action Plan. 	Bronze <ul style="list-style-type: none"> Energy Manager does periodic walk-through audits at each site. Either elec., gas, and/or water consumption data is monitored in some way monthly. Weather, occupancy, and sq. footage are not considered. Administration and staff are supportive of plan. Students are aware of Action Plan. 	Developing <ul style="list-style-type: none"> Periodic bid, inspection is done by site staff member. Elec., gas, and water consumption data is not currently monitored. Weather, occupancy, and sq. footage are not considered. Administration and staff are made aware of plan. Students are not aware of Action Plan
Action Plan Results and Sustainability Row Check the highest-level measures from this row that apply to your school.	Gold <ul style="list-style-type: none"> School maintains at least 5% cost avoidance savings from benchmark year. Energy Manager delivers weekly reports to Building Leaders, who in turn act on recommendations. Energy manager and superintendent presents at minimum bi-yearly progress reports to board and public. Energy Education is offered PK-12. Energy Manager is engaged in all district meetings involving facilities and construction. School invests in energy-saving equipment with ROI in mind. 	Silver <ul style="list-style-type: none"> School maintains cost avoidance savings from benchmark year. Energy Manager delivers weekly reports to building leaders. Energy Manager and superintendent presents yearly progress reports to board and public. Energy Education is offered occasionally. Energy Manager is engaged in many district mtgs involving facilities and construction. School invests in energy-saving measures but does not consider ROI. 	Bronze <ul style="list-style-type: none"> School sees some savings on bills in comparison to previous years. Energy Manager delivers occasional reports to building leaders. Superintendent presents yearly progress reports to board and public. Energy Education is not offered but is in plans. Energy Manager has some occasional input in facility decisions. School considers energy savings when purchasing equipment. 	Developing <ul style="list-style-type: none"> Energy bills are reviewed. Building leaders are periodically made aware of energy consumption in buildings. Superintendent occasionally informs board of energy issues. Energy Education is not offered. Energy Manager is not involved in facility decisions. School does not consider energy savings when making equipment purchases.

Rubric Scoring: Total the points from each column and add them together to get the final Framework score for your school (suggested goal from all four rubrics: Gold 58–64 points, Silver 42–57 points, Bronze 26–41 points, Developing 16–25 points)

INFORMATION

MORE HELPFUL LINKS

-  info.energycap.com/free-energy-management-tools
-  energystar.gov/buildings/facility-owners-and-managers/existing-buildings/use-portfolio-manager
-  need.org
-  need.org/Files/curriculum/guides/BlueprintSchoolEnergyTeam.pdf



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INFORMATION

OKLAHOMA SCHOOL INNOVATORS

The list below captures just a few school energy efficiency innovators in Oklahoma Public Schools who were instrumental in developing this Framework:

Mike Bryan

Energy Management Director at Midwest City – Del City Schools
mbryan@mid-del.net

Scott Farmer

Superintendent at Fort Gibson Public Schools
s_farmer@fortgibsonigers.org

Dr. Darrell Floyd

Superintendent at Enid Public Schools
dgfloyd@enidk12.org

Derald Glover

OASA Assistant Executive Director at CCOSA
glover@ccosa.org

Randy Harrell

Energy Management Director at Midwest City – Del City Schools
rharrell@mid-del.net

George Kunsman

Retired Energy Manager at Fort Gibson Public Schools
g_kunsman@fortgibsonigers.org

Dr. Jon Myers

Executive Director of Instruction and School Improvement at Noble Public Schools
jmyers@nobleps.com

Jerry Privett

Director of Safety and Energy Management at Norman Public Schools
jprivett@norman.k12.ok.us



INFORMATION

CCOSA ENERGY EFFICIENCY FRAMEWORK COMMITTEE

Roger Adair – Oklahoma Association of School Business Officials, Executive Director

Mike Bryan – Midwest City – Del City Public Schools, Executive Director of Operations

Randy Harrell – Midwest City – City Public Schools, Energy Manager

George Kunsman – Retired Fort Gibson Teacher and Energy Manager

Dr. Jon Myers – Noble Public Schools, Executive Director of Instruction and School Improvement

Dean Pollock – OG&E, Sr. Manager, Customer Programs and Support

Jerry Privett – Norman Public Schools, Director of Safety and Energy Management

Charles Womack – Oklahoma School Plant Management Association Executive Director



Dr. Pam Deering – CCOSA/OASA, Executive Director

Derald Glover – OASA, Assistant Director

Dr. Jeanene Barnett – CCOSA, Research and Policy Analyst

Will Parker – OASSP/OMLEA, Director

Dr. Gracie Branch – OAESP, Director

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CLEARResult®



APPENDIX A

SAMPLE ENERGY POLICIES/HANDBOOK/GUIDELINES

Energy Conservation Guidelines

Fort Gibson Public Schools

(Teachers, Administrators, Support Staff, Students)

May 2018

Responsibilities:

- Every person in the district is expected to be an “energy saver” as well as an “energy consumer.”
- The teacher is responsible for implementing the conservation guidelines during the time that he/she is present in the classroom or any of the school buildings.
- The principal is responsible for the total energy usage in his/her building.
- The custodian is responsible for control of common areas (i.e., halls), cafeteria areas, lounges, bathrooms, etc.
- Maintenance is responsible for maintaining equipment, energy conservation, and the safe operation of all building facilities.
- The school district is committed to and responsible for the maintenance of the learning environment for all students.
- The Energy Manager is responsible for performing routine audits for all facilities and reporting these findings to building administrators or maintenance. These reports will then also be communicated to all staff members.
- The Energy Manager will also be responsible for encouraging and promoting good energy conservation practices in the district.
- Students will be active participants in the district’s energy savings guidelines.

General:

- Exterior and classroom doors shall remain closed when HVAC units are operating. Ensure that doors between the conditioned space and non-conditioned space remain closed at all times (i.e., between hallways).
- All office equipment shall be switched off each night and during unoccupied times (servers, fax machines, and any other equipment may remain on as requested by the technology department).
- All computers should be turned off each night and during unoccupied times. This includes monitors, printers, speakers, etc.
- Personal computers should be set to sleep after 10 minutes of inactivity.

HVAC Equipment:

- Heating and air conditioning temperature settings will be preset according to district guidelines as follows:
- Occupied settings Heat: 68° F* AC: 75° F*
- Unoccupied settings Heat: 60° F AC: 85° F

**A three-degree adjustment may be made up or down at each thermostat during occupied settings only.*

- These settings may be adjusted on the EMS according to area concerns or weather conditions.



SAMPLE ENERGY POLICIES/HANDBOOK/GUIDELINES

- Occupied and unoccupied times will be determined by the building administrators and Energy Managers. This includes regular classroom times and any special activities or events.
- Summer schedules will be based on the needs of the summer maintenance and custodial cleaning crews.

Lighting:

- All unnecessary lighting in unoccupied areas will be turned off. Teachers should make certain that lights are turned off when leaving an unoccupied classroom or area. Utilize natural lighting when appropriate.
- Gym or cafeteria lights should not be left on when not being utilized.
- All lights will be turned off when students and teachers leave the school. Custodians will use lights only in areas in which they are working.
- Only use lights as needed. Lights not only use electricity but also create heat. This increases the time needed for AC units to reach desired temperatures in the classroom.
- All outside lighting should be on only as needed and only in areas as needed (after dark and before daylight).

SAMPLE MESSAGE TO STAFF FOR SHUTDOWN OVER BREAKS

How to Defrost Your Mini Fridge: Defrost Every Break!

When your mini fridge will be left unattended for long periods of time, like when moving out or on Thanksgiving, Winter or Spring breaks, your refrigerator will need to be defrosted. Plan on defrosting your fridge at least 24 hours before you leave. To defrost your mini fridge:

- Remove and discard any items inside.
- Unplug your fridge, prop open the door and place a towel or tray underneath it to absorb any water. You may also want to place a towel inside the fridge as moisture accumulates.
- Leave it overnight.
- The next morning, wipe down any excess moisture and dry towels, trays, or cloths you used in and around the fridge.

This is also a great time to clean the shelves, drawers, or racks your mini fridge may have. Never use harsh or abrasive cleaners inside your fridge; a hot water/baking soda mixture or warm, soapy water will do the trick. Rinse it with a clean rag or sponge, and dry.

An important note: ALWAYS make sure your fridge is dry before closing the door to avoid mold and bacteria! A moldy fridge is certainly not something you want to come back from break to.



SAMPLE ENERGY POLICIES/HANDBOOK/GUIDELINES

SAMPLE MESSAGE FOR STAFF DURING EXTREMELY COLD WEATHER EVENTS

Now that the weather has taken a turn, we need to keep a few things in mind.

1. Keep all doors closed. This is obvious for doors to the outside. However, your room also needs the door shut to be efficient. Your classroom door should be shut for your heater to work. If there is a door to an empty classroom or a connecting hall, please shut all doors to help with the heaters functioning properly.
2. Please unplug all extra electrical items every day. This includes Christmas lights, candle heaters, etc.



APPENDIX B

ENERGY MANAGER BASIC DUTIES AND JOB DESCRIPTION

Energy Manager Basics:

The role of an Energy Manager (EM) involves facilitating energy conservation by identifying and implementing various options for saving energy, leading awareness programs, and monitoring energy consumption. As such, EMs play a critical role in the successful implementation of energy conservation and demand management programs within the industry.

EM duties revolve around the identification, reporting and implementation of energy savings opportunities. For quick reference, the responsibilities identified in the EM Agreement are summarized below:

- Electrical energy-saving project implementation
- Energy tracking and monitoring
- Primary assessment
- Maintenance and operating schedules
- Energy savings opportunities and action plan
- Measurement and verification strategy
- Energy management behavior and business process improvements
- Employee awareness programs
- Reporting



ENERGY MANAGER BASIC DUTIES AND JOB DESCRIPTION

Job Title: Energy Manager

Job Classification:

Job Description

Supervisor: Superintendent and/or Operations Director

Contract Length: _____

Position is responsible for planning, implementing, operating, and monitoring of the school division's energy management program by setting of goals and strategies to save energy, conducting energy audits of the school division's buildings, and providing technical assistance to administrators at the building and central administration level. Serves as a key advisor to the administration and board on energy matters.

Position outlines energy-saving goals; applies analytical and evaluation methods to conduct energy studies, and provides equipment and operational recommendations; forecasts future energy costs; prepares reports on energy consumption and utility charges; and negotiates price structures with utility companies.

Position also establishes energy optimization protocols and programs/operates an intranet-based energy management system.

Essential Duties

- Plans, organizes, and implements the school division's energy management program, coordinating the energy awareness program, and the training of school division personnel.
- Establishes utility usage benchmarks for each school/facility; and outlines energy savings targets and objectives.
- Monitors energy usage against targets and benchmarks to identify school division facilities not meeting goals of the Energy Management Program.
- Conduct site visits and performs technical energy studies and audits of facilities to identify energy savings opportunities.
- Analyzes the infrastructure of the school division's facilities including: electrical, mechanical, HVAC, control, water, wastewater, envelope, solid waste, irrigation, and lighting systems; and recommends field improvement measures to equipment and components to minimize energy costs.
- Assesses operational characteristics of division facilities; determines areas in which energy conservation measures are needed; and establishes optimization protocols for the operational schedule of the division's energy systems (i.e., system shutdown, run schedules, and operation setback parameters).
- Programs, operates, and maintains the division's intranet-based central building automation system to provide remote service to division facilities; develops and maintains building HVAC system operating schedules; reviews and edits control programs to change set points; and performs emergency restarts as necessary (if automated system is available).
- Performs detailed control systems diagnostics for integrity of system operation, and troubleshoot malfunctions.



ENERGY MANAGER BASIC DUTIES AND JOB DESCRIPTION

- Compiles regular energy reports on the division's utility costs and consumption; and prepares periodic energy management performance updates.
- Evaluates historic and present energy consumption data; applies forecasting and analytical techniques to calculate and project future energy costs for budgeting purposes.
- Promotes a division-wide energy conservation program to increase awareness of energy use and abuse; and develops energy conservation education materials.
- Advises the mechanical, electrical, and HVAC trades on the proper operation of energy control systems, energy conservation methods/procedures, and recommended field improvement measures. Develops training programs for personnel to provide the special skills and techniques required to maintain mechanical, electrical, and HVAC equipment and control systems.
- Reviews specifications and drawings for construction and renovation projects; coordinates mechanical/electrical design and evaluates major equipment changes in buildings; and participates in final on-site inspections to ensure consistency with the division's energy management program.
- Maintains currency in local, state, and federal regulations pertaining to energy conservation; interprets applicable building and energy codes, regulations, and standards; and ensures that the division's energy management program is in compliance.
- Maintains accurate and complete energy management program and fiscal records.
- Negotiates price structures with utility company personnel and requests the installation/modification of utility services as needed.
- Researches new and innovative technologies/methodologies within the energy industry; monitors state/national energy policy trends; and makes appropriate recommendations.
- Maintains effective working relationships with vendors and contractors regarding technical support, warranty work, and system upgrades.
- Models non-discriminatory practices in all activities.
- Promotes the participation of faculty, students, and staff in analyzing, monitoring, and assisting in the development and implementation of energy conservation measures.

Other Duties

Performs any other related duties as assigned by the administration.

Job Specifications

To perform this job successfully, an individual must be able to perform each essential duty satisfactorily. The requirements listed below are representative of the knowledge, skill, and/or ability required. Reasonable accommodations may be made to enable individuals with disabilities, who are otherwise qualified, to perform the essential functions.

Minimum Qualifications

Most possess the ability to plan, promote, implement, and monitor the school division's energy management program. Must possess knowledge of building energy consuming systems, energy management methods, and practical energy efficiency principles. Must possess or be able to be trained in the knowledge of utility rate structuring; energy accounting and economics; and applicable building and energy codes, regulations, and standards (i.e., ASHRAE, the Energy



ENERGY MANAGER BASIC DUTIES AND JOB DESCRIPTION

Policy Act, etc.). Must be able to conduct thorough energy audits; interpret/analyze energy data; forecast future energy costs; establish energy usage optimization protocols; and recommend field improvement measures/conservation practices.

Must possess knowledge or be able to be trained on computer-based energy management control and monitoring systems, and must possess the skills and ability to program the systems and troubleshoot system malfunctions. Must possess excellent analytical, organizational, and communication skills. Must be able to establish and maintain effective working relationships with school administrators, staff, vendors, and utilities personnel.

Must be able to communicate in the English language with others in individual or group setting in person or by telephone. Must be able to produce written documents in the English language reflecting clearly organized thoughts using proper sentence construction, punctuation, and grammar. Must possess a valid driver's license with a good driving record.

Working Conditions & Physical Requirements

Must have the ability to stand for extended periods of time; exhibit manual dexterity to use equipment; see and read printed material with or without vision aids; speak in audible tones so that others may understand clearly; physical agility to lift and carry up to 30 pounds; to bend, stoop, to walk, and to reach overhead. Must possess the ability to establish and maintain effective working relationships with coworkers.

Work Environment

The work environment characteristics described here are representative of those an employee encounters while performing the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions. Duties are normally performed inside and outside. The noise level in the work environment is usually moderate.

Supervision Exercised: Assigned Staff

This job description in no way states or implies that these are the only duties to be performed by this employee. The Supervisor will be required to follow any other instructions and to perform any other related duties as assigned by the appropriate administrator. _____ Public Schools reserves the right to update, revise, or change this job description and related duties at any time.

Approvals:

Supervisor Name and Title

Date

I acknowledge that I have received a copy of this job description and understand the contents.

Employee Name (Print)

Signature

Date



APPENDIX C

GETTING TO KNOW YOUR UTILITY BILLS

Understanding Your Electric Bill:

Customer charge—The customer charge is the cost of providing, operating, and maintaining the required facilities dedicated to meeting the customer's energy needs. Both electric and gas companies have a customer charge. This charge is usually a fixed charge per customer per month. The customer charge exists for all accounts and is not affected by the amount of electricity or natural gas used.

Kilowatt hour (kWh)—A kilowatt hour is used as a billing unit for energy delivered to consumers by electric utilities. It is a measure of energy (watts) consumed at a constant rate over a period. If you consume 1,000 watts over 1 hour you have consumed 1 kWh. For example, if a 100-watt bulb is used for 10 hours, you will have consumed 1,000 watts of energy of 1 kWh.

Kilowatt (kW)—A kilowatt is a measurement of the amount of energy used at one time and is commonly referred to as customer demand. Larger industrial and commercial customers usually pay both a kWh and kW charge on their bills. The kW demand measures peak levels of power the electricity company must be able to generate and deliver to a facility at any given time. Because the power cannot be produced in advance and stored for the moment it is needed, the electric company must have adequate production facilities available to meet the maximum demand on its system whenever that occurs. This ability to produce a given output at any time influences the cost, which varies with the usage patterns. Determination of actual monthly demand that customers place on the electric company is based on a customer's usage during any 15-minute period.

Fuel cost adjustment—Electric customers pay for fuel (natural gas, oil, coal, wind, and solar) used to produce electricity. The monthly bill is increased for each kWh consumed by an amount computed to recover the cost of fuel to generate the electricity consumed. The fuel cost adjustment is an annualized cost of fuel and reflects the applicable seasonal differences. State statutes or regulations do not allow the electric company to mark up the cost of fuel to produce electricity.

Cost of gas (COG)—Cost of gas (referred to as customer fuel cost in Oklahoma) includes the cost the company pays for natural gas, as well as related storage and transportation costs. The COG may also contain other charges approved by the appropriate regulatory authority. State statutes or regulations do not allow the company to mark up the cost of gas.

Understanding Your Gas Bill:

CCF—The most common unit of measurement applied to natural gas usage, CCF is the reading of the amount of natural gas you have used within the month, measured by hundreds of cubic feet.

BTU—A British thermal unit is a measurement of energy that is used to calculate the amount of energy needed to raise the temperature of a pound of water 1° F.

Therm—A therm is the equivalent of 100,000 BTUs. Typically, this is the unit used to calculate the amount of energy used when determining your monthly charge for natural gas.

Price per therm—This is the rate you pay per therm, per your contract. This rate might vary due to time of year, supply, and other cost factors if you are on a variable-rate plan.

Natural gas is usually measured by volume and is stated in cubic feet. A cubic foot of gas is the amount of gas needed to fill a volume of one cubic foot under set conditions of pressure and temperature. To measure larger amounts of natural gas, a therm is used to denote 100 cubic feet, and mcf is used to denote 1,000 cubic feet.

The energy content of natural gas differs in various locations throughout the country. For the sake of comparison, one average cubic foot of natural gas about 1,000 BTUs of heat energy. The chart below shows how much heat energy is released in various quantities of natural gas.



GETTING TO KNOW YOUR UTILITY BILLS

Understanding Your Water Bill:

Different utilities use different units for measuring water use. The most common units are centum cubic feet (CCF) and the gallon. A CCF, also called an HCF (hundred cubic feet), represents one hundred cubic feet of water. This is the most common unit used by both water and natural gas utilities. But you may be more familiar with the other unit, the gallon. One CCF is equal to 748 gallons.

What does your usage mean? Approximately 6% of total water use in commercial and institutional facilities in the United States takes place in educational facilities, such as schools, universities, museums, and libraries. The largest uses of water in educational facilities are restrooms, landscaping, heating and cooling, and cafeteria kitchens.

Find tips on how to save water in your facilities here: [epa.gov/watersense/types-facilities](https://www.epa.gov/watersense/types-facilities).



APPENDIX D

ENERGY USAGE SOFTWARE TRACKING TOOLS

The following are just a few examples of websites and software providers to track energy usage and cost avoidance. Many more are available and Energy Managers should research the best options for their districts. Many have costs involved to install the software and some are free. Each district will have different needs and monetary resources to obtain the software needed to assess and validate their energy programs.

- **Energy CAP** (costs involved):
energycap.com/software
- **AssetWORKS** (costs involved):
assetworks.com/energy
- **Abraxas Energy Consulting** (costs involved):
abraxasenergy.com/articles/choosing-the-best-utility-bill-tracking-software/
- **ENERGYPRINT**:
energyprint.com/benchmarking-solutions/measurement-verification/
- **Utility Management Services** (costs involved):
utilityaccounting.com/category/faq-category/utility-manager-and-energy-center-software-products
- **Office of Energy Efficiency and Renewable Energy** (some free):
energy.gov/eere/amo/software-tools
- **ENERGY STAR** (some free):
energystar.gov/index.cfm?c=reps.pt_reps
- **Dude Solutions Energy Manager** (costs involved):
dudesolutions.com/portals/0/documents/DudeSolutions_Energy%20_Datasheet1.pdf
- **TCS Energy Management**:
tcs.com/energy-management-solution



APPENDIX E

RETURN ON INVESTMENT (ROI) INFORMATION

When deciding on whether and how to invest in an energy-saving project, a school district should take the following important steps to ensure that the limited resources are wisely managed. Implementing a structured evaluation of the options at hand and having a multidisciplinary team are critical in arriving at an informed decision. The factors to consider include economic criteria, occupant comfort, and safety. Since economic factors typically serve as the primary constraints for school districts, it is a good idea to start there. When evaluating the economic viability of a project, considering its ROI provides an important guiding principle. Below is a definition of ROI.

“Return on investment (ROI) is a ratio between net profit (over a period) and cost of investment (resulting from an investment of some resources at a point in time). A high ROI means the investment’s gains compare favorably to its cost. As a performance measure, ROI is used to evaluate the efficiency of an investment or to compare the efficiency of several different investments. In economic terms, it is one way of relating profits to capital invested.”

[wikipedia.org/wiki/Return_on_investment](https://www.wikipedia.org/wiki/Return_on_investment)

Put simply, will the energy efficiency gains from a project translate to the kinds of economic benefits that will be favorable compared to the initial investment and within a time frame that makes sense for the districts?

Often, incentives are offered to municipal institutions, such as schools, to help them decrease their initial investment and improve the ROI of an energy efficiency project. These incentives can be found at several levels, including federal, state, local utility, and philanthropic. Some helpful starting points for your search can be found here:

- The Database of State Incentives for Renewables and Efficiency: [dsireusa.org/](https://www.dsireusa.org/)
- The Oklahoma Corporation Commission: [occeweb.com/PU/GasAndElectricUtilities/puregelectric.htm](https://www.occeweb.com/PU/GasAndElectricUtilities/puregelectric.htm)
- ENERGY STAR: [energystar.gov/about/federal_tax_credits](https://www.energystar.gov/about/federal_tax_credits)

Once a district has navigated the applicable incentives for a project, here are some guides and tools to help determine the ROI of a project.

- A video from Khan Academy on return on capital, with an example of how special incentives should affect your financial decisions: [khanacademy.org/economics-finance-domain/ap-macroeconomics/ap-long-run-consequences-of-stabilization-policies/public-policy-and-economic-growth/v/return-on-capital](https://www.khanacademy.org/economics-finance-domain/ap-macroeconomics/ap-long-run-consequences-of-stabilization-policies/public-policy-and-economic-growth/v/return-on-capital)
- EPA calculators that help you determine the cash flow of an energy efficiency project: [energystar.gov/buildings/facility-owners-and-managers/existing-buildings/find-financing/calculate-returns-energy-efficiency](https://www.energystar.gov/buildings/facility-owners-and-managers/existing-buildings/find-financing/calculate-returns-energy-efficiency)
- If needed, energy.gov has some high level calculators from which you can get measure savings estimates to incorporate into the EPA calculators: [energy.gov/eere/femp/energy-and-cost-savings-calculators-energy-efficient-products](https://www.energy.gov/eere/femp/energy-and-cost-savings-calculators-energy-efficient-products)



RETURN ON INVESTMENT (ROI) INFORMATION

An ROI Example:

PUBLIC SCHOOLS UTILITY COMPANY EFFICIENCY AND EDUCATION PROGRAM COST AND INCENTIVES SHEET **EXAMPLE**

% CUSTOMER PAYS	\$0.16 Incentive	LED OPTION	Payback in Months
Administration			
	# of Fixtures	93 \$6,263.56 Cost of Project	
	kWh Saved	32,656 \$5,224.93 Utility_Incentive	
17%	Annual Saving	\$2,612.47 \$1,038.63 Project Balance	4.8
Softball Baseball DELETED			
	# of Fixtures	0 \$0.00 Cost of Project	
	kWh Saved	0 \$0.00 Utility_Incentive	
60%	Annual Saving	\$0.00 \$0.00 Project Balance	0.0
Cafeteria			
	# of Fixtures	154 \$9,427.10 Cost of Project	
	kWh Saved	48,155 \$7,704.87 Utility_Incentive	
18%	Annual Saving	\$3,852.43 \$1,722.23 Project Balance	5.4
Electrical Maintenance DELETED			
	# of Fixtures	0 \$0.00 Cost of Project	
	kWh Saved	0 \$0.00 Utility_Incentive	
29%	Annual Saving	\$0.00 \$0.00 Project Balance	0.0
Field House REDUCED BY POOL RM			
	# of Fixtures	206 \$12,948.50 Cost of Project	
	kWh Saved	32,337 \$5,173.87 Utility_Incentive	
60%	Annual Saving	\$2,586.94 \$7,774.63 Project Balance	36.1
Football and Bus Barn			
	# of Fixtures	146 \$8,471.15 Cost of Project	
	kWh Saved	24,361 \$3,897.72 Utility_Incentive	
54%	Annual Saving	\$1,948.86 \$4,573.43 Project Balance	28.2
GRDA Maintenance Building DELETED			
	# of Fixtures	0 \$0.00 Cost of Project	
	kWh Saved	0 \$0.00 Utility_Incentive	
24%	Annual Saving	\$0.00 \$0.00 Project Balance	0.0
High School Auditorium			
	# of Fixtures	12 \$766.20 Cost of Project	
	kWh Saved	4,141 \$662.53 Utility_Incentive	
14%	Annual Saving	\$331.27 \$103.67 Project Balance	3.8
Early Learning Center Kindergarten DELETED			
	# of Fixtures	0 \$0.00 Cost of Project	
	kWh Saved	0 \$0.00 Utility_Incentive	
68%	Annual Saving	\$0.00 \$0.00 Project Balance	0.0
Early Learning Center Main Building pp1-2			
	# of Fixtures	471 \$31,131.65 Cost of Project	
	kWh Saved	143,140 \$22,902.48 Utility_Incentive	
26%	Annual Saving	\$11,451.24 \$8,229.17 Project Balance	8.6
Middle School & Annex			
	# of Fixtures	115 \$7,393.71 Cost of Project	
	kWh Saved	28,117 \$4,498.74 Utility_Incentive	
39%	Annual Saving	\$2,249.37 \$2,894.97 Project Balance	15.4
North Education East Building REDUCED rms 100, 101, 103			
	# of Fixtures	324 \$20,211.55 Cost of Project	
	kWh Saved	42,298 \$6,767.73 Utility_Incentive	
67%	Annual Saving	\$3,383.87 \$13,443.82 Project Balance	47.7
North Education West Building			
	# of Fixtures	411 \$24,444.35 Cost of Project	
	kWh Saved	113,038 \$18,086.03 Utility_Incentive	
26%	Annual Saving	\$9,043.01 \$6,358.32 Project Balance	8.4
Vo Ag			
	# of Fixtures	67 \$4,141.55 Cost of Project	
	kWh Saved	20,368 \$3,258.91 Utility_Incentive	
21%	Annual Saving	\$1,629.44 \$882.64 Project Balance	6.5
Total Retrofit Project			
	# of Fixtures	1,999 \$125,199.32 Cost of Project	
	kWh Saved	488,611 \$78,177.81 Utility_Incentive	
38%	Annual Saving	\$39,088.89 \$47,021.51 Project Balance	14.4



RETURN ON INVESTMENT (ROI) INFORMATION

An ROI Example:

PUBLIC SCHOOLS UTILITY COMPANY EFFICIENCY AND EDUCATION PROGRAM COST AND INCENTIVES SHEET **EXAMPLE**

% CUSTOMER PAYS	\$0.16 Incentive	FLUORESCENT OPTION		Payback in Months
Administration				
	# of Fixtures	93	\$5,107.65 Cost of Project	
	kWh Saved	25,793	\$4,126.93 Utility Incentive	
19%	Annual Savings	\$2,063.44	\$980.72 Project Balance	5.7
Softball Baseball DELETED				
	# of Fixtures	0	\$0.00 Cost of Project	
	kWh Saved	0	\$0.00 Utility Incentive	
62%	Annual Savings	\$0.00	\$0.00 Project Balance	0.0
Cafeteria				
	# of Fixtures	154	\$8,593.93 Cost of Project	
	kWh Saved	36,475	\$5,835.92 Utility Incentive	
32%	Annual Savings	\$2,917.96	\$2,758.01 Project Balance	11.3
Electrical Maintenance DELETED				
	# of Fixtures	0	\$0.00 Cost of Project	
	kWh Saved	0	\$0.00 Utility Incentive	
33%	Annual Savings	\$0.00	\$0.00 Project Balance	0.0
Field House				
	# of Fixtures	206	\$11,253.70 Cost of Project	
	kWh Saved	25,747	\$4,119.53 Utility Incentive	
63%	Annual Savings	\$2,059.76	\$7,134.17 Project Balance	41.6
Football and Bus Barn				
	# of Fixtures	0	\$0.00 Cost of Project	
	kWh Saved	0	\$0.00 Utility Incentive	
61%	Annual Savings	\$0.00	\$0.00 Project Balance	0.0
GRDA Maintenance Building DELETED				
	# of Fixtures	0	\$0.00 Cost of Project	
	kWh Saved	0	\$0.00 Utility Incentive	
25%	Annual Savings	\$0.00	\$0.00 Project Balance	0.0
High School Auditorium				
	# of Fixtures	12	\$662.40 Cost of Project	
	kWh Saved	3,850	\$616.04 Utility Incentive	
7%	Annual Savings	\$308.02	\$46.36 Project Balance	1.8
Early Learning Center Kindergarten				
	# of Fixtures	122	\$8,904.20 Cost of Project	
	kWh Saved	16,896	\$2,703. Utility Incentive	
70%	Annual Savings	\$1,351.71	\$6,200.79 Project Balance	55.0
Early Learning Center Main Building pp1-2				
	# of Fixtures	471	\$25,773.70 Cost of Project	
	kWh Saved	118,544	\$18,966.99 Utility Incentive	
26%	Annual Savings	\$9,483.49	\$6,806.71 Project Balance	8.6
Middle School and Annex				
	# of Fixtures	115	\$6,352.60 Cost of Project	
	kWh Saved	23,319	\$3,731.11 Utility Incentive	
41%	Annual Savings	\$1,865.56	\$2,621.49 Project Balance	16.9
North Education East Building REDUCED rm 101				
	# of Fixtures	358	\$19,425.35 Cost of Project	
	kWh Saved	38,003	\$6,080.50 Utility Incentive	
69%	Annual Savings	\$3,040.25	\$13,344.85 Project Balance	52.7
North Education West Building				
	# of Fixtures	411	\$21,773.15 Cost of Project	
	kWh Saved	90,230	\$14,436.76 Utility Incentive	
34%	Annual Savings	\$7,218.38	\$7,336.39 Project Balance	12.2
Vo Ag DELETED				
	# of Fixtures	0	\$0.00 Cost of Project	
	kWh Saved	0	\$0.00 Utility Incentive	
70%	Annual Savings	\$0.00	\$0.00 Project Balance	0.0
Total Retrofit Project				
	# of Fixtures	1,942	\$107,846.68 Cost of Project	
	kWh Saved	378,857	\$60,617.19 Utility Incentive	
44%	Annual Savings	\$30,308.57	\$47,229.49 Project Balance	18.7



APPENDIX F

ENERGY SAVINGS REPORT EXAMPLE

Rank	Building Name	Building Code	Cost Avoidance (%)	BATCC Cost (\$)	Actual Cost (\$)	Cost Avoidance (\$)
6	Administration Building	ADMINISTRATION_1	44.4 %	\$15,310	\$8,518	\$6,791
11	Baseball Bldg.& Softball Sprinkler	FIELD	34.6 %	\$15,445	\$10,101	\$5,345
3	Field House	FIELDHOUSE	50.9 %	\$68,387	\$33,590	\$34,797
8	Fine Arts Auditorium	FGHS_1	40.9 %	\$1,996	\$1,180	\$816
15	Football Field & Concession	FOOTBALL	20.1 %	\$15,425	\$12,237	\$3,098
14	Fort Gibson Intermediate Elementary School	FGIES	29.3 %	\$33,349	\$23,568	\$9,781
5	Fort Gibson Lower Elementary	FGLE_1	46.1 %	\$51,780	\$27,927	\$23,852
2	Fort Gibson Middle School	FGMS_1	55.2 %	\$49,159	\$22,003	\$27,156
4	High School	HS	47.8 %	\$69,458	\$36,268	\$33,190
20	IE Playground	FGIE_1	-137.4 %	\$134	\$318	-\$184
12	Lunch Room	KITCHEN_1	31.8 %	\$26,204	\$17,862	\$8,342
19	Maintenance/Transportation	M/T_1	-8.7 %	\$1,161	\$1,262	-\$101
17	MultiPurpose Building	MPB_1	9.7 %	\$13,200	\$11,916	\$1,284
7	North Education Building	NEB_1	41.5 %	\$35,065	\$20,506	\$14,559
1	Practice Field	ATHL	85.6 %	\$9,709	\$1,397	\$8,312
13	Press Box	PRESSBOX	30.2 %	\$2,510	\$1,752	\$758
9	School Gym & Pool	ATH	35.9 %	\$5,020	\$3,220	\$1,800
18	School Offices	ADM	5.1 %	\$1,546	\$1,467	\$79
16	VO-AG Building	VOAG	12.9 %	\$20,388	\$17,759	\$2,630
10	Weight Room & Annex	WEIGHTROOM	34.9 %	\$1,836	\$1,196	\$640
TOTAL			41.9 %	\$437,081	\$254,134	\$182,946



ENERGY SAVINGS REPORT EXAMPLE

Rank	Building Name	Building Code	Cost Per Area (\$/SqFt)	Cost (\$)	Use (MMBtu)	Current Floor Area (SqFt)
9	Administration Building	ADMINISTRATION_1	\$0.56	\$8,518	269	15,175
2	Baseball Bldg.& Softball Sprinkler	FIELD	\$1.21	\$10,101	309	8,364
11	Field House	FIELDHOUSE	\$0.48	\$33,590	2,917	69,706
16	Fine Arts Auditorium	FGHS_1	\$0.04	\$1,180	0	29,575
3	Football Field & Concession	FOOTBALL	\$0.96	\$12,327	450	12,768
7	Fort Gibson Intermediate Elementary School	FGIES	\$0.60	\$23,568	888	39,379
10	Fort Gibson Lower Elementary	FGLE_1	\$0.50	\$27,927	2,195	55,789
6	Fort Gibson Middle School	FGMS_1	\$0.66	\$22,003	2,665	33,170
8	High School	HS	\$0.58	\$36,268	3,287	62,100
17	IE Playground	FGIE_1	\$0.00	\$318	0	
5	Lunch Room	KITCHEN_1	\$0.86	\$17,862	567	20,848
14	Maintenance/Transportation	M/T_1	\$0.24	\$1,262	21	5,160
12	MultiPurpose Building	MPB_1	\$0.39	\$11,916	717	30,723
13	North Education Building	NEB_1	\$0.34	\$20,506	729	59,848
17	Practice Field	ATHL	\$0.00	\$1,397	20	
1	Press Box	PRESSBOX	\$1.61	\$1,752	62	1,088
17	School Gym & Pool	ATH	\$0.00	\$3,220	0	
17	School Offices	ADM	\$0.00	\$1,467	0	
4	VO-AG Building	VOAG	\$0.91	\$17,759	519	19,520
15	Weight Room & Annex	WEIGHTROOM	\$0.10	\$1,196	0	12,000
TOTAL			\$0.53	\$254,134	15,616	475,213



APPENDIX G

FREQUENTLY ASKED QUESTIONS

1. We currently utilize several energy-saving practices. Why does our school need this?

Answer: It is great that your school is aware of the need to save money on energy! In your case, you would simply utilize the easy-to-use rubrics to audit how well you are doing. You might find areas you can be more efficient, or you might find ways to improve the Framework. The goal is to get ALL Oklahoma schools to operate as efficiently as possible. You may be able to help with that!

2. How much does it cost to implement?

Answer: The goal of the Framework is for each school to become aware of ways to conserve energy and save money. There are numerous free and low-cost strategies that can be incorporated, and most strategies with a cost can result in savings that recoup that cost of implementation.

3. Is our school too small to incorporate an Energy Manager?

Answer: No. It does not take an additional staff member to be an Energy Manager. It can be accomplished by paying a stipend to an existing staff member. Savings gained will more than pay for the cost of this stipend.

4. Does our school have to contract with a company to support the implementation?

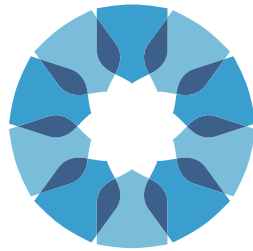
Answer: No. While there are companies that have partnered with CCOSA to help build and support the Framework, contracting with those companies is not required to implement the program.

5. How will faculty and staff respond to an energy efficiency program?

Answer: Responses will vary. Some will be hesitant at first due to not knowing how it will affect their comfort. Communication is key. As they become active participants and see that the majority of savings is accomplished after school hours, they tend to become fully supportive of the program. See Launching and Sustaining tips in the Framework.

districtadministration.com/launching-and-sustaining-an-energy-conservation-program.





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