

Resource Efficiency Plan Best Practices

State Agency Energy Advisory Group
November 28, 2012



History of State Agency Energy Reporting

August
2002

- **Texas Administrative Code 34** was amended to “achieve all measurable cost effective utility and related operational efficiency improvements, and to reduce unnecessary consumption of natural resources by state agencies and institutions of higher education”
- Agencies and institutions are required to **submit a certification** stating that their plans are up to date to SECO in each even-numbered year (see 34TAC Part 1, Chapter 19.11)

October
2005

- Governor Perry issued **Executive Order RP 49**, which ordered all state agencies and institutions of higher education to develop an energy conservation plan setting percentage goals for reducing the usage of electricity, gasoline and natural gas.
- Agencies and institutions now are required to **submit updates** of their conservation plans to the Governor’s Office and Legislative Budget Board (LBB) on a quarterly basis, and to post their plan updates on the Internet for public inspection.

2007
Legislative Session

- The 2007 **Legislature’s House Bill 3693** amended the Health and Safety Code (Section 388.005) to require any state agency or institution of higher education that had not yet done so to reduce their electrical consumption by 5 percent each state fiscal year for six years, beginning on September 1, 2007.
- The legislation also requires agencies and institutions to submit **status reports** to SECO.

Benefits of Energy Savings

- Preserve operating dollars for core mission
- Stewardship of natural resources
- Avoid paying on-peak spot prices for power
- Pay for capital projects and deferred maintenance via energy savings projects
- Lead by example
- Improve indoor comfort/temperature
- Improve outdoor air quality

Overview of State Agency Energy Reports

Report	Required by	Frequency	Submit to
Resource Efficiency Plan	34 Tex. Admin. Code §19.14	Submittal not required	
REP Certification	34 Tex. Admin. Code §19.14	October 31 of every even number year	SECO
REP Status Report*	34 Tex. Admin. Code §19.18	Semi-annual (April 30, October 31)	SECO
Long Range Utility Plan	34 Tex. Admin. Code §19.16	Every five years	SECO
Energy Conservation Plan*	Executive Order RP49	Reports due quarterly	Office of the Governor and the Legislative Budget Board

* In an attempt to minimize the workload of state agencies and institutions of higher education, SECO accepts a copy of the quarterly RP 49 submittals in lieu of completing the semiannual status report.

Resource Efficiency Plan and Certification

- Pursuant to [34 Tex. Admin. Code §19.14](#), the head of a state agency or an institution of higher education shall ensure preparation of a Resource Efficiency Plan (REP) and submit to the State Energy Conservation Office a certification document that the plan has been completed.
- Agencies and Institutions must re-certify the implementation of their REP every two years (even numbered years).
- SECO provides the REP Certification document online at [**www.seco.cpa.state.tx.us/sa/sa_facilities.php**](http://www.seco.cpa.state.tx.us/sa/sa_facilities.php)

REP Certification

State Energy Conservation Office
State Agency/Institutions of Higher Education
Resource Efficiency Plan
Certification Document
(Must be completed and signed by the Executive Director
or Head of the Agency or Institution, or that person's designee)

Date: _____

Agency: _____

REP contact: _____

REP contact telephone number: _____

REP contact email address: _____

The Resource Efficiency Plan for _____ has been
(Agency or Institution)
completed in accordance with 34 TAC §19.14. This document is the acknowledgement
of the completion of the REP required by 34 TAC §19.14(a), and an assurance that the
recommendations contained in the REP will be implemented.

Name: _____

Title: _____

Signature: _____

Phone number: _____

Email address: _____

Contents of a Resource Efficiency Plan

- reduction goals and an overall strategy for achieving them;
- a report prepared or supervised by a professional engineer that details “recommendations for cost-effective resource efficiency measures”;
- an implementation schedule for completing a utility assessment report or preliminary energy audit for each agency’s state-owned buildings;
- a finance strategy describing how the agency or institution plans to obtain funding to complete its energy efficiency measures (if applicable);
- an inventory of facility assets;
- a two-year history of utility usage and expenditures (if applicable);
- a savings monitoring and evaluation plan;
- contact information for a designated agency representative responsible for plan implementation.

REP Status Report

- Pursuant to [34 Tex. Admin. Code §19.18](#), each state agency and institution of higher education must provide SECO a status report that discusses the progress that the agency has made in the implementation of its Resource Efficiency Plan and in the reduction of utility costs through adherence to the Resource Efficiency Plan.
- In an attempt to minimize the workload of state agencies and institutions of higher education, SECO accepts a copy of the quarterly RP 49 submittals required of the Governor's office in lieu of completing the semiannual status report.

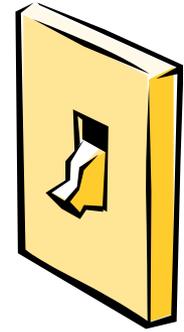
Resource Efficiency Plan and RP49 Best Practices

Tenant and Providing Agencies

Providing and Tenant Agencies

- “Providing” agencies and institutions are those that are responsible for their own energy expenditures. Because they have greater authority and flexibility over their funds, they typically take advantage of additional energy conservation measures.
- “Tenant” agencies whose buildings are managed by another entity such as the Texas Facilities Commission rely on employee behavior for energy efficiency measures.

1. Operational Conservation



Implement employee conservation programs.

The involvement of state employees is essential to the success of agency conservation efforts. Through employee awareness programs, participation in local and state conservation seminars and training programs, state personnel can be educated in conservation strategies and encouraged to develop their own ways to conserve energy.

- **Turn off lights, computers and common area appliances not in use**
- **Prohibit appliances in personal work areas**
- **Temperature Controls**
- **Train, Educate and Encourage Employees**

Operational Conservation (continued)

Examples:

- To promote operational conservation and employee awareness, TDCJ created a pamphlet that provides a breakdown of energy expenditures into dollars per second; explains simple ways to reduce energy consumption around the office; and describes how energy conservation can have ripple effects outside of the agency, as employees put their knowledge of conservation measures to work at home.
- The Commission on Environmental Quality hosted an employee brown bag lunch on conservation.
- The Secretary of State's awareness program includes e-mails, brochures and a newsletter.
- The Department of Insurance has a section on energy efficiency in the employee handbook and included as part of new hire orientation.

2. Equipment Replacement

Reduce energy consumption through equipment replacement and upgrades.

As equipment ages over time, normal operations require more energy to produce the same amount of output. Such inefficiencies can be corrected or avoided by replacing or upgrading chillers and cooling towers, electrical transformers and HVAC systems. One common upgrade, variable-frequency drives, can improve and enhance the matching of air volume and system demand.

Example:

- TFC replaced the Sutton Building's boiler in November of 2011. The previous boiler was in need of \$30,000 in repairs. A new boiler was purchased for \$41,000 and the difference is expected to be realized in 30 months through energy savings.

Tenant Agencies:

- **Purchase of ENERGY STAR or other energy- efficient equipment such as computers, copiers, etc.**



3. Lighting Retrofits



Complete comprehensive lighting retrofits in building and parking facilities, as well as adjacent street and sidewalk lamps.

Compact fluorescent lights are more energy-efficient than incandescent light bulbs, using less power and lasting longer. Other environmentally friendly lighting fixtures include T8 and T5 fluorescent lamps, Metal Halide lamps and LEDs. Occupancy sensors also can be installed to minimize electricity consumption by automatically turning off lights in rooms without detectable activity.

Example:

- TFC has recently completed installation of LED lighting upgrades for eight parking garages. The LED lighting upgrades are expected to reduce energy consumption at the parking garages by up to 70%. This improvement is estimated to have saved \$52,600 or approximately **\$6,900 per month since implementation.**

Tenant Agencies:

Tenant Agencies while not being able to change out fixtures, incandescent light bulbs can request replacement with compact fluorescent lights for energy savings.

4. Building Upgrades



Integrate ASHRAE design standards into building upgrade programs.

- Facility upgrades and the application of state design standards can curtail energy inefficiencies that increase over time. Such upgrades include the replacement of insulation, windows, weather stripping and installation of solar screens. The State Energy Building Code (ASHRAE 90.1 2010) sets requirements for major renovations at state-funded buildings that provide for energy efficiency without compromising function or productivity.

Examples:

- The Texas Workforce Commission completed the roof replacement of the Austin MLK facility in June of 2012. The new roof is a PRS DebriBrite white roof. The R rating over the TWC warehouse is now a **R19** from the previous R0 rating.
- TFC's Window Film Installation on 20 TFC buildings is complete. TFC has recovered \$43,000 in rebates which equates to approximately 40% of the window film costs to date. This portion of completed work is estimated to generate a **monthly savings of \$2,245**. An estimated accumulated savings of \$34,090 has been generated since implementation.

Tenant Agencies:

Tenant Agencies are crucial in identifying opportunities for energy savings in the building structure. Tenants should be responsible for identify problem areas or areas where energy efficiency upgrades could be made and request them of the facility manager.

5. Energy Management System

Install energy management and automation systems.

Energy management systems collect and analyze energy data and can indicate early warning signs of excess energy consumption. Automation such as Direct Digital Control (DDC) systems can remotely monitor and control building and equipment conditions and energy consumption.

Example:

- The University of Houston uses an energy management and environmental control system to ensure the efficient and cost-effective operation of air conditioning systems.

Tenant Agencies:

To minimize the waste of energy, some agencies have scheduled comprehensive shutdowns of electrical power during non-working hours and conducts monthly after-hours inspections to locate sources of wasted energy in facilities.

6. Energy Efficiency Projects

Utilize external energy consulting firms to evaluate energy efficiency efforts.

Private energy consulting firms can provide expert analysis of energy consumption patterns and assistance with utility sub-metering (which measures electricity consumption for a specific group of electrical elements, such as lights or HVAC systems) to provide more accurate facility consumption data and support recommendations for system improvements. They also can evaluate capital investment projects based on duration and estimated cost, savings and payback periods.

Types of Energy Efficiency Projects

- Design-Bid-Build
- Design-Build
- Energy Savings Performance Contracts
- Commissioning

Example:

- Lamar University has completed its sixth year of a performance contract with Schneider Energy. Through August 2011, Lamar University saved over \$10M. Schneider Energy uses metering analysis equipment to compare data year to year to identify trends in performance that are not visible from the single monthly points of data provided by the utility company.

7. Equipment Maintenance



Properly maintain equipment in accordance with facility management requirements.

Through systematic assessment, discovery and correction, preventative maintenance can reduce equipment depreciation over time and minimize inefficiencies arising from age and degradation. Cleaning cooling tower nozzles and basins and chiller condenser tubes are just a few examples of the precautions taken to maintain equipment.

Example:

- Texas Tech University Health Sciences Center is initiating a Computer Maintenance Management System to track its maintenance efforts.

Tenant Agencies:

Accurate and efficient reporting of needed maintenance furthers energy conservation, as does prompt response. Maintaining open communication with building management is crucial. Problems that require quick reporting include temperature problems, water leaks and routine repairs.

8. Procurement Strategies



Utilize available energy procurement strategy assistance program.

The Council on Competitive Government (CCG) Electricity Procurement Services contract gives state agencies and local governments the ability to achieve significant savings through procurement of de-regulated electric service.

Service Benefits and Features

- Flexibility in Tailoring Solutions Appropriate to an Agency's Mission
- Increased Flexibility in Choice of Vendors
- Energy Procurement Assistance and Conservation Consulting

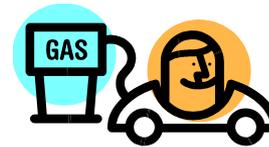
Electricity Procurement Contacts

<http://www.ccg.state.tx.us/contracts/energycontacts.php>

Example:

- The Texas Department of Criminal Justice has taken steps to get the best deal for Texas taxpayers by tendering electricity supply contracts for its facilities in deregulated areas. For calendar year 2012, about half of TDCJ's 111 prison units will be supplied by Constellation New Energy. The new contract will reduce TDCJ's deregulated energy cost by **16 percent** in calendar year 2012, an estimated cost avoidance of about **\$4.1 million**.
- Texas Parks and Wildlife renegotiated its utility contracts in deregulated areas beginning in January of 2012 reducing their utility rate by \$.06 less per kWh. First quarter expected savings is **\$250,000**.

9. Fuel Management



State Vehicle Fleet Fuel Management:

To ensure maximum fuel efficiency, state vehicle fleets require:

- proper preventative maintenance;
- timely procurement of new vehicles (including electric or hybrid cars);
- usage of the Texas Fleet Management System (TxFS); and
- greater use of alternative fuels including 10% ethanol blends and biodiesel

To further cut fuel costs, some agencies with state vehicles are requiring consolidated trips and more efficient routing as well as the use of regular unleaded gasoline. Proper, consistent maintenance and procurement of more fuel-efficient vehicles have also cut fuel usage.

Employee Travel:

Some agencies have cut back on employee travel to reduce fuel usage. Employees car-pool to off-site meetings; other meetings are held via telephone and training sessions are completed online.

10. Water Reduction

Implement water reduction plans.

Where applicable, water conservation measures should be included in resource efficiency plans. Measures such as low-flow toilets, sinks and urinals, water sub-metering and xeriscaping can greatly reduce utility expenditures.

Example:

- Because the unit charges for its water and sewer services are different, the University of Houston has installed sub-meters to measure used water that does not enter the city's sewer system. This saves the university \$1.95 per 1,000 gallons of water diverted in this way.

Resources

The screenshot shows the SECO (State Energy Conservation Office) website. The header includes the SECO logo and the text "State Energy Conservation Office". A banner at the top right says "About This Site | Contact Us" and "Energy Efficiency: Texas' Newest Energy Resource." Below the banner is the name "Susan Combs Texas Comptroller of Public Accounts" and a "Site Search" box. A navigation menu includes "Home", "Energy Sources", "Energy Efficiency", "Funding & Incentives", "SECO Programs", "Resources", and "Stimulus Funds". A secondary menu lists "Residential Consumers", "State and Local Governments", "Business and Industry", and "Schools and Teachers". The main content area is titled "State Facilities Utility Management" and contains two paragraphs of text. To the right is a "Related Links" box with three links: "State Agency Energy Advisory Group (SAEAG)", "State-Funded Building Energy Code", and "Water Conservation Standards Building-Efficient Technologies". At the bottom, there is a "Resource Efficiency Plan Status Report / REP Update" section with a paragraph of text. A footer bar at the bottom right contains a "Trusted sites" icon.

SECO
State Energy Conservation Office

About This Site | Contact Us

"Energy Efficiency: Texas' Newest Energy Resource."

Susan Combs Texas Comptroller of Public Accounts

Site Search Search

Home | Energy Sources | Energy Efficiency | Funding & Incentives | SECO Programs | Resources | **Stimulus Funds**

Residential Consumers | State and Local Governments | Business and Industry | Schools and Teachers

State Facilities Utility Management

State Facilities Utility Management provides guidance and assistance to state agencies and institutions of higher education that request assistance in complying with 34 Tex. Admin. Code, Part 1, Chapter 19, Subchapter B, State Facility Energy and Water Management. This initiative was developed by the State Energy Conservation Office Energy Efficiency Task Force with instructions from the Comptroller that a cost effective initiative be designed to reduce energy and water use in State government.

The goal of this initiative is to help agencies and institutions of higher education get more value from utility funds that they are already spending, rather than look for infusions of new dollars. The objective is to promote and evaluate agency-wide efforts to minimize energy and water use while maximizing the dollars they spend. State Facilities Utility Management provides support through workshops, individual agency assistance when requested, a web based reporting mechanism and web based guidance documents.

Resource Efficiency Plan Status Report / REP Update

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Related Links

- [State Agency Energy Advisory Group \(SAEAG\)](#)
- [State-Funded Building Energy Code](#)
- [Water Conservation Standards Building-Efficient Technologies](#)

Trusted sites

http://www.seco.cpa.state.tx.us/sa/sa_facilities.php

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