



Susan Combs
Texas Comptroller of Public Accounts

Facility Preliminary Energy Assessments and Recommendations

City of Primera

22893 Stuart Place Rd.
Primera, Texas 78552

Prepared by:

Texas Energy Engineering Services, Inc.

1301 S. Capital of Texas Highway
Capital View Center – Suite B-325
Austin, Texas 78746
(512) 328-2533
TBPE# F-3502

APRIL 2012

M. Saleem Khan, P.E.
Texas Registration #98125



TABLE OF CONTENTS

CONTENTS	Page No.
TABLE OF CONTENTS	i
1.0 EXECUTIVE SUMMARY	1
2.0 FACILITY DESCRIPTIONS	2
3.0 ENERGY CONSUMPTION AND PERFORMANCE.....	3
4.0 ENERGY STAR PORTFOLIO MANAGER.....	6
5.0 ENERGY ACCOUNTING.....	7
6.0 ENERGY LEGISLATION OVERVIEW.....	9
7.0 RECOMMENDED MAINTENANCE & OPERATION PROCEDURES.....	10
8.0 UTILITY COST REDUCTION MEASURES (UCRMs)	14
9.0 FACILITY IMPROVEMENT MEASURES	17
10.0 ENERGY MANAGEMENT POLICY.....	18
11.0 FUNDING OPTIONS FOR CAPITAL ENERGY PROJECTS	20

APPENDICES

APPENDIX A, ENERGY LEGISLATION (SB12, AND HB693).....	Page A-1
APPENDIX B, SAMPLE UTILITY DATA REPORTING FORM.....	Page B-1
APPENDIX C, BASE YEAR CONSUMPTION HISTORY	Page C-1
APPENDIX D, ENERGY PERFORMANCE COMPARISON CHARTS	Page D-1
APPENDIX E, TYPICAL EQUIPMENT MAINTENANCE CHECKLISTS	Page E-1
APPENDIX F, LOANSTAR INFORMATION	Page F-1
APPENDIX G, ENERGY STAR PORTFOLIO MANAGER REFERENCE	Page G-1
APPENDIX H, REQUEST FOR ENERGY ASSISTANCE	Page H-1

Local Government Energy Management Program

City of Primera

22893 Stuart Place Rd.

Primera, TX 78552

Contact Person: Mr. Javier Mendez, City Secretary

Phone: 956-423-9654

1.0 EXECUTIVE SUMMARY

The City of Primera, now referred to as the City, requested that Texas Energy Engineering Services, Inc. (TEESI) perform a Preliminary Energy Assessment (PEA) of their facilities. This report documents that analysis.

This service is provided at no cost to the City through the Local Government Energy Management and Technical Assistance Program as administered by the Texas Comptroller of Public Accounts, State Energy Conservation Office (SECO). This program promotes and encourages an active partnership between SECO and Texas local governments for the purpose of planning, funding, and implementing energy saving measures, which will ultimately reduce the City's annual energy costs.

The annual cost savings, implementation cost estimate and simple payback for all building energy retrofit projects identified in this preliminary analysis are summarized below. Individual building projects are summarized in Section 8.0 of this report.

Est. Implementation Cost Estimate:	\$5,500
Est. Annual Energy Saving (MMBTU/Yr):	16
Est. Annual Greenhouse Gas Emissions Reduction (Metric Tons CO ₂ e/Yr):	3
Est. Annual Energy Cost Savings:	\$800
Simple Payback (Yrs):	6.9

A follow-up visit to the City will be scheduled to address any questions pertaining to this report, or any other aspect of this program.

SECO is committed to providing whatever assistance the City may require in planning, funding and implementing the recommendations of this report. The City is encouraged to direct any questions or concerns to either of the following contact persons:

SECO / Mr. Stephen Ross
(512) 463-1770

TEESI / Saleem Khan
(512) 328-2533

2.0 FACILITY DESCRIPTIONS

This section provides a brief description of the facilities surveyed. The purpose of the onsite survey was to evaluate the major energy consuming equipment in each facility (i.e. Lighting, HVAC, and Controls Equipment). A description of each facility is provided below.

Buildings:	City Hall/Police Dept
Stories:	Single story
Area (estimated):	4,000 SF
Bldg. Components:	Stucco building with metal on back, asphalt composite roof, slab on grade
Typical Lighting Fixtures:	LED and T8 fluorescent fixtures with electronic ballasts
HVAC:	Split-DX units
Controls:	Standard digital thermostats

Buildings:	Community Center
Stories:	Single story
Area (estimated):	3,024 SF
Bldg. Components:	CMU block building, asphalt composite roof, slab on grade
Typical Lighting Fixtures:	T12 fluorescent fixtures with magnetic ballasts
HVAC:	Split-DX units
Controls:	Standard thermostats

3.0 ENERGY CONSUMPTION AND PERFORMANCE

A site survey was conducted at several of the City's facilities. The facilities surveyed comprised a total gross area of approximately 7,024 square feet.

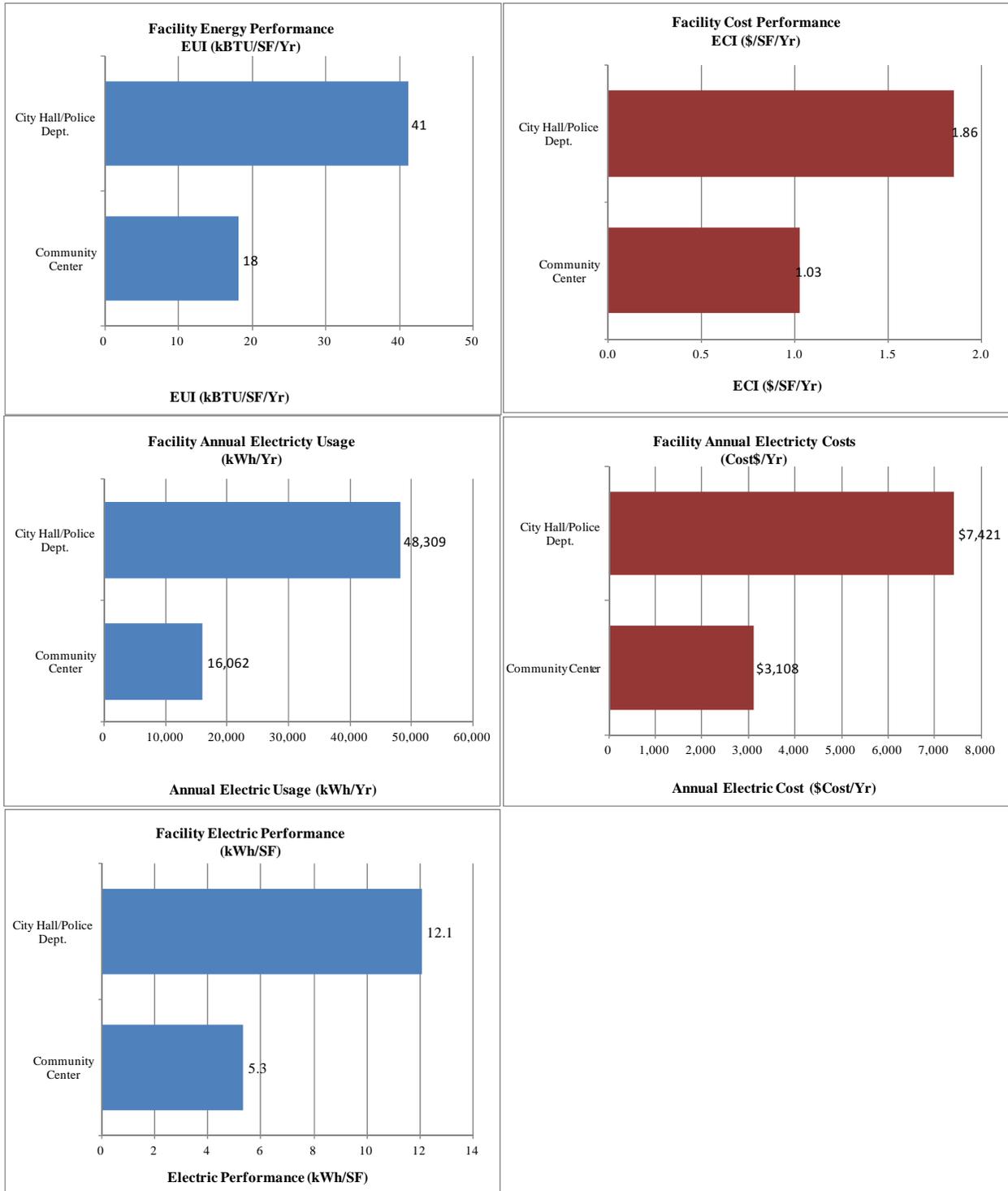
Annual electric and natural gas invoices for the buildings surveyed were \$10,529.00 for the 12-month period ending May 2011. A summary of annual utility costs is provided in **Appendix C**, Base Year Consumption History.

To help the City evaluate the overall energy performance of its facilities TEESI has calculated their Energy Utilization Index (EUI) and Energy Cost Index (ECI). The EUI represents a facility's annual energy usage per square foot; it is measured as thousand BTU's per square foot per year (kBTU/SF/Year). Similarly, ECI is measured as cost per square foot per year (\$/SF/Year). The EUI and ECI performance for selected facilities are listed below:

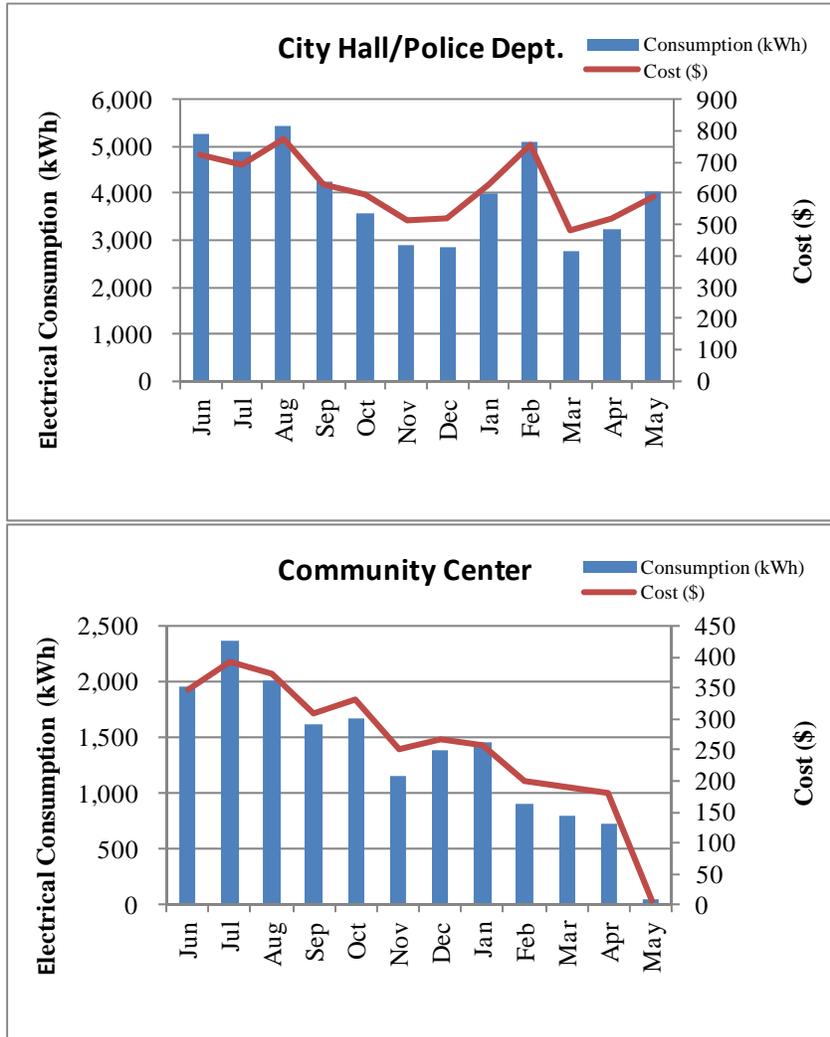
Energy Cost and Consumption Benchmarks									
		Electric				Total	EUI	ECI	
	Building	kWh/Yr	MMBTU/Yr	kWh/SF	\$Cost/Yr	MMBTU/Yr	kBTU/SF/Yr	\$/SF/Yr	SF
1	City Hall/Police Dept.	48,309	165	12.08	7,421	165	41	1.86	4,000
2	Community Center	16,062	55	5.31	3,108	55	18	1.03	3,024
		kWh/Yr	MMBTU/Yr	kWh/SF	\$Cost/Yr	MMBTU/Yr	kBTU/SF/Yr	\$/SF/Yr	SF
		64,371	220	9.16	10,529	220	31	1.50	7,024

Knowing the EUI and ECI of each facility is useful to help determine the City's overall energy performance. In addition, the City's EUI was compared to TEESI's database of local government facilities. See **Appendix D** to determine how these facilities' EUI compared to other local government facilities in Texas.

The following charts summarize the data presented in the previous table. See **Appendix C** for further detail.



The following charts summarize each facility’s monthly utility data. See **Appendix C** for further detail.



4.0 ENERGY STAR PORTFOLIO MANAGER

The City's energy baseline can be developed using ENERGY STAR's Portfolio Manager. One of the primary reasons for using ENERGY STAR Portfolio Manager is its ability to normalize the City's baseline according to several key factors (i.e. Weather, Square Feet, Hours of Operation, Number of Computers, etc.). It is also a free online resource available to all registered users, and is a user-friendly web-based tool.

ENERGY STAR is a joint program of the U.S. Environmental Protection Agency (EPA) and the U.S. Department of Energy (DOE). ENERGY STAR has developed Portfolio Manager, an innovative online energy management tool, designed to help organizations track and assess energy and water consumption of their facilities. Portfolio Manager helps organizations set investment priorities, identify under-performing facilities, verify efficiency improvements, and receive EPA recognition for superior energy performance.

Portfolio Manger is also an energy performance benchmarking tool. Portfolio Manager rates a facility's energy performance on a scale of 1–100 relative to similar buildings and WWTPs nationwide. The rating system based on a statistically representative model utilizing a national survey conducted by the Department of Energy's Energy Information Administration. This national survey, known as the Commercial Building Energy Consumption Survey (CBECS), conducted every four years gathers data on building characteristics and energy use from thousands of buildings across the United States. A rating of 50 indicates that the facility, from an energy consumption standpoint, performs better than 50% of all similar facilities nationwide, while a rating of 75 indicates that the facility performs better than 75% of all similar facilities nationwide.

In addition, Portfolio Manager is used to generate a Statement of Energy Performance (SEP) for each facility, summarizing key energy information such as site and source energy intensity, greenhouse gas emission, energy reduction targets and energy cost. The Statement of Energy Performance is required for applying for ENERGY STAR Recognition from EPA/DOE, and can help in satisfying LEED for Existing Buildings (LEED-EB) requirements. For example, one of the requirements to receive ENERGY STAR Recognition is to achieve a minimum CBECS rating of **75**. A requirement to receive LEED-EB certification is an ENERGY STAR rating of **69**.

At the time of this report, the City's facilities included in this assessment are not able to receive ENERGY STAR ratings (office facilities must have a gross square footage of at least 5,000 and ENERGY STAR Portfolio Manager does not rate community centers). However, Portfolio Manager can still serve as a valuable tool for the City in tracking utility consumption and setting targets for performance of the City's facilities.

TEESI will provide the City with a training session regarding operating and maintaining the City's facilities in ENERGY STAR Portfolio Manager at time of delivery of this report. Please refer to **Appendix G** for reference materials on the basic operation of Portfolio Manager, including topics to be reviewed during the training session.

5.0 ENERGY ACCOUNTING

UTILITY PROVIDERS

Champion Energy and Magic Valley Electric Cooperative provide electric service to the City.

MONITORING AND TRACKING

Currently, the City has an energy tracking spreadsheet in place. An effective energy tracking system is an essential tool by which an energy management program's activities are monitored. The system should be centralized and available for all engaged staff members to use in verifying progress toward established targets and milestones.

The City should continue consolidating the tracking and recording of all the City's utility accounts (i.e., Electricity, Natural Gas, Propane, Water, etc.) into an electronic spreadsheet similar to the chart shown on the following page. Along with total utility costs (\$), utility consumption should be recorded as well (i.e., kWh, MCF, gallons, etc.). The City can use this data to track utility consumption patterns and budget utility expenses. **Preferably, the City should also consider an electronic database such as ENERGY STAR Portfolio Manager, which will provide a means of storing and tracking utility information. For more information on ENERGY STAR Portfolio Manager, please see Section 4.0.** Having this historical data improves the City's awareness of their energy performance and will help in tracking their energy reduction goals.

The steps below are essential for an effective energy management tracking system:

1. Perform regular updates. An effective system requires current and comprehensive data. Monthly updates should be strongly encouraged.
2. Conduct periodic reviews. Such reviews should focus on progress made, problems encountered, and potential rewards.
3. Identify necessary corrective actions. This step is essential for identifying if a specific activity is not meeting its expected performance and is in need of review.

In addition, having this historical utility data would facilitate **House** and **Senate Bill(s)** reporting requirements. Please see Section 6.0 for additional information regarding these requirements.

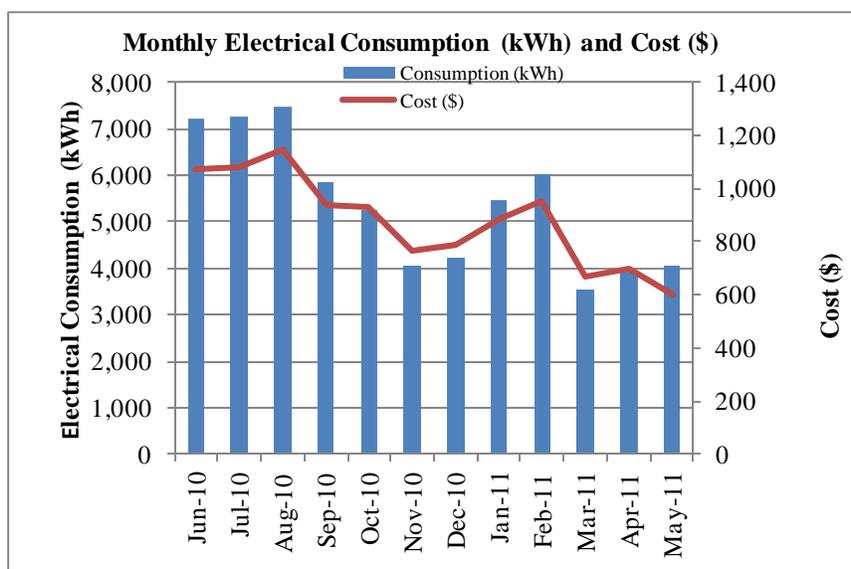
Furthermore, below is a sample format the City can customize to help summarize their overall utility usage and costs.

The data presented below is a summation of the data provided by the City. This data below includes only selected utility accounts and is for reference purposes only and does not represent the City’s total utility data. See **Appendix C** for further detail regarding each utility account represented in the table below.

City of Primera - Sample Utility Input Form

MONTH	ELECTRICITY		
	KWH	COST \$	Avg. Rate \$/KWH
Jun-10	7,228	1,070	\$0.1480
Jul-10	7,257	1,083	\$0.1492
Aug-10	7,469	1,145	\$0.1534
Sep-10	5,871	939	\$0.1600
Oct-10	5,236	928	\$0.1773
Nov-10	4,037	764	\$0.1892
Dec-10	4,247	790	\$0.1860
Jan-11	5,453	883	\$0.1619
Feb-11	6,010	953	\$0.1586
Mar-11	3,562	672	\$0.1887
Apr-11	3,934	702	\$0.1784
May-11	4,067	599	\$0.1472
Total	64,371	\$10,528	\$0.1636

Gross Building Area:	7,024	SF
----------------------	-------	----



6.0 ENERGY LEGISLATION OVERVIEW

In 2007, the 80th Texas Legislature passed Senate Bill 12 (**SB12**) which among other things extended the timeline set by Senate Bill 5 (**SB5**). SB5, commonly referred to as the Texas Emissions Reduction Plan, was adopted in 2001 by the 77th Texas Legislature to comply with the federal Clean Air Act standards. Also in 2007, the 80th Texas Legislature passed House Bill 3693 (**HB3693**) which amended provisions of several codes relating primarily to energy efficiency.

Following are key requirements established by the above energy legislation:

Establish a goal of reducing electric consumption by five percent (5%) each state fiscal year for six (6) years, beginning on September 1, 2007.

Record electric, water, and natural gas utility services (consumption and cost) in an electronic repository. The recorded information shall be on a publicly accessible Internet Web site with an interface designed for ease of navigation if available, or at another publicly accessible location.

Energy-efficient light bulbs for buildings, requires an institution to purchase commercially available light bulbs using the lowest wattages for the required illumination levels.

Installation of energy saving devices in Vending Machines with non-perishable food products.

A summary description of SB 12 and HB 3693 is available in Appendix A. Further detail regarding each bill can be found in the Texas Legislature website (<http://www.capitol.state.tx.us/Home.aspx>).

7.0 RECOMMENDED MAINTENANCE & OPERATION PROCEDURES

Sound Maintenance and Operation procedures significantly improve annual utility costs, equipment life, and occupant comfort. Generally, maintenance and operation procedural improvements can be made with existing staff and budgetary levels. Below are typical maintenance and operations procedures that have energy savings benefits. Please note that some of the recommendations noted below are currently being practiced by the City. With this in mind, the following maintenance and operation procedures should be encouraged/continued to ensure sustainable energy savings.

PUBLICIZE ENERGY CONSERVATION

Promote energy awareness at regular staff meetings, on bulletin boards, and through organizational publications. Publicize energy cost reports showing uptrends and downtrends.

MANAGE SMALL ELECTRICAL EQUIPMENT LOADS

Small electrical equipment loads consists of small appliances/devices such as portable heaters, microwaves, small refrigerators, coffee makers, stereos, cell phone chargers, desk lamps, etc. The City should establish a goal to reduce the number of small appliances and to limit their usage. For example, the use of small space heaters should be discouraged; hence, all space heating should be accomplished by the City's main heating system. In addition, many small devices such as radios, printers, and phone chargers can consume energy while not in use. To limit this "stand-by" power usage these devices should be unplugged or plugged into a power strip that can act as a central "turn off" point while not in use. With an effective energy awareness campaign to encourage participation, managing small electrical loads can achieve considerable energy savings.

ESTABLISH HVAC UNIT SERVICE SCHEDULES

Document schedules and review requirements for replacing filters, cleaning condensers, and cleaning evaporators. Include particulars such as filter sizes, crew scheduling, contract availability if needed, etc. Replace filters with standard efficiency pleated units. Generally, appropriate service frequencies are as follows -- filters: monthly; condensers: annually; evaporators: 5 years.

PRE-IDENTIFY PREMIUM EFFICIENCY MOTOR (PEM) REPLACEMENTS

Pre-identify supply sources and PEM stock numbers for all HVAC fan and pump motors so that as failures occur, replacement with PEM units can take place on a routine basis. As funding allows, pre-stock PEM replacements according to anticipated demand, i.e., motors in service more than 10 years, motors in stressful service, and particular motor types that are in service at several locations.

IMPROVE CONTROL OF INTERIOR & EXTERIOR LIGHTING

Establish procedures to monitor use of lighting at times and places of possible/probable unnecessary use: Offices at lunchtime, maintenance shops, closets, exterior and parking lots during daylight hours, etc. Encouraging staff (i.e. Custodial, maintenance) to participate in the City's efforts to limit unnecessary lighting use would help improve this effort.

EXTERIOR SECURITY AND SITE LIGHTING RETROFIT

Some areas in the City utilize High Intensity Discharge (HID) fixtures for exterior lighting. It is recommended that the City replace the existing HID fixtures with a combination of Pulse Start Metal Halide (MH), Light-Emitting Diode (LED), Induction and Compact Fluorescent (CFL) fixtures suitable for the applications. Care should be used when developing a retrofit/replacement strategy so that minimum security lighting levels are not sacrificed when the retrofit is complete. Therefore, lighting levels should be calculated to determine if the post-retrofit levels are acceptable. In addition, compatibility with existing ballasts, local codes and other requirements must be verified prior to retrofitting. Nevertheless, if suitable for the application, switching to lower wattage lamps with greater lumen maintenance can have sustainable energy savings with minimal impact. The following table lists several retrofit possibilities.

SECURITY/SITE LIGHTING RETROFIT STRATEGY			
Existing Fixture	Existing Example Lamp Type and Wattage	Retrofit Scope	Retrofit Lamp Type and Wattage
Pole Light (*)	400W HID	Lamp/Ballast Replacement	320W MH
Pole Light, Short (*)	250W HID	Lamp/Ballast Replacement	200W MH
Security Wall Pack	150W/175W HID	LED Security Wall Pack Fixture Replacement	56W LED
Security Wall Pack, Low	70 HID	LED Security Wall Pack Fixture Replacement	26W LED
Security Wall Pack, Flood	250 HID	Lamp/Ballast Replacement	200W MH
Surface Mount	150W/175W HID	LED Surface Mount Fixture Replacement	56W LED
Recessed	70 HID	Lamp Replacement with CFL	50W CFL
Incandescent Wall	100W Incandescent	Lamp Replacement with CFL	26W CFL

(*) Replacing outdoor MH fixtures with LED and/or Induction fixtures is increasingly cost effective as more choices become available at lower prices. Check pricing at decision time.

TYPICAL EQUIPMENT MAINTENANCE CHECKLISTS

Effective operation and maintenance of equipment is one of the most cost effective ways to achieve reliability, safety, and efficiency. Failing to maintain equipment can cause significant energy waste and severely decrease the life of equipment. Substantial savings can result from good operation and maintenance procedures. In addition, such procedures require little time and cost to implement. Examples of typical maintenance checklists for common equipment are provided in **Appendix E**. These checklists from the Federal Energy Management Program (FEMP), a branch of the Department of Energy (DOE), are based on industry standards and should supplement, not replace those provided by the manufacturer.

CONTROL OUTSIDE AIR INFILTRATION

Conduct periodic inspections of door and window weather-stripping, and schedule repairs when needed. Additionally, make sure doors and windows are closed during operation of HVAC systems (heating or cooling). Unintended outside air contributes to higher energy consumption and increases occupant discomfort.

REPLACE INCANDESCENT LAMPS WITH COMPACT FLUORESCENTS

Replace existing incandescent lamps with compact fluorescent lamps as they burn out. Compact fluorescents use 50 to 75 percent less wattage for the same light output, with ten times the operating life of incandescents.

ENERGY STAR POWER MANAGEMENT

ENERGY STAR Power Management Program promotes placing monitors and computers (CPU, hard drive, etc.) into a low-power “sleep mode” after a period of inactivity. The estimated annual savings can range from \$25 to \$75 per computer. ENERGY STAR recommends setting computers to enter system standby or hibernate after 30 to 60 minutes of inactivity. Simply touching the mouse or keyboard “wakes” the computer and monitor in seconds. Activating sleep features saves energy, money, and helps protect the environment.

INSTALL ENERGY SAVING DEVICES ON VENDING MACHINE

Install energy saving devices on vending machines with non-perishable food items to reduce the equipment power usage. These devices shut the vending machines down during unoccupied periods. There are several commercially available devices that can be easily installed on existing vending machines. These devices typical have a motion sensor which powers down the equipment after periods of inactivity. For example if the motion sensor does not sense activity within 15 minutes the device will shutdown the vending machine and turn on once motion is sensed. These devices range in price from \$100 to \$250 and have a typical annual savings of \$20 to \$150 per vending machine.

HAIL GUARDS ON CONDENSING UNITS

When an HVAC unit is replaced the City should ensure the new unit be specified with hail guards. The hail guards protect the condensing unit’s heat exchanger coils from hail damage. Damage to the condensing unit heat exchangers reduces the efficiency of the units. It is recommended if any existing units have damaged condensing coil fins to straighten out the condensing fins using a fin comb. The following images depict a condensing unit with fin damage at the community center.



MAINTAIN INSULATION ON SPLIT DX UNIT REFRIGERANT LINES

During the site visit, worn insulation was noted on Split DX unit refrigerant lines, as depicted in the following picture. It is recommended these lines be checked periodically and the insulation be maintained and replaced where necessary to eliminate unnecessary energy losses and condensation damage. The black foam insulation (commercially called “elastomeric insulation”) that is commonly used on such lines should not be exposed to sunlight unless coated with a UV barrier and/or covered with an aluminum jacket or aluminized tape made for the purpose. Only the vapor suction line (larger, cold line) needs insulation; the smaller (liquid) line should remain bare.



8.0 UTILITY COST REDUCTION MEASURES (UCRMs)

Utility Cost Reduction Measures identified during the preliminary analysis are detailed below. Project cost estimates include complete design and construction management services.

T12 TO T8 FLUORESCENT LIGHTING RETROFIT

The City utilizes a combination of T12 and T8 Fluorescent fixtures. It is recommended the City replace the existing T12 fluorescent lamps and magnetic ballasts with high efficiency T-8 fluorescent lamps and electronic ballasts. Typical four-foot, two-lamp magnetic ballast fixtures require 80 watts, while electronic ballasts and T-8 lamps in the same fixture configuration require only 50 watts. The table below indicates the facilities where T-12 fluorescent lamps were observed during the preliminary walkthrough. The cost and savings noted below are based on preliminary observations of the facilities. A detailed design calculation may identify areas that could operate with fewer lamps per fixtures or with low-wattage T8 lamps while still maintaining adequate lighting levels.

T12 TO T8 FLUROESCENT LIGHTING RETROFIT				
Building	Estimated Implementation Cost	Estimated Annual Savings (\$/yr)	Estimated Annual MMBTU Savings (MMBTU/yr)	Simple Payback (years)
Community Center	\$1,300	\$200	4	6.5
TOTAL	\$1,300	\$200	4	6.5

REPLACE EXISTING T8 FLUORESCENT LAMPS WITH LOWER WATTAGE LAMPS

Low-wattage T8 fluorescent lamps are available in 30, 28 and 25-watt versions. It is recommended replacing existing 32-watt T8 Fluorescent lamps with lower wattage lamps (where applicable). Changing to a lower wattage T8 Lamp is a relatively straightforward process however, lower wattage T8 lamps do have limitations and are only suitable for certain applications. Lower wattage T8 lamps have reduced lighting levels therefore, it is important to ensure recommended lighting levels are maintained. Lighting levels should be verified prior to and after lamp replacement. In addition, compatibility with existing ballasts, local codes and other requirements must be verified prior to retrofitting. Nevertheless, if suitable for the application, switching to lower wattage T8 lamps will have sustainable energy savings with minimal impact. For example, replacing a 32-watt T8 lamp with a 28-watt T8 lamp will approximately have a 12% lighting energy reduction with only a lighting level drop near 4%.

The estimated costs and savings noted below are based on replacement of existing 32-watt T8 lamps and does not account for ballast replacements (if existing are incompatible) or reduced lamps (if existing lighting levels are above recommended levels). Estimates are based on a preliminary walkthrough of the facilities. A detailed lighting analysis will be required to determine exact cost, quantities and configuration to maximize the energy savings and lighting performance.

LOW WATTAGE T8 FLUORESCENT LIGHTING RETROFIT

Building	Estimated Implementation Cost	Estimated Annual Savings (\$/yr)	Estimated Annual MMBTU Savings (MMBTU/yr)	Simple Payback (years)
City Hall/Police Dept.	\$300	\$100	2	3.0
TOTAL	\$300	\$100	2	3.0

INSTALLATION OF OCCUPANCY SENSORS FOR INDOOR LIGHTING CONTROL

It is recommended the City consider installing occupancy sensors to improve control of interior lighting. Occupancy sensors will help ensure lights are only on when the space is occupied. The following table below provides an estimated cost and energy savings for the installation of these types of sensors. Please note this estimation is based on a preliminary assessment exact sensor location, technology (Infrared, Ultrasonic, and Dual Technology) and quantity can be determined during a detailed energy assessment or design phase. In general, enclosed areas with intermittent use, are typically good candidates for occupancy sensors (i.e. administration offices, conference rooms, break rooms, etc.).

MOTION SENSOR INSTALLATION

Building	Estimated Implementation Cost	Estimated Annual Savings (\$/yr)	Estimated Annual MMBTU Savings (MMBTU/yr)	Simple Payback (years)
City Hall/Police Dept.	\$700	\$100	2	7.0
Community Center	\$700	\$100	2	7.0
TOTAL	\$1,400	\$200	4	7.0

INSTALL NETWORKED THERMOSTATS

Install web-based networked thermostats to provide improved control of the air-conditioning systems throughout the facilities listed in the table below. Installing web-based networked thermostats will allow for multiple schedule routines and allow remote scheduling. The thermostats would be connected to the City's network and can be controlled and monitored from a central location.

NETWORKED THERMOSTATS

Building	Estimated Implementation Cost	Estimated Annual Savings (\$/yr)	Estimated Annual MMBTU Savings (MMBTU/yr)	Simple Payback (years)
City Hall/Police Dept.	\$1,500	\$200	4	7.5
Community Center	\$1,000	\$100	2	10.0
TOTAL	\$2,500	\$300	6	8.3

The following table summarizes the implementation costs, annual savings and simple payback for the above projects:

SUMMARY OF ENERGY COST REDUCTION MEASURES				
Project Description	Estimated Implementation Cost	Estimated Annual Savings (\$/yr)	Estimated Annual MMBTU Savings (MMBTU/yr)	Simple Payback (years)
T12 TO T8 FLUORESCENT LIGHTING RETROFIT	\$1,300	\$200	4	6.5
LOW WATTAGE T8 FLUORESCENT LIGHTING RETROFIT	\$300	\$100	2	3.0
MOTION SENSOR INSTALLATION	\$1,400	\$200	4	7.0
NETWORKED THERMOSTATS	\$2,500	\$300	6	8.3
TOTAL:	\$5,500	\$800	16	6.9

The above projects implementation costs and annual savings are estimated based on a preliminary examination of the facilities. Furthermore, maintenance cost savings are not included in this preliminary energy assessment. Final costs will be determined from detailed building assessments, engineering calculations, and contractor estimates

Project design (drawings and specifications), if authorized, would normally be accomplished by professional engineers. Project acquisition (competitive bidding) would be in accordance with City requirements, and construction management would be provided by the engineering group who prepared the drawings and specifications.

9.0 FACILITY IMPROVEMENT MEASURES

This section is intended to describe the Facility Improvement Measures (FIMs) that have energy savings opportunities but cannot be justified solely based on the potential energy savings alone. The following are the capital improvement projects recommended for the City.

REPLACE HVAC SYSTEMS NEARING END OF USEFUL LIFE

The City has two (2) Split-DX air-conditioning units nearing the end of their useful life. The City should budget and plan to replace these units in the next one (1) to two (2) years. Replace these systems with new high efficiency units, which will have energy savings and help reduce maintenance costs. The HVAC systems nearing the end of their useful life consist of a 3-ton system (age of 13 years) and a 10-ton system (age of 19 years). The table below summarizes the estimated cost for replacing the units identified at the facility.

CAPITAL RETROFIT - HVAC REPLACEMENT	
Project Description	Estimated Implementation Cost
Community Center	\$31,200
TOTAL	\$31,200

10.0 ENERGY MANAGEMENT POLICY

By requesting this study, the City has demonstrated interest in taking a more aggressive approach to energy management. In order to establish an effective Energy Management Program it should have support from top management. An Energy Management Policy adopted by the City sends a strong signal that energy management is an institutional priority. A formal Energy Management Policy can be as simple as a two-page document that clearly states the City's energy management objectives. The policy should cover items such as:

- who is accountable for energy management
- what your energy savings targets are
- how you will monitor, review and report on progress
- staffing and training to support the policy
- criteria for energy management investment
- working energy efficiency into new capital investments

Along with a clear energy **policy** an energy management **plan** should be developed to ensure sustained energy savings. The energy management plan is a document that details roles, responsibilities, and objectives. Following are key items that should be included in an energy management plan:

1. ESTABLISH ROUTINE ENERGY TRACKING AND REPORTING PROCEDURES
Establishing a procedure to monitor energy usage and cost will help identify energy use patterns. The data will also help determine the effectiveness of the Energy Management Program.
2. ESTABLISH AN ENERGY MANAGEMENT STEERING COMMITTEE
The Energy Management Steering Committee will include representatives from the City. The steering committee will serve as a review board to evaluate all energy management recommendations before adoption and implementation. The steering committee will meet quarterly or semiannually to review the City's energy cost and consumption. Regular meetings will ensure the City's goals are being met prior to the end of the year.
3. PROMOTE ENERGY AWARENESS
The energy management steering committee members shall establish a program to publicize the City's energy goals and progress on a quarterly or semiannually basis. Continuous promotion of the City's goals will ensure the sustainability of the energy management program and help achieve further energy savings.
4. ESTABLISH ACCEPTABLE EQUIPMENT PARAMETERS
Establish a City-wide uniform temperature set point for all HVAC units. Having a standard setpoint will help keep HVAC runtimes to a minimum. The following are some suggested temperature settings, *however, the City will need to monitor and ensure that other building parameters (humidity levels etc.) are within acceptable limits.* In addition, areas with special equipment (MDF/IDF, server rooms, etc.) or materials (wood flooring, paper storage, etc.) shall be maintained at the equipment supplier's recommended settings and settings appropriate to the material.

Occupied Cooling Temperature Setpoint:

Admin Areas 74 F (+/- 2 F)

Unoccupied Cooling Temperature Setpoint:

Admin Areas 85 F

Occupied Heating Temperature Setpoint:

Admin Areas 68 F (+/- 1 F)

Unoccupied Heating Temperature Setpoint:

Admin Areas 55 F

5. DISALLOW OR DISCOURAGE PERSONAL APPLIANCES

Establish a policy that prohibits use of personal appliances by City staff, such as mini refrigerators and space heaters. Alternatively, establish disincentives such as a periodic fee for use of such appliances. Collected fees could be used for energy awareness and management in other areas.

6. NEW BUILDING AND CONSTRUCTION

Ensure proper maintenance and operation of energy using equipment in new buildings by required adequate documentation of all systems and control strategies, specifying minimum content of M&O manuals; specifying contractor requirements for cleaning and adjusting equipment prior to occupancy; specifying on-site vendor training for M&O staff; and requiring as-built drawings.

7. ESTABLISH A WATER MANAGEMENT PROGRAM

Along with saving energy the City should establish a program to reduce water consumption. The following conservation measures should be employed.

- a. Investigate the use of water conserving faucets, showerheads, and toilets in all new and existing facilities.
- b. Utilize water-pervious materials such as gravel, crushed stone, open paving blocks or previous paving blocks for walkways and patios to minimize runoff and increase infiltration.
- c. Employ Xeriscaping, using native plants that are well suited to the local climate, that are drought-tolerant and do not require supplemental irrigation.
- d. Utilize drip irrigation systems for watering plants in beds and gardens.
- e. Install controls to prevent irrigation when the soil is wet from rainfall.
- f. Establish a routine check of water consuming equipment for leaks and repair equipment immediately.

11.0 FUNDING OPTIONS FOR CAPITAL ENERGY PROJECTS

Institutional organizations have traditionally tapped bond money, maintenance dollars, or federal grants to fund energy-efficient equipment change outs or additions such as energy-efficient lighting systems, high efficiency air conditioning units, and computerized energy management control systems. Today, a broader range of funding options are available. A number of these are listed below.

Texas LoanSTAR Program

The LoanSTAR (Saving Taxes and Resources) Program, which is administered by the State Energy Conservation Office, finances energy-efficient building retrofits at a low interest rate (typically 3 percent). The program's revolving loan mechanism allows borrowers to repay loans through the stream of cost savings realized from the projects. Projects financed by LoanSTAR must have an average simple payback of ten years or less and must be analyzed in an Energy Assessment Report by a Professional Engineer. Upon final loan execution, the City proceeds to implement funded projects through the traditional bid/specification process. Contact: Eddy Trevino (512/463-1876).

Internal Financing

Improvements can be paid for by direct allocations of revenues from an organization's currently available operating or capital funds (bond programs). The use of internal financing normally requires the inclusion and approval of energy-efficiency projects within an organization's annual operating and capital budget-setting process. Often, small projects with high rate of return can be scheduled for implementation during the budget year for which they are approved. Large projects can be scheduled for implementation over the full time period during which the capital budget is in place. Budget constraints, competition among alternative investments, and the need for higher rates of return can significantly limit the number of internally financed energy-efficiency improvements.

Private Lending Institutions or Leasing Corporations

Banks, leasing corporations, and other private lenders have become increasingly interested in the energy efficiency market. The financing vehicle frequently used by these entities is a municipal lease. Structured like a simple loan, a municipal leasing agreement is usually a lease-purchase arrangement. Ownership of the financed equipment passes to the City at the beginning of the lease, and the lessor retains a security interest in the purchase until the loan is paid off. A typical lease covers the total cost of the equipment and may include installation costs. At the end of the contract period the lessee pays a nominal amount, usually a dollar, for title to the equipment.

Performance Contracting with an Energy Service Company

Through this arrangement, an energy service company (ESCO) uses third party financing to implement a comprehensive package of energy management retrofits for a facility. This turnkey service includes an initial assessment by the contractor to determine the energy-saving potential for a facility, design work for identified projects, purchase and installation of equipment, and overall project management. The ESCO guarantees that the cost savings generated by the projects will, at a minimum, cover the annual payment due to the ESCO over the term of the contract.

Utility Sponsored Energy Efficiency Incentive Programs

Many of the State's utilities offer energy efficiency incentive programs to offset a portion of the upfront cost associated with energy efficiency measures. The program requirements and incentives range from utility to utility. For example, CenterPoint Energy provides incentives for efficiency measures such as installation of high efficiency equipment, lighting upgrades, and building commissioning. These energy efficiency programs' incentives typically cover \$0.06/kWh and \$175/kW of verifiable energy and demand reductions, respectively. For further information, contact your utility provider to determine what programs are available in your area.

APPENDICES

APPENDIX A

ENERGY LEGISLATION (SB12 AND HB3693)

How to comply with SB12 & HB 3693

What you need to know about Texas Senate Bill 12

The passage of Senate Bill 12 (SB12) by the 80th Texas Legislature signified the continuance of Senate Bill 5 (SB5), the 77th Texas Legislature's sweeping approach in 2001 to clean air and encourage energy efficiency in Texas. SB12 was enacted on September 1, 2007 and was crafted to continue to assist the state and its political jurisdictions to conform to the standards set forth in the Federal Clean Air Act. The bill contains energy-efficiency strategies intended to decrease energy consumption while improving air quality.

All political subdivisions in the 41 non-attainment or near non-attainment counties in Texas are required to:

1) *Adopt a goal to reduce electric consumption by 5 percent each year for six years, beginning September 1, 2007**

2) *Implement all cost-effective energy-efficiency measures to reduce electric consumption by existing facilities. (Cost effectiveness is interpreted by this legislation to provide a 20 year return on investment.)*

3) *Report annually to the State Energy Conservation Office (SECO) on the entity's progress, efforts and consumption data.*

***Note:** The recommended baseline data for those reporting entities will consist of the jurisdiction's 2006 energy consumption for its facilities and based on the State Fiscal Year (September 1, 2006 to August 31, 2007).

What you need to know about Texas House Bill 3693

The passage of House Bill 3693 (HB3693) by the 80th Texas Legislature is intended to provide additional provisions for energy-efficiency in Texas. Adopted with an effective date of September 1, 2007, HB 3693 is an additional mechanism by which the state can encourage energy-efficiency through various means for School [ENTITY]s, State Facilities and Political Jurisdictions in Texas.

HB 3693 includes the following state-wide mandates that apply differently according to the nature and origin of the entity:

Record, Report and Display Consumption Data

All Political Subdivisions, School [ENTITY]s and State-Funded Institutes of Higher Education, are mandated to record and report the entity's metered resource consumption usage data for electricity, natural gas and water on a publically accessible internet page.

Note: *The format, content and display of this information are determined by the entity or subdivision providing this information.*

Energy Efficient Light Bulbs

All School [ENTITY]s and State-Funded Institutes of Higher Education shall purchase and use energy-efficient light bulbs in education and housing facilities.

Who must comply?

The provisions in this bill will apply to entities including: Cities and Counties; School [ENTITY]s; Institutes of Higher Education; State Facilities and Buildings.

How do you define energy-efficiency measures?

Energy-efficiency measures are defined as any facility modifications or changes in operations that reduce energy consumption. Energy-efficiency is a strategy that has the potential to conserve resources, save money** and better the quality of our air. They provide immediate savings and add minimal costs to your project budget.

Examples of energy-efficiency measures include:

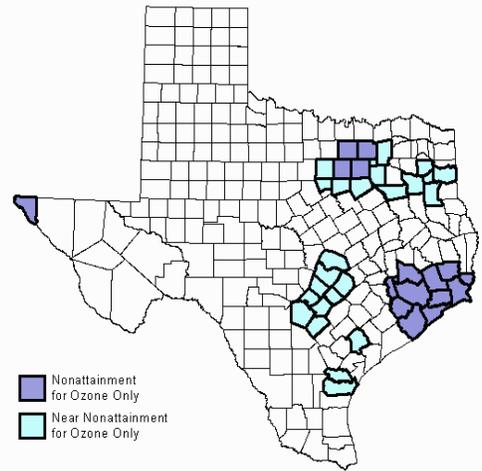
- installation of insulation and high-efficiency windows and doors
- modifications or replacement of HVAC systems, lighting fixtures and electrical systems
- installation of automatic energy control systems
- installation of energy recovery systems or renewable energy generation equipment
- building commissioning
- development of energy efficient procurement specifications
- employee awareness campaigns

****SECO's Preliminary Energy Assessment (PEA) program is an excellent resource for uncovering those energy-efficiency measures that can benefit your organization.**

What counties are affected?

All political jurisdictions located in the following Non-attainment and affected counties:

Bastrop Bexar Brazoria Caldwell Chambers Collin
Comal Dallas Denton El Paso Ellis Fort Bend
Galveston Gregg Guadalupe Hardin Harris Harrison
Hays Henderson Hood Hunt Jefferson Johnson
Kaufman Liberty Montgomery Nueces Orange Parker
Rockwall Rusk San Patricio Smith Tarrant Travis
Upshur Victoria Waller Williamson Wilson



What assistance is available for affected areas?

The Texas Energy Partnership is a partner with Energy Star®, who partners across the nation with the goal of improving building performance, reducing air emissions through reduced energy demand, and enhancing the quality of life through energy-efficiency and renewable energy technologies.

To assist jurisdictions, the Texas Energy Partnership will:

- Present workshops and training seminars in partnership with private industry on a range of topics that include energy services, financing, building technologies and energy performance rating and benchmarking
- Prepare information packages – containing flyers, documents and national lab reports about energy services, management tools and national, state and industry resources that will help communities throughout the region
- Launch an electronic newsletter to provide continuous updates and develop additional information packages as needed

Please contact Stephen Ross at 512-463-1770 for more information.

SECO Program Contact Information

**LoanSTAR;
Preliminary Energy Assessments:**
Eddy Trevino - 512-463-1876
Eddy.Trevino@cpa.state.tx.us

Schools Partnership Program:
Stephen Ross - 512-463-1770
Stephen.Ross@cpa.state.tx.us

Engineering (Codes / Standards):
Felix Lopez - 512-463-1080
Felix.Lopez@cpa.state.tx.us

Innovative / Renewable Energy:
Pamela Groce - 512-463-1889
pam.groce@cpa.state.tx.us

**Energy / Housing
Partnership Programs:**
Stephen Ross - 512-463-1770
Stephen.Ross@cpa.state.tx.us

Alternate Fuels / Transportation:
Venita Porter - 512-463-1779
Venita.Porter@cpa.state.tx.us

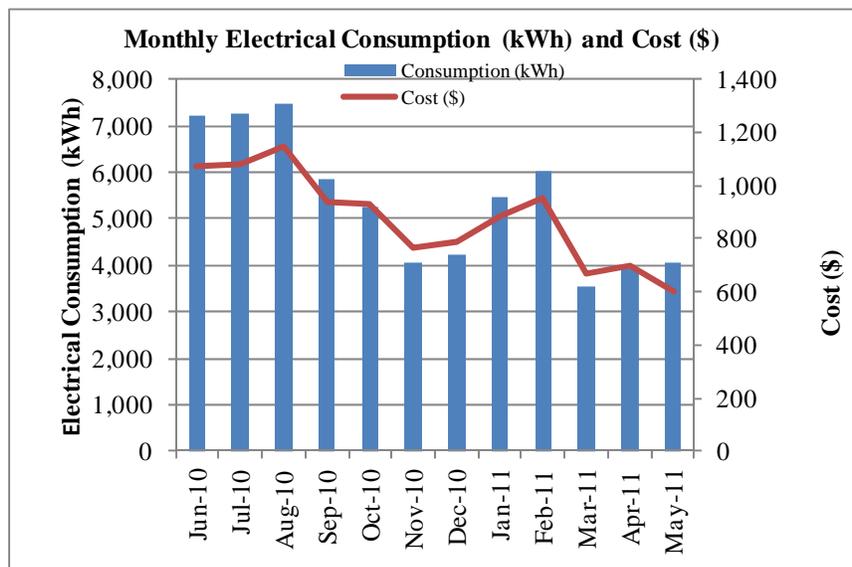
APPENDIX B

SAMPLE UTILITY DATA REPORTING FORM

City of Primera - Sample Utility Input Form

MONTH	ELECTRICITY		
	KWH	COST \$	Avg. Rate \$/KWH
Jun-10	7,228	1,070	\$0.1480
Jul-10	7,257	1,083	\$0.1492
Aug-10	7,469	1,145	\$0.1534
Sep-10	5,871	939	\$0.1600
Oct-10	5,236	928	\$0.1773
Nov-10	4,037	764	\$0.1892
Dec-10	4,247	790	\$0.1860
Jan-11	5,453	883	\$0.1619
Feb-11	6,010	953	\$0.1586
Mar-11	3,562	672	\$0.1887
Apr-11	3,934	702	\$0.1784
May-11	4,067	599	\$0.1472
Total	64,371	\$10,528	\$0.1636

Gross Building Area:	7,024	SF
----------------------	-------	----



APPENDIX C

BASE YEAR CONSUMPTION HISTORY

Energy Cost and Consumption Benchmarks

	Building	Electric				Total	EUI	ECI	SF
		kWh/Yr	MMBTU/Yr	kWh/SF	\$Cost/Yr	MMBTU/Yr	kBTU/SF/Yr	\$/SF/Yr	
1	City Hall/Police Dept.	48,309	165	12.08	7,421	165	41	1.86	4,000
2	Community Center	16,062	55	5.31	3,108	55	18	1.03	3,024
		kWh/Yr	MMBTU/Yr	kWh/SF	\$Cost/Yr	MMBTU/Yr	kBTU/SF/Yr	\$/SF/Yr	SF
		64,371	220	9.16	10,529	220	31	1.50	7,024

ACCOUNT# 0911250027 Electric

District: City of Primera

Gas

BUILDING: City Hall/Police Dept.

FLOOR AREA: 4,000 estimated

MONTH		YEAR		ELECTRICAL			NATURAL GAS / FUEL		
				CONSUMPTION	DEMAND		TOTAL ALL	CONSUMPTION	TOTAL
					METERED	CHARGED	COST OF		
		KWH	KW	KW	DEMAND (\$)	COSTS (\$)	MCF	COSTS (\$)	
Jun	2010	5,266		0		723	0	0	
Jul	2010	4,899		0		692	0	0	
Aug	2010	5,453		0		772	0	0	
Sep	2010	4,260		0		630	0	0	
Oct	2010	3,571		0		599	0	0	
Nov	2010	2,876		0		512	0	0	
Dec	2010	2,870		0		522	0	0	
Jan	2011	4,004		0		625	0	0	
Feb	2011	5,110		0		754	0	0	
Mar	2011	2,761		0		483	0	0	
Apr	2011	3,214		0		520	0	0	
May	2011	4,025		0		590	0	0	
TOTAL		48,309				7,421	0.0	0	

Energy Use Index:

Annual Total Energy Cost = 7,421 \$/year

Total site BTU's/Yr ÷ Total Area (SF) = 41 kBTU/SF/year

Total KWH/yr x 0.003413 = 164.88 MMBTU/year

Total MCF/yr x 1.03 = 0.00 MMBTU/year

Total Other x _____ = 0.0 MMBTU/year

Total Site MMBTU's/yr = 165 MMBTU/year

Energy Cost Index:

Total Energy Cost/Yr ÷ Total Area (SF) = 1.86 \$/SF/year

Electric Utility: Champion Energy

Gas Utility: N/A

ACCOUNT# 9112500.20 Electric

Gas

District: City of Primera

BUILDING: Community Center

FLOOR AREA: 3,024 estimated

		ELECTRICAL				NATURAL GAS / FUEL		
		CONSUMPTION	DEMAND		TOTAL ALL	CONSUMPTION	TOTAL	
			METERED	CHARGED	COST OF			ELECTRIC
MONTH	YEAR	KWH	KW	KW	DEMAND (\$)	COSTS (\$)	MCF	COSTS (\$)
Jun	2010	1,962		0		347	0	0
Jul	2010	2,358		0		391	0	0
Aug	2010	2,016		0		374	0	0
Sep	2010	1,611		0		310	0	0
Oct	2010	1,665		0		330	0	0
Nov	2010	1,161		0		252	0	0
Dec	2010	1,377		0		268	0	0
Jan	2011	1,449		0		258	0	0
Feb	2011	900		0		199	0	0
Mar	2011	801		0		190	0	0
Apr	2011	720		0		181	0	0
May	2011	42		0		9	0	0
TOTAL		16,062				3,108	0.0	0

* Natural Gas service not included in this summary.

Energy Use Index:

Annual Total Energy Cost = 3,108 \$/year

Total site BTU's/Yr ÷ Total Area (SF) = 18 kBTU/SF/year

Total KWH/yr x 0.003413 = 54.82 MMBTU/year

Total MCF/yr x 1.03 = 0.00 MMBTU/year

Total Other x _____ = 0.0 MMBTU/year

Total Site MMBTU's/yr = 55 MMBTU/year

Energy Cost Index:

Total Energy Cost/Yr ÷ Total Area (SF) = 1.03 \$/SF/year

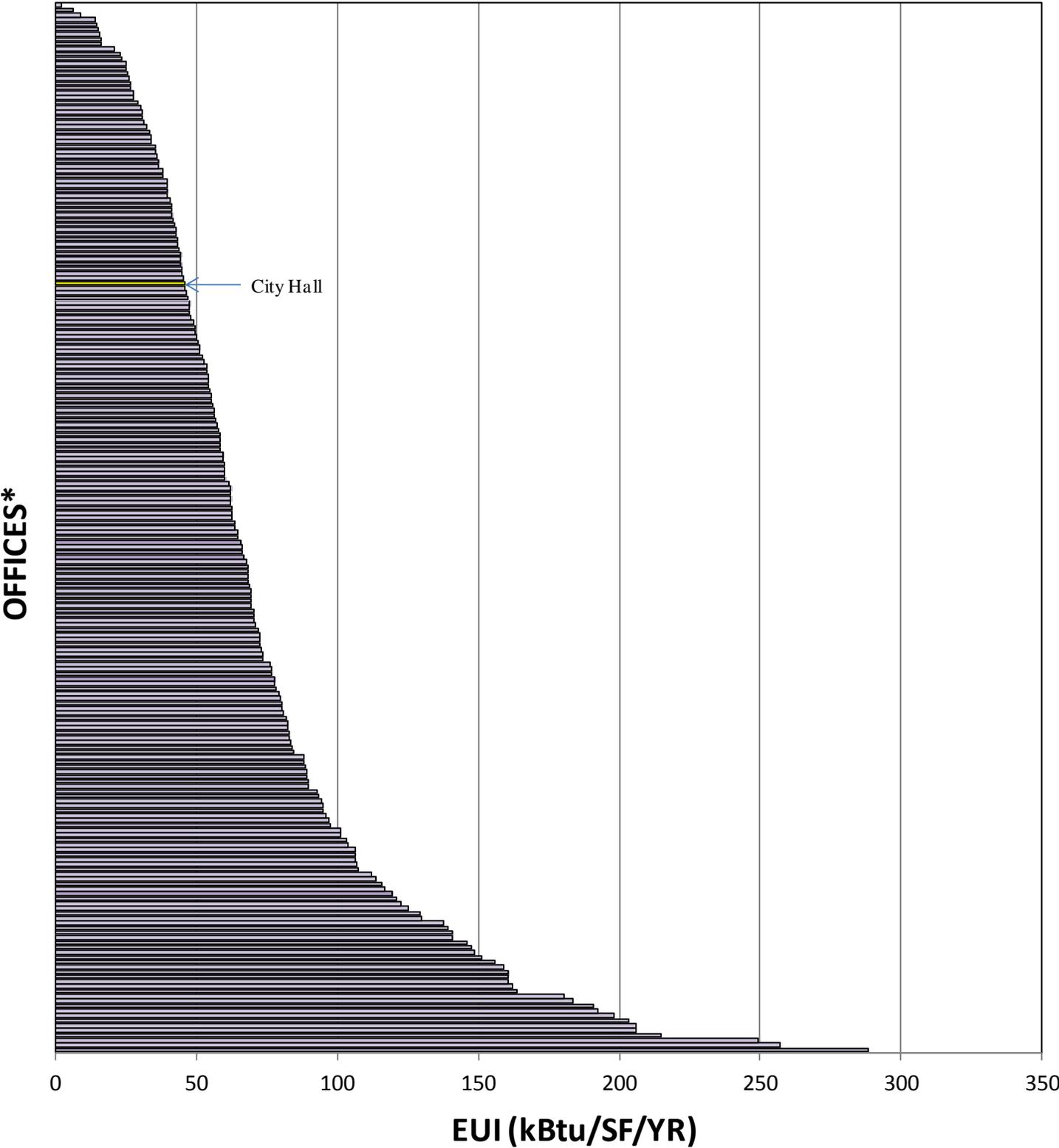
Electric Utility: Champion Energy

Gas Utility: N/A

APPENDIX D

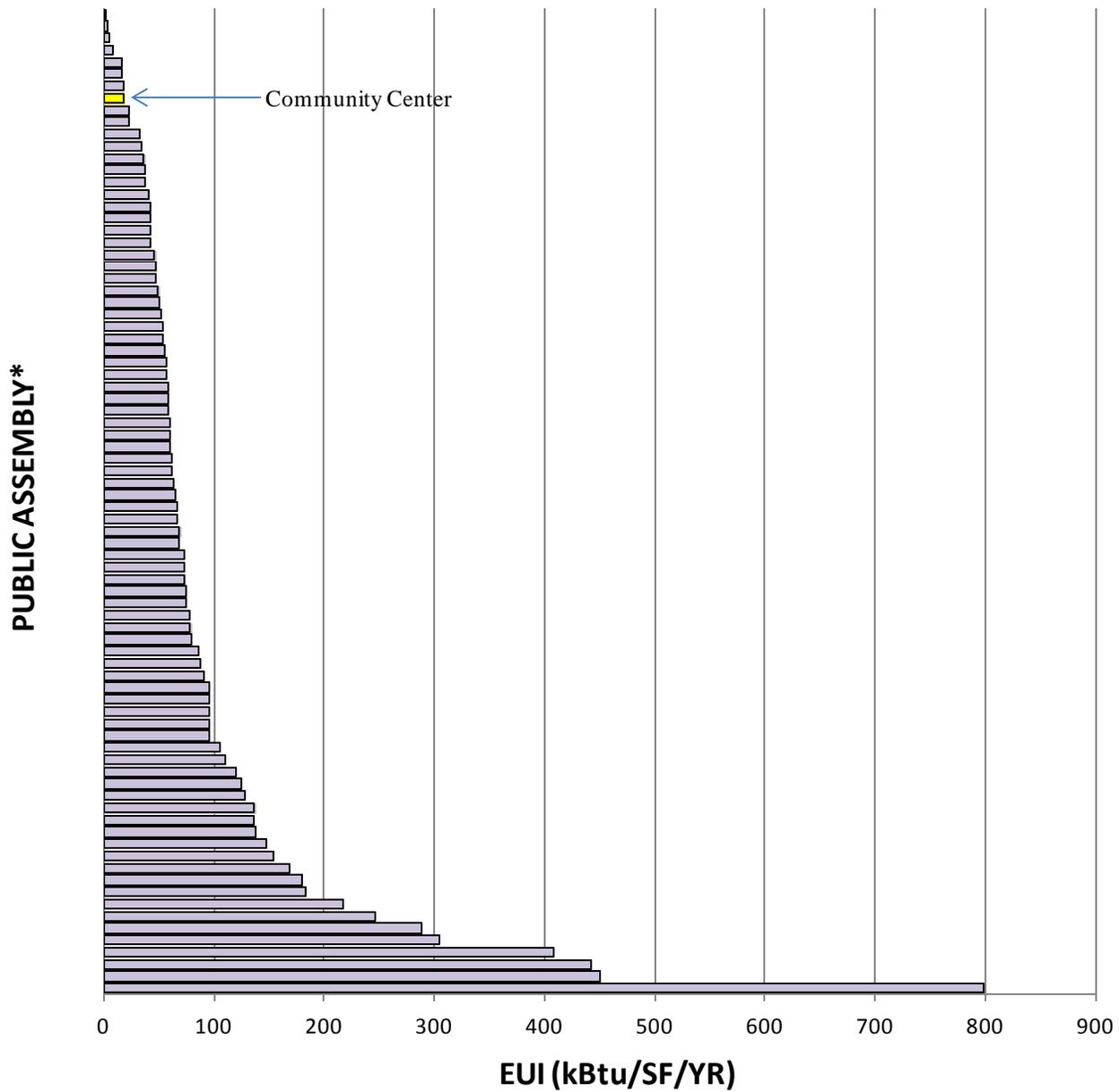
ENERGY PERFORMANCE COMPARISON CHARTS

**TEESI DATABASE OF LOCAL GOVERNMENT FACILITIES IN TEXAS
EUI COMPARISON CHART
FACILITY TYPE: OFFICES**



*Offices (INCL: City Hall, Courthouse, Administrative Offices, Public Works Buildings)

**TEESI DATABASE OF LOCAL GOVERNMENT FACILITIES
IN TEXAS
EUI COMPARISON CHART
FACILITY TYPE: PUBLIC ASSEMBLY**



*Public Assembly (INCL: Convention Centers, Community Centers, Assembly Buildings)

APPENDIX E

TYPICAL EQUIPMENT MAINTENANCE CHECKLISTS

Fans Checklist

Description	Comments	Maintenance Frequency			
		Daily	Weekly	Monthly	Annually
System use/sequencing	Turn off/sequence unnecessary equipment	X			
Overall visual inspection	Complete overall visual inspection to be sure all equipment is operating and safety systems are in place	X			
Observe belts	Verify proper belt tension and alignment			X	
Inspect pulley wheels	Clean and lubricate where required			X	
Inspect dampers	Confirm proper and complete closure control; outside air dampers should be airtight when closed			X	
Observe actuator/linkage control	Verify operation, clean, lubricate, adjust as needed			X	
Check fan blades	Validate proper rotation and clean when necessary			X	
Filters	Check for gaps, replace when dirty - monthly			X	
Check for air quality anomalies	Inspect for moisture/growth on walls, ceilings, carpets, and in/outside of ductwork. Check for musty smells and listen to complaints.			X	
Check wiring	Verify all electrical connections are tight				X
Inspect ductwork	Check and refasten loose connections, repair all leaks				X
Coils	Confirm that filters have kept clean, clean as necessary				X
Insulation	Inspect, repair, replace all compromised duct insulation				X

Electric Motors Checklist

Description	Comments	Maintenance Frequency			
		Daily	Weekly	Monthly	Annually
Motor use/sequencing	Turn off/sequence unnecessary motors	X			
Overall visual inspection	Complete overall visual inspection to be sure all equipment is operating and safety systems are in place	X			
Motor condition	Check the condition of the motor through temperature or vibration analysis and compare to baseline values		X		
Check lubrication	Assure that all bearings are lubricated per the manufacture's recommendation			X	
Check packing	Check packing for wear and repack as necessary. Consider replacing packing with mechanical seals.			X	
Motor alignment	Aligning the motor coupling allows for efficient torque transfer to the pump			X	
Check mountings	Check and secure all motor mountings			X	
Check terminal tightness	Tighten connection terminals as necessary			X	
Cleaning	Remove dust and dirt from motor to facilitate cooling			X	
Check bearings	Inspect bearings and drive belts for wear. Adjust, repair, or replace as necessary.				X
Motor condition	Checking the condition of the motor through temperature or vibration analysis assures long life				X
Check for balanced three-phase power	Unbalanced power can shorten the motor life through excessive heat build up				X
Check for over-voltage or under-voltage conditions	Over- or under-voltage situations can shorten the motor life through excessive heat build up				X

APPENDIX F

LOANSTAR INFORMATION

Texas LoanSTAR Program

FACTS ABOUT LoanSTAR

The State of Texas LoanSTAR (Saving Taxes and Resources) Program finances energy efficient facility up-grades for state agencies, public schools, institutions of higher education, local governments, municipalities, and hospitals. The program's revolving loan mechanism allows participants to borrow money and repay all project costs through the stream of **cost savings** produced.

ELIGIBLE PROJECTS

Up-grades financed through the program include, but are not limited to, (1) energy efficient lighting systems; (2) high efficiency heating, ventilation and air conditioning systems; (3) energy management systems; (4) boiler efficiency improvements; (5) energy recovery systems; (6) building shell improvements; and (7) load management projects. The prospective borrower hires a Professional Engineer to analyze the potential energy efficient projects that will be submitted for funding through the Loan STAR Program. All engineering costs are covered under the program.

PROGRAM REQUIREMENTS

Once the projects are analyzed and the prospective borrower agrees with the recommended projects, the engineer prepares an Energy Assessment Report (EAR) with the project descriptions and calculations. The EAR must be prepared according to the LoanSTAR Technical Guidelines. The EAR is reviewed and approved by the State Energy Conservation Office (SECO) technical staff before project financing is authorized. Projects financed by LoanSTAR must have an average simple payback of ten years or less. Borrowers do, however, have the option of buying down paybacks to meet the composite ten-year limit.

To ensure up-grade projects are designed and constructed according to the EAR, SECO performs a review of the design documents at the 50% and 100% completion phases. On-site construction monitoring is also performed at the 50% and 100% completion phases.

SAVINGS VERIFICATION

To ensure that the Borrower is achieving the estimated energy savings, monitoring and verification is required for all LoanSTAR funded projects. The level of monitoring and verifications may range from utility bill analysis to individual system or whole building metering depending on the size and type of retrofit projects. If whole building metering is required, metering and monitoring cost can be rolled into the loan.

For additional information regarding the LoanSTAR program, please contact:

Eddy Trevino
SECO, LoanSTAR Program Manager
(512) 463-1876

APPENDIX G

ENERGY STAR PORTFOLIO MANAGER REFERENCE MATERIAL

TABLE OF CONTENTS

CONTENTS	Page No.
TABLE OF CONTENTS	i
INTROCUCTION TO ENERGY STAR PORTFOLIO MANAGER.....	1
LOGGING IN TO PORTFOLIO MANAGER.....	2
ADDING A FACILITY/PROPERTY.....	3
ADDING/EDITING SPACES	4
ADDING/EDITING ENERGY METERS.....	5
GENERATING A STATEMENT OF ENERGY PERFORMANCE	7
SETTING ENERGY PERFORMANCE BASELINES AND TARGETS	8
DELETING A FACILITY, SPACE, OR METER	10
VIDEO TUTORIAL AND ONLINE HELP.....	11

INTRODUCTION TO ENERGY STAR PORTFOLIO MANAGER

An entity's energy baseline can be developed using ENERGY STAR's Portfolio Manager. One of the primary reasons for using ENERGY STAR Portfolio Manager is its ability to normalize the baseline according to several key factors (i.e. Weather, Square Feet, Hours of Operation, Number of Computers, etc.). It is also a free online resource available to all registered users, and is a user-friendly web-based tool.

ENERGY STAR is a joint program of the U.S. Environmental Protection Agency (EPA) and the U.S. Department of Energy (DOE). ENERGY STAR has developed Portfolio Manager, an innovative online energy management tool, designed to help organizations track and assess energy and water consumption of their facilities. Portfolio Manager helps organizations set investment priorities, identify under-performing facilities, verify efficiency improvements, and receive EPA recognition for superior energy performance.

Portfolio Manager is also an energy performance benchmarking tool. Portfolio Manager rates a facility's energy performance on a scale of 1–100 relative to similar buildings and WWTPs nationwide. The rating system based on a statistically representative model utilizing a national survey conducted by the Department of Energy's Energy Information Administration. This national survey, known as the Commercial Building Energy Consumption Survey (CBECS), conducted every four years gathers data on building characteristics and energy use from thousands of buildings across the United States. A rating of 50 indicates that the facility, from an energy consumption standpoint, performs better than 50% of all similar facilities nationwide, while a rating of 75 indicates that the facility performs better than 75% of all similar facilities nationwide.

In addition, Portfolio Manager is used to generate a Statement of Energy Performance (SEP) for each facility, summarizing key energy information such as site and source energy intensity, greenhouse gas emission, energy reduction targets and energy cost. The Statement of Energy Performance is required for applying for ENERGY STAR Recognition from EPA/DOE. If ENERGY STAR recognition is pursued, the SEP will need to be verified and certified by a qualified professional.

Some facility types are not able to receive an ENERGY STAR rating. However, Portfolio Manager can still serve as a valuable tool for in tracking utility consumption and setting targets for performance of these facilities.

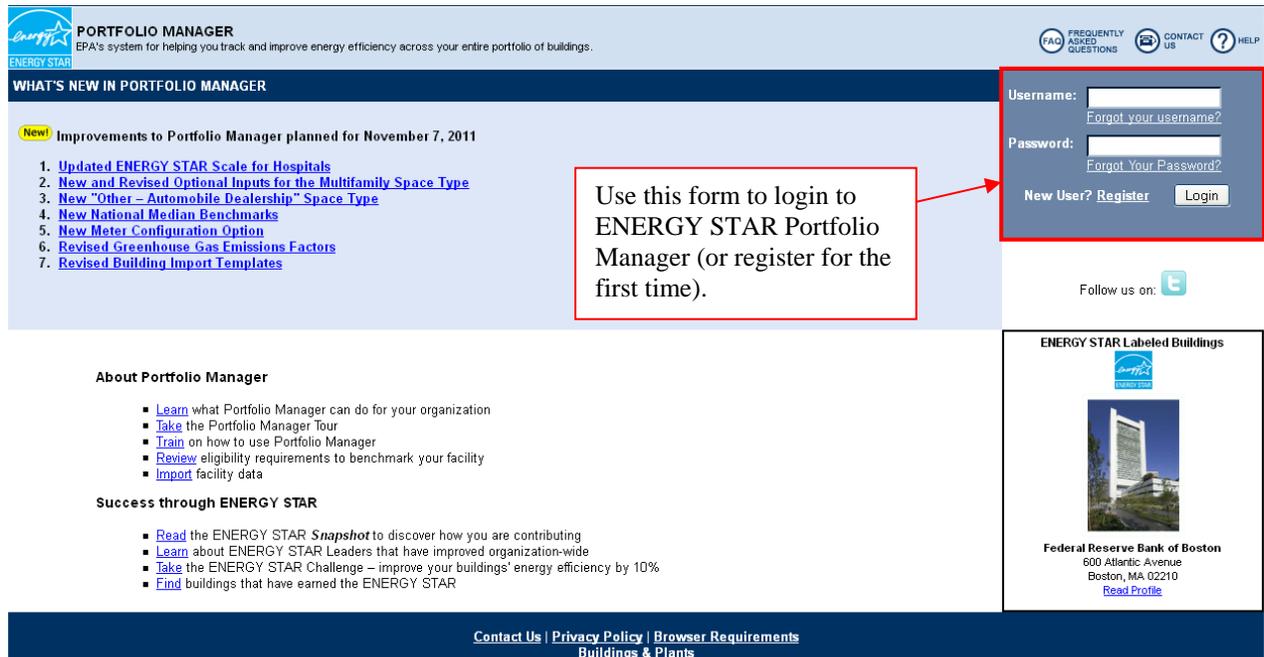
To develop an entity's baseline, 12 months of utility consumption, cost data, and Building Space Use information is required. The following is reference materials that explain how to input this information as well as perform other basic tasks within Portfolio Manager. For further information, please visit ENERGY STAR'S Portfolio Manager at:

http://www.energystar.gov/index.cfm?c=evaluate_performance.bus_portfoliomanager

LOGGING IN TO PORTFOLIO MANAGER

Log in to Portfolio Manager with user name and password. This will bring the user to the My Portfolio page, which includes a summary of the user's facilities.

Website: <https://www.energystar.gov/istar/pmpam/>



PORTFOLIO MANAGER
EPA's system for helping you track and improve energy efficiency across your entire portfolio of buildings.

WHAT'S NEW IN PORTFOLIO MANAGER

New! Improvements to Portfolio Manager planned for November 7, 2011

1. [Updated ENERGY STAR Scale for Hospitals](#)
2. [New and Revised Optional Inputs for the Multifamily Space Type](#)
3. [New "Other - Automobile Dealership" Space Type](#)
4. [New National Median Benchmarks](#)
5. [New Meter Configuration Option](#)
6. [Revised Greenhouse Gas Emissions Factors](#)
7. [Revised Building Import Templates](#)

Use this form to login to ENERGY STAR Portfolio Manager (or register for the first time).

Username: [Forgot your username?](#)

Password: [Forgot Your Password?](#)

New User? [Register](#) [Login](#)

Follow us on: [t](#)

ENERGY STAR Labeled Buildings



Federal Reserve Bank of Boston
600 Atlantic Avenue
Boston, MA 02210
[Read Profile](#)

[Contact Us](#) | [Privacy Policy](#) | [Browser Requirements](#)
[Buildings & Plants](#)

Figure 1: ENERGY STAR Portfolio Manager Homepage

ADDING A FACILITY/PROPERTY

If a facility does not already exist in Portfolio Manager, the user can use the ‘Add a Property’ link to create an entry in Portfolio Manager for that single facility.

Click the ‘Add a Property’ selection located near the top of the main ‘My Portfolio’ page, as seen in Figure 2.



Figure 2: My Portfolio main page

In Figure 3 below, check the type of property (i.e. a single facility, wastewater treatment plant, etc.) and enter basic information about the property, including facility name, facility details, and address. Click **SAVE** when completed.

Enter basic information about the new facility (items required by Portfolio Manager are marked by a red asterisk).

Use the form below to provide general information concerning your facility.

*** REQUIRED**

*Type of Facility:

- A single facility for which my organization owns or manages 90% or more of the floor area. (e.g. entire office building, entire K-12 school, entire hotel, entire senior care community)
- A portion of a single facility for which my organization owns or manages less than 90% of the floor area.
- A hospital composed of a single facility or collection of facilities.
- A municipal wastewater treatment plant or water treatment and distribution utility

*Is this facility owned, operated or leased by the Federal government?: [\(what is this?\)](#)

- No
- Yes

*Country:

*Facility Name:

*Address:

*City:

*State:

Country:

*ZIP Code: - (4-digit extension optional)

*Year Built:

Select the Organization that owns this facility:

[Add/Edit Contacts and Organizations](#)

Figure 3: General Facility Information

ADDING/EDITING SPACES

From the Facility page, scroll to the ‘Space Use’ tab (as seen in Figure 4 below) and click ‘Add Space.’

Space Name	Space Type	Floor Area (Sq. Ft.)	% Floor Area	Alerts	
Sample Space Name	Office	15,000	100		Delete Space
Total		15,000	100		

Figure 4: Adding/Editing a Space from the Facility page

After clicking ‘Add Space’, Portfolio Manager will prompt the user to enter the Space Details, as seen below in Figure 5. They must be entered in correctly and accurately in order to be eligible for ENERGY STAR recognition. If ENERGY STAR recognition is not a primary goal, or if precise attribute values are initially unknown, default values may be used temporarily. These values can be edited at **any** time from the Facility main page (Figure 4) by clicking the assigned space name.

Space Attribute	Space Attribute Value (Temporary values should only be used if an Actual value is not currently known) <small>What is this?</small>	Use Default Value	Units	Effective Date (when this Attribute Value was first true) <small>What is this?</small> (MM/DD/YYYY)
*Gross Floor Area	<input type="text"/> <input type="checkbox"/> For Temporary Use?	N/A	Sq. Ft. <input type="text"/>	01/01/2000
*Is this building normally open at all on the weekends?	<input type="radio"/> Yes <input type="radio"/> No <input type="checkbox"/> For Temporary Use?	<input type="checkbox"/>	No Units	01/01/2000
*Number of PCs	<input type="text"/> <input type="checkbox"/> For Temporary Use?	<input type="checkbox"/>	No Units	01/01/2000
*Number of walk-in refrigeration/freezer units	<input type="text"/> <input type="checkbox"/> For Temporary Use?	<input type="checkbox"/>	No Units	01/01/2000
*Presence of cooking facilities	<input type="radio"/> Yes <input type="radio"/> No <input type="checkbox"/> For Temporary Use?	<input type="checkbox"/>	No Units	01/01/2000
*Percent of the gross floor area that is cooled	Select <input type="text"/> <input type="checkbox"/> For Temporary Use?	<input type="checkbox"/>	%	01/01/2000
*Percent of the gross floor area that is heated	Select <input type="text"/> <input type="checkbox"/> For Temporary Use?	<input type="checkbox"/>	%	01/01/2000
*Is this building a high school (teaching grades 10, 11, and/or 12)?	<input type="radio"/> Yes <input type="radio"/> No <input type="checkbox"/> For Temporary Use?	<input type="checkbox"/>	No Units	01/01/2000

Figure 5: Space attribute input

Check this box if current attribute value is unknown.

ADDING/EDITING ENERGY METERS

From the Facility page, scroll to the 'Energy Meters' section and click 'Add Meter' (as seen in Figure 6). To edit an existing meter, click the meter name, as shown below.

Click 'Add Meter' to add a utility meter to a single facility.

Click meter name to edit utility meter to a single facility.

Meter Name	Energy Type	Space(s)	Last Meter Entry (End Date)	Alerts	Read/Write Access	
Sample Meter	Electricity - Grid Purchase (kWh (thousand Watt-hours))	Entire Facility	03/31/2009	Data > 120 days old. more		Delete Meter

No Metering Configuration has been set for this facility. A metering configuration may be established to indicate whether the whole facility energy consumption or only a portion of that total is represented by these meters. ([Set Metering Configuration](#))

Figure 6: Adding an Energy Meter from the Facility page

Select the number of entries (in months) to add to the energy meter, input the start date of the data to be entered (form the facility utility bill) and click **CONTINUE**.

PORTFOLIO MANAGER
ENERGY STAR
Home > My Portfolio > Sample Facility > Add Meter Entries

ACCOUNT INFORMATION CONTACT

Add Meter Entries: Sample Meter 1

Please select the number of meter entries to add, enter the start date for these meter entries, and select Continue. If you do not wish to add meter entries to this m

REQUIRED

Select Number of Meter Entries to be added and Start Date for first entry:

Meter Entries to Add	*Start Date (MM/DD/YYYY)	Energy Type	Units
1 Month(s)		Electricity	kWh (thousand Watt-hours)

DO NOT ADD METER ENTRIES CONTINUE

Figure 7: Configuring meter entries

Figure 9 shows a sample utility bill. Use this information to input monthly energy data (including start and end dates, energy use and cost), and click **SAVE** (see Figure 8).

Enter Energy Use: Sample Meter 1

Please enter the energy use for each meter entry below. Portfolio Manager requires that entries are for consecutive time periods; only one day of overlap or one day of gap can exist between meter entries to be eligible to generate an Energy Performance Rating.

Meter Information	
Fuel Type:	Electricity, Grid Purchase (kWh (thousand Watt-hours))
Space(s):	Entire Facility

Add Energy Use:			
Start Date (MMDD/YYYY)	End Date (MMDD/YYYY)	Energy Use (kWh (thousand Watt-hours))	Cost - US Dollars (optional)
05/23/2011	06/22/2011	13,120	\$ 1,398.41

CANCEL SAVE

Figure 8: Entering energy data

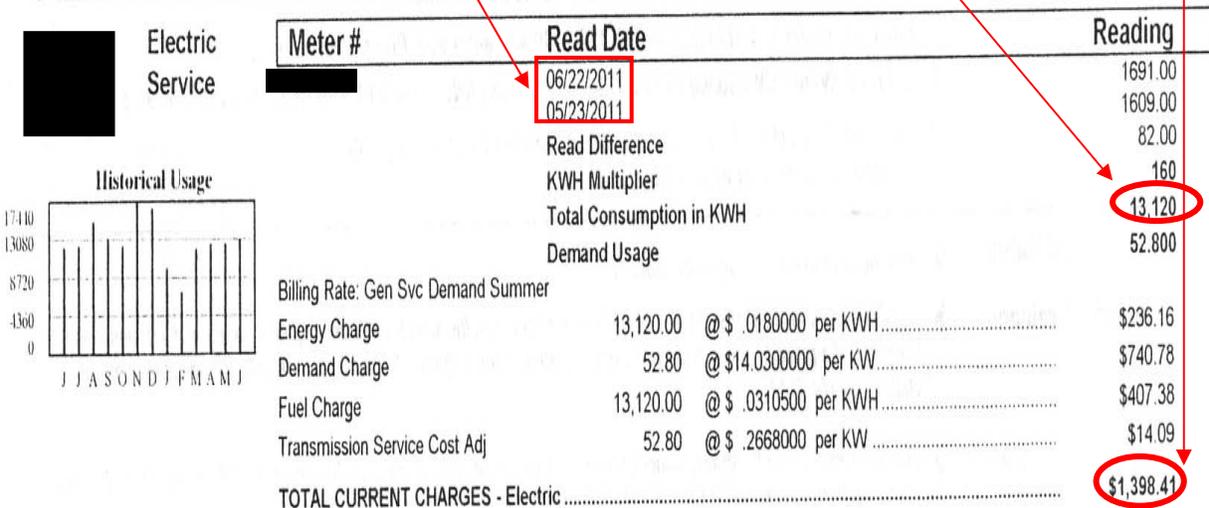
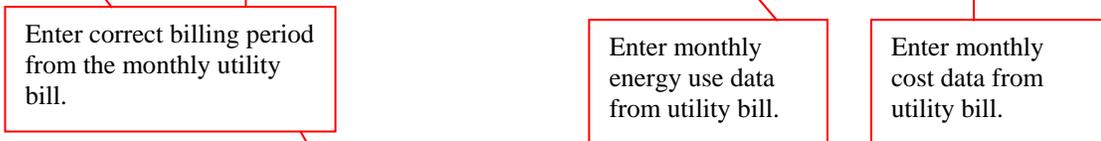


Figure 9: Sample facility utility bill

GENERATING A STATEMENT OF ENERGY PERFORMANCE

A Statement of Energy Performance (SEP) is a required document in applying for ENERGY STAR recognition. It can also be used for purposes other than applying for ENERGY STAR, such as formalizing information regarding a facility’s energy performance or energy and environmental performance impacts.

Near the top of the Facility page, click ‘Generate a Statement of Energy Performance’, as shown below.

The screenshot shows the Energy Star Portfolio Manager interface. At the top, there is a navigation bar with the Energy Star logo and 'PORTFOLIO MANAGER'. Below this, the breadcrumb trail reads 'Home > My Portfolio > Sample Facility'. The main content area is divided into two columns. The left column contains a 'Facility Summary' for 'Sample Facility' with details like Building ID (1761618), Level of Access (Building Data Administrator), and Electric Distribution Utility (Virginia Electric & Power Co). A red arrow points to a link labeled 'Generate a Statement of Energy Performance' which is circled in red. The right column contains a 'General Information' table with fields for Address, Year Built, Property Type, Baseline Rating (N/A), Current Rating (100), Water Period Ending Dates, and Eligibility for the ENERGY STAR.

Figure 10: Generating a Statement of Energy Performance from the Facility page

Select reporting options for SEP as shown below, and click **GENERATE REPORT**.

The screenshot shows a form titled 'Indicate the Period Ending Date for which to Generate this Statement'. It includes a dropdown for 'Period Ending Date' set to 'March 2009'. Below this is the 'Optional Contact Information' section with dropdowns for 'Select the Organization that owns this facility:', 'Select the Primary Point of Contact for this statement:', and 'Select the Certifying Professional for this statement:'. A red box highlights the text 'Click GENERATE REPORT.' with an arrow pointing to the 'GENERATE REPORT' button at the bottom right. On the left, a box labeled 'Select options for SEP.' has a bracket pointing to the 'Report Options' section, which contains several checkboxes: 'Statement of Energy Performance (for uses other than applying for the ENERGY STAR)', 'Data Checklist', 'Facility Summary', and 'Statement for Display Purposes (Only for buildings with ratings - must select valid 12 month rating period)'. The 'GENERATE REPORT' button is highlighted in blue.

Figure 11: Setting up Statement of Energy Performance

SETTING ENERGY PERFORMANCE BASELINES AND TARGETS

An energy 'Baseline Period' for a facility is a 12-month period of complete energy data that can be compared to a facility's current energy performance. To set a baseline period for a particular facility, click 'Set Baseline Periods' on the main facility page (as shown below).

The screenshot shows the Energy Star Portfolio Manager interface for a facility named 'Sample Facility'. The 'Facility Performance' section is active, and the 'Set Baseline Periods' link is highlighted with a yellow circle. A yellow arrow points from this link to the '12 Months Ending' dropdown menu in the performance table. The table shows current site electric use, energy intensity, natural gas use, total site energy use, and rating for January 2008, all marked as 'N/A'. A 'Change' button is visible below the table.

Figure 12: Setting a baseline period for a single facility from the Facility page

Use the drop down menus to select an Energy Baseline Period to compare with the current period. Then click **SAVE**. This will establish the baseline period for the facility. This period can be changed as necessary.

The 'Set Energy Baseline' dialog box shows the 'Baseline Period: Not Set' and 'Baseline Rating: N/A'. The 'Set Baseline Period (12 Months Ending)' option is selected and circled in red. Below it are 'Month' and 'Year' dropdown menus. A red arrow points from a text box to these dropdowns.

Enter ending month and year of desired 12-month baseline period.

Figure 13: Setting a baseline period for a single facility

Setting an Energy Performance Target for a single facility allows the user to select a desired energy use reduction goal. It can also provide the user with the amount of total energy use reduction required to obtain a particular ENERGY STAR rating. To set an Energy Performance Target for a particular facility, click 'Set Energy Performance Target' on the main facility page (as shown below).

Facility Performance [Set Baseline Periods](#) [Set Energy Performance Target](#)

Select View: Consumption Summary [Create View](#) | [Edit View](#)

12 Months Ending	Current Site Electric Use (kWh)	Current Site Energy Intensity (kBtu/Sq. Ft.)	Current Site Natural Gas Use (therms)	Current Total Site Energy Use (kBtu)	Current Rating (1-100)
January 2008	N/A	N/A	N/A	N/A	N/A
Select Date					

General Information [Edit](#)

Address: , Arlington, VA 22201

Year Built:

Property Type: (not set)

Baseline Rating: [N/A](#) Current Rating: [N/A](#)

View Period Ending Dates

Water Period Ending Dates	Energy Period Ending Dates
Current: N/A	Current: January 2008
Baseline: N/A	Baseline: N/A

Eligibility for the ENERGY STAR

Not Eligible: Rating must be 75 or above

Figure 14: Setting an Energy Performance Target for a single facility from the Facility page

The user can choose one of two methods to set an energy performance target: by ENERGY STAR rating or target reduction (%). Click the desired method, and specify a desired target (as seen below). Click **RECALCULATE** to view the ‘Target Energy Use’ and ‘Energy Cost Savings’ results set by the target, and click **SAVE** to keep the current target and return to the Facility page.

Click this button and specify a target ENERGY STAR rating 1-100.

Click this button and specify a target energy use reduction.

Baseline Period (12 Months Ending): Not Set [Modify Baseline Period](#)

Target (1-100 Rating)	Baseline Rating (1-100)	Baseline Energy Use (kBtu/year)	Target Energy Use (kBtu/year)	Energy Cost Savings (\$/year)	Target Reduction (%)
<input type="text"/>					<input type="text"/> %

[CANCEL](#) [RECALCULATE](#) [SAVE](#)

Figure 15: Setting an Energy Performance Target for a single facility

DELETING A FACILITY, SPACE, OR METER

Deleting a facility from Portfolio Manager will delete *everything* associated with that particular facility, including general information (address, year built, type of facility), any spaces designated within the facility, and any Energy/Water meters. To delete a facility, click ‘Delete this Facility from Portfolio Manager’ on the Main Facility Page, as shown in Figure 16 below.

Facility Performance | [Set Baseline Periods](#) | [Set Energy Performance Target](#)

Select View: [Consumption Summary](#) | [Create View](#) | [Edit View](#)

12 Months Ending	Current Site Electric Use (kWh)	Current Site Energy Intensity (kBtu/Sq. Ft.)	Current Site Natural Gas Use (therms)	Current Total Site Energy Use (kBtu)	Current Rating (1-100)
May 2011	1,136,472.0	41.1	6,928.3	4,570,468.16	63
Select Date					

Change

[REFRESH VIEW](#)

Space Use | [Add Space](#)

Space Name	Space Type	Floor Area (Sq. Ft.)	% Floor Area	Alerts	
9th Grade	K-12 School	111,128	100	Using default value for Number of PCs; Using default value for Percent Cooled; Using default value for Presence of cooking facilities; Using default value for Percent Heated; Using default value for Number of walk-in refrigeration/freeze more alerts (more info)	Delete Space

General Facility Administration
[Track Energy Performance](#)
[Delete this Facility from Portfolio Manager](#)
[Contact us](#)

Sharing Data
[Add](#) user to share this Facility
[Modify](#) list of users
[Transfer](#) Facility to another user
[View](#) entire Access List for this Facility

Figure 16: Deleting a facility from the Facility page

Deleting a space from within a facility will remove that single space from the Main Facility page, including any space attribute data associated with the space. To delete a single space from a facility, click ‘Delete Space’ on the corresponding space from the Main Facility page, as shown in Figure 17 below.

Deleting a meter from a facility will remove *any* data associated with the meter, including energy consumption and cost data. To delete a meter from a facility, click ‘Delete Meter’ on the corresponding meter form the Main Facility page, as shown below.

Click this to delete a single space. In this example, ‘Sample Space Name’ will be deleted.

Space Use | [Add Space](#)

Space Name	Space Type	Floor Area (Sq. Ft.)	% Floor Area	Alerts	
Sample Space Name	Office	15,000	100		Delete Space
Total		15,000	100		

Because more than 50% of your building is Office, your building is designated as Office within Portfolio Manager. This building may be eligible for a rating ([Click to learn more](#)). If you can see a rating for this building, please note that the rating takes into account all of the space types you have listed. If you cannot see a rating for this building, you can be compared to the national average for Office ([Click to learn more](#)).

Due to rounding, the % Floor Area Total may not always equal 100%.

Energy Meters | [Add Meter](#) | [Update Multiple Meters](#) | [View All Meter Data in Excel](#)

Meter Name	Energy Type	Space(s)	Last Meter Entry (End Date)	Alerts	Read/Write Access	
Sample Meter	Electricity - Grid Purchase (kWh (thousand Watt-hours))	Entire Facility	01/31/2008	Data > 120 days old. more		Delete Meter
Sample Meter 1	Electricity - Grid Purchase (kWh (thousand Watt-hours))	Entire Facility		Less than one year of data. more		Delete Meter

No Metering Configuration has been set for this facility. A metering configuration may be established to indicate whether the whole facility energy consumption or only a portion of that total is represented by these meters. ([Set Metering Configuration](#))

General Facility Administration
[Track Energy Performance](#)
[Delete this Facility from Portfolio Manager](#)
[Contact us](#)

Sharing Data
[Add](#) user to share this Facility
[Modify](#) list of users
[View](#) entire Access List for this Facility
[Remove](#) my access to this facility

Applying for the ENERGY STAR
[Apply](#) for the ENERGY STAR
[View](#) status of ENERGY STAR Applications

Building Profiles
A building Profile can be created when an ENERGY STAR label application is submitted

Figure 17: Deleting a space or meter Facility page

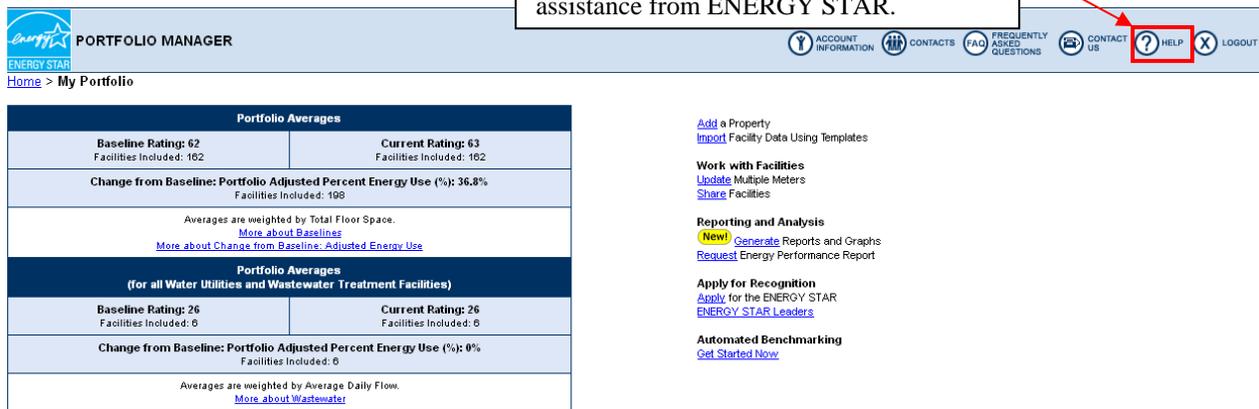
VIDEO TUTORIAL AND ONLINE HELP

ENERGY STAR provides Step-by-Step video tutorials for benchmarking using Portfolio Manager. These videos can be found at the following link:

http://www.energystar.gov/ia/business/benchmarking_training/benchmarking.html

In addition, ENERGY STAR provides a detailed ‘HELP’ section online, as seen in Figure 18.

Click the HELP link (found at the top of every Portfolio Manager page) for further assistance from ENERGY STAR.



The screenshot shows the ENERGY STAR Portfolio Manager interface. The top navigation bar includes links for ACCOUNT INFORMATION, CONTACTS, FREQUENTLY ASKED QUESTIONS, CONTACT US, and HELP (highlighted with a red box and a red arrow from the callout box). Below the navigation bar, the main content area is divided into two sections: Portfolio Averages and Portfolio Averages (for all Water Utilities and Wastewater Treatment Facilities). The Portfolio Averages section shows a Baseline Rating of 62 and a Current Rating of 63 for 162 facilities, with a 36.8% change in adjusted energy use. The second section shows a Baseline Rating of 26 and a Current Rating of 26 for 6 facilities, with a 0% change in adjusted energy use. To the right of the tables, there are several menu items including 'Add a Property', 'Work with Facilities', 'Reporting and Analysis', 'Apply for Recognition', and 'Automated Benchmarking'.

Figure 18: ENERGY STAR Portfolio Manager Help Section

It can also be found at the following link:

https://www.energystar.gov/istar/pmpam/help/portfolio_manager_online_help.htm

The information found in this section provides a wealth of information regarding operation of Portfolio Manager, including a glossary of terms, step-by-step tutorials, instructions for applying for ENERGY STAR recognition, and managing user accounts. It also includes a ‘Search’ function, which allows the user to locate applicable Help topics.

APPENDIX H

REQUEST FOR
ENERGY ASSISTANCE



Local Governments and Municipalities

**Preliminary Energy Assessment
Service Agreement**

Investing in our communities through improved energy efficiency in public buildings is a win-win opportunity for our communities and the state. Energy-efficient buildings reduce energy costs, increase available capital, spur economic growth, and improve working and living environments. The Preliminary Energy Assessment Service provides a viable strategy to achieve these goals.

Description of the Service

The State Energy Conservation Office (SECO) will analyze electric, gas and other utility data and work with City of Primera, hereinafter referred to as Partner, to identify energy cost-savings potential. To achieve this potential, SECO and Partner have agreed to work together to complete an energy assessment of mutually selected facilities.

SECO agrees to provide this service at no cost to the Partner with the understanding that the Partner is ready and willing to consider implementing the energy savings recommendations.

Principles of the Agreement

Specific responsibilities of the Partner and SECO in this agreement are listed below.

- ✓ Partner will select a contact person to work with SECO and its designated contractor to establish an Energy Policy and set realistic energy efficiency goals.
- ✓ SECO's contractor will go on site to provide walk through assessments of selected facilities. SECO will provide a report which identifies no cost/low cost recommendations, Capital Retrofit Projects, and potential sources of funding. Portions of this report may be posted on the SECO website.
- ✓ Partner will schedule a time for SECO's contractor to make a presentation of the assessment findings key decision makers.

Acceptance of Agreement

This agreement should be signed by your organization's chief executive officer or other upper management staff.

Signature: [Handwritten Signature]
 Name (Mr./Ms./Dr.): Mr. Javier Mendez
 Organization: City of Primera
 Street Address: 22893 Stuart Place Rd.
 Mailing Address: 22893 Stuart Place Rd
Primera, Texas 78552

Date: 5-18-2011
 Title: City Secretary
 Phone: (956) 423-9654
 Fax: (956) 423-2166
 E-Mail: j.mendez@cityofprimera.com
 County: Cameron

Contact Information:

Name (Mr./Ms./Dr.): Mr. Javier Mendez
 Phone: (956) 423-9654
 E-Mail: j.mendez@cityofprimera.com

Title: City Secretary
 Fax: (956) 423-2166
 County: Cameron

Please sign and mail or fax to: Stephen Ross, Local Governments and Municipalities Program Administrator, State Energy Conservation Office, 111 E. 17th Street, Austin, Texas 78774. Phone: 512-463-1770. Fax 512-475-2588.