Susan Combs
Texas Comptroller of Public Accounts

Facility Preliminary Energy Assessments and Recommendations

Prepared by:

ESA ENERGY SYSTEMS ASSOCIATES, Inc

100 East Main Street, Suite 201

Round Rock, Texas 78664

(512) 258-0547

Brooks County

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ESA-Energy Systems Associates, Inc.
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SECO
State Energy Conservation Office

Table of Contents

1.0 EXECUTIVE SUMMARY

This **Energy Efficient Partnership Service** is provided to local government facilities as a portion of the state's ***Schools/ Local Government Energy Management Program***; a program sponsored by the **State Energy Conservation Office (SECO)**, a division of the **State of Texas Comptroller of Public Accounts**.

Program Administrator:	Stephen Ross
Phone:	512-463-1770
Address:	State Energy Conservation Office LBJ State Office Building 111 E. 17th Street Austin, Texas 78774

The service assists these public, non-profit institutions to take basic steps towards energy efficient facility operation. Active involvement in the partnership from the entire administration and staff within the agencies and institutions is critical in developing a customized blueprint for energy efficiency for their facilities.

In July, 2010, **SECO** received a request for technical assistance from *Mr. Raul Ramirez, County Judge for Brooks County*. **SECO** responded by sending ESA **Energy Systems Associates, Inc.**, a registered professional engineering firm, to prepare this preliminary report for the school district. This report is intended to provide support for the district as it determines the most appropriate path for facility renovation, especially as it pertains to the energy consuming systems around the facility. It is our opinion that significant decreases in annual energy costs, as well as major maintenance cost reductions, can be achieved through the efficiency recommendations provided herein.

This study has focused on energy efficiency and systems operations. To that end, an analysis of the utility rate schedules, usage and costs for **Brooks County,** was completed by ESA **Energy Systems Associates, Inc**., (hereafter known as *Engineer*) to determine the average energy cost savings available to the County if energy efficiency measures were to be implemented.

Following the utility analysis, a walk-through energy analysis was conducted throughout the County. Specific findings of this survey and the resulting recommendations for both operation and maintenance procedures and cost-effective energy retrofit installations are identified in Section 6.0 of this report.

We estimate that as much as **$2,200** may be saved annually if all recommended projects are implemented. The estimated installed cost of these projects should total approximately **$12,050**, yielding an average simple payback of **5-1/2** years.

SUMMARY:	IMPLEMENTATION COST	ESTIMATED SAVINGS	SIMPLE PAYBACK
Lighting ECRM #1	$11,950	$2,000	6 Years
HVAC ECRM #1	$100	$200	6 Months
TOTAL PROJECTS	**$12,050**	**$2,200**	**5-1/2 Years**

We estimate as much as $2,200 would represent a decrease in utility expenditures for the district of 12%. Although additional savings from reduced maintenance expenses are anticipated, these savings projections are not included in the estimates provided above. As a result, the actual Return of Investment (ROI), for this retrofit program has been calculated and shown in Section 7.0 of this report.

Our final "summary" comment is that **SECO** views the completion and presentation of this report as a beginning, rather than an end, of our relationship with **Brooks County**. We hope to be ongoing partners in assisting you to implement the recommendations listed in this report. Please call us if you have further questions or comments regarding your Energy Management Issues.

*ESA Energy Systems Associates, Inc. James W. Brown (512) 258-0547

2.0 ENERGY ASSESSMENT PROCEDURE

Involvement in this on-site analysis program was initiated through completion of a Preliminary Energy Assessment Service Agreement. This PEASA serves as the agreement to form a "partnership" between the client and the State Energy Conservation Office (SECO) for the purposes of energy costs and consumption reduction within owned and operated facilities. After receipt of the PEASA, an initial visit was conducted by the professional engineering firm contracted by SECO to provide service within that area of the state to review the program elements that SECO provides to school districts and determine which elements could best benefit the district. A summary of the *Partner's* utility rate schedules was provided to the engineer. After reviewing the utility bill data analysis and consultation with SECO to determine the program elements to be provided to Brooks County, ESA returned to the facilities to perform the following tasks:

1. Design and monitor customized procedures to control run times of energy consuming systems.
2. Analyzing systems for code and standard compliance in areas such as cooling system refrigerants used, outside air quantity, and lighting illumination levels.
3. Develop an accurate definition of system and equipment replacement projects along with installation cost estimates, estimated energy and cost savings and analyses for each recommended project.
4. Develop a prioritized schedule for replacement projects.
5. Assist in development of guidelines for efficiency levels of future equipment purchases.

3.0 RATE SCHEDULE ANALYSIS

A. ELECTRICITY PROVIDER

RETAIL ELECTRIC PROVIDER (REP): Direct Energy [Average $0.0925 per kWh]

Note: The utility bills indicate that the unit price charged by Direct Energy varies per account from $0.088 to $0.097 per kWh. The staff states that this occurs as meters are added and deleted from the contract. This is unusual for deregulated electricity contracts in Texas; usually the contract allows for meters to be added or deleted from the contract at the negotiated rate of the contract term. The inference that the County does not have the flexibility to adjust accounts within the contract suggests that the contract has a fixed bandwidth for the quantity of purchased electricity. We recommend the County entertain a broader set of bandwidth options when the current electricity contract expires.

TRANSMISSION AND DISTRIBUTION (T&D): AEP

Electric Rate: Secondary Service > 10 kW

I.	TRANSMISSION AND DISTRIBUTION CHARGES:		
	Customer Charge	=	$26.52 per meter
	Metering Charge	=	$15.81 per meter
	Transmission System Charge (Non-IDR Meter)	=	$1.793 per NCP kW
	Distribution System Charge	=	$3.314 per Billing kW
II.	SYSTEM BENEFIT FUND	=	$0.000662 per kWh
III.	TRANSITION CHARGES		
	Transition Charge 1	=	$1.035407/kW
	Transition Charge 2	=	$2.464918/kW
IV.	NUCLEAR DECOMMISSIONING CHARGE	=	$0.037224 per Billing kVA
V.	TRANSMISSION COST RECOVERY FACTOR	=	$0.335686/4CP kVA
VI.	COMPETITIVE METERING CREDIT	=	$2.17 per month
VII.	RATE CASE SURCHARGE RIDER #1	=	$0.000047 per kWh
VIII.	RATE CASE SURCHARGE RIDER #2	=	$0.000065 per kWh
IX.	TRUE-UP CASE SURCHARGE RIDER	=	$0.041116 per kW
X.	ENERGY EFFICIENCY RIDER	=	$0.000288 per kWh
XI.	ADVANCED METERING SYSTEM RIDER	=	$2.05 per month
XII.			

Average Savings for consumption (from billings) = $0.0925 + $0.0015 + $0.000662 + $0.000047 + $0.000065 + $0.000288 = $0.095062 / kWh

Average Savings for demand = $1.793 + $3.314 + $1.035407 + $2.464918 + 0.037224 + $0.335686 + $0.041116 = $9.02 / kW**

** This number is a generalization of average cost per kW because the rate schedule from AEP utilizes three (3) different types of demand for the calculation of the utility bill:

1. NCP kW: Peak demand during 15 minute interval of current billing cycle
2. 4CP kW: Average demands of June, July, August and September of previous calendar year; usually only applied to IDR metered accounts
3. DS (Distribution System) Billing kW: Ratchet demand representing higher of two calculations: 80% of peak demand in last 11 months or current NCP kW

4.0 CAMPUS DESCRIPTIONS

Brooks County covers 944 square miles and is home to approximately 7,976 people (2000 census). The County seat is Falfurrias, located 82 miles southwest of Corpus Christi, Texas. The County operates several buildings that were assessed for this report: County Courthouse, Courthouse Annex, County Agent Extension Office, Library, and the Blumer Building.

A. County Courthouse

The three-story courthouse, originally built in 1914, has recently undergone a three year, 4.6 million dollar complete renovation of the building. The goal of the project was to restore the building to its original prominence. Doors and windows have been retrofit back to wood frame after they were changed to aluminum in 1958. Energy conservation was also kept in mind during the restoration as plumbing fixtures have been replaced with low-flow, automatic shut-off faucets and flush valves. Lighting is now T8 linear fluorescent and compact fluorescent recessed can fixtures.

The HVAC system is supplied chilled water by a 2009 Trane Series R air-cooled chiller operating with a 44°F chilled water setpoint. At the time of the survey, the outdoor air temperature was 91.2 degrees and the relative humidity was approximately 65%; the 90 nominal ton chiller was supplying 44.2°F chilled water while operating at just 38% full running load amps and a chilled water return temperature of 47.2°F.

B. Courthouse Annex

This building was constructed in 2006 to house and support the courthouse activities while it was under renovation from 2007 through 2010. Lighting is 100% T8 and compact fluorescent; HVAC is comprised of two larger (ten tons or greater) split systems and two each 7-1/2 ton split systems. It was noted during the survey that despite the presence of coil guards, the coil fins on ACCU-2 are bent. Having just 10% of the coil fins bent on a condensing unit can result in up to a 30% loss in operating efficiency of the unit. *We recommend the County comb the coil fins straight (coil combs are available for about $10) to restore lost operating efficiency to the unit.*

C. Courthouse Extension

Constructed in the 1970s, this building has not been renovated extensively since that time. The HVAC system is comprised of a single 7-1/2 ton split system. Installed in 2000, the relatively new condensing unit has been matched with an older natural gas fired furnace. It was noted during the survey that the refrigerant piping at the condensing unit has missing insulation. This allows the refrigerant in the piping to absorb heat from the atmosphere and minimizes the ability of the system to absorb heat from the interior space as intended. *We recommend the County replace the refrigerant piping insulation at this unit.*

The air handler was found with the panel removed and the mixed air plenum open to the storage closet space. This condition draws air from the room instead of from the return air plenum and through the filter. Consequently, indoor air quality suffers and air distribution is reduced. *We recommend re-installing the front cover*.

The split system is controlled by a single conventional thermostat. Dependent upon occupant control, it is likely this unit runs more hours than necessary. *We recommend replacing the existing thermostat with a programmable unit that can be matched to the occupancy hours for the Extension Office.*

It was noted during the survey that one of the exterior hose bibs is leaking. Attempts to shut off the faucet were unsuccessful. *We recommend the County inspect the faucet and make the repairs necessary to shut the water completely off*.

The lighting at this building is T12 linear fluorescent and incandescent fixtures. *We recommend the fluorescent fixtures be retrofit with T8 lamps and electronic ballasts and the incandescent fixtures be retrofit with compact fluorescent lamps.* The T8 components offer about 20% more light and consume approximately 18% less energy than the T12 components. The measure will also assist the City to comply with Senate Bill 300, in which the Legislature has mandated that all local government facilities install the most efficient lamps and ballasts possible in their existing fixtures.

D. Blumer Building

This building was constructed in 1977. Current tenants include Texas Parks and Wildlife, Department of Public Safety Driver's License Office, as well as the County Probation Office.

The HVAC system appears to have been remodeled about 2004. There are rooftop units that do not have coil guards installed. *We recommend the County comb any fin damage that may have been incurred (fin combs are available for about $10 each) and install coil guards to prevent any damage in the future. We also recommend the County amend its purchasing specifications for HVAC units to always include coil guards as a standard accessory for exterior condenser equipment.*

The lighting system is comprised of T12 linear fluorescent fixtures. As per the other County Building recommendations, *we recommend the T12 fixtures be retrofit with T8 lamps and electronic ballasts*.

E. Ed Rachal Memorial Library

The library building was constructed in 1970. This building is served by a roof mounted HVAC system and is controlled by two programmable thermostats. The programmable thermostats have a temperature setpoint of 73°F and 74°F during the hot summer months. This temperature range is ideal for meeting the required comfort levels of all library visitors.

The lighting for this building is made up of T12 linear fluorescent and incandescent fixtures. *We recommend retrofitting the fluorescent fixtures with T8 lamps and electronic ballasts and the incandescent fixtures with compact fluorescent lamps.* This recommended lighting upgrade will not only increase the light levels in the areas served but will also increase the energy efficiency of the lighting by approximately 18%.

5.0 RECOMMENDATIONS

A. MAINTENANCE AND OPERATIONS PROCEDURES

HVAC

- Comb the coil fins at the Courthouse Annex.
- Replace damaged and missing refrigerant line insulation at the Courthouse Extension Building.
- Re-install the front cover of the air handler at the Courthouse Extension Building.
- Replace the existing thermostat with a programmable thermostat at the Courhouse Extension Building.
- Repair the leaking exterior faucet at the Courthouse Extension Building.
- Comb the coil fins and install coil guards to protect against future damage at the Blumer Building.
- Recommend the County amend its purchasing specifications for HVAC units to always include coil guards as a standard accessory for exterior condenser equipment.

Building Envelope

- Check weather-stripping at all exterior doors.

Maintenance and Operation procedures (M&O) are strategies that can offer significant energy savings potential, yet require little or no capital investment by the district to implement. Exact paybacks are at times difficult to calculate, but are typically less than one year. The difficulties with payback calculations are often related to the fact that the investigation required to make the payback calculation, (for example measuring the air gap between exterior doors and missing or damaged weather-stripping so that exact air losses may be determined), is prohibitive when the benefits of renovating door and weather-stripping are well documented and universally accepted.

HVAC M&O #1
Comb the condensing unit coil fins at the Courthouse Annex to give uninhibited airflow to the unit. This improves efficiency and allows the unit to function as it was designed.

HVAC M&O #2
Replace the refrigerant line insulation at the Courthouse Extension Building's condensing unit.

HVAC M&O #3
Re-install the front cover of the air handler at the Courthouse Extension Building. This allows the unit to draw air through the return plenum and filter before recycling it to the building.

HVAC M&O #4
Replace the existing conventional thermostat at the Courthouse Extension Building with a programmable thermostat. This will enable the user to match the times the air conditioner is running with the times the building is occupied, thus minimizing the waste of energy on an unoccupied space.

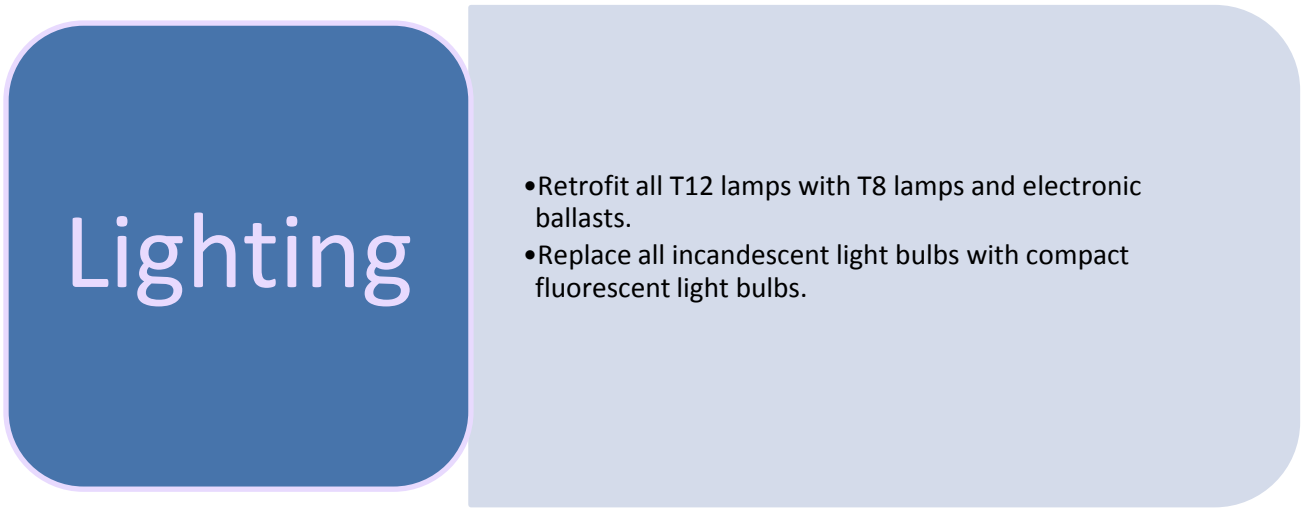
HVAC M&O #5
Repair the leaking exterior faucet at the Courthouse Extension Building to eliminate unintentional water loss.

HVAC M&O #6
Comb the coil fins and install coil guards at the Blumer Building to maximize efficiency and protect the unit from future damage.

HVAC M&O #7
We recommend the County amend its purchasing specifications for HVAC units to always include coil guards as a standard accessory for exterior condenser equipment.

Envelope M&O #1
Inspect and install weather-stripping at all exterior doors to minimize conditioned air loss.

B. CAPITAL EXPENSE PROJECTS



LIGHTING ECRM #1 – Retrofit T12 and Incandescent Fixtures

The T12 lamps and magnetic ballasts are no longer being manufactured. Retrofitting T12 fixtures with T8 lamps and electronic ballasts also provides significant energy savings as T8 lamps provide 18% more light but use 20% less electricity than T12 lamps.

Estimated Installed Cost	=	$ 11,950
Estimated Energy Cost Savings	=	$ 2000
Simple Payback Period	=	6 years

HVAC ECRM #1 – Replace conventional thermostats with programmable thermostats

Estimated Installed Cost	=	$ 100
Estimated Energy Cost Savings	=	$ 200
Simple Payback Period	=	6 months

C. SUMMARY TABLE

If Brooks County was to implement all recommended M&O and ECRM projects (where M&O costs do not have an installation cost), the summary payback would be:

Estimated Installed Cost	=	$ 12,050
Estimated Energy Cost Savings	=	$ 2,200
Simple Payback Period	=	5-1/2 years

Should the district desire to implement the capital expense projects in stages and not all at once, we recommend the following implementation schedule:

1. Lighting ECRM #1	T12 lamps and magnetic ballasts are no longer being manufactured. The City should plan on retrofitting these fixtures with T8 lamps and electronic ballasts.
2. HVAC ECRM #1	Programmable thermostats are more energy-efficient than conventional thermostats at controlling air conditioning units.

6.0 FINANCIAL EVALUATION

Financing of these projects may be provided using a variety of methods as Bond Programs, municipal leases, or state financing programs like the SECO LoanSTAR Program.

If the project was financed with in-house funds, the internal rate of return for the investment would be as follows:

Proposal:	Perform recommended ECRMs			
Assumptions:				
1. Equipment will last at least 15 years prior to next renovation				
2. No maintenance expenses for first five years (warranty period)				
3. $500 maintenance expense next 5 years				
4. $1000 maintenance expense last 5 years				
5. Savings decreases 2% per year after year 5				
Cash Flow	**Project Cost**	**Project Savings**	**Maintenance Expense**	**Net Cash Flow**
Time 0	($12,050)		0	($12,050)
Year 1		$ 2,200	0	$2,200
Year 2		$ 2,200	0	$2,200
Year 3		$ 2,200	0	$2,200
Year 4		$ 2,200	0	$2,200
Year 5		$ 2,200	0	$2,200
Year 6		$ 2,156	($500)	$1,656
Year 7		$ 2,112	($500)	$1,612
Year 8		$ 2,068	($500)	$1,568
Year 9		$ 2,024	($500)	$1,524
Year 10		$ 1,980	($500)	$1,480
Year 11		$ 1,936	($1,000)	$936
Year 12		$ 1,892	($1,000)	$892
Year 13		$ 1,848	($1,000)	$848
Year 14		$ 1,804	($1,000)	$804
Year 15		$ 1,760	($1,000)	$760
			Internal Rate of Return	**12.20%**

More information regarding financial programs available to BROOKS COUNTY can be found in:

APPENDIX I: SUMMARY OF FUNDING AND PROCUREMENT OPTIONS

APPENDICES

APPENDIX I - SUMMARY OF FUNDING AND PROCUREMENT OPTIONS

SUMMARY OF FUNDING OPTIONS FOR CAPITAL EXPENDITURE PROJECTS

Several options are available for funding retrofit measures which require capital expenditures.

LoanSTAR Program:

The Texas LoanSTAR program is administered by the State Energy Conservation Office (SECO). It is a revolving loan program available to all public school districts in the state as well as other institutional facilities. SECO loans money at 3% interest for the implementation of energy conservation measures which have a combined payback of eight years or less. The amount of money available varies, depending upon repayment schedules of other facilities with outstanding loans, and legislative actions. Check with Eddy Trevino of SECO (512-463-1876) for an up-to-date evaluation of prospects for obtaining a loan in the amounts desired.

TASB (Texas Association of School Boards) Capital Acquisition Program:

TASB makes loans to school districts for acquiring personal property for "maintenance purposes". Energy conservation measures are eligible for these loans. The smallest loan TASB will make is $100,000. Financing is at 4.4% to 5.3%, depending upon length of the loan and the school district's bond rating. Loans are made over a three year, four year, seven year, or ten year period. The application process involves filling out a one page application form, and submitting the school district's most recent budget and audit. Contact Cheryl Kepp at TASB (512-467-0222) for further information.

Loans on Commercial Market:

Local lending institutions are another source for the funding of desired energy conservation measures. Interest rates obtainable may not be as attractive as that offered by the LoanSTAR or TASB programs, but advantages include "unlimited" funds available for loan, and local administration of the loan.

Leasing Corporations:

Leasing corporations have become increasingly interested in the energy efficiency market. The financing vehicle frequently used is the municipal lease. Structured like a simple loan, a municipal leasing agreement is usually a lease-purchase agreement. Ownership of the financed equipment passes to the district 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 a nominal amount, usually a dollar, is paid by the lessee for title to the equipment.

Bond Issue:

They may choose to have a bond election to provide funds for capital improvements. Because of its political nature, this funding method is entirely dependent upon the mood of the voters, and may require more time and effort to acquire the funds than the other alternatives.

SUMMARY OF PROCUREMENT OPTIONS FOR CAPITAL EXPENDITURE PROJECTS

State Purchasing:
The General Services Commission has competitively bid contracts for numerous items which are available for direct purchase by school districts. Contracts for this GSC service may be obtained from Sue Jager at (512) 475-2351.

Design/Bid/Build (Competitive Bidding):
Plans and specifications are prepared for specific projects and competitive bids are received from installation contractors. This traditional approach provides the district with more control over each aspect of the project, and task items required by the contractors are presented in detail.

Design/Build:
These contracts are usually structured with the engineer and contractor combined under the same contract to the owner. This type team approach was developed for fast-track projects, and to allow the contractor a position in the decision making process. The disadvantage to the district is that the engineer is not totally independent and cannot be completely focused upon the interest of the district. The district has less control over selection of equipment and quality control.

Purchasing Standardization Method:
This method will result in significant dollar savings if integrated into planned facility improvements. For larger purchases which extend over a period of time, standardized purchasing can produce lower cost per item expense, and can reduce immediate up-front expenditures. This approach includes traditional competitive bidding with pricing structured for present and future phased purchases.

Performance Contracting:
Through this arrangement, an energy service company (ESCO) using in-house or third party financing to implement comprehensive packages of energy saving retrofit projects. Usually a turnkey service, this method includes an initial assessment of energy savings potential, design of the identified projects, purchase and installation of the equipment, and overall project management. The ESCO guarantees that the cost savings generated will, at a minimum, cover the annual payment due over the term of the contract. The laws governing Performance Contracting for school districts are detailed in the Texas Education Code, Subchapter Z, Section 44.901. Senate Bill SB 3035, passed by the seventy-fifth Texas Legislature, amends some of these conditions. Performance Contracting is a highly competitive field, and interested districts may wish to contact Felix Lopez of State Energy Conservation Office, (SECO), at 512-463-1080 for assistance in preparing requests for proposals or requests for qualifications.

Solution Center

How to Finance Your Energy Program

Cost and financing issues are pivotal factors in determining which energy-efficiency measures will be included in your final energy management plan. Before examining financing options, you need to have a reasonably good idea of the measures that may be implemented. For this purpose, you will want to perform cost/benefit analyses on each candidate measure to identify those with the best investment potential. This document presents a brief introduction to cost/benefit methods and then suggests a variety of options for financing your program.

Selecting a Cost/Benefit Analysis Method

Cost/benefit analysis can determine if and when an improvement will pay for itself through energy savings and to help you set priorities among alternative improvement projects. Cost/benefit analysis may be either a simple payback analysis or the more sophisticated life cycle cost analysis. Since most electric utility rate schedules are based on both consumption and peak demand, your analyst should be skilled at assessing the effects of changes in both electricity use and demand on total cost savings, regardless of which type of analysis is used. Before beginning any cost/benefit analyses, you must first determine acceptable design alternatives that meet the heating, cooling, lighting, and control requirements of the building being evaluated. The criteria for determining whether a design alternative is "acceptable" includes reliability, safety, conformance with building codes, occupant comfort, noise levels, and space limitations. Since there will usually be a number of acceptable alternatives for any project, cost/benefit analysis allows you to select those that have the best savings potential.

Simple Payback Analysis

A highly simplified form of cost/benefit analysis is called simple payback. In this method, the total first cost of the improvement is divided by the first-year energy cost savings produced by the improvement. This method yields the number of years required for the improvement to pay for itself.

This kind of analysis assumes that the service life of the energy-efficiency measure will equal or exceed the simple payback time. Simple payback analysis provides a relatively easy way to examine the overall costs and savings potentials for a variety of project alternatives. However, it does not consider a number of factors that are difficult to predict, yet can have a significant impact on cost savings. These factors may be considered by performing a life-cycle cost (LCC) analysis.

Simple Payback

As an example of simple payback, consider the lighting retrofit of a 10,000-square-foot commercial office building. Relamping with T-8 lamps and electronic, high-efficiency ballasts may cost around $13,300 ($50 each for 266 fixtures) and produce annual savings of around $4,800 per year (80,000 kWh at $0.06/kWh). This simple payback for this improvement would be

$$\frac{\$13{,}300}{\$4{,}800/\text{year}} = 2.8 \text{ years}$$

That is, the improvement would pay for itself in 2.8 years, a 36% simple return on the investment (1/2.8 = 0.36).

Life-Cycle Cost Analysis

Life-cycle cost analysis (LCC) considers the total cost of a system, device, building, or other capital equipment or facility over its anticipated useful life. LCC analysis allows a comprehensive assessment of all anticipated costs associated with a design alternative. Factors commonly considered in LCC analyses include initial capital cost, operating costs, maintenance costs, financing costs, the expected useful life of equipment, and its future salvage values. The result of the LCC analysis is generally expressed as the value of initial and future costs in today's dollars, as reflected by an appropriate discount rate.

The first step in this type of analysis is to establish the general study parameters for the

continued

How to Finance Your Energy Program *continued*

Financing Mechanisms

Capital for energy-efficiency improvements is available from a variety of public and private sources, and can be accessed through a wide and flexible range of financing instruments. While variations may occur, there are five general financing mechanisms available today for investing in energy-efficiency:

- **Internal Funds.** Energy-efficiency improvements are financed by direct allocations from an organization's own internal capital or operating budget.
- **Debt Financing.** Energy-efficiency improvements are financed with capital borrowed directly by an organization from private lenders.
- **Lease or Lease-Purchase Agreements.** Energy-efficient equipment is acquired through an operating or financing lease with no up-front costs, and payments are made over five to ten years.
- **Energy Performance Contracts.** Energy-efficiency measures are financed, installed, and maintained by a third party, which guarantees savings and payments based on those savings.
- **Utility Incentives.** Rebates, grants, or other financial assistance are offered by an energy utility for the design and purchase of certain energy-efficient systems and equipment.

These financing mechanisms are not mutually exclusive (i.e., an organization may use several of them in various combinations). The most appropriate set of options will depend on the size and complexity of a project, internal capital constraints, in-house expertise, and other factors. Each of these mechanisms is discussed briefly below, followed by some additional funding sources and considerations.

Internal Funds

The most direct way for the owner of a building or facility to pay for energy-efficiency improvements is to allocate funds from the internal capital or operating budget. Financing internally has two clear advantages over the other options discussed below – it retains internally all savings from increased energy-efficiency, and it is usually the simplest option administratively. The resulting savings may be used to decrease overall operating expenses in future years or retained within a revolving fund used to support additional efficiency investments. Many public and private organizations regularly finance some or all of their energy-efficiency improvements from internal funds.

In some instances, competition from alternative capital investment projects and the requirement for relatively high rates of return may limit the use of internal funds for major, standalone investments in energy-efficiency. In most organizations, for example, the highest priorities for internal funds are business or service expansion, critical health and safety needs, or productivity enhancements. In both the public and private sectors, capital that remains available after these priorities have been met will usually be invested in those areas that offer the highest rates of return. The criteria for such investments commonly include an annual return of 20 percent to 30 percent or a simple payback of three years or less.

Since comprehensive energy-efficiency improvements commonly have simple paybacks of five to six years, or about a 12 percent annual rate of return, internal funds often cannot serve as the sole source of financing for such improvements. Alternatively, however, internal funding can be used well and profitably to achieve more competitive rates of return when combined with one or more of the other options discussed below.

Debt Financing

Direct borrowing of capital from private lenders can be an attractive alternative to using internal funds for energy-efficiency investments. Financing costs can be repaid by the savings that accrue from increased energy-efficiency. Additionally, municipal governments can often issue bonds or other long-term debt instruments at substantially lower interest rates than can private corporate entities. As in the case of internal funding, all savings from efficiency improvements (less only the cost of financing) are retained internally.

Debt financing is administratively more complex than internal funding, and financing costs will vary according to the credit rating of the borrower. This approach may also be restricted by formal debt ceilings imposed by municipal

How to Finance Your Energy Program *continued*

policy, accounting standards, and/or Federal or state legislation.

In general, debt financing should be considered for larger retrofit projects that involve multiple buildings or facilities. When considering debt financing, organizations should weigh the cost and complexity of this type of financing against the size and risk of the proposed projects.

Lease and Lease-Purchase Agreements

Leasing and lease-purchase agreements provide a means to reduce or avoid the high, up-front capital costs of new, energy-efficient equipment. These agreements may be offered by commercial leasing corporations, management and financing companies, banks, investment brokers, or equipment manufacturers. As with direct borrowing, the lease should be designed so that the energy savings are sufficient to pay for the financing charges. While the time period of a lease can vary significantly, leases in which the lessee assumes ownership of the equipment generally range from five to ten years. There are several different types of leasing agreements, as shown in the sidebar. Specific lease agreements will vary according to lessor policies, the complexity of the project, whether or not engineering and design services are included, and other factors.

Energy Performance Contracts

Energy performance contracts are generally financing or operating leases provided by an Energy Service Company (ESCo) or equipment manufacturer. The distinguishing features of these contracts are that they provide a guarantee on energy savings from the installed retrofit measures, and they provide payments to the ESCo from the savings, freeing the customer from any need of up-front payments to the ESCo. The contract period can range from five to 15 years, and the customer is required to have a certain minimum level of capital investment (generally $200,000 or more) before a contract will be considered.

Under an energy performance contract, the ESCo provides a service package that typically includes the design and engineering, financing, installation, and maintenance of retrofit measures to improve energy-efficiency. The scope of these improvements can range from measures that affect a single part of a building's energy-using

Types of Leasing Agreements

Operating Leases are usually for a short term, occasionally for periods of less than one year. At the end of the lease period, the lessee may either renegotiate the lease, buy the equipment for its fair market value, or acquire other equipment. The lessor is considered the owner of the leased equipment and can claim tax benefits for its depreciation.

Financing Leases are agreements in which the lessee essentially pays for the equipment in monthly installments. Although payments are generally higher than for an operating lease, the lessee may purchase the equipment at the end of the lease for a nominal amount (commonly $1). The lessee is considered the owner of the equipment and may claim certain tax benefits for its depreciation.

Municipal Leases are available only to tax-exempt entities such as school districts or municipalities. Under this type of lease, the lessor does not have to pay taxes on the interest portion of the lessee's payments, and can therefore offer an interest rate that is lower than the rate for usual financing leases. Because of restrictions against multi-year liabilities, the municipality specifies in the contract that the lease will be renewed year by year. This places a higher risk on the lessor, who must be prepared for the possibility that funding for the lease may not be appropriated. The lessor may therefore charge an interest rate that is as much as 2 percent above the tax-exempt bond rate, but still lower than rates for regular financing leases. Municipal leases nonetheless are generally faster and more flexible financing tools than tax-exempt bonds.

Guaranteed Savings Leases are the same as financing or operating leases but with the addition of a guaranteed savings clause. Under this type of lease, the lessee is guaranteed that the annual payments for leasing the energy-efficiency improvements will not exceed the energy savings generated by them. The owner pays the contractor a fixed payment per month. If actual energy savings are less than the fixed payment, however, the owner pays only the small amount saved and receives a credit for the difference.

How to Finance Your Energy Program *continued*

Bulk Purchasing. Large organizations generally have purchasing or materials procurement departments that often buy standard materials in bulk or receive purchasing discounts because of the volume of their purchases. Such organizations can help reduce the costs of energy-efficiency renovations if their bulk purchasing capabilities can be used to obtain discounts on the price of materials (e.g., lamps and ballasts). While some locales may have restrictions that limit the use of this option, some type of bulk purchasing can usually be negotiated to satisfy all parties involved.

Project Transaction Costs. Certain fixed costs are associated with analyzing and installing energy measures in each building included in a retrofit program. Each additional building, for example, could represent additional negotiations and transactions with building owners, building analysts, energy auditors, equipment installers, commissioning agents, and other contractors. Similarly, each additional building will add to the effort involved in initial data analysis as well as in tracking energy performance after the retrofit. For these reasons, it is often possible to achieve target energy savings at lower cost by focusing only on those buildings that are the largest energy users. One disadvantage with larger buildings is that the energy systems in the building can be more difficult to understand, but overall, focusing on the largest energy users is often the most efficient use of your financial resources.

Direct Value-Added Benefits. The primary value of retrofits to buildings and facilities lies in the reduction of operating costs through improved energy-efficiency and maintenance savings. Nevertheless, the retrofit may also directly help address a variety of related concerns, and these benefits (and avoided costs) should be considered in assessing the true value of an investment. A few examples of these benefits include the improvement of indoor air quality in office buildings and schools; easier disposal of toxic or hazardous materials found in energy-using equipment; and assistance in meeting increasingly stringent state or Federal mandates for water conservation. Effective energy management controls for buildings can also provide a strong electronic infrastructure for improving security systems and telecommunications.

Economic Development Benefits. In addition to direct savings on operating costs and the added-value benefits mentioned above, investments in energy-efficiency can also support a community's economic development and employment opportunities. Labor will typically constitute about 60 percent of a total energy investment, and about 50 percent of equipment can be expected to be purchased from local equipment suppliers; as a result, about 85 percent of the investment is retained within the local economy. Additionally, funds retained in urban areas will generally be re-spent in the local economy. The Department of Commerce estimates that each dollar retained in an urban area will be re-spent three times. This multiplier effect results in a three-fold increase in the economic benefits of funds invested in energy-efficiency, without even considering the savings from lower overall fuel costs.

For more information contact the Rebuild America Clearinghouse at 252-459-4664 or visit www.rebuild.gov

Rebuild America
U.S. Dept. of Energy

APPENDIX II - ELECTRIC UTILITY RATE SCHEDULES

6.1.1.1.3 SECONDARY VOLTAGE SERVICE GREATER THAN 10 KW

AVAILABILITY

This schedule is applicable to Delivery Service for non-residential purposes at secondary voltage with demand greater than 10 kW when such Delivery Service is to one Point of Delivery and measured through one Meter.

TYPE OF SERVICE

Delivery Service will be single-phase 60 hertz, at a standard secondary voltage. Delivery Service will be metered using Company's standard meter provided for this type of Delivery Service. Any meter other than the standard meter will be provided at an additional charge. Where Delivery Service of the type desired is not available at the Point of Delivery, additional charges and special arrangements may be required prior to Delivery Service being furnished, pursuant to Section 5.7 and 6.1.2 of this Tariff.

MONTHLY RATE

I. Transmission and Distribution Charges:

Customer Charge		
Non-IDR Metered	$3.26	per Retail Customer per Month
IDR Metered	$26.52	per Retail Customer per Month
Metering Charge	$15.81	per Retail Customer per Month
Transmission System Charge		
Non-IDR Metered	$1.286	per NCP kW Billing Demand
IDR Metered	$1.793	per 4CP kW Billing Demand
Distribution System Charge	$3.314	per NCP kW Billing Demand

II. System Benefit Fund: $0.000662 per kWh See SBF 6.1.1.4

III. Transition Charge: See Riders TC 6.1.1.2.1.1 and TC-2 6.1.1.2.2.1

IV. Nuclear Decommissioning Charge: See Rider NDC 6.1.1.5.1

V. Transmission Cost Recovery Factor: See Rider TCRF 6.1.1.6.2.1

VI. Excess Mitigation Credit: Not Applicable

VII. State Colleges and Universities Discount: See Rider SCUD 6.1.1.6.1

VIII. Competitive Metering Credit: See Rider CMC 6.1.1.6.6

IX. Other Charges or Credits:

A. Rate Case Surcharge Rider See Rider RCS-2 6.1.1.6.8

B. True-up Case Surcharge Rider See Rider TCE 6.1.1.6.7

C. Energy Efficiency Rider See Rider EECRF 6.1.1.6.4.1

D. Advanced Metering System Rider See Rider AMSCRF 6.1.1.6.9

COMPANY-SPECIFIC APPLICATIONS

Refer to Section 6.2.2 of the Tariff for additional voltage information.

Three-phase service may be provided if Retail Customer has permanently installed, and in regular use, motor(s) which qualify according to Section 6.2.3.4, or, at the Company's sole discretion, the load is sufficient to warrant three-phase service.

Service will normally be metered at the service voltage. For more information, refer to the Meter Installation and Meter Testing Policy, Section 6.2.3.3 of the Tariff.

Refer to Section 5.5.2 of the Tariff for additional information regarding highly fluctuating loads.

Refer to Section 5.5.4 of the Tariff for additional information regarding operational changes significantly affecting Demand.

Refer to Section 5.5.5 of the Tariff for additional information regarding Power Factor.

Transmission service will be furnished by the Transmission Service Providers (TSPs), and not the Company. The Company performs only the billing function for TSPs.

Determination of Billing Demand for Transmission System Charges

Determination of NCP kW

The NCP kW applicable under the Monthly Rate section for transmission system charges for non-IDR metered customers and IDR metered customers without sufficient 4CP kW

demand data shall be the kW supplied during the 15-minute period of maximum use during the billing month.

Determination of 4 CP kW For IDR Metered Customers

If the Billing Meter is an IDR Meter that was installed at the Retail Customer's request, or by Commission rule, the transmission system charges will be calculated using the 4CP billing kW demand as determined in this section. The 4 CP kW demand applicable under the Monthly Rate section shall be the average of the sum of the Retail Customer's integrated 15-minute demands at the time of the monthly ERCOT system 15-minute peak demand for the months of June, July, August and September of the previous calendar year. The Retail Customer's average 4 CP kW demand will be updated effective on January 1 of each calendar year and remain fixed throughout the calendar year. Retail Customers without previous history on which to determine their 4 CP kW demand will be billed at the applicable NCP kW demand rate under the "Transmission System Charge" using the Retail Customer's NCP kW demand.

All Retail Customers with IDR metering, except IDR meters installed by Company for load survey purposes, will be billed Transmission charges on their 4 CP kW demand pursuant to this schedule.

Determination of Billing Demand for Distribution System Charges

Determination of NCP kW Billing Demand

The NCP kW Billing Demand shall be the kW supplied during the 15-minute period of maximum use. The NCP kW Billing Demand applicable to the Distribution System Charge shall be the higher of the NCP kW demand for the current billing month or 80% of the highest monthly NCP kW demand established in the 11 months preceding the current billing month (80% ratchet). The 80% ratchet shall not apply to Retail Seasonal Agricultural Customers.

Determination Of Billing Demand When Meter Readings Cannot be Obtained

When meter readings cannot be obtained due to denial of access, weather, meter failure, tampering, or other event, the Retail Customer's demand will be estimated pursuant to Section 6.2.3.2.

NOTICE

This rate schedule is subject to the Company's Tariff and Applicable Legal Authorities.

APPENDIX III - PRELIMINARY ENERGY ASSESSMENT SERVICE AGREEMENT

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 Brooks County, 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: Raul M. Ramirez Date: 7-30-09

Name (Mr./Ms./Dr.): Judge Raul M. Ramirez Title: County Judge

Organization: Brooks County Phone: 361-325-1008

Street Address: 408 W. Travis Fax: 361-325-5369

Mailing Address: P.O Box 534 E-Mail: raul.ramirez@brooks-county.com

County: Brooks

Contact Information:

Name (Mr./Ms./Dr.): Noe Guerra, Jr Title: Raul M. Ramirez

Phone: 361-675-6152 Fax:

E-Mail: noe.guerra@brooks-county.com County: Brooks County Judge

Please sign and mail or fax to: Theresa Sifuentes, Local Governments and Municipalities Program Administrator, State Energy Conservation Office, 111 E. 17th Street, Austin, Texas 78774. Phone: 512-463-1896. Fax 512-475-2569.

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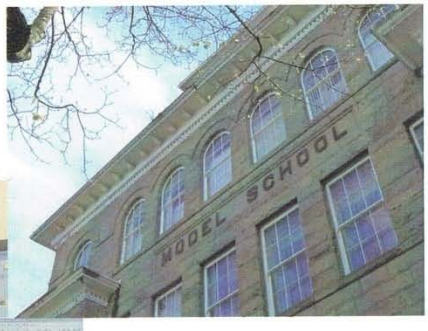
APPENDIX IV - TEXAS ENERGY MANAGERS ASSOCIATION (TEMA)

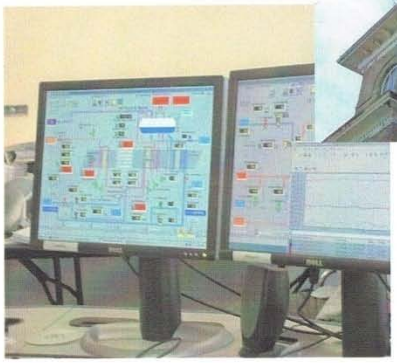
ANNOUNCING!

TEMA

TEXAS ENERGY MANAGERS ASSOCIATION

A PROFESSIONAL ASSOCIATION FOR THOSE RESPONSIBLE FOR ENERGY MANAGEMENT IN TEXAS PUBLIC FACILITIES





- Networking
- Sharing Knowledge and Resources
- Training Workshops
- Regional Meetings
- Annual Conference
- Certification
- Legislative Updates
- Money-Saving Opportunities

WWW.TEXASEMA.ORG

Check the website for Membership and Association information.

SECO
State Energy Conservation Office