Susan Combs
Texas Comptroller of Public Accounts

# Facility Preliminary Energy Assessments and Recommendations


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## Belton Independent School District

August 2, 2010

ESA-Energy Systems Associates, Inc.
F-4882

SECO
State Energy Conservation Office

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## 1.0 EXECUTIVE SUMMARY:

This **Energy Efficient Partnership Service** is provided to public school districts and hospitals 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**.


| | |
|---|---|
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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 January 2010, **SECO** received a request for technical assistance from *Joe Peterka*, Executive Director of Operations for Belton I.S.D. **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 usage and costs for **Belton ISD,** (hereafter known as BISD) was completed by ESA **Energy Systems Associates, Inc**., (hereafter known as *Engineer*) to determine the annual energy cost index (ECI) and energy use index (EUI) for each campus or facility. A complete listing of the Base Year Utility Costs and Consumption is provided in Section 3.0 of this report.

Following the utility analysis and a preliminary consultation with *Mr. Sam Berumen*, a walk-through energy analysis was conducted throughout the campus. 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 **$154,600** may be saved annually if all recommended projects are implemented. The estimated installed cost of these projects should total approximately **$1,601,550**, yielding an average simple payback of **10-1/2** years.

| SUMMARY: | IMPLEMENTATION COST | ESTIMATED SAVINGS | SIMPLE PAYBACK |
|---|---|---|---|
| HVAC ECRM #1 | $1,473,950 | $140,100 | 10-1/2 Years |
| HVAC ECRM #2 | $ 126,000 | $ 14,000 | 9 Years |
| LIGHTING ECRM #2 | $1,600 | $500 | 3-1/4 Years |
| **TOTAL PROJECTS** | $ 1,601,550 | $ 154,600 | 10-1/2 Years |

The total utility cost for BISD in 2009 was $1,686,128. The projected savings of $154,100 would represent a decrease in utility expenditures for the district of 9.1%. 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 **BISD**. 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* most recent twelve months of utility bills was provided to the engineer for the preliminary assessment of the Energy Performance Indicators. After reviewing the utility bill data analysis and consultation with SECO to determine the program elements to be provided to BISD, ESA returned to the facilities to perform the following tasks:

1. Analyzing systems for code and standard compliance in areas such as cooling system refrigerants used, outside air quantity, and lighting illumination levels.
2. 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.
3. Develop a prioritized schedule for replacement projects.
4. Assist in the development of guidelines for efficiency levels of future equipment purchases.
5. Recommend the quality oriented process required in retro-commissioning for achieving, verifying, and documenting the performance of facilities, systems, and assemblies meet defined objectives and design criteria.

## 3.0 ENERGY PERFORMANCE INDICATORS:

In order to easily assess the *Partner's* energy utilization and current level of efficiency, there are two key "Energy Performance Indicators" calculated within this report.

### 1. Energy Utilization Index

The Energy Utilization Index (EUI) depicts the total annual energy consumption per square foot of building space, and is expressed in "British Thermal Units" (BTUs).

To calculate the EUI, the consumption of electricity and gas are first converted to equivalent BTU consumption via the following formulas:

ELECTRICITY Usage

[ Total KWH /yr] x [ 3413 BTUs/KWH] = _____ BTUs / yr

NATURAL GAS Usage

[Total MCF/yr ] x [1,030,000 BTUs/MCF] = _____ BTUs / yr

After adding the BTU consumption of each fuel, the total BTUs are then divided

by the building area.

EUI = [ Electricity BTUs + Gas BTUs] divided by [Total square feet]

### 2. Energy Cost Index

The Energy Cost Index (ECI) depicts the total annual energy cost per square foot of building space.

To calculate the ECI, the annual costs of electricity and gas are totaled and divided by the total square footage of the facility:

ECI = [ Electricity Cost + Gas Cost ] divided by [ Total square feet ]

These indicators may be used to compare the facility's current cost and usage to past years, or to other similar facilities in the area. Although the comparisons will not provide specific reasons for unusual operation, they serve as indicators that problems may exist within the energy consuming systems.

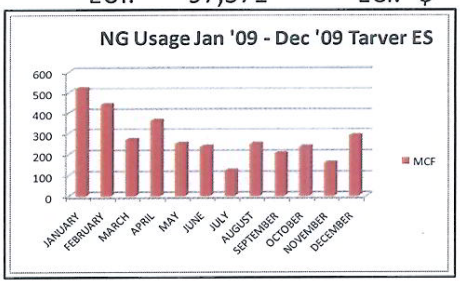
# THE CURRENT ENERGY PERFORMANCE INDICATORS FOR :

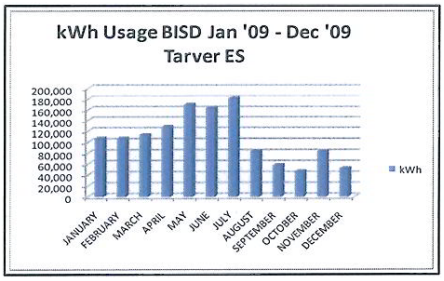
**BELTON ISD**

| CAMPUS (2009-2010) | ENERGY UTILIZATION INDEX (EUI) (BTU/sf-year) | ENERGY COST INDEX (ECI) ($/sf-year) |
|---|---|---|
| **Tarver ES** | **97,571** | **$2.30** |
| **Belton HS** | **56,591** | **$1.61** |
| **Pirtle ES** | **45,346** | **$1.59** |
| **Southwest ES** | **43,319** | **$1.55** |
| **Sparta ES** | **49,586** | **$1.52** |
| **Lakewood ES** | **38,485** | **$1.49** |
| **Lake Belton MS** | **43,335** | **$1.44** |
| **Belton MS** | **43,369** | **$1.26** |
| **Leon Heights ES** | **34,628** | **$1.17** |
| **Miller Heights ES** | **38,049** | **$1.15** |
| **Tyler ES** | **32,583** | **$1.05** |
| **District Median Values** | **43,335** | **$1.49** |

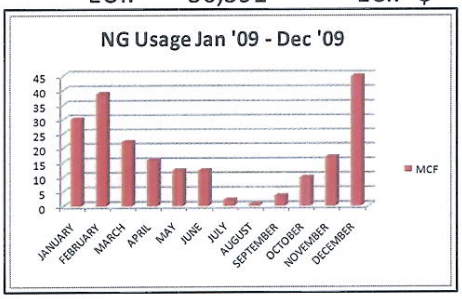
The electricity and gas consumption charts for all of Belton's facilities area as follows:

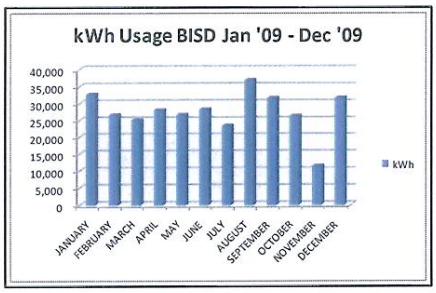
**Tarver ES** EUI: 97,571 ECI: $ 2.30



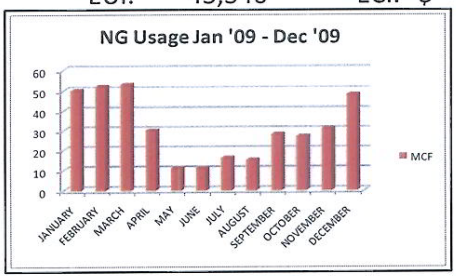



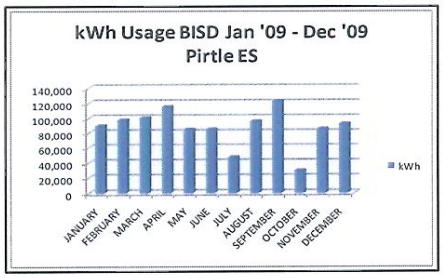

**Belton HS** EUI: 56,591 ECI: $ 1.61



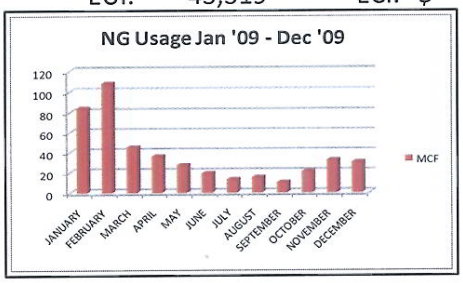



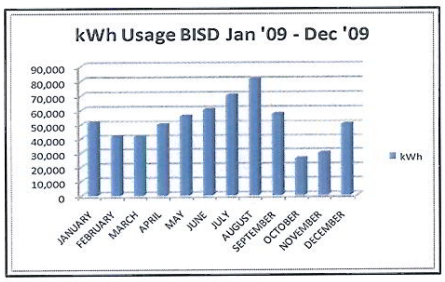

**Pirtle ES** EUI: 45,346 ECI: $ 1.59



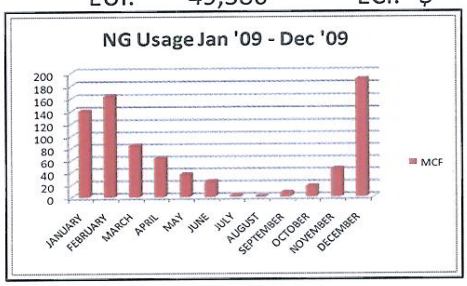



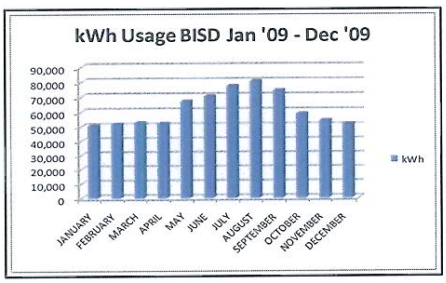

**Southwest ES** EUI: 43,319 ECI: $ 1.55



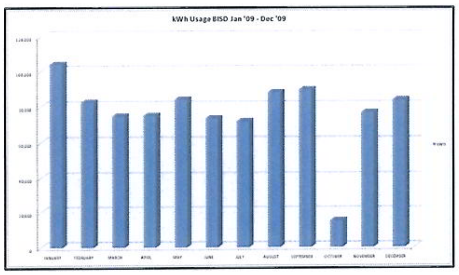

**Sparta ES** EUI: 49,586 ECI: $ 1.52



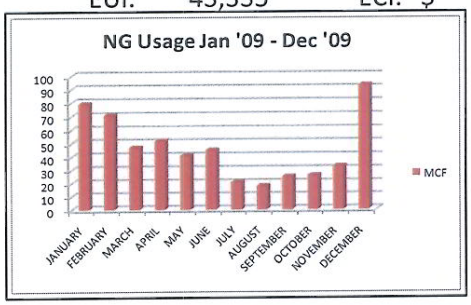



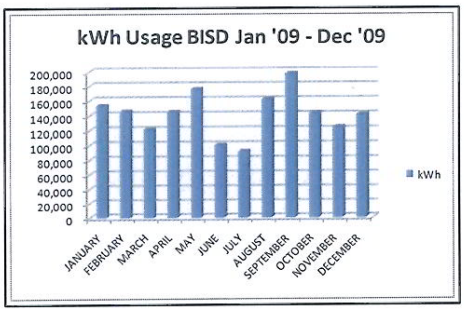
**Lakewood ES** EUI: 38,485 ECI: $ 1.49

All Electric Facility

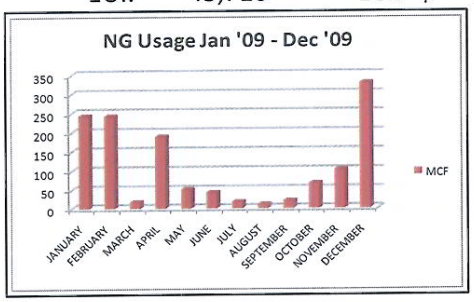


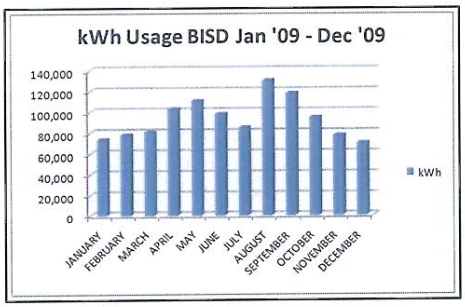

**Lake Belton MS** EUI: 43,335 ECI: $ 1.44



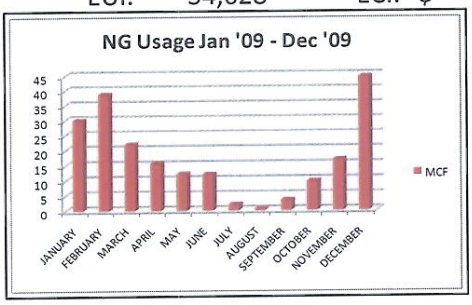



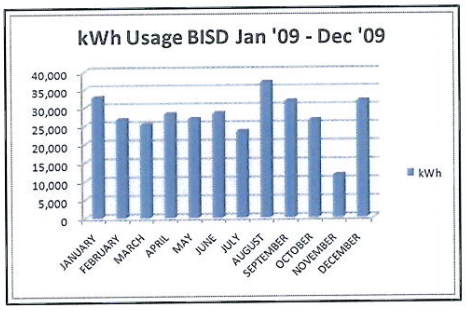

**Belton MS** EUI: 45,710 ECI: $ 1.26



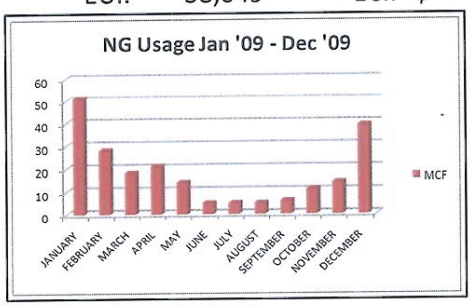



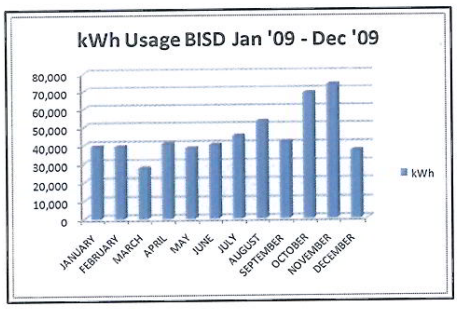

**Leon Heights ES** EUI: 34,628 ECI: $ 1.17



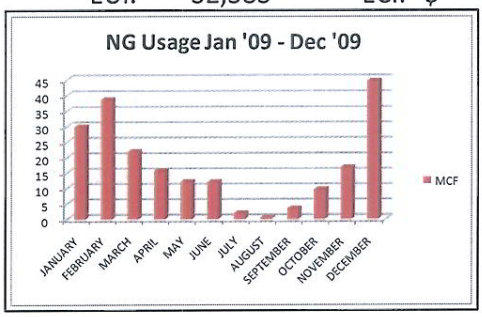



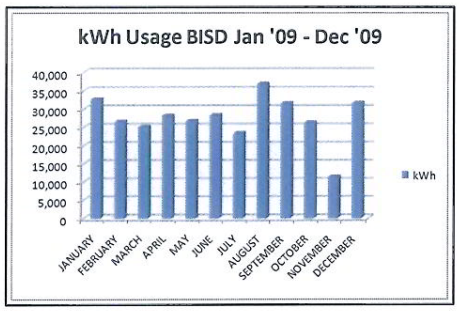

**Miller Heights ES** EUI: 38,049 ECI: $ 1.15



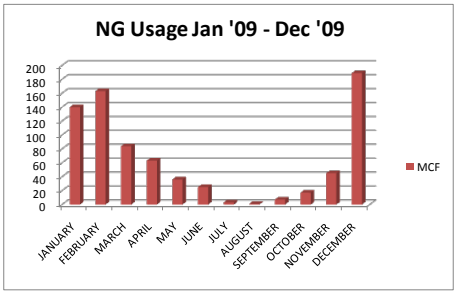
**Tyler ES** EUI: 32,583 ECI: $ 1.05



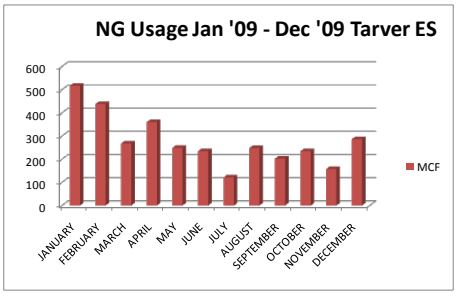

Best Natural Gas Profile: Sparta ES

Ideally, the natural gas annual consumption profile should appear as upward open bell curve which with curves beginning and ending with highest consumptions in January/February and December, respectively. This curve shape occurs with most of the Belton ISD graphs, but the maximum difference between peak and minimum consumption occurs at Sparta, demonstrating greatest control of the system between winter and summer seasons.



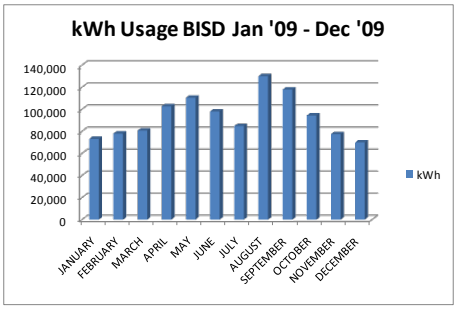

Worst Natural Gas Profile: Tarver ES

While Tarver has a small bell curve shape to its profile, the curve is obviously more shallow than most other BISD profiles, and the minimum consumption in July remains 121 MCF, approximately 100 times more than the expected value for non-occupied summer vacation.

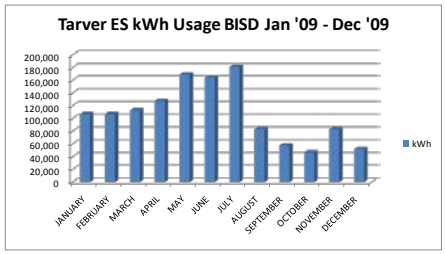



Best Electricity Consumption Profile: Belton MS

Ideally, the electricity consumption curve (in a gas space heating facility – all but one of BISD's campuses) will have a minimal consumption in January that builds gradually through May, then drops for the June and July summer vacation period, returns with peak consumption in August/September and gradually declines through December.



Worst Electricity Consumption Profile: Tarver ES




Contrary to the ideal curve described for Belton MS, Tarver ES has a curve that gradually builds all the way through the summer months and records the highest consumption for July. In August, an undetermined event occurs after which consumption precipitously drops and remains substantially lower for the remainder of the analyzed period. After discussion with district staff, it was determined that this substantial decrease in consumption in August coincides with a re-commissioning process conducted at the school by the design and construction staff. The results of the re-commissioning should reflect a permanent decrease in consumption for the campus through the elimination of simultaneous heating and cooling activities that were operating at the school.

The district's current Retail Electric Provider (REP) is Energy for Schools and their Transmission and Distribution (T&D) Provider is Oncor. The rate schedule applicable to most of the district's meters is Secondary Service Greater than 10 kW. A copy of the schedule and applicable riders is included in Appendix II.

## 5.0 RATE SCHEDULE ANALYSIS:

### ELECTRICITY PROVIDER:

**RETAIL ELECTRIC PROVIDER (REP): Energy for Schools [$0.0854 per kWh]**

**TRANSMISSION AND DISTRIBUTION (T&D): Oncor**

**Electric Rate: Secondary Service > 10 kW**

| | | | |
|---|---|---|---|
| I. | TRANSMISSION AND DISTRIBUTION CHARGES: | | |
| | Customer Charge | = | $3.50 per meter |
| | Metering Charge | = | $18.41 per meter |
| | Transmission System Charge (Non-IDR Meter) | = | $1.99 per NCP kW |
| | Distribution System Charge | = | $3.97 per DS Billing kW |
| II. | SYSTEM BENEFIT FUND | = | $0.000655 per kWh |
| III. | TRANSITION CHARGES | | |
| | Transition Charge 1 | = | $0.161/kW |
| | Transition Charge 2 | = | $0.397/kW |
| IV. | NUCLEAR DECOMMISSIONING CHARGE | = | $0.044 per DS Billing kW |
| V. | TRANSMISSION COST RECOVERY FACTOR | = | $0.125668/NCP kW |
| VI. | ENERGY EFFICIENCY COST RECOVERY | = | $9.66/billing period |
| VII. | COMPETITIVE METERING CREDIT | = | $5.47 per month |

Average Savings for consumption = $0.0854/kWh + $0.000655/kWh = $0.086055/kWh

Average Savings for demand = $1.99 + $3.97 + $0.161 + $0.397 + $0.044 + $0.125668 = $6.69/kW**

** This number is a generalization of average cost per kW because the rate schedule from Oncor 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

## NATURAL GAS PROVIDER:

**Atmos**

Rate Schedule Unavailable: Average cost per MCF determined from utility billings.

| | |
|---|---|
| Total Cost of Natural Gas purchased for Belton ISD: | $86,359 |
| Total Quantity of Natural Gas purchased for Belton ISD: | 11,176 MCF |

Cost / Quantity = Average Unit Cost

$ 86,359 / 11,176 mcf = **$7.73 per mcf of natural gas**

## 5.0 CAMPUS DESCRIPTIONS:

**Belton ISD** consists of eleven (11) educational campuses which are located throughout Belton, Texas. The facilities are occupied from mid- August through late May on a weekday schedule of 7:15 A.M. to 4:30 P.M. The Administrative area is open all year, and portions of the facility are occupied by the maintenance/custodial staff throughout the summer.

*General District HVAC System Description:*

Most of the district is served by rooftop units and split systems. The units vary in age from 1972 to 2009. We recommend the district begin a process called planned obsolescence for these unitary systems. In this process, the district budgets to replace as many old or maintenance intensive units as possible until there are no units left operating in the district that are 15 years or older. The life expectancy for unitary systems (rooftops and split systems) is 15-20 years; through this process, the district can almost eliminate emergency equipment replacement if proper preventive maintenance practices are performed for the existing units. The following equipment list contains unitary systems at schools in the district (15 years and older) and their approximate ages:

| ***Location*** | ***Number of Units / Nominal Tonnage*** | ***Approximate Age of Units*** |
|---|---|---|
| High School | 23 Carrier RTUs / 69 tons | 1994 |
| HS – Careers Studies | 11 Carrier S/Ss / 44 tons | 1993 |
| HS – Locker Room | 2 Lennox S/Ss / 9 tons | 1995 |
| HS – Wood Shop | 2 Lennox S/Ss / 10 tons | 1988 |
| HS – Wood Shop | 3 Carrier S/Ss / 6 tons | 1978 |
| HS – Ag Shop | 2 Lennox S/Ss / 6-1/2 tons | 1978 |
| Print Shop | 3 Lennox S/Ss / 12 tons | 1982 |
| Belton High AG | 2 Lennox S/Ss / 6-1/2 tons | 1978 |
| Belton MS | 34 Trane RTUs / 145 tons | 1992 |
| EDC Building | 5 Carrier RTUs / 26-1/2 tons | 1993 |
| EDC Building | 4 Lennox S/Ss / 13 tons | 1982 |
| Lakewood ES | 7 Lennox S/Ss / 28 tons | 1985 |
| Lakewood ES | 8 Lennox S/Ss / 34 tons | 1985 |
| Lakewood ES | 3 Lennox S/Ss / 15 tons | 1995 |
| Lakewood ES Coach | 1 Lennox S/S | 1994 |
| Lakewood ES Cafe/Library | 5 Lennox RTUs / 100 tons | 1985 |
| Leon Heights ES Lib/CR | 4 Lennox RTUs / ~16 tons | 1983 |
| Sparta ES | 25 Trane RTUs / 94 tons | 1988 |

| | | |
|---|---|---|
| Sparta ES | 5 Lennox RTUs / 20 tons | 1994 |
| Tyler ES | 2 Lennox RTUs / 40 tons | 1983 |
| Tyler ES | 3 Trane RTUs / 24-1/2 tons | 1990 |
| **TOTAL** | **154 Units / 723 tons** | **n/a** |

The High School Gymnasium and Auditorium is served by a small central system consisting of three 50 ton and one 60 ton 1994 air-cooled Carrier chillers. The chillers do not have coil guards and have suffered minor to moderate coil fin damage as can be seen in Figure 2 to the right. Damage to just 10% of the coil fins can result in up to 30% loss of operating efficiency. *We recommend the coil fins be combed straight and coil guards installed to prevent future coil fin damage.* The system has four primary chilled water pumps (one per each chiller) and two secondary loop pumps (one to serve the gymnasium and one to serve the Auditorium).

Figure 2: Air cooled chillers at Gym and Auditorium

The hot water for the space heating system is supplied by a Teledyne Laars 4,050,000 BTUH input boiler and is distributed by a primary and secondary hot water loop pumps at 130°F loop temperature setpoint. The domestic water heater at the mechanical room is a 250 gallon Ventura 650,000 BTUH input water heater operating with a 140°F loop temperature setpoint. It was noted during the survey that this unit did not have insulation on the hot water piping. The majority of energy losses in a hot water system occur in the hot water piping and therefore *we recommend the district install new insulation on the hot water piping.*

*Control System Description:*

The district has a Johnson Metasys control system that supervises most of the district's HVAC equipment. Some pneumatic controls still exist within the central system at the Gymnasium and Auditorium. The EMS allows most of the systems to startup at 0630 or 0700 hours and disables the systems between 1600 and 1700 hours. The district's cooling and heating setpoints are 76°F and 72°F respectively. The High School has the Johnson control system limited to on/off control; the existing pneumatic controls are still currently in use at the campus.

The cafeteria HVAC units at Southwest Elementary are currently not covered by the energy management system and staff suspects they may operate all night long. *We recommend installing IP Addressable programmable thermostats on these units to allow the Maintenance Department to monitor and control these units remotely and eliminate operation of the units after normal occupancy hours.* IP Addressable thermostats can be relocated to other locations, such as portable buildings, as needed if the energy management system is ever extended to cover these units.

*Lighting System Description:*

The district has T8 lighting throughout teaching spaces on most campuses. Gymnasiums have traditionally utilized metal halide fixtures; the district has renovated three of their gymnasiums with new high-bay T5 or T8 technology fixtures and plans to continue renovations at other campuses in the future. The new fixtures do not have the long re-strike issue that is inherent to metal halide fixtures which encourages users to leave the gym fixtures operating throughout the day regardless of student occupancy patterns. Having fixtures that can be turned off when the gymnasium space is unoccupied can reduce fixture operating hours by up to 6-8 hours per day at most facilities.

There were areas noted during the survey where light fixtures in daylit areas were operating when their lighting contribution to the space is negligent. These fixtures are designed to have high impact or functionality during night activities, but provide little benefit when natural daylight floods the space. As can be seen in Figure 1 to the right, the five fixtures illuminated in front of the glass doors, windows, and transom windows are unnecessary during the day. There is sufficient natural daylight in this section of the corridor to allow the artificial fixtures to be turned off, extending the operating life of the lamps in these fixtures and saving electrical demand and consumption for the district. *We recommend the district place the fixtures on a separate photocell controlled circuit that allows them to be turned off when they are not necessary, but do not require manual operation for the times that they are necessary.*

**Figure 3: Light fixtures on in daylit areas**

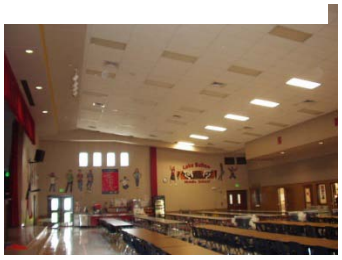


**Figure 4: Cafeteria with decreased fixtures when unoccupied**

A similar condition was discovered in the cafeteria of the Junior High, where 48 each 4-lamp fixtures were found to be operating in a completely vacant space. The natural daylight in this space is sufficient to require only one bank of artificial fixtures to be operating and still allow safe passage through the cafeteria during regularly unoccupied periods. In addition to the 48 fixtures in the table areas, 12 additional fixtures were found illuminated on the stage and ten compact fluorescent can lights were operating as well. Together, decreasing the operating hours for 32 of the 48 4-lamp fixtures for 4 hours per day and limiting the use of the stage and perimeter can lighting to night activities, should save the district approximately $845 per year.

It was noted during the survey that the vending machines are not controlled with a vending miser controller. These units turn off the advertisement lighting when occupants are not present in the area and cycle the compressor off until the contents of the machine reach a programmable temperature setpoint and requires the compressor to come back on.

While most of the district has been renovated or constructed with T8 fluorescent fixtures, it was noted during the survey that some T12 fixtures still exist in the corridors of Southwest Elementary School. One of the corridors currently has 3-lamp fixtures while two other corridors are utilizing 4-lamp fixtures. The recommended light level in educational corridors by the Illumination Engineering Society of North America (IESNA) is 10-15 footcandles. As these corridors are overlit as compared to this reference, *we recommend retrofitting the three corridors with 2 each T8 lamps and electronic ballasts. This measure will offer significant energy savings and reduce maintenance expenses as well.*

# 6.0 RECOMMENDATIONS

## A. MAINTENANCE AND OPERATIONS PROCEDURES

| | |
|---|---|
| HVAC | •Comb fins on damaged condenser equipment<br>•Install hail guards to protect fins in future<br>•Replace damaged refrigerant line insulation<br>•Install HW piping insulation where damaged or missing |
| Lighting | •Install photocell or timeclock for Daylit Area fixtures<br>•Train staff to not just turn on all fixtures at startup |
| Controls | •Replace existing thermostat at Southwest Elementary with IP Addressable Programmable Units |
| Building Envelope | •Check weatherstrip at all exterior doors, replace as needed |

Maintenance and Operation procedures 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 always less than one year. The difficulties with payback calculation 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 weatherstripping so that exact air losses may be determined, is prohibitive when the benefits of renovating door and weather weatherstripping are well documented and universally accepted.

*HVAC M&O*

At BISD, the HVAC M&O opportunities revolve around combing the condenser fins [combs are available for less than $10] and replacement of refrigerant line insulation. The installation of coil guards prevents future fin combing, which is ultimately a combination of deferred labor savings for eliminating the need for maintenance personnel to perform the task and energy savings resulting from the units maintaining optimum operating efficiency. The majority of energy losses in a hot water system occur in the hot water piping, therefore, the majority of the losses in a hot water system can be avoided by insulating the hot water piping.

*Lighting System M&O*

The low cost lighting system opportunities involve eliminating daylight operation of existing interior and exterior fixtures. The most efficient condition for any piece of equipment is off. Eliminating the operation of fixtures when they are not necessary will save significant amounts of energy and dollars.

*Controls M&O*

The cafeteria HVAC units at Southwest Elementary are currently not covered by the energy management system and staff suspects they may operate all night long. We recommend installing IP Addressable programmable thermostats on these units to allow the Maintenance Department to monitor and control these units remotely and eliminate operation of the units after normal occupancy hours. IP Addressable thermostats cost approximately $400 each and can be relocated to other locations as needed if the energy management system is ever extended to cover these units.

*Envelope M&O*

As discussed previously, calculating paybacks for missing or damaged weatherstripping is tedious and serves little purpose. It was noted there were several exterior doors around the district that suffered from missing or absent weatherstripping and we recommend that these situations be addressed as the opportunity arises.

## B. CAPITAL EXPENSE PROJECTS

**HVAC**

- Initiate planned obsolescence for all HVAC units in the district 15 years old or older
- Extend EMS to High School; eliminate pneumatic controls at Gymnasium and Auditorium Central Plant

**Lighting**

- Continue district plan to renovate Gym metal halide fixtures with T5 or T8 high-bay fixtures
- Retrofit existing T12 fixtures at Southwest Elementary with T8 lamps and electronic ballasts

*HVAC and Infrastructure ECRMs*

*ECRM #1: Initiate planned obsolescence for all HVAC units in the district 15 years old or older.*

At the ***High School***, there are 48 RTUs totaling 163 tons of cooling capacity that date between 16 and 32 years old.

| | | |
|---|---|---|
| Estimated Installed Cost | = | $334,150 |
| Estimated Energy Cost Savings | = | $ 41,775 |
| Simple Payback Period | = | 8 years |

At the ***Junior High School***, there are 34 RTUs totaling 145 tons of cooling capacity that were installed in 1992.

| | | |
|---|---|---|
| Estimated Installed Cost | = | $297,250 |
| Estimated Energy Cost Savings | = | $ 33,025 |
| Simple Payback Period | = | 9 years |

At the ***EDC Building***, there are 9 RTUs totaling 39-1/2 tons of cooling capacity that were installed between 1982 and 1993.

| | | |
|---|---|---|
| Estimated Installed Cost | = | $ 80,975 |
| Estimated Energy Cost Savings | = | $ 10,125 |
| Simple Payback Period | = | 8 years |

At ***Lakewood Elementary***, there are 28 RTUs totaling 193 tons of cooling capacity that were installed between 1983 and 1995.

| | | |
|---|---|---|
| Estimated Installed Cost | = | $ 395,650 |
| Estimated Energy Cost Savings | = | $ 52,750 |
| Simple Payback Period | = | 7-1/2 years |

At ***Sparta Elementary***, there are 30 RTUs totaling 114 tons of cooling capacity that were installed between 1984 and 1994.

| | | |
|---|---|---|
| Estimated Installed Cost | = | $ 233,700 |
| Estimated Energy Cost Savings | = | $ 29,225 |
| Simple Payback Period | = | 8 years |

At ***Tyler Elementary***, there are 5 RTUs totaling 64-1/2 tons of cooling capacity that were installed in 1990.

| | | |
|---|---|---|
| Estimated Installed Cost | = | $ 132,225 |
| Estimated Energy Cost Savings | = | $ 14,700 |
| Simple Payback Period | = | 9 years |

**<u>TOTAL COST ANALYSIS FOR ECRM #1</u>**

| | | |
|---|---|---|
| Estimated Installed Cost | = | $ 1,473,950 |
| Estimated Energy Cost Savings | = | $ 140,100 |
| Simple Payback Period | = | 10-1/2 years |

*ECRM #2: Extend DDC control to High School central system*

Currently, much of the equipment at the High School central system has pneumatic controllers. Extending the DDC control system will allow the district to eliminate the need for the compressed air system.

| | | |
|---|---|---|
| Estimated Installed Cost | = | $ 126,000 |
| Estimated Energy Cost Savings | = | $ 14,000 |
| Simple Payback Period | = | 9 years |

*<u>LIGHTING ECRMs</u>*
*ECRM #1: Retrofit Existing Gymnasium Fixtures to T5HO or T8 High Bay Fluorescent*

The district has already begun a process of renovating metal halide fixtures in their gymnasiums to new T5HO or T8 high bay linear fluorescent fixtures. These fixtures will allow the lights to be turned off during inactive periods of the day, saving as much as 4-6 hours of operation per day.

| | | |
|---|---|---|
| Estimated Installed Cost | = | $ Varies per gymnasium; ~$350 per fixture |
| Estimated Energy Cost Savings | = | $ Varies per Gymnasium |
| Simple Payback Period | = | Typically averages 5 years |

*ECRM #2: Retrofit Existing T12 fixtures with T8 lamps and electronic ballasts at Southwest ES*

It was noted during the survey that many of the corridors in Southwest Elementary School are currently 3-lamp or 4-lamp T12 fixtures. We recommend retrofitting these fixtures with 2 each T8 lamps and electronic ballast.

| | | |
|---|---|---|
| Estimated Installed Cost | = | $ 1600 |
| Estimated Energy Cost Savings | = | $ 500 |
| Simple Payback Period | = | 3-1/4 years |

SUMMARY TABLE:

Excluding Lighting ECRM #1, because it is a future consideration for an undefined gymnasium space, the projects we recommend BISD consider at the present time include HVAC ECRM #1 and ECRM #2:

| | | |
|---|---|---|
| Estimated Installed Cost | = | $ 1,601,550 |
| Estimated Energy Cost Savings | = | $ 154,600 |
| Simple Payback Period | = | 10-1/2 years |

## 7.0 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.

| | | | | |
|---|---|---|---|---|
| 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. $2000 maintenance expense next 5 years | | | | |
| 4. $5000 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 | ($1,601,550) | | 0 | ($1,601,550) |
| Year 1 | | $ 154,600 | 0 | $154,600 |
| Year 2 | | $ 154,600 | 0 | $154,600 |
| Year 3 | | $ 154,600 | 0 | $154,600 |
| Year 4 | | $ 154,600 | 0 | $154,600 |
| Year 5 | | $ 154,600 | 0 | $154,600 |
| Year 6 | | $ 151,508 | ($2,000) | $149,508 |
| Year 7 | | $ 148,416 | ($2,000) | $146,416 |
| Year 8 | | $ 145,324 | ($2,000) | $143,324 |
| Year 9 | | $ 142,232 | ($2,000) | $140,232 |
| Year 10 | | $ 139,140 | ($2,000) | $137,140 |
| Year 11 | | $ 136,048 | ($5,000) | $131,048 |
| Year 12 | | $ 132,956 | ($5,000) | $127,956 |
| Year 13 | | $ 129,864 | ($5,000) | $124,864 |
| Year 14 | | $ 126,772 | ($5,000) | $121,772 |
| Year 15 | | $ 123,680 | ($5,000) | $118,680 |
| | | | | |
| | | | **Internal Rate of Return** | **3.89%** |

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

APPENDIX I: SUMMARY OF FUNDING AND PROCUREMENT OPTIONS

## 8.0 GENERAL COMMENTS

This report has been prepared for the exclusive use of our client for specific application to the project discussed and has been prepared in accordance with generally accepted engineering practices. All estimations provided in this report were based upon information provided to ESA by the District and their respective utility providers. While cost saving estimates have been provided, they are not intended to be considered a guarantee of cost savings. No guarantees or warranties, either expressed or implied, are intended or made. Changes in energy usage or utility pricing from those provided will impact the overall calculations of estimated savings and could result in different or longer payback periods.

# APPENDICES

# APPENDIX I - SUMMARY OF FUNDING AND PROCUREMENT OPTIONS FOR CAPITAL EXPENDITURE PROJECTS

## 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 Eddy Trevino of State Energy Conservation Office, (SECO), at 512-463-1896 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

## 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

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

**Tariff for Retail Delivery Service**
**Oncor Electric Delivery Company LLC**

**6.1.1 Delivery System Charges** | Sheet: 1.3
Applicable: Entire Certified Service Area | Page 1 of 2
Effective Date: December 30, 2009 | Revision: Three

## 6.1.1.1.3 Secondary Service Greater Than 10 kW

### AVAILABILITY

This schedule is applicable to Delivery Service 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 or three-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, unless Retail Customer is eligible for and chooses a competitive meter provider. Any meter other than the standard meter provided by Company 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 contract arrangements may be required prior to Delivery Service being furnished, pursuant to Section 6.1.2.2 of this Tariff.

### MONTHLY RATE

| | | |
|---|---|---|
| **I. Transmission and Distribution Charges:** | | |
| Customer Charge | $3.50 | per Retail Customer |
| Metering Charge | $18.41 | per Retail Customer |
| Transmission System Charge | | |
| Non-IDR Metered | $1.48 | per NCP kW |
| IDR Metered | $1.99 | per 4CP kW |
| Distribution System Charge | $3.97 | per Distribution System billing kW |
| **II. System Benefit Fund:** | $0.000655 | per kWh, See Rider SBF |
| **III. Transition Charge:** | See Riders TC1 and TC2 | per Distribution System billing kW |
| **IV. Nuclear Decommissioning Charge:** | $0.044 | per Distribution System billing kW, See Rider NDC |
| **V. Transmission Cost Recovery Factor:** | See Rider TCRF | |
| **VI. Energy Efficiency Cost Recovery Factor:** | See Rider EECRF | |
| **VII. Competitive Meter Credit:** | See Rider CMC | |
| **VIII. Advanced Metering Cost Recovery Factor:** | See Rider AMCRF | |
| **Other Charges or Credits** | | |
| **IX. Rate Case Expense Surcharge:** | See Rider RCE | per Distribution System billing kW |

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## COMPANY SPECIFIC APPLICATIONS

At Company's option, locations where the electrical installation has multiple connections to Company's conductors, due to Company facilities limitations or design criteria, may be considered one Point of Delivery for billing purposes.

## DETERMINATION OF BILLING DEMAND FOR TRANSMISSION SYSTEM CHARGES

### DETERMINATION OF NCP kW

The NCP kW applicable under the Monthly Rate section shall be the kW supplied during the 15 minute period of maximum use during the billing month.

### DETERMINATION OF 4 CP kW

The 4 CP kW applicable under the Monthly Rate section shall be the average 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 4CP 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 will be billed at the applicable NCP rate under the "Transmission System Charge" using the Retail Customer's NCP kW.

## DETERMINATION OF BILLING DEMAND FOR DISTRIBUTION SYSTEM CHARGES

### DETERMINATION OF BILLING kW

For loads whose maximum NCP kW established in the 11 months preceding the current billing month is less than or equal to 20 kW, the Billing kW applicable to the Distribution System Charge shall be the NCP kW for the current billing month.

For all other loads, the Billing kW applicable to the Distribution System Charge shall be the higher of the NCP kW for the current billing month or 80% of the highest monthly NCP kW established in the 11 months preceding the current billing month (80% ratchet).

The 80% ratchet shall not apply to Retail Seasonal Agricultural Customers.

## NOTICE

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

# APPENDIX III - PRELIMINARY ENERGY ASSESSMENT SERVICE AGREEMENT

SECO
State Energy Conservation Office

## SCHOOLS PARTNERSHIP PROGRAM
## Preliminary Energy Assessment
## Service Agreement

Investing in our public schools, colleges and non-profit hospitals 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 Belton ISD, 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: Eric Haugeberg
Date: 10-1-09
Name (Mr./Ms./Dr.) Eric Haugeberg
Title: Assistant Superintendent
Organization: Belton ISD
Phone: (254) 215-2065
Street Address: 400 N. Wall, Belton
Fax: (254) 215-2001
Mailing Address: P.O. Box 269
Belton, Texas 76513
E-Mail: eric.haugeberg@bisd.net
County: Bell - ESA

**Contact Information:**

Name (Mr./Ms./Dr.): Joe Peterka
Title: Executive Director
Phone: (254) 215-2165
Fax: (254) 215-2162
E-Mail: joe.peterka@bisd.net
County: Bell

Please sign and mail or fax to: **Juline Ferris, Schools Partnership Program Administrator**, State Energy Conservation Office, 111 E. 17th Street, Austin, Texas 78774. Phone: 512-936-9283. **Fax 512-475-2569.**

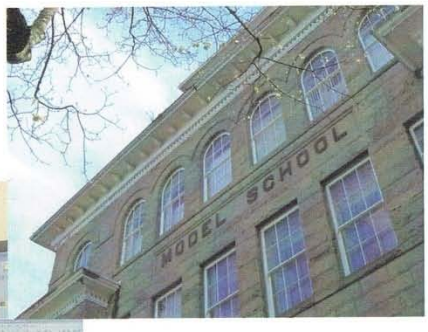
# APPENDIX IV - TEXAS ENERGY MANAGERS ASSOCIATION (TEMA)

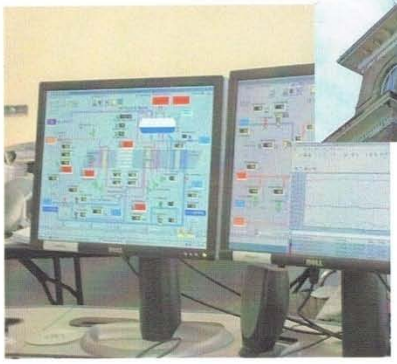
ANNOUNCING!

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

# APPENDIX V - UTILITY CHARTS ON CD