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Texas Comptroller of Public Accounts

# Facility Preliminary Energy Assessments and Recommendations


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## Cuero Independent School District

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ESA-Energy Systems Associates, Inc.
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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**.

State Energy Conservation Office


| | |
|---|---|
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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 *Henry Lind*, Superintendent for Cuero 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 **Cuero ISD,** (hereafter known as CISD) 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 the district. 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. Lind*, 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 **$2,400** may be saved annually if all recommended projects are implemented. The estimated installed cost of these projects should total approximately **$3,750**, yielding an average simple payback of **1-3/4** years.

| SUMMARY: | IMPLEMENTATION COST | ESTIMATED SAVINGS | SIMPLE PAYBACK |
|---|---|---|---|
| ECRM #1 | $2,000 | $1,000 | 2 Years |
| ECRM #2 | $ 750 | $ 650 | 13 months |
| ECRM #3 | $ 1,000 | $ 750 | 16 months |
| **TOTAL PROJECTS** | $ 3,750 | $ 2,400 | 1-3/4 Years |

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 Internal Rate of Return (IRR), 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 **CISD**. 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 CISD, ESA returned to the facilities to perform the following tasks:

1. Analyze 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 orientated 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 :

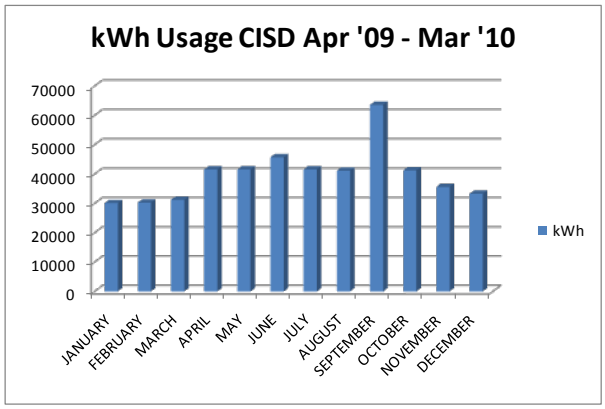
CUERO ISD

| CAMPUS | ENERGY UTILIZATION INDEX (EUI) (Btu/sf-year) | ENERGY COST INDEX (ECI) ($/sf-year) |
|---|---|---|
| **2009-2010 Cuero ISD** | **40,083** | **$1.29** |

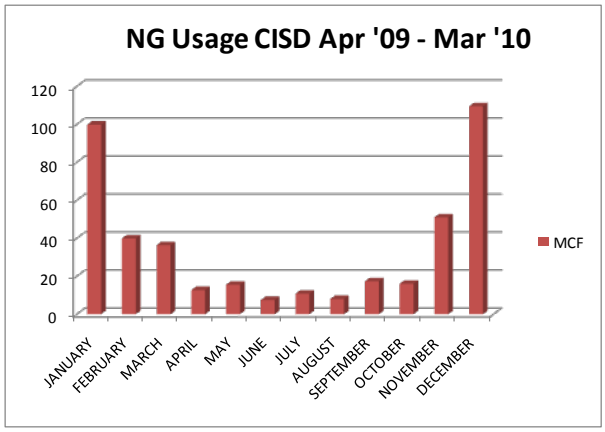
| OWNER: | Cuero ISD | | | BUILDING: | Districtwide | | | |
|---|---|---|---|---|---|---|---|---|
| MONTH / YEAR | | ELECTRIC | | | | | NAT'L GAS / FUEL | |
| | | | DEMAND | | | | | |
| | | CONSUMPTION | METERED | CHARGED | COST OF | TOTAL ALL ELECTRICAL | ONSUMPTIO | COSTS |
| MONTH | YEAR | KWH | KW/KVA | KW/KVA | DEMAND | COSTS $ | MCF | $ |
| JANUARY | 2010 | 342,365 | n/a | n/a | n/a | 43,758 | 419 | $5,975 |
| FEBRUARY | 2010 | 348,728 | n/a | n/a | n/a | 47,102 | 431 | $5,975 |
| MARCH | 2010 | 333,147 | n/a | n/a | n/a | 39,918 | 280 | $3,579 |
| APRIL | 2009 | 272,567 | n/a | n/a | n/a | 31,584 | 108 | $1,480 |
| MAY | 2009 | 405,907 | n/a | n/a | n/a | 43,839 | 107 | $1,099 |
| JUNE | 2009 | 418,112 | n/a | n/a | n/a | 47,285 | 51 | $769 |
| JULY | 2009 | 352,249 | n/a | n/a | n/a | 39,011 | 29 | $502 |
| AUGUST | 2009 | 420,422 | n/a | n/a | n/a | 47,574 | 34 | $586 |
| SEPTEMBER | 2009 | 469,804 | n/a | n/a | n/a | 51,788 | 88 | $1,077 |
| OCTOBER | 2009 | 383,277 | n/a | n/a | n/a | 50,093 | 75 | $998 |
| NOVEMBER | 2009 | 316,598 | n/a | n/a | n/a | 38,984 | 106 | $1,511 |
| DECEMBER | 2009 | 311,159 | n/a | n/a | n/a | 37,985 | 297 | $3,580 |
| **TOTAL** | | **4,374,335** | **n/a** | **n/a** | **n/a** | **$518,921** | **2,025** | **$27,131** |

| | | | | | |
|---|---|---|---|---|---|
| | | | **Energy Use Index:** | | |
| Annual Total Energy Cost | $546,052 | Per Year | Total Site BTU's/yr | 40,083 | BTU/s.f.yr |
| | | | Total Area (sq.ft.) | | |
| Total KWH x 0.003413 = | 14,929.61 | x 106 | | | |
| Total MCF x 1.03 = | 2,085.75 | x 106 | **Energy Cost Index:** | | |
| Total Other x ____ | | x 106 | Total Energy Cost/yr | $1.29 | $/s.f. yr |
| Total Site BTU's/yr | 17,015.36 | x 106 | Total Area (sq.ft.) | | |
| | | | | | |
| Floor area: | 424,503 | s.f. | | | |

Charting the annual electricity consumption reveals that the district does not experience a significant decrease in consumption for June and July as would be expected for periods of vacationing students. While it is acknowledged that summer months do represent custodial and administrative occupancy periods, the lack of a decrease in consumption for these months may indicate an opportunity for improved coordination and zoning of June and July Administrative and Custodial activities in order to reduce consumption during these time periods. The district conditions their spaces with individual split systems and rooftop units; control is provided with a combination of programmable and conventional thermostats. The lack of a decrease in consumption during summer months implies that more units than necessary are being operated for floor maintenance activities or possibly that thermostat programs are not being adjusted to the summer occupancy schedules.




The chart for natural gas consumption, on the other hand, shows an ideal inverted bell curve that demonstrates excellent control of natural gas use for space heating in a public school facility in Texas. The baseline readings in summer months likely represent the consumption for natural gas water heaters that are not disconnected during the summer.




Cuero ISD is provided electricity by the City of Cuero. The rate schedule analysis is shown below. A copy of the schedule is included in Appendix II.

## 4.0 RATE SCHEDULE ANALYSIS:

### ELECTRICITY PROVIDER:

**ELECTRIC COOPERATIVE: City of Cuero**

**Electric Rate: Large Commercial and Small Industrial ( LP-2 )**

| | | |
|---|---|---|
| Customer Charge | = | $48.18 per meter |
| Demand Charge | = | $820 for the first 100 kW or less of monthly billing demand, plus |
| | | $7.89 per kW for all additional monthly demand |
| Energy Charge | = | $0.0354 per kWh |

Power Cost Recovery Factor varies by monthly wholesale power costs per the following:

PCAF = [WC – (P) (K) – CF] / S

Where:

WC = Total cost of wholesale power purchased by the City on an annualized basis
P = Total wholesale energy purchased by City on annualized basis
S = Total estimated energy sales to customer based on annualized basis
K = Base wholesale power costs based on $0.0367 per kWh
CF = Correction Factor to correct variance between actual PCA costs and revenues

Average Savings for consumption = $0.0354/kWh + PCAF

Average Savings for demand = = $7.89/kW

### NATURAL GAS PROVIDER:

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

Total Cost of Natural Gas purchased for Cuero ISD: $27,131

Total Quantity of Natural Gas purchased for Cuero ISD: 2,025 MCF

Cost / Quantity = Average Unit Cost

$ 27,131 / 2,025 mcf = **$13.40 per mcf of natural gas**

## 5.0 CAMPUS DESCRIPTIONS:

**Cuero ISD** consists of five educational campuses which are located on the East-Northeast side of Cuero, Texas. There is John C. French Elementary School (Grades PreK-K), Hunt Elementary School (Grades 1-3), Cuero Intermediate School (Grades 4-6), Cuero Junior High School (Grades 7-8) and Cuero High School (Grades 9-12). The district serves approximately 2,000 students. The facilities are occupied from mid- August through late May on a weekday schedule of 7:15 A.M. to 3:30 P.M. The district does have provision for a 30-60 minute override outside of normal occupied hours.

Summer school runs throughout the month of June; the district zones summer school activities (run times are 0700-1400 hours for these days) to try to minimize the number of systems operating during the summer. The other HVAC systems in the district have a summertime operating schedule of 0700-1000 hours for programmed dehumidification.

The Administrative area, a separate building on the west side of the High School campus, is open all year, and portions of the other facilities are occupied by the maintenance/custodial staff throughout the summer.

All of the principal facilities are brick veneered cavity wall or Concrete Masonry Unit (CMU) construction buildings with low sloped metal roofs. Most windows are single pane, but appear to be in good condition. Weatherstripping at most doors is in adequate shape, *but some doors (see Figure 1 to the right) could have their weatherstripping, especially at the door sills, replaced.* The ceilings are acoustical tile and do have insulation above them.

**Figure 1: Gaps in sill weatherstripping at exterior door**

*JC French Elementary School*

The majority of the campus is conditioned with individual heat pump split systems. The units have all been replaced within the last 12 years. The district understands that they will need to begin planned replacement for the currently 12 year old units in about three years. The exceptions for the split systems are two portables with Through-The-Wall Units (TTWs) and a four classroom building behind the school that is served by a single split system. There are Trane controls for the portable buildings and the classroom building, but the override has been omitted from the classroom building to prevent one request from operating the large split system in all four classrooms.

**Figure 2: Fixtures on at daylit corridor**

Natural gas is only supplied to the Kitchen equipment and larger water heaters; the remainder of the facility is all-electric.

The lighting system is comprised of T8 linear fluorescent and compact fluorescent fixtures. The lobby corridor between the street and the front office has six 4-lamp fluorescent fixtures (see Figure 2) which were operating during the daytime hours in front of large windows. *These lights can be left off during the day and will the save the district approximately $215 per year.*

*Intermediate Building (Grades 4-6):*

Similar to the other campuses in the district, this school has a relatively new low-sloping metal roof installed over the previous flat built-up roof. The flat roof covers the 12 multi-zone packaged units that are still installed on the old flat roof. The multi-zone units serve up to 3 classrooms each, and the staff states they have not noticed a decreased capacity for the units to condition the space despite the sloping roof being installed over the packaged units. There are large exhaust-air vents / outside-air intakes incorporated into the sloping roof above each of the packaged units to allow for operation of the multi-zones in the new "attic" environment. The units are approximately 10 years old and should have 5-10 more years of useful life before they will require replacement. When time for their replacement does arrive, *we recommend the district consider replacing these units with split systems to improve the ability for the units to dissipate heat to the atmosphere.* These HVAC units were likely designed using ASHRAE criteria assuming that ambient temperatures exceed 105°F only 5% of the year. This means that the units were designed to keep the occupied spaces comfortable while operating in temperatures of less than 105°F 95% of the time. Their location in the attic space now requires that the units attempt to condition the spaces while the attic temperatures are above 105°F more often than 5% of the time. The units were simply not designed to operate in these higher temperature conditions and their efficiencies will be affected by the higher ambient temperatures.

*Junior High/High School*

The HVAC systems at these campuses are a combination of split systems and packaged multi-zone units. The multi-zone units serve up to nine classrooms each and are now located under a sloping metal roof as was described for the Intermediate Building. *Our recommendation for these six year old units is also that they be replaced with individual split systems when the time for their replacement arrives.*

The Junior High Gymnasium is a large structure with significantly higher than normal ceilings for a gymnasium. Consequently, the gym has 31 each 1000-watt metal halide fixtures to illuminate the playing surface. The district has these fixtures controlled with a timeclock, but the staff states that the timeclock does not consistently provide control over the fixtures. These fixtures represent 35.6kW of demand on the school's electrical system when they are operating. *We recommend the district replace the existing timeclock with a new electronic timeclock to ensure the fixtures only operate when required.*

The district recently replaced the weatherstripping at all exterior doors for both of these campuses. It was noted during the survey that the Choir Room doors needed weatherstripping replaced and the Field House roll-up door is allowing significant heat gain and air infiltration. The door itself is an uninsulated metal door with a lack of weatherstripping along the tracks for the door. The staff states that this door is no longer used and therefore *we recommend the door be removed and replaced with an insulated wall enclosure to eliminate the heat gain and air infiltration currently present at this location.*

These campuses have at least four vending machines with no energy control installed. *We recommend the district consider installing vending misers on these four units.* The vending misers utilize occupancy sensors to turn off the advertising light fixtures in the units as well as cycle the compressor when no activity is detected in the area. The compressor is cycled to not allow the temperature of the items in the vending machine to not exceed a programmed temperature, but not be required to run 100% of the time.

*District-wide Control System Description:*

All campuses have a Trane energy management system except for the High School, which has an Invensys system. The staff states that all units are under control, but the level of interaction between the two control systems is less than desirable. Given that the HVAC operation is controlled with the Invensys system, the payback to expand the Trane system throughout the district would be extremely long as there is no wasted energy from a lack of control by the current system to recover.

The control systems allow HVAC unit operation on a weekday schedule of 7:15 A.M. to 3:30 P.M. The system does have provision for a 30-60 minute manual override outside of normal occupied hours. The district states they are extremely proactive with schedule changes and updates to programmed schedules when vacation periods and weather days arrive. This statement is supported by the district-wide ECI.

## General District Observations:

In general, the district's HVAC equipment is relatively modern and in good shape. The oldest units in the district are 12 years old. The district has no immediate need for a capital investment for this system. It was noted during the survey that some of the newest condensing units in the district do not have coil guards installed. Damage to just 10% of the coil fins on these units can lead to a loss of operational efficiency approaching 30%. *We recommend that the district install coil guards on units that do not currently have them, and revise their specifications for future HVAC installations to require heavy-duty coil fin protection.*

**Figure 3: Missing coil guards**

The lighting systems consist of energy efficient T8 lamps and electronic ballasts. The district has no immediate need for a capital investment for this system. There are some energy reduction opportunities with this system. Most of these involve turning off the artificial fixtures in areas that have daylighting fenestration. Similar to the corridor at JC French Elementary, there are areas in the High School and Junior High School where fixtures could be left off during daytime hours, but are currently operating and consuming energy in areas adequately illuminated with natural daylight. Examples are the circline fluorescent fixtures in the High School Lobby and the area immediately adjacent to the library entrance.

# 6.0 RECOMMENDATIONS

## A. MAINTENANCE AND OPERATIONS PROCEDURES

| | |
|---|---|
| HVAC | •Comb fins on damaged condensing units<br>•Install hail guards to protect fins in future |
| Lighting | •Turn fixtures off during day at daylit areas |
| 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 CISD, the HVAC M&O opportunities revolve around combing the condenser fins [combs 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. Additionally, there were several condensing unit banks where spring weeds had already grown up around the units and evidence of past weeds were stuck between the coil guards and coil fins. This debris must be kept clear of the condensing units in order for the units to effectively evacuate heat to the atmosphere. We therefore recommend cutting back the weeds and washing the coils on the units.

*Lighting System M&O*

The low cost lighting system opportunities involve eliminating daylight operation of existing interior fixtures. Assuming this is a common occurrence and not coincidental to the day of the surveys, this represents approximately 1.0 kW worth of light fixtures. The installation of a photocell would likely disable operation of these fixtures for up to 12 hours per day. Savings can be calculated by the following formulae:

1.0kW * 12 hours * 365 days = 4,380 kWh per year

1.0 kW/month * 12 months/year * $6.50 (average demand savings, Section 4.0) +
4,380 kWh * $0.08436 (average consumption savings, Section 4.0) = $ 447 per year

Photocontrols are available for less than $15 dollars per unit. One unit will likely be required for each lighting circuit involved.

*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

| | |
|---|---|
| Lighting | •Replace JH Gym Light Timeclock |
| Controls | •Install vending misers on at least four vending machines noted around district |
| Building Envelope | •Replace JH Field House roll-up door with insulated enclosure |

*ECRM #1: Plan to replace Junior High Gym lighting Timeclock.*

The existing Junior High Gymnasium metal halide fixtures represent 35.6kW of electric demand when they are operating. This significant load requires tight control to prevent them from operating during unoccupied times of the day. CISD staff report that the current timeclock does not always operate as expected or desired. We recommend replacing the timeclock with a more reliable unit.

| | | |
|---|---|---|
| Estimated Installed Cost | = | $2,000 |
| Estimated Energy Cost Savings | = | $ 1,000 |
| Simple Payback Period | = | 2 years |

*ECRM #2: Install power controls on vending machines*

These devices utilize occupancy sensors to turn off advertising lighting and cycle compressors when no occupancy is detected in the area. There were four machines noted during the survey.

| | | |
|---|---|---|
| Estimated Installed Cost | = | $ 750 |
| Estimated Energy Cost Savings | = | $ 650 |
| Simple Payback Period | = | 13 months |

*ECRM #3: Replace JH Field House roll-up door with insulated wall enclosure*

The existing metal roll-up door is uninsulated and not weatherstripped to the exterior. The staff reports that the door is no longer used. An insulated wall enclosure will prevent air and contaminant infiltration and eliminate the solar heat currently transferring through the metal door.

| | | |
|---|---|---|
| Estimated Installed Cost | = | $ 1,000 |
| Estimated Energy Cost Savings | = | $ 750 |
| Simple Payback Period | = | 15 months |

SUMMARY TABLE:

<u>If the district were to implement all of the recommended ECRM projects</u>:

| | | |
|---|---|---|
| Estimated Installed Cost | = | $ 3,750 |
| Estimated Energy Cost Savings | = | $ 2,400 |
| Simple Payback Period | = | 1-3/4 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.

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. $100 maintenance expense next 5 years | | | | |
| 4. $100 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 | ($3,750.00) | | 0 | ($3,750) |
| Year 1 | | $ 2,400.00 | 0 | $2,400 |
| Year 2 | | $ 2,400.00 | 0 | $2,400 |
| Year 3 | | $ 2,400.00 | 0 | $2,400 |
| Year 4 | | $ 2,400.00 | 0 | $2,400 |
| Year 5 | | $ 2,400.00 | 0 | $2,400 |
| Year 6 | | $ 2,352.00 | ($100) | $2,252 |
| Year 7 | | $ 2,304.00 | ($100) | $2,204 |
| Year 8 | | $ 2,256.00 | ($100) | $2,156 |
| Year 9 | | $ 2,208.00 | ($100) | $2,108 |
| Year 10 | | $ 2,160.00 | ($100) | $2,060 |
| Year 11 | | $ 2,112.00 | ($100) | $2,012 |
| Year 12 | | $ 2,064.00 | ($100) | $1,964 |
| Year 13 | | $ 2,016.00 | ($100) | $1,916 |
| Year 14 | | $ 1,968.00 | ($100) | $1,868 |
| Year 15 | | $ 1,920.00 | ($100) | $1,820 |
| | | | | |
| | | | **Internal Rate of Return** | **63.46%** |

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

APPENDIX I: SUMMARY OF FUNDING AND PROCUREMENT OPTIONS

# 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:**

The Board 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 SCHEDULE

# CITY OF CUERO
## ELECTRIC RATE - SCHEDULE LP-2
## (Large Commercial & Small Industrial)

**Effective January 1, 2005**

**Applicable:** To all commercial and industrial customers where service is taken through one meter at one point of delivery and where the monthly peak kilowatt demand is greater than 100 kW and less than or equal to 1000 kW. Service will be furnished under this rate schedule subject to the established rules and regulations of the City covering this type of service. Before service is furnished, however, an individual service agreement contract between the customer and the City may be required outlining all details of the service to be supplied, the terms of the contract, and the obligations of each party.

**Character of Service:**

A.C., 60 cycles per second, single phase, 120/240 volts; three-phase, 120/240, 120/208, 240/480, 2400/4160, 7200/12,470 volts, as available at point of service. Three-phase customers served via underground primary to pad-mounted transformers are offered only 120/208 or 277/480 volt service.

**Rate:**

| | |
|---|---|
| Customer Charge: | $48.18 per month, plus |
| Demand Charge: | $820.00 for the first 100 kW or less of monthly billing demand.<br>$7.89 per kW for all additional kW of monthly billing demand, plus |
| Energy Charge: | 3.54 cents per kWhr for all kWhrs |

**Minimum Monthly Charge:**

The minimum monthly charge under this rate schedule shall be the highest one of the following charges:

(1) $868.18 per month plus applicable power cost adjustment on the kilowatt-hours used.

(2) The sum of customer charge and demand charge under the above rate plus applicable power cost adjustment on the kilowatt-hours used.

(3) The minimum monthly charge specified in the customer's service contract with the City, plus applicable power cost adjustment on the kilowatt-hours used.

**Billing Demand:**

The billing demand shall be the maximum 15 minute measured kilowatt demand in the billing period, but not less than 50% of the peak demand measured in the twelve month period ending with the current month. Unless otherwise specified in a firm electric service contract agreement, if at any time, a customer billed under this schedule continues for a period of twelve consecutive months without a demand in excess of 100 kW, Schedule LP-1 shall apply beginning with the first month succeeding such twelve month period. Likewise, a customer whose demand exceeds 1000 kW for any billing period shall be billed under Schedule LP-3 for the next twelve month period beginning with the current month.

**Power Factor:**

Should the power factor be lower than 0.95 lagging, the City may adjust the measured demand by multiplying by the ratio of 0.95 to the actual power factor.

**Primary Service:**

Where service is taken by the customer at the City's available primary voltage and where the customer owns, operates, and maintains all service facilities, except metering equipment, required to take service at such a voltage, a credit of 2% of the base rate charges will be allowed. Metering may be primary or secondary (corrected for the transformer losses) at the City's option.

**Power Cost Adjustment:**

The monthly charges under this rate schedule shall be increased or decreased as necessary to reflect the application of a Power Cost Adjustment, calculated in accordance with Schedule Power Cost Adjustment (PCA).

**Tax Adjustment:**

The above rate shall be subject to an increase or decrease in proportion to the amount of new taxes or increased taxes which the City may hereafter have to pay which are levied or imposed or increased or decreased by law or ordinances which were not in effect on the effective date of this schedule.

**Off-peak Rider:**

Where the customer reimburses the City for the cost of purchasing and installing the required demand metering equipment, as selected by the City, to continuously monitor a customer's load peak demand, this off-peak rider shall apply in computing the customer's monthly electric bill. Under this rider, the demand for billing purposes shall be the highest one of the following:

(1) The peak demand measured during the period defined as the on-peak period, or

(2) The peak demand measured during the period defined as the on-peak period plus one-half the amount the peak demand measured during the off-peak period exceeds the peak demand measured during the on-peak period.

However, in no case shall the billing demand in any month be less than 50% of the peak demand measured in the twelve month period endig with the current month.

The periods for application of this rider are defined as follows:

| | |
|---|---|
| On-Peak Period - | 6:00 a.m. through 11:00 p.m. on Monday through Friday. |
| Off-Period - | 11:00 p.m. through 6:00 a.m. on Monday through Friday and 11:00 p.m. on Friday through 6:00 a.m. on Monday. |

## CITY OF CUERO
## Power Cost Adjustment (PCA)

## SCHEDULE PCA

**Effective January 1, 2005**

**The purpose of this schedule is to accurately recover from City customers the cost of wholesale power purchases in excess of the base amount included in the City's electric retail rate schedules. All wholesale power cost realized above the base amount shall be billed by the City on its monthly bills as a Power Cost Adjustment (PCA) charge determined by multiplying the billing kWh for these current month times a Power Cost Adjustment Factor (PCAF).**

The formula for calculation of the PCAF is as follows:

$$PCAF = \frac{WC - (P)(K) - CF}{S}$$

**DEFINITIONS:**

**PCAF** = Power cost adjustment ($ per kWhr) rounded to the nearest 0.0001 cents.

**WC** = Total cost of wholesale purchased power by the City from its supplier on an annualized basis. ($)

**P** = Total wholesale energy purchased by the City from its supplier on an annualized basis. (kWh)

**S** = Total estimated energy sales to City customers on an annualized basis. (kWh)

**K** = Base wholesale power cost included in the City's retail electric rate schedules. ($.0367 per kWh)

**CF** = Correction factor adjustment to be supplied to correct for any variance between actual PCA costs and revenues. The calculation CF shall be performed on a periodic basis, but not less than quarterly, with the results of this reconciliation applied to the PCAF on an as-needed basis to maintain PCA revenues and costs in close proximity.

The formula for calculation of the Correction Factor (CF) is as follows: **CF = (A) - (B)**

Where

**(A)** = The actual power cost adjustment revenues received from the application of the Power Cost Adjustment Factor for the subject reconciliation period.

**(B)** = The actual wholesale power cost adjustment costs which should have been recovered fro the application of the Power Cost Adjustment Factor for the subject reconciliation period.

# APPENDIX IV - PRELIMINARY ENERGY ASSESSMENT SERVICE AGREEMENT

OFFICE OF THE COMPTROLLER ★ TEXAS ★

SECO
State Energy Conservation Office

## Public Schools, Colleges and Non-Profit Hospitals

### 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 Cuero 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: Henry Lind
Date: 4-18-10
Name (Mr./Ms./Dr.) Mr. Henry Lind
Title: Superintendent
Organization: Cuero ISD
Phone: 361 275 3832
Street Address: 405 Park Heights
Fax: 361 275 2981
Mailing Address: 405 Park Heights
E-Mail: hLind@cuero isd.org
Cuero Tx 77954
County: Dewitt

**Contact Information:**

Name (Mr./Ms./Dr.): Mr Henry Lind
Title: Supt.
Phone: 361-275-3832
Fax: 361 275 2981
E-Mail: hLind@cuero isd.org
County: Dewitt

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

**AND fax to** the SECO Contractor for this service, **Yvonne Huneycutt**, ESA Energy Systems Associates, Inc. Phone: 512-258-0547, x124. **Fax: 512-388-3312.**

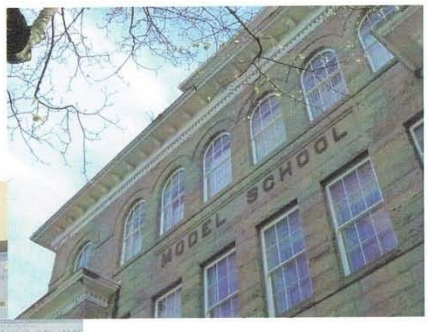
# APPENDIX V - TEXAS ENERGY MANAGERS ASSOCIATION (TEMA)

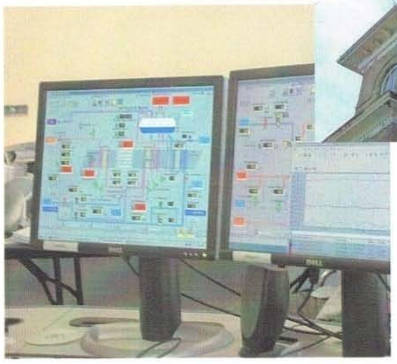
ANNOUNCING!

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 VI – SAMPLE ENERGY POLICY

# ENERGY POLICY

Recognizing our responsibility as Trustees of Cuero ISD, we believe that every effort should be made to conserve energy and natural resources. As a result, we are establishing this Energy Management Policy which shall be implemented within each of our facilities. We believe that this policy will be beneficial for taxpayers and community residents in the prudent management of our financial and energy resources.

The Board will designate an Energy Manager to coordinate and implement the overall Energy Policy. The Energy Manager will also maintain accurate records of energy consumption and cost on a monthly and annual basis. Energy audits will be conducted annually at each facility and recommendations will be made for updating and improving the energy program. Energy efficiency guidelines and procedures will be reviewed and accepted or rejected by the Board. In addition, the procedures required for implementation of the program, and the results achieved from its administration, will be published for administrative and staff information.

The Board shall sanction the Energy Manager with the authority to establish air conditioning heating and cooling setpoints, equipment operating schedules, and demand limiting strategies for the district's energy consuming equipment. The Energy Manager shall have authority to approve or reject requests for personal refrigerators, heaters, fans, light fixtures, and other energy consuming equipment in district facilities.

Energy management is not sacrificing comfort or productivity in exchange for reduced energy bills. Energy management is eliminating the wasteful energy consumption of having equipment operating inappropriately or outside normal occupancy hours. Lights should be turned off when no one occupies a room. Air conditioning equipment should not be left operating overnight. Custodial and Maintenance activities shall be zoned so lights and air conditioning systems will not be operated in unoccupied areas of the building.

The fulfillment of this policy shall be the joint responsibility of the trustees, administrators, staff and support personnel. The success of the policy is dependent upon total cooperation from all levels within the system.

Adopted this day of , 2010 .

By: _____ , President, Board of Trustees

Attest: _____ , Secretary, Board of Trustees

# APPENDIX VII - UTILITY CHARTS