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Texas Comptroller of Public Accounts

# Facility Preliminary Energy Assessments and Recommendations


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## Odem-Edroy Independent School District

April 11, 2011

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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**.

SECO
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 February 2011, **SECO** received a request for technical assistance from *Charles Zepeda*, Superintendent for **Odem-Edroy 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 **Odem-Edroy ISD,** (hereafter known as OEISD ) 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. Johnny Johnson*, 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 7.0 of this report.

We estimate that as much as **$13,550** may be saved annually if all recommended projects are implemented. The estimated installed cost of these projects should total approximately **$37,260** yielding an average simple payback of **2-3/4** years.

## Table 1: Summary of Recommended Energy Cost Reduction Measures (ECRMs)

***ENERGY EFFICIENCY RECOMMENDATIONS (ECRMs WITH PAYBACKS OF 10 YEARS OR LESS)***

| MEASURE | IMPLEMENTATION COST | PROJECTED ANNUAL SAVINGS | SIMPLE PAYBACK |
|---|---|---|---|
| **HVAC ECRM 2** IP ADDRESSABLE THERMOSTATS | $350-500 each unit | $175-250 each unit | 2 Years |
| **HVAC ECRM 3** ELIMINATE SIMULTANEOUS HEAT/COOL | $1,000 | $2,000 | 1/2 Year |
| **HVAC ECRM 4** VENDING MACHINE CONTROLS | $1,260 | $650 | 2 Years |
| **LIGHTING ECRM 1** T12 TO T8 RETROFIT | $24,900 | $3,550 | 7 Years |
| **LIGHTING ECRM 2** METAL HALIDE TO T5 | $2,100 | $350 | 6 Years |
| **ENVELOPE ECRM 1** SEAL CAFETERIA FLOOR | $8,000 | $7,000 | 1-1/4 Years |
| **TOTAL** | **$37,260** | **$13,550** | **2-3/4 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) may be significantly less for this retrofit program than has been calculated and shown in Section 8.0 of this report.

***CAPITAL INVESTMENT PROJECTS (ECRMs WITH PAYBACKS GREATER THAN 8 YEARS)***

| MEASURE | IMPLEMENTATION COST | PROJECTED ANNUAL SAVINGS | SIMPLE PAYBACK |
|---|---|---|---|
| **HVAC ECRM 1** RENOVATION OF AGED HVAC EQUIPMENT | $2500 per nominal ton | Approximately $350/ton-yr | 8-9 Years |

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 MISD. 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.

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A Terracon Company

## 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 OEISD, ESA returned to the facilities to perform the following tasks:

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

## 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 OEISD ENERGY PERFORMANCE INDICATORS:

Odem-Edroy ISD purchases electricity from Reliant Energy. The transmission and distribution utility is AEP.

**OWNER:** **Odem-Edroy ISD** **BUILDING:** **K-12**

| MONTH / YEAR | | ELECTRIC | | | | | NAT'L GAS / FUEL | |
|---|---|---|---|---|---|---|---|---|
| MONTH | YEAR | CONSUMPTION KWH | METERED KW/KVA | CHARGED KW/KVA | COST OF DEMAND | TOTAL ALL ELECTRICAL COSTS $ | CONSUMPTION MCF | COSTS $ |
| JANUARY | 2011 | 248,440 | Information Unavailable | | | 31,039 | 228 | $2,019 |
| FEBRUARY | 2011 | 226,895 | | | | 28,585 | 151 | $1,366 |
| MARCH | 2010 | 232,934 | | | | 29,757 | 73 | $713 |
| APRIL | 2010 | 262,114 | | | | 32,581 | 34 | $386 |
| MAY | 2010 | 291,294 | | | | 35,404 | 23 | $287 |
| JUNE | 2010 | 230,605 | | | | 29,704 | 15 | $211 |
| JULY | 2010 | 318,949 | | | | 38,020 | 18 | $216 |
| AUGUST | 2010 | 336,857 | | | | 39,667 | 41 | $381 |
| SEPTEMBER | 2010 | 305,937 | | | | 35,913 | 47 | $417 |
| OCTOBER | 2010 | 331,301 | | | | 39,667 | 45 | $411 |
| NOVEMBER | 2010 | 309,088 | | | | 37,319 | 123 | $889 |
| DECEMBER | 2010 | 286,874 | | | | 34,970 | 175 | $1,230 |
| **TOTAL** | | **3,381,288** | | | | **$412,625** | **973** | **$8,526** |

| | | | | |
|---|---|---|---|---|
| Annual Total Energy Cost = | $421,151 | Per Year | **Energy Use Index:** Total Site BTU's/yr / Total Area (sq.ft.) | 50,784 BTU/s.f.yr |
| Total KWH x 0.003413 = | 11,540.33 | x 106 | | |
| Total MCF x 1.03 = | 1,001.68 | x 106 | **Energy Cost Index:** Total Energy Cost/yr / Total Area (sq.ft.) | $1.71 $/s.f. yr |
| Total Other x ____ | | x 106 | | |
| Total Site BTU's/yr | 12,542.01 | x 106 | | |
| Floor area: | 246,969 | s.f. | | |

**Electric Utility**
Reliant Energy

**Gas Utility**
CenterPoint Energy

An independent company that has been hired by transmission by distribution utilities around the state to analyze utility bills in public schools. They have determined the statewide average EUI is 52,800 BTUs/sf-year and the average ECI is $1.51/sf-year. In comparison, Odem-Edroy is consuming slightly less energy than a typical school campus in Texas, but it is costing 13% more than the average campus. There are a number of possible reasons for this condition:

1. High dependence on electric heat or re-heat during de-humidification processes. Electricity is more expensive for an equivalent amount of energy than is natural gas:
    a. Each kWh of electricity contains 3,413 BTUs of energy and costs OEISD $0.0961; resulting in a cost of $0.000028157 per BTU.
    b. Natural gas contains 1,020,000 BTUs per MCF and costs $8.76; typical gas-fired heating efficiencies are 80% for OEISD system, resulting in a cost of $0.00001074 per BTU.
    c. Therefore, electricity is 2.62 times more expensive, for an equivalent amount of energy, than natural gas.
2. Higher than average utility costs. Refer to the rate schedule analyses in Section 4.0.

A copy of the rate schedule is included in Appendix I

## 4.0 RATE SCHEDULE ANALYSIS:

### ELECTRICITY PROVIDER:

**RETAIL ELECTRIC PROVIDER: Reliant Contract price: $0.0713 per kWh**

**TRANSMISSION AND DISTRIBUTION UTILITY: AEP**

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

| | | | |
|---|---|---|---|
| I. | TRANSMISSION AND DISTRIBUTION CHARGES: | | |
| | Customer Charge | = | $26.52 per IDR meter |
| | Metering Charge | = | $15.81 per retail customer |
| | Transmission System Charge (Non-IDR) | = | $1.286 per NCP kW |
| | Transmission System Charge (IDR) | = | $1.793 per 4CP kW |
| | Distribution System Charge | = | $3.314 per NCP kW |
| II. | SYSTEM BENEFIT FUND | = | $0.000662 per kWh |
| III. | TRANSITION CHARGES | | |
| | Transition Charge 1 (IDR) | = | $1.0405/kW or kVa |
| | Transition Charge 2 (IDR) | = | $2.2849/kW or kVa |
| IV. | NUCLEAR DECOMMISSIONING CHARGE | = | $0.037224 per Billing kVA |
| V. | TRANSMISSION COST RECOVERY FACTOR | | |
| | Cost per IDR | = | $0.4356 per Avg 4CP kW |

Average Savings for consumption (IDR) = $0.0713/kWh + $0.000662/kWh
= $0.0719/kWh

Average Savings for demand (IDR) = $1.793kW + $3.314kW + $1.0405kW + $2.2849kW + $.0372kVA + $0.4356kW = $ 8.9052/kW

## NATURAL GAS PROVIDER:

The rate schedule for Natural gas as determined from the utility bills:

| | |
|---|---|
| Customer Charge: | $25 per meter per month |
| Base Commodity Charge: | $0.0775/ccf |
| Gas Cost Adjustment Factor: | Varies per month; average for analyzed billing cycle: $0.5238 |
| Local Franchise Fee Reimbursement: | Approximately 2% of Subtotal |

Average cost per MCF of purchased natural gas in the district was determined by analyzing the utility histories for the schools surveyed in this report over 12 consecutive month period.

Total cost for natural gas at the facilities in the analyzed billing cycle: $8,526

Total quantity purchased during the analyzed billing cycle: 973 MCF

Average cost per MCF (Commodity Cost) = Cost of natural gas – Customer Charges / quantity purchased = $8,526 / 973 MCF

**Average cost per MCF = $8.76**

## 5.0 CAMPUS DESCRIPTION:

### Table 2: Campus Analyzed For This Report

Odem-Edroy ISD is comprised of a single K-12 campus. The original date of construction for the campus ranges from 1948, when the original High School gym was constructed, to 2003, when the administration offices, science and library addition was built.

| Facility | Approximate Square Footage | Basic HVAC Cool/Heat | Basic Lighting System Description | Basic Control System Description |
|---|---|---|---|---|
| OEISD K-12 | 246,969 | DX split system with indoor fan coil units | Combination T12 and T8 | Combination programmable and conventional thermostats |

# 6.0 ENERGY RECOMMENDATIONS:

### HVAC ECRM 1: RENOVATION OF AGED HVAC EQUIPMENT

It was noted during the survey that several pieces of equipment have reached the end of their useful life expectancy. We recommend this equipment be included in subsequent maintenance budgets to be replaced as planned equipment upgrades in order to avoid the higher cost of emergency replacement when they inevitably fail.

During our survey, maintenance personnel expressed the desire to replace the older Mitsubishi fan coil units but voiced some concern about having adequate space above the ceiling for duct work. With the lack of ceiling space for new equipment being a major concern, an option to install a vertical air handler in a new closet built in the corner of each classroom is available. The new closet will require a roof penetration for the unit venting and combustion/outside air intakes. Our recommendation is to replace the fan coil split system units with natural gas furnace split systems.
Historical data indicates the average cost of replacing HVAC equipment in this manner is approximately $2,500 per ton. A typical classroom will require a 3 or 3-1/2 ton unit; the cost per classroom should be approximately $7,500 to $8,750. Paybacks should approximate 8-9 years.

### HVAC ECRM 2: INSTALLATION OF IP ADDRESSABLE THERMOSTATS

OEISD's heating and cooling is controlled with a combination of programmable and conventional thermostats. *Our recommendation is to replace all thermostats with IP Addressable Programmable thermostats. If the district's intranet is available at each classroom, then the new thermostats can be hard-wired to the network. If the intranet is unavailable at certain locations, then wireless units are available*. IP addressable programmable thermostats have the ability to provide the district remote management and surveillance of the HVAC systems, as well as the ability to re-program all of the units from a centralized network location. The units have night setback temperature operation during periods of extreme weather which offers protection against freezing interior pipes. Minimizing equipment runtimes after-hours will extend the overall life of the units. IP addressable programmable thermostats cost $350 to $500 per unit, depending on the type of equipment they will be controlling. Paybacks will typically be 2-3 years.

### HVAC ECRM 3: ELIMINATE SIMULTANEOUS HEATING AND COOLING IN THE CAFETERIA

It was noted at the Cafeteria that the natural gas unit heaters and the building's cooling-only HVAC system are operating and controlled as two separate systems. As a result, when the staff forgets to offset the heating thermostat to a lower setpoint (something at least 5 degrees below the programmed cooling setpoint), the heaters will fire and run while the HVAC system is attempting to cool the space. Similarly, during the heating season, the cooling system will operate as the heating system is working to warm the space unless the cooling setpoint has been adjusted to a setting at least 5 degrees above the heating setpoint. *We recommend the district install an IP Addressable Programmable Thermostat with two auxiliary outputs that allow the unit to control secondary equipment*. Combined with an automatic changeover function and some creative control wiring between the two systems, the unit should allow the district to eliminate the simultaneous heating and cooling occurring within the space.

Estimated Cost: $1,000 Estimated Savings: $2,000 Estimated Payback: 6 Months

### HVAC ECRM 4: INSTALL VENDING MACHINE CONTROLS

Vending machine controls can be installed to control existing advertising lighting and compressors that refrigerate food or drink. Using a motion sensor mounted on top of the machine, the vending machines will allow lights to operate whenever it senses occupants are in the area and cycles the compressor on and off to maintain food or beverages at a programmable temperature when it senses inactivity in the area. *We recommend OEISD install vending machine controls on all existing vending machines.* For the seven vending machines we identified during the survey, our calculated cost for this project is displayed below.

Estimated Cost: $1,260 Estimated Savings: $650 Estimated Payback: 2 years

### Lighting ECRM 1: RETROFIT OF T12 LIGHTING TO T8:

During the survey, it was noted that many areas around the district still utilize T12 lighting. T12 components produce approximately 18% less light and consume about 20% more energy than the T8 lamps and electronic ballasts that may be retrofit into the existing linear fluorescent fixtures. Senate Bill 300 requires Texas school districts to install the most efficient lamps and ballasts possible in their existing fixtures.

Some of the areas where T12 fixtures are still utilized have sloped ceilings (see picture above). In these areas the district would like to install new acoustical ceiling tile and grid and install new fixtures. In other areas, the existing fixtures can simply be retrofit with new T8 lamps and electronic ballasts. For areas where the district would like to install new ceiling, a conservative estimate should allow $5 per square foot for the installation of grid and acoustical tile. For new lay-in fixtures in areas receiving new ceiling grid, the district can expect to pay $125 per fixture. *We recommend the district retrofit all remaining T12 lighting fixtures with T8 lamps and*

*electronic ballasts.* Without regard to the new ceiling or light fixture installation, the project cost to just retrofit the T12 fixtures with T8 lamps and electronic ballasts is as follows.

Estimated Cost: $1,260 Estimated Savings: $650 Estimated Payback: 2 years

### Lighting ECRM 2: RETROFIT METAL HALIDE FIXTURES TO T5

In the Elementary School Gym we counted 6 each 400-watt metal halide fixtures. One characteristic of metal halide fixtures is their inherently long re-strike. This means that if the fixtures are ever turned off, it can take up to 15 minutes for them to come back on. This long re-strike encourages staff to leave the lights on throughout the day, even if the space is not occupied. *We recommend replacing the metal halides with 6-lamp T5 high bay fluorescent fixtures.*

Estimated Cost: $2,100 Estimated Savings: $350 Estimated Payback: 6 years

### Envelope ECRM 2: ELIMINATE MOISTURE BUILD-UP PROBLEM INSIDE CAFETERIA

The district informed us of a condition in the cafeteria where the HVAC system must be run 24/7 with a cooling setpoint of 72°F or less. Any other operating schedule results in water standing on the floor of the cafeteria. It has been speculated that a missing plastic vapor barrier under the slab is the cause of this problem, given the close proximity of land in Corpus Christi to the water table. We recommend the district check the following:

1. Verify the building is maintained at a slight positive pressure when the HVAC system is operating and a neutral pressure (non-negative) when the HVAC system is off. Water infiltration through the slab will be accelerated if the overall building pressure is allowed to become negative.
2. Remove the tile flooring; clean the concrete surface and apply a commercial quality hardener/sealer that will fill and seal the capillaries currently allowing the water to seep through the slab.
3. Insure the ground adjacent to the slab is graded and sloped away from the building to insure irrigation and rainwater is moved away from the slab and not funneled towards it.

Estimated Cost: $8,000 Estimated Savings: $7,000 Estimated Payback: 1-1/4 Years

## 7.0 MAINTENANCE AND OPERATION RECOMMENDATIONS

| | |
|---|---|
| HVAC | •Comb fins on damaged condensing units<br>•Increase frequency of filter replacement<br>•Close exterior doors when HVAC system is operating |
| Lighting | •Turn off all exterior lights during daytime<br>•Turn off lights in unoccupied spaces |
| Controls | •Set HVAC timeclock to meet energy management policy |
| Envelope | •Remove unused window units at portables<br>•Close exterior doors when HVAC systems are operating. |
| Plumbing | •Install low-flow faucet restrictors or replace existing faucets with low-flow units. |
| Safety | •Install breaker covers in vacant breaker spaces |

`

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 time and cost prohibitive when the benefits of renovating door and weatherstripping are well documented and universally accepted.

*HVAC M&O-1*

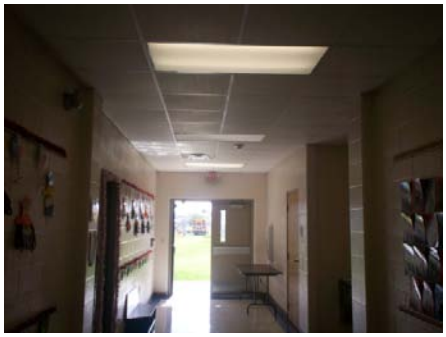
At OEISD, the HVAC M&O opportunities begin with combing the condenser fins [combs available for less than $10]. The installation of coil guards prevents future fin combing, which is ultimately a combination of deferred labor savings for eliminating the need for maintenance personnel to perform the task and energy savings resulting from the units maintaining optimum operating efficiency. Damage to just 10% of the coil fins on an HVAC unit can result in up to a 30% loss of efficiency for the unit.

*HVAC M&O-2*

It was also noted during the survey, that some of the HVAC filters have not been changed with regularity. We recommend the district replace each HVAC filter with a pleated filter every 60-90 days.

*HVAC M&O-3*

While surveying the kindergarten building we discovered the exterior doors were propped open to allow cool outside air to circulate throughout the building, but the HVAC system was not shut off. While we support this practice when outside weather conditions allow it, we recommend ensuring the HVAC equipment is off during those times.

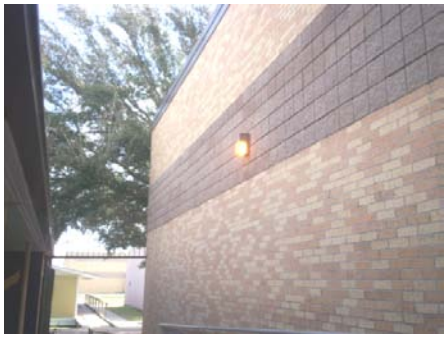


*Lighting M&O-1*

Multiple areas of the buildings had light fixtures that were left operating in unoccupied spaces. The least expensive remedy for this issue is to train the staff to turn fixtures off when they are not needed. If the behavioral modification training is not successful, the district can choose to install occupancy sensors that will perform the task automatically.

*Lighting M&O-2*

There were multiple exterior lights that were operating at the time of our survey. *We recommend the district inspect the exterior lighting controls and repair or replace malfunctioning components as necessary*. Eliminating exterior lighting left on during the day will render immediate energy savings once the problem is resolved.



*Controls M&O*

We recommend the HVAC timeclock be adjusted to turn on the needed equipment in the morning and shut it off when the building is no longer in use. An aggressive energy management policy determining when the building is conditioned should keep all occupants comfortable during working hours, yet will save the district a large portion in energy costs by turning off equipment at a predetermined time each day.

*Envelope M&O*

It was noted during the survey that the portable buildings have abandoned window units installed adjacent to the through-the-wall units currently used to condition the building. It is quite common for the internal gravity damper designed to keep outside air from passing freely in and out of the portable to not seal tightly and is a source of energy loss from the portable. We recommend the district remove the window units and enclose the wall penetration with insulated wall panels. Eliminating any areas that allow for unconditioned air to penetrate the building can significantly improve occupant comfort and reduce heating and cooling loads throughout the year.

*Plumbing M&O-1: INSTALL LOW FLOW FAUCETS IN RESTROOMS*

Throughout the district we found a combination of different water faucet types. We recommend the district inspect all water faucets and install either low water flow faucets or low flow restrictor faucet aerator caps on existing faucets at each restroom. A low flow rate of around .5 gpm at each faucet across the district will dramatically decrease water usage and still provide enough water for all students and staff members to quickly and effectively wash their hands.

*Safety M&O*

At the High School there were electrical panels located in two storage rooms with circuit breaker slots that are no longer being used and did not have the safety cover installed to prevent accidental contact with the electrical bus inside. Although it does not pertain to energy conservation, *we recommend the district place a breaker cover over these empty slots to eliminate the danger associated with having live busses and conductors easily accessible to anyone finding their way into the storage room*.

## 8.0 FINANCIAL EVALUATION

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

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

| | | | | |
|---|---|---|---|---|
| Proposal: | Perform recommended ECRMs | | | |
| Assumptions: | | | | |
| 1. Equipment will last at least 15 years prior to next renovation | | | | |
| 2. No maintenance expenses for first five years (warranty period) | | | | |
| 3. $500 maintenance expense next 5 years | | | | |
| 4. $1,000 maintenance expense next 5 years | | | | |
| 5. Savings decreases 2% per year after year 5 | | | | |
| | | | | |
| **Cash Flow** | **Project Cost** | **Project Savings** | **Maintenance Expense** | **Net Cash Flow** |
| Time 0 | ($37,260) | | 0 | ($37,260) |
| Year 1 | | $ 13,550.00 | 0 | $13,550 |
| Year 2 | | $ 13,550.00 | 0 | $13,550 |
| Year 3 | | $ 13,550.00 | 0 | $13,550 |
| Year 4 | | $ 13,550.00 | 0 | $13,550 |
| Year 5 | | $ 13,550.00 | 0 | $13,550 |
| Year 6 | | $ 13,279.00 | ($500) | $12,779 |
| Year 7 | | $ 13,008.00 | ($500) | $12,508 |
| Year 8 | | $ 12,737.00 | ($500) | $12,237 |
| Year 9 | | $ 12,466.00 | ($500) | $11,966 |
| Year 10 | | $ 12,195.00 | ($500) | $11,695 |
| Year 11 | | $ 11,924.00 | ($1,000) | $10,924 |
| Year 12 | | $ 11,653.00 | ($1,000) | $10,653 |
| Year 13 | | $ 11,382.00 | ($1,000) | $10,382 |
| Year 14 | | $ 11,111.00 | ($1,000) | $10,111 |
| Year 15 | | $ 10,840.00 | ($1,000) | $9,840 |
| | | | | |
| | | | **Internal Rate of Return** | **35.12%** |

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

APPENDIX I: SUMMARY OF FUNDING AND PROCUREMENT OPTIONS

## 9.0 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, 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:**

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

PUBLIC UTILITY COMMISSION OF TEXAS
APPROVED
DEC 23 '09 DOCKET 36928
CONTROL #



## 6.1.1.1.3 SECONDARY VOLTAGE SERVICE GREATER THAN 10 KW

**AVAILABILITY**

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

**TYPE OF SERVICE**

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

**MONTHLY RATE**

**I. Transmission and Distribution Charges:**

| | | |
|---|---|---|
| Customer Charge | | |
| Non-IDR Metered | $3.26 | per Retail Customer per Month |
| IDR Metered | $26.52 | per Retail Customer per Month |
| Metering Charge | $15.81 | per Retail Customer per Month |
| Transmission System Charge | | |
| Non-IDR Metered | $1.286 | per NCP kW Billing Demand |
| IDR Metered | $1.793 | per 4CP kW Billing Demand |
| Distribution System Charge | $3.314 | per NCP kW Billing Demand |
| **II. System Benefit Fund:** | $0.000662 | per kWh See SBF 6.1.1.4 |
| **III. Transition Charge:** | See Riders TC 6.1.1.2.1.1 and TC-2 6.1.1.2.2.1 | |
| **IV. Nuclear Decommissioning Charge:** | See Rider NDC 6.1.1.5.1 | |
| **V. Transmission Cost Recovery Factor:** | See Rider TCRF 6.1.1.6.2.1 | |

**VI. Excess Mitigation Credit:** Not Applicable

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

**VIII. Competitive Metering Credit:** See Rider CMC 6.1.1.6.6

**IX. Other Charges or Credits:**

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

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

**C. Energy Efficiency Rider** See Rider EECRF 6.1.1.6.4.1

**D. Advanced Metering System Rider** See Rider AMSCRF 6.1.1.6.9

**COMPANY-SPECIFIC APPLICATIONS**

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

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

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

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

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

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

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

**Determination of Billing Demand for Transmission System Charges**

Determination of NCP kW

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

PUBLIC UTILITY COMMISSION OF TEXAS
APPROVED
DEC 23 '09 DOCKET 36928
CONTROL #

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

Determination of 4 CP kW For IDR Metered Customers

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

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

**Determination of Billing Demand for Distribution System Charges**

Determination of NCP kW Billing Demand

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

**Determination Of Billing Demand When Meter Readings Cannot be Obtained**

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

**NOTICE**

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

# APPENDIX IV - PRELIMINARY ENERGY ASSESSMENT SERVICE AGREEMENT

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 Odem-Edroy Ind. School District 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: _____ Date: 2/21/2011

Name (Mr./~~Ms./Dr.~~) Charles H. Zepeda Title: Superintendent

Organization: Odem-Edroy ISD Phone: 361-368-8121 ext 223

Street Address: One Owl Square Fax: 361-368-2222

Mailing Address: One Owl Square E-Mail: zepedac@oeisd.org

Odem TX 78370 County: San Patricio

**Contact Information**:

Name (Mr./~~Ms./Dr.~~): Johnny Johnson Title: Business Manager

Phone: 361-368-8121 ext 224 Fax: 361-368-2222

E-Mail: johnsonj@oeisd.org County: San Patricio

**Please sign and mail or fax to: Stephen Ross**, Schools and Education Program Administrator, State Energy Conservation Office, 111 E. 17th Street, Austin, Texas 78774. Phone: 512-463-1770. **Fax 512-475-2569.**

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

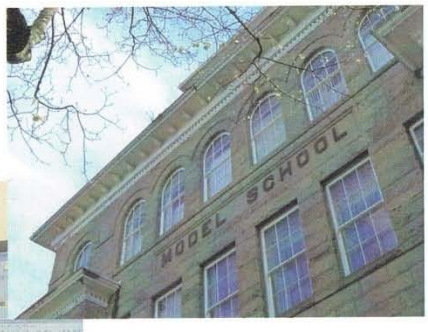
# APPENDIX V - TEXAS ENERGY MANAGERS ASSOCIATION (TEMA)

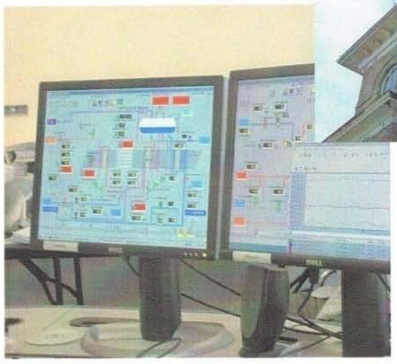
ANNOUNCING!

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 - UTILITY CHARTS ON CD