

**THE ENERGY RESOURCE CENTER: ON-SITE TECHNICAL  
ASSISTANCE AND TRAINING PROGRAMS FOR TEXAS SCHOOL DISTRICTS**

MEL ROBERTS  
Department Manager

MARGARET SANDERS  
Public Information Representative

Governor's Energy Management Center  
Austin, Texas 78711

**ABSTRACT**

Created by the 68th Session of the Texas Legislature, the Energy Resource Center for Texas Schools (ERC) is the primary source of facility management services for Texas School districts. The purpose of the ERC is to assist school districts in controlling a major operational expense -- the cost of energy -- through tailoring and implementing services to meet "real world" needs.

On-site services available from the ERC range from basic training in analyzing utility bills, tracking energy consumption and costs, and evaluating school energy performance to providing professional technical assistance in identifying and implementing lower cost energy investments. A design assistance program now available from the Center provides energy evaluations at crucial steps in the design process of new facilities to insure that energy-conscious strategies are considered by the architectural firm under contract.

Audiences targeted for ERC services include board members, superintendents, directors of maintenance, plant operators, business managers, and energy managers. Assistance provided through workshop settings includes instruction in setting up board-directed energy programs and the sponsoring of network meetings for school energy managers in several areas of the state. Communication is maintained with school energy contacts through the ERC's bimonthly newsletter, Texas School Energy Notes, which is sent to all school districts in the state.

**INTRODUCTION**

In 1983, Texas school districts were suffering from the combined effects of shrinking funds and rising costs. In addition recent legislation had mandated major curriculum changes, reduced class sizes, and increased teacher salaries, adding to the expenses school districts were required to meet. At the same time, the decline in Texas' petroleum-related industries had eroded the schools' tax-based income. Faced with the dilemma of expanding services on reduced income, school districts began to turn to their operating budgets as a source of additional funds. However, it was apparent that school administrators did not always have the technical information or skills they needed to effectively reduce their operating budgets, especially in energy-related areas.

It was in this environment that the 68th Texas Legislature created the Energy Resource Center (ERC) for Texas Schools. Recognizing the need to equip Texas school administrators with energy-related information, resources, and technical assistance,

the Legislature designated the Energy Efficiency Division of the Public Utility Commission of Texas to operate the Center. Drawing from long term experience in federal and state energy management efforts, as well as data gathered in the Institutional Conservation Program, this staff planned a wide range of projects and activities designed to address "real world" needs.

As they began the first round of programs in September 1984, the ERC staff faced a monumental task. Despite the obvious advantages of cutting energy consumption and costs, less than 100 of the state's 1086 independent school districts had participated in the Institutional Conservation Program, the only available gauge at that time for measuring statewide interest and initiatives in school energy management. ERC staff continued to hear stories of inefficient HVAC systems running around the clock and of classrooms being lighted as much as 200% over recommended levels. At the same time, it was clear that many school districts were also beginning to consider the economic impact of energy actions on their operating budgets. Clearly, the opportunity existed to reduce costs--without adversely affecting the learning environment.

**DESIGNING THE ERC**

The ERC staff realized that, in order for their efforts to succeed, they had to accomplish three primary tasks. First, they had to convince thousands of educators and trustees that energy-related operating costs affected their overall operating budget. Second, they had to show these school leaders that the costs not only could be lowered, but were already being lowered, in some districts where leaders were committed to and involved in district-wide energy management programs. Third, they had to design personalized programs and services which would have an immediate impact on energy cost control.

The ERC began with a multi-pronged approach, combining information and training with direct on-site technical assistance. Workshops, conducted across the state by energy experts and Texas school leaders, taught the basics of energy management to administrators and facilities managers. A bi-monthly newsletter, sent to all superintendents and facilities managers, described ERC programs and the results of successful energy management efforts in selected Texas school districts. A regular column in the state-wide school board association journal discussed the Board's responsibility in operating efficient schools.

At the same time, the ERC began providing a

variety of technical assistance programs, all aimed at reducing and controlling building energy consumption and costs. For existing facilities, the ERC offered the Direct On-Site Energy Evaluation Service, which sent a professional energy evaluator on site to provide walk-through audits of individual buildings. The critical need to insure energy conscious design of new facilities was addressed through providing design workshops and setting up an energy performance design evaluation service. As more districts became involved in these activities, their energy managers organized regional network groups under the auspices of the ERC. Network meetings offered the opportunity to share information and discuss mutual problems and solutions.

By September 1987--less than four years after the first round of on-site surveys--well over half of the state's nearly 1100 school districts had received at least one ERC service, and many had become actively involved in the full range of programs.

Personalized and interactive, the programs designed by the center are facility oriented and tailored to real world situations. Because its programs have been developed in response to the needs of people in the school districts, the Center is now recognized as the primary source of facility management services for Texas School Districts.

#### CURRENT OPERATION OF THE CENTER

The ERC is now housed in the Governor's Office of Budget and Planning, where it continues to offer a variety of services, all aimed at helping Texas school districts reduce and stabilize their energy-related operating costs. Working with outside contractors, active energy and maintenance staffs in Texas school districts, and state-wide educational organizations, the staff addresses a growing range of school needs. However, all activities center around one of three areas of emphasis: services for existing school facilities, energy efficient design and construction of new facilities, and energy education activities.

Each of the 1086 school districts in Texas has its own needs and differences. All, however, have one thing in common: school buildings--nearly 5600 of them. It is these existing facilities that are the primary target for ERC's Direct-On Site Energy Evaluation Service, now the cornerstone service of the Center. This program, also known as the Energy Cost Reduction Opportunities (ECRO) Program, sends a trained energy evaluator to the school district to make specific recommendations for a more energy efficient operation. Walk-through evaluations of individual facilities identify savings opportunities which can will have a payback of less than four years. A report, outlining recommended energy projects, their potential savings, and projected payback, is then sent to the district administrators.

Since 1984, 714 individual campuses--more than 12% of the nearly 5600 existing schools in Texas--have been surveyed through the ECRO

Program. In these buildings alone, on-site evaluators have identified annual cost savings totalling more \$5,000,000 to be realized from a variety of no-cost and lower cost actions. Specific projects range from simple turnoff actions to the installation of microprocessor-level energy control systems.

While evaluators are asked to identify all projects with a payback of four years or less, the majority of the projects pay back in less than two years. In fact, during 1987 alone, the program identified projects which could cut annual school operating costs by \$1,203,405; with anticipated implementation costs of \$1,590,000, the bottom line payback for these school districts is less than 16 months. These numbers are based on 230 measures identified in 9 million square feet of facility space in 80 school districts.

Originally designed to simply provide walk-through energy evaluations, the Direct On-Site Energy Evaluation Service now includes setting up energy tracking and monitoring systems, training of building operators, helping districts purchase energy-related supplies and equipment through the state cooperative purchase program, and utility bill analysis. Each of these services has been incorporated into the ECRO program as it grows and expands in direct response to discovered needs.

#### INDIVIDUAL SUCCESS STORIES

Two years ago, an evaluator for the ERC's on-site service noticed that a small primary school was paying enormous electric costs, despite the fact that it was operating extremely efficiently. His investigations revealed that the building was being billed on the utility's commercial schedule, which included both higher rates and demand charges. The evaluator then worked with school leaders and the local utility representative to transfer the school to the school rate--lowering annual costs by nearly \$30,000--and even helped the school obtain a refund. Further, he realized that this had not been an isolated case. As a result, utility bill and rate analysis was added as an integral part of each on-site evaluation. To date, on-site evaluations have identified a total of nearly \$250,000 that can be saved through correcting billing errors and switching to more favorable rate schedules.

Through participating in the Direct On-Site Energy Evaluation Service and then taking action on opportunities identified in these surveys, several Texas school districts have reduced their energy costs by as much as 40%. Barbers Hill ISD offers an example of what can happen when district administrators, facility directors, and board members work together to take action on savings opportunities. In September 1986, trustees from this Chambers County school district attended an ERC presentation where they heard leaders from Marshall and Wichita Falls ISD's describe the impressive results of their district-wide energy management actions. Inspired by what other school districts had done to reduce their energy-related operating costs, these board members returned home

and asked Assistant Superintendent Barry Harvey to investigate the Center's programs.

Rather than simply wait for the energy evaluator to come and tell him what to do, Harvey began his own campaign to reduce consumption throughout the 1600-student district. He worked with principals and custodians, to insure that lights and HVAC systems were off in empty spaces. By the time the energy evaluator arrived in the district, these simple no-cost actions had already slashed the district's electric costs by more than \$16,000.

Lighting projects and HVAC controls topped the list of savings opportunities identified by the ECRO team when they surveyed the district's high school. Rather than simply concentrate on this campus, the board authorized delamping and relamping projects in the district's other schools. An additional lighting project involved replacing mercury vapor and quartz lighting with more efficient high pressure sodium lamps.

By May 1987--less than nine months after becoming involved with the Center's programs--Barbers Hill ISD had slashed electric costs by more than \$81,000. Convinced that energy management actions were a sound investment for the district, the cost-conscious board approved using unspent utility dollars to fund a small microprocessor-based control system. This EMCS, Harvey reports, has further slashed energy consumption and costs, and the ERC is currently awaiting hard savings data resulting from this action.

#### NEW DIRECTIONS

Future ERC program efforts will focus on setting energy performance standards in two areas: (1) energy consumption and costs in new facilities and (2) regional standards for existing school facility operation. The fact that 50% of the lifetime cost of a school facility lies in operation and maintenance costs, not in the initial cost, drives home the critical importance of energy conscious school design. Programs and services in this area will be a major focus of the ERC in the coming year. Energy performance assessment of existing facilities and energy accountability issues will also be areas of major concern in school facility management as the next Legislature takes a long look at all areas of school finance in Texas.