

Texas SCORE – Schools Making the Energy Efficiency Grade

Michael Stockard, TXU Electric Delivery
Glenn Garland, CLEAResult, Inc.

Abstract

The objective of this paper is to illustrate how the energy efficiency potential in K-12 public schools can be unlocked through a targeted market transformation program. A recent report by the National Education Association (NEA) estimates that the unmet needs of school facilities in Texas exceed \$13 billion dollars. This provides an excellent opportunity for utilities to make progress towards their energy efficiency goals and decrease schools' energy bills, and therefore allows them to stretch existing funding to stretch further.

Market barriers in K-12 schools are often responsible for high energy bills. These barriers include multiple authorities and goals, lack of knowledge or suspicion of support available to the school through other programs, outdated specifications, limited technical knowledge, lack of upper management support, counterproductive energy budgeting, minimal energy metering, and lack of a commissioning mandate.

The Texas SCORE (Schools Conserving Resources) program is being implemented by several Texas utilities. Market barriers to energy efficiency are overcome through a seven-step process that includes benchmarking through the U.S. EPA's ENERGY STAR[®] Portfolio Manager[®] tool, an Energy Master Planning process, implementing facility upgrades, accountability, energy education, community involvement, and recognition.

The paper and presentation will discuss the results of the first year of implementation of this program, lessons learned, and applications for other states. Specific case studies will be presented to illustrate how many elements of this program can be used elsewhere to overcome poor energy performance in schools.

What is Texas SCORE?

The Texas Schools Conserving Resources (SCORE) Program is a market transformation program designed to provide viable energy efficiency and demand reduction solutions for public school districts in order to minimize impacts of volatile energy costs, ease budget pressures, provide infrastructure improvements, and provide optimum learning environments for children.

While not limited solely to educational institutions, the following problems are common in K-12 schools, and are often responsible for chronically high energy bills: multiple authorities and goals, outdated specifications, limited technical knowledge, lack of upper management support, counterproductive energy budgeting, minimal energy metering, and

a lack of a commissioning mandate. The SCORE program is set up to educate the districts on energy management, bridge the gap in communication between school district energy managers and district business or finance managers, offer expertise and training on efficient energy policy, and truly change the way they think – and more importantly, act – about energy use.

There are large kW and kWh savings opportunities in schools and SCORE is a cost-effective program to achieve these savings. The program is also a great opportunity to improve upon the relationship between the utility and the school districts and offers tremendous public relations opportunity for both parties.

Together, we are transforming school district energy policies. Overall, this is a win-win situation: school districts are in dire need of help and are genuinely grateful to the utility for offering this assistance, and the PR for the utility is outstanding.

The Texas SCORE Program involves the following steps:

1.) Benchmarking- All school districts that participate in the SCORE Program have their schools' current energy use benchmarked with the Portfolio Manager[®] tool, which is powered by the U.S. EPA's ENERGY STAR[®] program. Portfolio Manager provides a rating for the performance of buildings on a scale of 1 to 100, relative to similar buildings nationwide by using ENERGY STAR's national energy performance rating system. This system accounts for the impacts of year-to-year weather variations, as well as building size, location, and several operating characteristics. Other benchmarking metrics are also provided that compare the schools to others within Texas, such as cost per student, cost per square foot, etc.

2.) Master Planning- The SCORE Program provides each participating school district with training and guidance for developing its own Energy Master Plan (EMP). Schools' energy costs are typically accepted as a necessary evil, instead of seen as an opportunity for savings. EMPs are designed to overcome entrenched institutional problems by preempting them before they occur and replacing them with better procedures that help eliminate counterproductive practices (such as installing lowest first-cost systems) and lead to greater cooperation and lower costs. Bringing all departments up to speed on what is needed to keep energy-efficient systems running properly improves the Program's long-term effectiveness.

3.) Facility Upgrades- While districts may choose to complete their facility upgrades in-house, the SCORE Program educates schools about ways they can leverage outside sources of funds. Interested districts are given an overview to explain how performance contracts and/or lease-purchase agreements work so that they can evaluate whether those are viable options for their district's project(s). The Program also educates participating districts about the Texas State Energy Conservation Office's low-interest loans, which are available through the LoanSTAR program.

4.) Financial Incentives- The Texas SCORE Program provides financial incentives from the sponsoring utility company to the participating school districts, based on peak demand reductions the district achieves during the program year. These incentives help the school districts “buy down” the incremental cost of purchasing more energy-efficient equipment that reduce operating costs over the life of the systems, and serve to make a project’s simple payback period shorter.

5.) Recognition- Not only does recognition serve an important function within the school district (for administrative and operations/maintenance staff), but recognition for the participating school districts in their local communities is also essential. The SCORE Program also provides press releases to inform each community about the steps their school district is taking to improve the energy performance of its facilities, reduce operating costs, and use precious budget dollars more efficiently. Further, the Program urges participating districts to recognize the direct operators of the school facilities in order to reinforce the activities and actions of all members of the energy efficiency team.

Characteristics of Successful School District Energy Utilization

The school must have four major elements to get started. First, they must commit to making energy management a priority. This priority means not only a verbal commitment, but a commitment of necessary time and financial resources. Second, they must have personnel with correct skill sets. We’ve found that few districts have a full-time energy manager. In those that do have an energy manager, this person is often a teacher that has been assigned these additional duties and may not necessarily have any formal training in energy management. Finally, the district must maintain this commitment over time to ensure the focus remains on the efficient operation of their facilities. Based upon the first year of operation of the Texas SCORE program, no district has contained all of these characteristics. One of the interesting changes in Texas subsequent to the deregulation of the electricity markets has been the shift from energy managers with a demand-side management focus to energy managers with a focus on specializing in energy commodity procurement.

Transforming a District from Low to High Achieving

Taking a district that has little capability for effective energy management and constructing those necessary skills and creating a budget to implement it is analogous to changing the course of a super-tanker. It takes time to make a major course correction. To that end, many people inside the district must coordinate their actions. Typically, districts are organized into functional silos with communication between them occurring at the top-most levels. For instance, facility managers may not talk to procurement agents about which energy-efficient equipment to purchase. To overcome these barriers to communication, a decisive leader is necessary. This person may not be the energy manager; it may be a business manager or assistant superintendent. Regardless, this person must be able to motivate district employees to remove the barriers that encourage organizational inertia. Even with this decisive leader, any changes enacted will not result in immediate visible changes. The change Texas SCORE asks the district to make is a

large endeavor for them, and with patience and a consistent focus, the districts are slowly making those changes. Additionally, these changes must be made within the existing decision-making cycle and district priorities.

Additionally, the school districts have had to make fiscal adjustments to endure major funding changes due to a special legislative session by the Texas 79th Legislature.

Dealing with the Cycle

Districts have a minimum of a one-year cycle for planning, funding, and implementation. The Texas SCORE program must dovetail into existing needs and funds. Also, the program must anticipate the district's timetable and match it accordingly. Sometimes this is a barrier, but it can be a benefit. Even when the program is able to shift focus and priorities to energy management issues, the cycle may delay visible results. Typically, work is scheduled and budgeted a year ahead. The challenge is to show the district the cost of delay through increased energy costs and encourage them to move projects forward. Texas SCORE has moved some districts ahead in their schedule, but in others the program must work through the cycle.

In addition to budget cycles, the program has had to overcome the problem of scant financial resources, which is very common among the participants. In no instance has the program identified a participant that had available budget dollars allocated to fund energy efficiency upgrades. The success of the program has been in developing value propositions for the business officials at each school district. One Dallas-area school district with over 40 campuses initially stated that they were interested in opportunities to become more energy efficient, but "they have no budget dollars available to implement energy efficiency projects. If projects could be identified, we will attempt to budget them in the next fiscal year."

When the initial benchmarking results showed exceptionally poor energy performance, this motivated the business office within the district to take immediate action. They hired a firm to perform a lighting audit of the district to identify energy efficiency opportunities. Once the audit revealed over \$800,000 in annual electricity savings, the business office found budget dollars and used program incentives and began implementation of a \$2,500,000 lighting project.

Dealing with Priorities

A school district's obvious first priority is achieving educational requirements and objectives. Followed closely, though are priorities in which effective energy management can play a role. For instance, when a district is managing funding and budgets, it should consider operational factors like the rates they pay for energy, and also how much it is costing them for lighting and cooling. These costs are driven by design criteria, technology, age, system performance and level of maintenance given to these systems. This also factors into the daily operation of their facilities. Growth or

reductions in student population is a priority in determining construction or renovation activities.

During implementation of Texas SCORE, it was found that improving existing facilities is relatively low on the list of priorities. Higher energy costs are a motivating factor to encourage the adoption of energy efficient technologies. Financial incentives from the utility also assist in the motivation, but are not a “deal-maker”. The program element of Texas SCORE that does provide the motivation to shift priorities is creating the master energy plan and assisting the district work through that process.

Part of the overall program strategy is to identify the priorities within the district and to tie energy efficiency to those priorities. For example, the electricity commodity contracts for a number of program participants were expiring in 2006 and had to be renegotiated. Most of these school districts had been engaged in long-term contracts with very low rates and were negotiating rates that were approximately 50%-80% higher. The program used the “sticker-shock” of higher electricity rates to illustrate to the program participants how the impact of higher rates could be lessened by implementing energy efficiency upgrades. At the beginning of the program, six of the initial seven districts in the TXU Electric Delivery program were forecasting such substantial rate increases in the next 18-24 months.

Developing Tools for Change

As a market transformation program, Texas SCORE intends to provide districts with the tools they need in order to effect lasting change in the way they approach energy performance. One very helpful tool the program has provided has been the information reported to the school districts in the building benchmarking reports. A total of 125 schools (from the seven participating districts) were benchmarked in this program in 2006. District management have been able to see how their facilities compare to each other, and to other schools in Texas and nationally. In all cases, these reports were immensely valued at all levels of the school district’s organization – whether the results were better or worse than expected. They also served as a tremendous motivator for districts to move forward with improvement projects quickly.

One district referred to earlier received very low scores for all of their schools despite expecting to see high scores. Although the district previously did not think they would be able to fund any large projects for equipment upgrades in 2006, the business and facilities managers became so motivated to improve their buildings that they were able to identify funds that could be used on projects – and began them quickly. Interestingly, another district received quite good scores on all of their schools, and still used the benchmarking reports to secure approval for getting lighting upgrades funded because their Board was able to see that the schools with inefficient lighting systems generally scored lower than the schools with efficient lighting.

In addition, the benchmarking reports served to increase the districts’ awareness of the ENERGY STAR label. Schools that scored above a 75 by EPA’s Portfolio Manager are

likely to qualify; six of the seven districts had at least one school fall into that category. Several districts are pursuing getting their high-performing schools labeled, and one rapidly growing district has already completed the process and was recently awarded ENERGY STAR plaques for 12 of their schools.

Lessons Learned and a Few Surprises

First, the Master Planning process is more needed and overwhelming for the districts than was expected. However, it is the only vehicle to ensure that the district has incorporated energy efficiency into their list of priorities. The requirements placed on the districts were minimal in terms of writing their master plan, however, the process does require coordination between the business and facilities departments the school district. Often, the program needed to intervene to assist in breaking down silos. Significant resources, represented by over 150 program man-hours were needed to assist the districts to prepare their Energy Master Plans.

Second, there was a lack of needed skills inside the district to identify, specify and implement energy efficiency projects. The program did not anticipate the complete disconnect between project identification and obtaining funding. District personnel needed assistance from the program to conduct the initial facility surveys. The program was assisted by resources from the State Energy Conservation Office, some various product and energy service vendors as well as a few architectural and engineering (AE) firms to assist in the identification and quantification of specific energy efficiency opportunities. Once these projects were identified and the financial analysis completed, then the acquisition of project funding began. The Facilities and Energy Management departments familiarize themselves with current year and forecasted budgets, learn the appropriations request process and compete with other departments for scant resources

Third, effective energy utilization is a soft priority for district management. Regardless of whether the district had a previous commitment to energy management or secured one through efforts of the program, top-level mandates have ebbed and flowed. The rising costs of energy over the last 18 months have served as a catalyst to create interest in the school districts. Future program efforts will secure firmer senior management commitments earlier in the process. As stated previously, incentives are of value, but will not guarantee that energy efficiency projects will be identified and funded. The incentive does serve as a motivating tool if the district sees a path to getting projects completed. Implementing incentive deadlines creates the urgency to act, but the primary drivers are the district understanding how to accomplish energy management goals, along with the fear of rising energy costs.