

Energy Savings Performance Contract

Tigard-Tualatin Schools reap benefits of an ESPC

Tigard-Tualatin School District is one of the fastest growing school districts in the state. The suburban Portland district began in 1853 when Wilson Tigard and his neighbors built a log school on property just off Tigard's Main Street. In 1865, a little red school house was built in Tualatin.

More than a century later, in 1969, the Tigard-Tualatin School District had 9 schools, 253 teachers and served 5,000 students. Thirty-six years later, the district found it had grown to 15 schools, 647 teachers and more than 12,000 students.

With this growth, came bond issues to build more schools. Tigard-Tualatin School District boasts one of the best records in the state for approving bond measures. Since 1978, 17 funding measures have been placed on the ballot and all but two have passed the first time they went to voters.

District administrators put energy efficiency high on the priority list for new facilities that received bond measure funds, but found that money for older school building improvements was much more restricted.

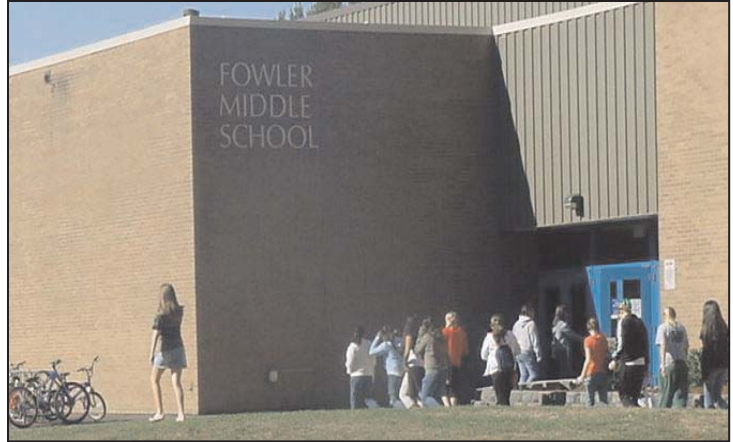
Projects on existing schools

In 1997, Tigard-Tualatin School District hired Johnson Controls, Inc. (JCI), an energy services company (ESCO), to identify and analyze energy efficiency improvements in the District's buildings. The cash flow of the project was structured so the energy cost savings and energy program incentives would pay for the project within the debt term.

JCI also guaranteed the energy savings for the project and would provide the district with a shortfall check if the savings were not achieved. The arrangement, known as an Energy Savings Performance Contract (ESPC), offered the district a solution to address needed improvements in existing buildings.

The 1997 ESPC included lighting replacements and various control system upgrades in two elementary schools and the swim center.

Satisfied with the success of the first ESPC, Tigard-Tualatin School District decided to begin another contract with JCI in February 2003. The first phase included lighting and



Fowler Middle School in the Tigard-Tualatin School District saw the benefits of energy efficiency projects as part of an Energy Savings Performance Contract with Johnson Controls, Inc..



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control system improvements at Durham Elementary School, Fowler Middle School, Hazelbrook Middle School and Tigard High School and installation of security systems districtwide. All measures were installed between 2003 and 2005. The 10 year savings projection was for \$3,129,414.

The second phase of the ESPC included lighting and control system improvements at Tualatin High School; Twality Middle School; and Bridgeport, Mary Woodward, Deer Creek and Byrom Elementary Schools. This work began in June 2005 and was completed in August 2006 with a savings projection of \$1,797,182 over 10 years.

Rising cost of energy

“When we reviewed energy use by Oregon school districts between 2003 and 2007, we found that electric costs increased by 4 percent per year and natural gas costs increased by 13 percent per year,” said Bruce Alford, energy analyst with the Oregon Department of Energy Schools Program. “This means that a district is paying an increasing amount of its operating budget on its utility bills and has less for addressing energy efficiency measures.”

For Tigard-Tualatin School District, the impact of increasing energy costs was minimized by successful energy savings in their facilities.

“Tigard-Tualatin School District’s energy use decreased 11.7 percent between the baseline year of 2003 and 2007,” said Alford. “During this time period, it’s interesting to note, the District increased its total square footage.”

Sandy Spencer, performance assurance engineer with JCI, noted that some of the older schools with ESPC projects are now performing better than the newer schools.

“This is an example of how constant management really pays off,” Spencer said. “The ESPC project focused on 10 schools with on-going monitoring and fine tuning of facility operations. The newer schools are operating with average attention, and it may be the case that savings opportunities are being missed.”

Phil Wentz, Facilities Manager with Tigard-Tualatin School District notes, “Over time, we have gained better management of the control systems, particularly through the performance contract projects, which has helped to improve the learning environment.”

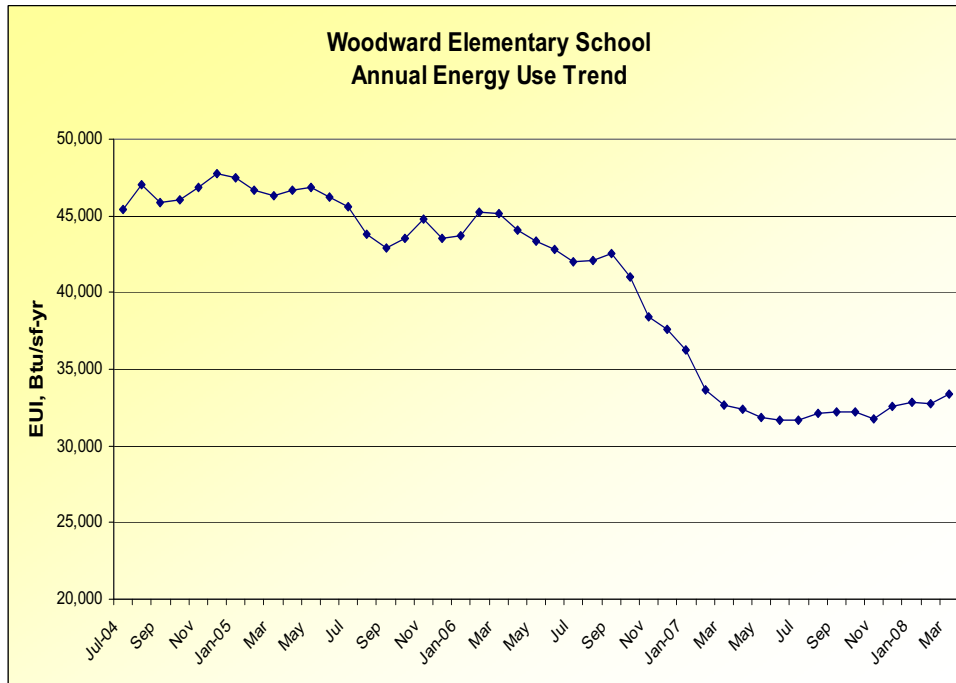
Team approach

Both the District and JCI share the perspective of a team approach to maintain energy savings and the original intentions of the performance contract. “It’s a continual process of monitoring and communicating with each other to maintain the systems as intended,” Wentz said.

The final total cost of both phases was \$2,934,000. The projects qualified for SB 1149 funds of \$1,853,995 and Business Energy Tax Credit pass-through funds of \$214,246. Simple payback is estimated at 20.1 years.

For Tigard-Tualatin School District, performance contracting was a successful option. The District has been able to afford energy efficiency projects that, in turn, have controlled their rising energy costs. If your school district is interested in learning more about energy savings performance contracting, contact the Schools Team at the Oregon Department of Energy at 1-800-221-8035. Grant funding from the US Department of Energy’s Rebuild America program helped provide technical support and assistance to the school district through the performance contract process.

Mary Woodward Elementary School Annual Energy Use Trend



At Mary Woodward Elementary School, JCI replaced fluorescent lighting, installed premium efficiency motors and made improvements to the HVAC control systems. A review of the school’s annual energy use reveals an average savings per month of 15,518 kWh and 283 therms from the baseline year.

The school also achieved the status of an Oregon Green School, recognizing their commitment to resource efficiency programs that improve school environments and communities.

“This accomplishment has likely helped to educate students and staff about conservation practices and how to contribute to saving resources in their school,” said Spencer.



What is an Energy Savings Performance Contract?

An energy savings performance contract (ESPC) has three distinguishing features:

1. A single procurement is used to purchase a complete package of services in which one contractor is accountable for:
 - Investigating existing conditions
 - Calculating energy savings and project costs
 - Completing all necessary designs
 - Procuring the subcontractors
 - Providing project and construction management
 - Commissioning
 - Training staff to effectively operate the systems
 - Providing measurement and verification of savings throughout the term of the contract
 - Guaranteeing the results
2. Project financing covers the entire project costs so no up-front money is needed.
3. An energy savings performance contract is structured so that the energy savings meet the monthly or annual loan payments. It is budget “neutral.”

A conventional process to purchase energy-efficiency improvements generally requires three separate solicitations and contract awards. ESPC replaces multiple solicitations with a single request for proposals (RFP) covering all aspects of the project and one set of contract documents with the selected Energy Services Company (ESCO).

Process

The process begins with an evaluation of a facility’s potential for energy efficiency improvements by the facility staff. If the potential seems promising, the school district prepares an RFP. This RFP covers all engineering, equipment purchasing, construction, and commissioning needed to complete the project. The school district awards the contract to a single contractor who is accountable for all services and guarantees a level of savings to the facility.

Once selected, the ESCO performs a detailed study of energy efficiency opportunities at the facility. The school district reviews this study and approves a final list of energy efficiency improvements. The ESCO then prepares plans and specifications that the school district reviews and approves.

After receiving notice to proceed, the ESCO furnishes, installs, and commissions the energy efficiency improvements. Commissioning includes verification of system installation and operating parameters, training of operations and maintenance staff, providing equipment manuals and documentation, and all warranty information. When the project is complete, the energy savings measurement and verification process begins and the savings guarantee goes into effect. These activities continue for the duration of the contract term.

The school district monitors the day-to-day performance of the ESCO during the construction phase in the same manner as any capital improvement project. After construction is completed and accepted, the school district reviews equipment operation and measurement and verification reports to ensure the guaranteed energy savings are achieved.

Step 1 - Get information

The Oregon Department of Energy Schools Team is available to provide a Guidebook (on the Web at www.oregon.gov/ENERGY/CONS/school/docs/ESPCGuide.pdf). For additional information on the Web visit: www.oregon.gov/ENERGY/CONS/school/espctemp.shtml or call toll-free in Oregon 1-800-221-8035.