

Douglas County School District (Nevada)

Organization Size: 12 schools (6,100 students in K-12)

Project Scope: Lighting improvements, a centralized energy management system, energy efficient transformers, a solar photovoltaic system, and HVAC system repairs and equipment replacements

Project Cost: \$10.7 million

Type of Financing: Installment purchase agreement, general obligation bonds, Qualified School Construction Bonds (QSCB)

Other Sources of Funding: \$441,000 federal grant

Simple Payback Period: 15 years (net project cost / savings per year)

Key Benefits: Energy savings, replacement of aging equipment, reduced operational costs, important non-energy improvements funded

Douglas County School District (DCSD) faced a challenging combination of aging equipment and buildings (most over 37 years old), rising energy costs, and limited access to taxpayer funds due to the fiscally-conservative makeup of the region's voters. The district's leadership responded creatively, aiming to demonstrate the value of these improvements to voters, while leveraging financing sources that did not require voter approval. They began with an energy savings performance contract (ESPC) that utilized a tax-exempt installment purchase agreement (IPA). Once the taxpayers approved a bond initiative, the district combined the IPA with additional funds from other sources including federal Qualified School Construction Bonds (QSCB), an American Recovery and Reinvestment Act (ARRA) grant, and General Obligation bonds to fund a total of \$10.7 million in upgrades.

Making the Case for Energy-related Improvements

In 2007, DCSD issued a Request for Proposals (RFP) and selected an energy services company (ESCO) to conduct a comprehensive audit of energy-saving opportunities in their 12 schools and 6 administrative buildings. The audit identified a range of potential measures including lighting improvements, a centralized energy management system, energy efficient transformers, a solar photovoltaic system, numerous HVAC system repairs and equipment replacements, as well as vending machine power controls, and district-wide computer management software. DCSD leadership wanted to show voters that they could quickly and efficiently implement projects that would pay for themselves to incentivize voters to support funding for additional improvements in the future. According to DCSD's Chief Financial Officer Holly Luna, "We have an extremely conservative district – we had to show them that we meant business if we wanted them to

approve new bonds for our schools.”

They chose to invest almost \$5.1 million in energy-related improvements for the first phase of the project. To fund this work they negotiated a tax-exempt installment purchase agreement (IPA) with a bank at 4.12% over 15 years, secured by the equipment and backed by an ESPC with the ESCO. In 2008, less than 18 months after initiating the project, the work was complete and providing significant savings to the district.

This first phase of work was projected to produce in excess of \$450,000 in utility bill savings annually – more than paying for itself over the 15-year performance contract with the ESCO. The first two years of performance beat these initial savings’ estimates by \$54,000 the first year, and \$77,000 the second year. In 2012, the school district took advantage of lower interest rates and refinanced the IPA at 2.25%. DCSD now expects to realize almost \$9 million in utilities savings over 15 years from the original \$5.1 million investment with approximately \$1.4 million in cumulative net cash flow.

We have an extremely conservative district – we had to show them that we meant business if we wanted them to approve new bonds

- Holly Luna, Chief Financial Officer at Douglas County School District

Initial Success Enables Access to GO Bonds and a Larger Scope of Work

As a result of active communication with the districts’ voters about the project’s encouraging progress and impacts, in 2008, the school district received 10 year voter approval for \$35-40 million of General Obligation bonds for these types of energy-related improvements and other district needs.¹

With this new source of capital, DCSD implemented more of the improvements identified in their initial audit. They selected \$5.6 million in additional upgrades (for a total of \$10.7 million for the two phases) – pairing approximately \$2.8 million in General Obligation bond funding with \$2.4 million in Qualified School Construction Bonds (QSCBs),² and \$441,000 in ARRA grant funds through the Nevada State Office of Energy. Because they already had a list of “shovel ready” projects, they were more prepared than other school districts to take advantage of available

¹ Nevada statutorily limits the combined ad valorem property taxes levied by all overlapping governmental units with the boundaries of any county to \$3.64 per \$100 of assessed valuation, of which the school district – with voter approval – receives \$0.10 per \$100 assessed valuation. The \$35-40 million over the approved 10 year period is an estimate based on projected property value changes over this period.

² Qualified School Construction Bonds (QSCB) are federally-subsidized, taxable bonds. They were created by the Recovery Act, and have since expired. Other federally-subsidized, taxable bonds remain available to school districts including Qualified Energy Conservation Bonds (QECBs) and Qualified Zone Academy Bonds (QZABs).

funding. DCSD received a third of the state's QSCB available funding in 2009. They were also able to implement the projects quickly by expanding the scope of work with their existing ESCO partner. "Because we had an existing contract and a clear set of suitable projects ready to go, we could easily and statutorily add change orders to increase the scope of work – without significant time delays or administrative burden," Ms. Luna explained. While the Measurement and Verification reports encompass only the phase one ESCO projects with verified savings, the district attributes the current utility budget surplus to the expanded scope derived from the additional energy-related improvements.

Operational Savings Added to the Benefits of the Improvements

The school district used the project as an opportunity to standardize materials and equipment across the district and bring down operational costs – for instance, having a single type of efficient light bulb to replace, simplifies and reduces the cost of procurement, warehousing and maintenance. DCSD also made non-energy improvements within the ESCO's scope of work that provided additional operational savings. Examples include new fire alarm systems at both high schools that reduced the frequent false alarms that interrupted class time and required staff time to respond, new "smart" trash compactors that "signal" when they are full diminished janitorial costs, and new computer management software ensures computers are shutdown daily to save energy costs.



Resources

DOE's Better Buildings Challenge Showcase Project on Gardnerville Elementary School:

<http://www4.eere.energy.gov/challenge/showcase/douglas-county-school-district/gardnerville-elementary>

Energy Savings Performance Contracting (ESPC) Case Study on Douglas County:

<http://www1.eere.energy.gov/wip/solutioncenter/pdfs/douglascountyschooldistrictprojectssummary.pdf>

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