

CASE STUDY: Des Moines Public Schools: Financing Through Revenue Bonds

The simple choice for energy efficiency.



March 2016

Des Moines Public Schools

Des Moines Public Schools (DMPS), located in Des Moines, Iowa, has more than 32,000 students and 70 facilities encompassing almost six million square feet of space. A longstanding ENERGY STAR® partner, DMPS decided to make improvements to its facilities to improve student comfort, reduce utility bills, and improve cash flow. With the help of EPA's ENERGY STAR Portfolio Manager®, DMPS was able to prioritize building upgrades. The next step was deciding whether to finance the improvements and start construction without delay, or limit improvements based on the funds available at the time. DMPS determined that financing and installing the energy-efficient equipment immediately would improve its immediate cash flow, and was a better financial decision than waiting for funds to become available over time (the "cost of delay").

Financing Through Revenue Bonds

In 2008, the State of Iowa implemented a 1 percent sales tax increase, with the revenue being reserved exclusively for constructing and modernizing Iowa public schools. DMPS looked at its enrollment numbers and conservatively estimated it would receive \$22.5 million per year in sales tax revenue for the following few years based on projected enrollment. While \$22.5 million annually sounds like a significant amount, it would still mean DMPS would have to rely on the "pay as you go" option for building upgrades, thereby limiting the extent of improvements that could be made each year. At that rate of spending, construction would have lasted for 16 years. Additionally, since the cost of construction increases each year, relying only on the tax revenue available in a given year would have resulted in greater overall costs.

Instead, DMPS decided to use the sales tax increase to cover the debt service on a series of revenue bonds (more than \$210 million in three phases), which covered almost all of the improvement costs. Because the recurring revenue from the sales tax increase is predictable, DMPS decided to use these annual funds to underwrite a revenue bond, which only required the approval of the Des Moines School Board, rather than holding a public referendum.

Although financing the improvements did include interest payments, DMPS determined that the energy inefficiencies and increased project costs caused by delaying construction would be substantially more than the interest paid on these bonds. Construction could be started upon bond funding and completed by 2018. Finally, accelerating the installation of energy efficiency improvements would mean realizing the savings on energy costs sooner; these savings could be used to hire new teachers and otherwise offset increases in the general budget, including teacher's salaries.

Pay-as-you-go vs. pay-as-you-use. There are two basic approaches to funding projects: "pay-as-you-go" and "pay-as-you-use." Pay-as-you-go means paying for the project out of current revenues at the time of expenditure, in other words, paying cash. If you don't have the cash, the project gets postponed until you do. "Pay-as-you-use" means borrowing to finance the expenditure, with debt service payments made from revenues generated during the useful life of the project. Because energy efficiency projects generate operating savings over the life of the project, the pay-as-you-use approach is preferable in this case.

DMPS established a community-based facilities advisory committee that developed a "Students First" facilities improvement plan. The plan focused on enforcing safety and security, replacing inefficient or worn-out equipment and systems, implementing building improvements, upgrading technology, and making improvements to enhance student achievement. DMPS used Portfolio Manager and a commercial energy management program to benchmark its energy usage, target buildings for upgrades, and set goals for energy efficiency. District administrators contracted with a variety of engineers to define savings and improvement opportunities, and used their internal construction management team as the general contractors. By managing these services "in house" and accelerating the start date of the projects, the district saved an estimated \$58 million in construction costs.

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Throughout each phase of construction, the DMPS chief operating officer issued newsletters describing progress on renovations and providing conservation tips in order to keep the community informed of the progress. Students contributed articles on sustainability activities at schools.

Results

The results speak for themselves. Inefficient temporary (modular) buildings were eliminated at eight schools; two new schools and several additions were built. More than 18 schools received both window replacements and mechanical upgrades, and several other schools received new mechanical systems only. The district installed geothermal heat pump systems in 33 schools and central air conditioning in schools that did not have it. A central control system now monitors HVAC at all schools and allows the district to

create temperature set points, set back temperatures for unoccupied periods, and stagger the startup of equipment to avoid peak demand charges.

DMPS continues to use Portfolio Manager to track energy and water usage and determine cost savings. Annual energy costs went from almost \$6 million in 2009 to around \$3.5 million in 2012, despite a 20 percent increase in the number of classrooms with air conditioning. In 2013–2014, the district spent an average of \$114 per student on energy costs, significantly lower than the national average of \$181.53 per student. In addition to earning the ENERGY STAR certification for 46 facilities in 2014, DMPS has also been recognized as an “ENERGY STAR Partner of the Year—Sustained Excellence” winner.

ENERGY STAR Resources

EPA’s ENERGY STAR Cash Flow Opportunity Calculator (CFO Calculator) is a great tool for determining the “cost of delay” when evaluating financing alternatives for energy efficiency projects. The CFO Calculator takes interest rates, project cost, projected energy savings, and inflation into account to make these determinations. The CFO Calculator addresses three critical questions: (1) how much equipment can be acquired with predicted savings on utility bills, (2) whether to finance and install today or wait until funds become available over time, and (3) whether a project will lose money by waiting for a lower interest rate. Download the CFO Calculator at <http://www.energystar.gov/buildings/tools-and-resources/cash-flow-opportunity-calculator-excel>.

The Building Upgrade Value Calculator lets you analyze the financial value of efficiency-related capital investments. Enter information—such as square footage, annual utility bill, the projected cost and savings for each investment, and financing terms—to determine a particular investment’s energy and financial benefits. From there, you can either print out a summary report, or automatically generate a customized letter that you can take to your senior management to make the business case and secure funding. Download the calculator at <http://www.energystar.gov/buildings/tools-and-resources/building-upgrade-value-calculator>.

You can use EPA’s **ENERGY STAR Portfolio Manager** to manage the energy and water use of any building. All you need are your energy bills and some basic information about your building to get started. Portfolio Manager can help you set a baseline, identify buildings for upgrades, set goals, and track improvements. With easy access to data on cumulative investments in facility upgrades or annual energy costs, you can make strategic decisions about your building portfolio. Portfolio Manager is also the portal for applying for recognition from ENERGY STAR. Use it to apply for ENERGY STAR certification. Visit <http://www.energystar.gov/benchmark>.

EPA offers **training** on a range of energy efficiency topics—from the ins and outs of EPA’s ENERGY STAR Portfolio Manager to guidance on improving the energy performance of your buildings and plants. All of these are available online, meaning no travel, no lost time out of the office, and no cost. Visit <https://www.energystar.gov/buildings/training>.

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