

Naomi Dillon

Seeing Green

Districts find cost savings when they take steps to conserve energy and make schools more environmentally friendly

The good news: American households are not the biggest producers of municipal waste. The bad news: We're a close second. Food scraps, packaging, grass clippings, furniture, and appliances all contributed to more than 250 million tons of trash collected in 2010, according to the U.S. Environmental Protection Agency.

And yet that's nothing compared to the money schools throw down the drain on utility and energy bills through inefficient and careless use. The U.S. Department of Energy estimates school districts waste as much as a third of the \$12 billion they spend annually on energy, which incidentally is the second largest line item in most district budgets, behind payroll.

Thanks (or no thanks) to a prolonged economic downturn, educators are scrutinizing figures that once were considered fixed costs, taking large and small measures to make sure they get the most bang for their buck. In a word, schools are going green.

Old standbys like recycling programs and conservation initiatives remain at the heart of these efforts, but often with a twist and a boost from 21st century tools. Shutting off lights in empty rooms becomes a snap with occupancy sensors. Regulating building temperature is streamlined with automated controls.

Some call it green technology; others call it clean tech-



nology. Still others place it under the banner of high-performance operations, or the even more wide-ranging topic of sustainability.

We won't delve into the differences among these terms, focusing instead on what brings them all together—a recognition and appreciation of the scarcity of natural and financial resources. In short, it's a modern-day version of that iconic slogan: Reduce, Reuse, Recycle. And increasingly, educators are heeding that message.

Green now front and center

In July, Maryland officials launched a green schools initiative, allocating \$25 million to the state's school construction fund to help districts perform upgrades and modernization projects designed to reduce their energy consumption. Meanwhile, during April's Earth Week, New York Gov. Andrew Cuomo unveiled a massive program that would funnel \$800 million into making state, municipal, and school buildings more energy efficient.

And last spring, the U.S. Department of Education launched the Green Ribbon Schools program, a riff on its Blue Ribbon Schools program. Schools deemed green not only exemplify academic excellence, especially when it comes to teaching environmental literacy, but also operational excellence through sustainability measures and reductions in their carbon footprint.

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“This is the moment, the culmination of so many green school movements we’ve seen over the last couple years,” says Anisa Metzger, who leads the school district sustainability program for the U.S. Green Building Council’s Center for Green Schools, a Washington, D.C.-based non profit that promotes the use of environmentally friendly building practices and design.

“It’s really put a spotlight on the issue and provided some traction,” Metzger says. “This is moving from the fringes to front and center.”

From the ground up

In Pennsylvania, energy has been on the front burner recently. Last year, electricity rate caps imposed by a 1996 state law expired, creating more consumer choice as well as the possibility that costs would jump double digits as they did in neighboring Delaware and Maryland.

The prospect of being beholden to the volatility of market rates was enough to convince officials at Red Lion Area School District that they needed to take quick and decisive action.

“We knew we needed to do something to control the future costs,” says Terry Robinson, the district’s business manager. “We wanted to be good stewards.”

Starting with energy costs is certainly a smart move, as it is one of the few budget items that can be trimmed without having an adverse impact on the classroom. In fact, it could

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Far left and center: Machias Elementary School in Snohomish, Wash., was a Learning By Design grand prize winner (www.learningbydesign.biz). The reconstructed school features salvaged elements from the original school. Energy is saved through daylight harvesting and a ground-source heat exchanger.

Above, top and bottom: Gloria Marshall Elementary in Houston won the 2012 Grand Prize for New Construction. At the forefront of the design plans was the desire for a relationship between the school and the environment. The school includes an eco-pond, science garden, and interior tree house.

have the opposite effect.

Consider this: The National Center for Education Statistics reports per-pupil energy expenditures climbed 19 percent from 2007 to 2008, nearly five times the 4 percent U.S. inflation rate during that same period. Had energy costs mirrored the nation’s rate of inflation it would have saved districts some \$2 billion—money they could have poured back into the classroom.

With this in mind, Red Lion officials began a conservation journey through Pennsylvania’s Department of General Services, which has a program that matches districts with vendors that provide performance contracts. The contracts are a customized set of energy efficiency recommendations that are funded through the savings districts will realize in the future.

All told, Red Lion committed to \$6 million worth of upgrades across the district, replacing the boilers at its two junior high schools, modernizing HVAC systems, and retrofitting all of the lights in the schools and administrative

building, among other things.

“We went as small as putting vending machines on vending machines to installing the geothermal pump system,” Robinson says, noting the latter project cost just under \$2 million.

Clearview Elementary School, a 40-year old building that lacked air conditioning and derived its heat entirely from electricity, was selected to receive the system, one of the most cutting-edge sources of renewable energy. Geothermal systems draw power through pipes that snake from wells drilled deeply into the ground.

“Basically, what that means is we’re using the groundwater, the consistency in that temperature, to heat and cool the building,” Robinson says.

Less than a year after the green makeover, it’s still too early to tell in hard numbers how much Red Lion has saved, though initial estimates had pegged the savings at an average of

NJSBA program focusing on sustainable schools

Green schools may be all the rage right now, but not all school districts are giving it the green light—unsure of how to proceed, where to find the money to pay for the projects, and even whether it’s all worth it.

Enter the New Jersey School Boards Association (NJSBA), which recently launched a three-year study called the New Jersey Sustainable Schools Project.

Conducted by the nonprofit Educational Information and Resource Center and funded by the Alliance for Competitive Energy Services—a state energy-buying cooperative managed by NJSBA—the study will work with 20 selected school districts to examine whether incorporating energy-efficiency and conservation measures on existing school buildings have an impact on district finances and student achievement.

“The project will be of significant interest in New Jersey, where the average age of public school buildings exceeds 50 years,” NJSBA Executive Director Marie Bilik said in a press release. “While green energy has been a component of new schools and the focus of building renovation in some districts, most schools have not been able to pursue the concept.”

One reason is because they simply don’t know how, which is why the project aims to provide guidance on developing policies, pursuing alternative funding and public-private partnerships, and reinvesting savings in the instructional program, says Bilik.

As part of the project, each participating school will take part in a newly erected Green Schools Leadership Institute. Teams of faculty and board members will develop a “strategic green plan” that includes action steps, lesson plans, and resources.

“In New Jersey and other states that have been hard hit, going green makes sense financially, but also this is clearly where the growth is in the economy,” says Frank Belluscio, deputy executive director at the NJSBA. “I think school districts want to do this, but you really need to have the programs there to make them want to do it.”

\$300,000 to \$500,000 annually. If public feedback is any indication, however, the building improvements have been worth it.

“We’ve heard nothing but good things,” Robinson says. “The time was right to do something like this.”

From the top down

Timing played a key role for the Jordan School District, too. The Utah State Energy Department received \$35 million in federal stimulus dollars to support alternative and renewable energy projects, including the installation of solar panels at all 73 school districts in the state.

And additional monies were available to districts that promised to use it on special-needs populations and as a one-time expense, says Steve Dunham, Jordan’s communications manager. The Rivers Edge School fit the bill.

“We’d been looking at ways to incorporate new and green technologies, and we had a population that wasn’t being serviced,” Dunham says. “So when the money was available from the federal government, we knew we could bump their needs to the top.”

Originally housed in a 1920s-era building, Rivers Edge serves about 40 students with severe emotional and behavioral issues.

“It was easily the oldest facility in the district that hadn’t been retrofitted,” Dunham says.

The \$8 million grant allowed the district to start from scratch. The new 48,000-square-foot building includes features like a geothermal heat pump system, 235 solar panels on the roof, three wind turbines on the south side of the campus, and an automated control system to tie it all together.

The solar panels alone are expected to generate 70,000 kilowatt hours annually, providing about half of the school’s power needs. Indeed, the school’s first power bill was \$1,800, a fraction of the roughly \$8,000 to \$10,000 it would cost for a school of similar size.

What’s more, the school’s energy input and output figures are broadcast over the Internet for students, staff and the general public to view.

“They see real-time how much energy those solar and wind turbines were generating and how much we’re using,” Dunham says. “It’s opened up some new doors for teachers, who say they’ve never seen the students so engaged.”

The new building also has opened a new feeling and spirit in the community.

“In the past, [the students] would come to school in this old facility and parents would bring them, and the feeling I think was that nobody cared about them,” Dunham says. “Now they have such a sense of pride. Look at this beautiful building. It’s really changed a lot of issues we dealt with. We created a new atmosphere and environment.” ■

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