VIEWS & VISIONS

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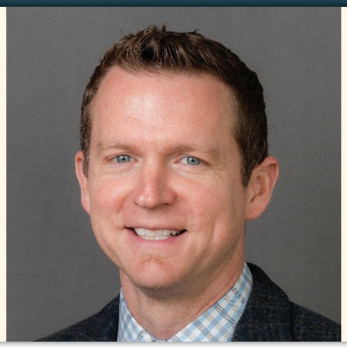

Redirecting Energy Dollars to Upgrade School Facilities

Jeremy Smith, PE, LEED AP, CxA, HBDP, CGD, Vice President
CMTA Energy Solutions

Jeremy Smith is in his 21st year with CMTA, a 310-person national engineering firm with nine offices in seven states and the District of Columbia. His career at CMTA began as an engineering student intern; he now serves as a company owner and Vice President. During his time as a designer, Smith was the Engineer of Record on over 80 new buildings, including 35 Energy Star K-12 schools, 10 LEED Certified projects, one building receiving an ASHRAE national technology award, one certified Living Building and two net zero energy schools.

Smith is a founding member of CMTA Energy Solutions, a performance contracting office of CMTA with the goal of delivering the same quality projects, but funded using the financial tool of guaranteed energy savings performance contracting. Since its founding in 2012, Smith and his team have delivered over $200 million of performance contract projects.

Smith graduated from the University of Kentucky, *summa cum laude*, with a bachelor's degree in mechanical engineering.

In the last six years, CMTA Energy Solutions has provided over $200 million of infrastructure upgrades to public facilities without costing taxpayers a single dime. One of the primary markets we serve is the West Virginia educational market. The serious issue of aging school facilities and uncomfortable learning environments hampering students, combined with little to no money to deal with deteriorating HVAC systems, roofing, windows, etc., is a very common issue in West Virginia school systems. Guaranteed Energy Savings Contracts are a great way to unlock additional dollars that help to fill the void between the funding that is available and what is really needed to overhaul and fix the infrastructure of a taxpayer-owned building and bring it up to modern standards.

One such project has been completed at Berkeley County Schools in the Eastern Panhandle of West Virginia. Berkeley County is the second largest school district in the state and, by most measures, also the fastest growing. In 2015, the district was growing as usual; however, it was simultaneously losing revenue. Furthermore, the building infrastructure district-wide was reaching critical condition with 20 of their 35 buildings having HVAC systems well beyond expected service life (this number would grow to 29 of 35 buildings within five years).

In response to these issues, Berkeley County Schools embarked on an ambitious program to renovate school facilities in a way that would generate savings to pay for the projects and fund future projects. The funding mechanism for this work was a Guaranteed Energy Savings Contract (GESC).

What are the advantages of GESC?

1. A GESC, when executed correctly, is budget-neutral at a minimum. They can also be structured to be budget positive (sometimes I call this "cheaper than free").
2. The savings are guaranteed by the Energy Services Company (ESCO) and provide the funding for the project.
3. There is no other procurement mechanism available to upgrade infrastructure, replace systems or address deferred maintenance in this way.
4. It is a turnkey project. There is no finger pointing when issues arise. The design, construction and warranty responsibilities lie with the single point of contact (the ESCO).
5. There are no change orders. The risk is on the ESCO to carry and manage the project contingency. If contingency is exceeded, the ESCO is responsible.

Open Book Pricing and Transparency

It is critical in this type of non-traditional project that everyone involved understands all aspects, including all that is contained in the final project cost. An open book pricing approach solves this issue. The recommended best practice is for a request for proposal to be issued requiring the ESCO to provide their fee pricing structure as part of the overall package. It should be easy for the building owner to see and understand how much of the project cost is going to equipment and skilled subcontractor labor, and how much is actually going to the ESCO. The performance contracting industry has traditionally resisted this approach, but it is gaining momentum. There are now several ESCO's that will willingly open their books.

Local Subcontractors and Suppliers

The ESCO can bid all packages to qualified local subcontractors and suppliers. This was the model used in Berkeley County, where each package was competitively bid on by local contractors and ultimately constructed by local contractors.

Berkeley County Schools – Contract and Financial Results

The final contract value for Berkeley County was

$28,276,000, with $22,376,000 being paid for by savings and $5,900,000 funded by state grants. Through the first two years of the program, the project has not only paid for itself, but also injected an additional $1.35 million in savings into the school district (total savings through two years is $3.1 million, where only $1.75 million was needed to meet the guaranteed level in order to make the project payments). Currently, the district is looking at reinvesting the additional savings back into the school facilities as the phase 1 project surplus is now projected to be approximately $6.5 million over the term of the project.

The centerpiece of the phase 1 project was seven schools (of the 29 in need) that received completely new geothermal HVAC renovations in a major "gut and redo" type of project. New ceilings, new lights, etc. were also provided. A high-level summary of scope is included in the table to the right.

Berkeley County Schools – Energy Results

The energy usage reduction at the seven major geothermal renovations was dramatic, resulting in an overall average reduction of 73 percent. Those renovations are the most efficient buildings on file in the entire state of West Virginia, according to the U.S. Department of Energy "ENERGY STAR" program, which judges buildings based on actual utility bills. Additionally, the project produced 12 of the top 13 most efficient K-12 schools, according to the same program.

Traditional Construction vs. Energy Saving Performance Contracts (ESPC)

In the last 10 years, Berkeley County built three new schools and underwent one major renovation, all funded entirely by taxpayer dollars in the traditional manner. Unfortunately, without an energy specialist on the team and no guarantee of performance, the buildings underperformed. Compared to the renovations completed in the ESPC, the four traditionally procured buildings are using 164 percent more energy, or $1.39 per square foot per year. For those

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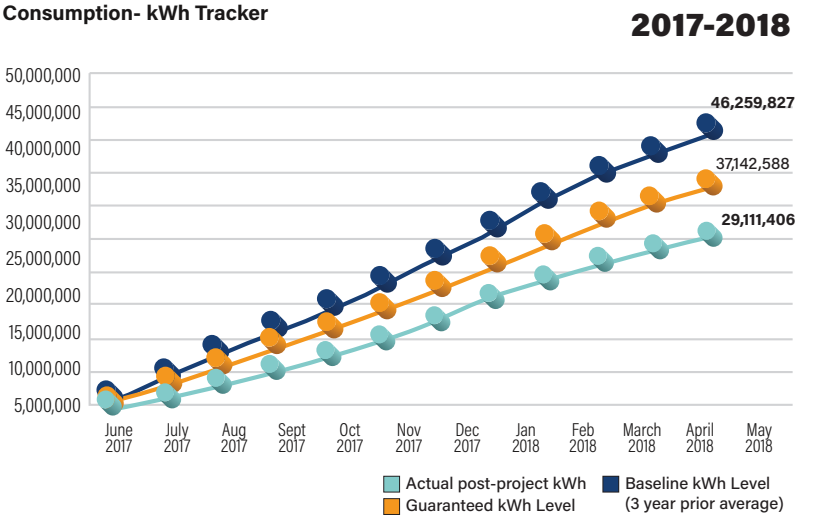
Berkeley County Schools Energy Project Summary

Item	Description
Geothermal HVAC Renovation	Complete HVAC System Replacement at (3) schools in 2016, (4) in 2017
Central Plant Upgrades	(3) new boilers and (2) new chillers at various sites
Spray Foam Insulation	Installed at (4) of the geothermal renovations at perimeter wall-roof connection
Misc. Envelope Improvements	157 doors weatherstripped, 596 windows replaced or caulked
LED lighting	23,436 fixtures installed district-wide (35 sites)
PC Power Management	12,100 PC's district-wide
HVAC Controls System	District-wide (35 sites)

Berkeley County Schools Energy Results

School	Square Feet	EUI Before	EUI After	% Energy Reduction
Mill Creek Intermediate	62, 200	73	24	67%
Opequon Elementary	44,500	126	25	80%
Tuscarora Elementary	43,600	117	26	78%
Valley View Elementary	44,500	139	27	81%
Berkeley Heights Elementary	50,980	127	36	72%
Rosemont Elementary	41,982	96	38	60%
Gerrardstown Elementary	16,400	123	42	66%

Berkeley County District-wide Electrical Consumption- kWh Tracker



Regional Development in the City of Wheeling and Upper Ohio Valley

Victor R. Greco

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permanent jobs and thousands of construction jobs have been created.

Public Private Partnerships

Through tremendous cooperation from the West Virginia Economic Development Authority, Regional Economic Development Partnership, Brooke-Hancock-Jefferson Metropolitan Planning Commission, Business Development Corporation of the Northern Panhandle and various towns along both sides of the river, many large-scale projects and future development opportunities abound. For instance, Orrick is one of the first Global Operations Centers that opened in Wheeling in 2002. It was the first global insourcing center within a major U.S. law firm. C-Foam, a carbon foam product company, is designed to meet growing demand for ultra-high-performance engineering materials in the military, industrial, aerospace and commercial product markets. Abandoned brownfields sites are now the center of attention for new development.

Higher Education

Though funding has been an enormous challenge, local colleges and universities remain a vital component to garner a path to advanced degrees. West Liberty University, West Virginia Northern Community College, Wheeling Jesuit University and Bethany College all offer valuable opportunities at affordable costs.

My wife and I returned to the Upper Ohio Valley 29 years ago to raise our children and to start a new business. We both grew up in Weirton, went off to school and eventually settled in Baltimore. At the time of our return, the city was marketing a renaissance designed to exploit the history, culture and industrial heritage of this place. Though it has taken time, diligent leadership and a spirited citizenry have brought this concept to fruition. The quality of the neighborhoods, schools, parks and culture built during the good times remain strong. Thus, pride has been restored and a good quality of life has been revived.

Building a Future in West Virginia's Eastern Panhandle

James W. Dailey, II

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In all cases, it is the planning process that affords all parties the time to consider the financial requirements, the growth and expansion potential, phasing stages, infrastructure modifications and every other aspect of a major construction project. As the saying goes, failing to plan is planning to fail.

The Eastern Panhandle, with its expansive topography and abundance of utilities, transportation services, employment opportunities, schools and government services, continues to be the shining example of growth and development for families and businesses in our state.

Redirecting Energy Dollars to Upgrade School Facilities

Jeremy Smith

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four buildings, this equates to an average of $168,000 per year, per building, in wasted energy. Unfortunately, this is a common problem with new construction, because although energy-efficient design is code-regulated, there is very little incentive to follow the performance of the building after it is constructed and benchmark the energy usage unless a building owner chooses to do that themselves. Although some buildings in the state of West Virginia are performing well, the majority are not benchmarked and not actively managed to meet an energy benchmark metric.

Wrapping It All Up

The space on these pages is not enough to fully explain and discuss this large subject, but I hope I have clearly illustrated how Guaranteed Energy Savings Contracts are beneficial to building owners. When executed properly, it is truly a win-win for all involved by rediverting dollars being sent to the utility company back into the classroom. Furthermore, the mission of helping underfunded school districts and universities is truly rewarding work that my company finds great purpose and pride in executing.

Public Private Partnerships: Tools for Constructing West Virginia's Economic Future

John R. "Rudy" Henley

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Connecting the efforts and capabilities of the full range of active participants, and making sure that silos don't inhibit opportunity, will be a good start. Such efforts are, by nature, long term. As the famed NFL coach Vince Lombardi said, "It's not the will to win, it's the will to prepare to win."