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Philadelphia

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School District of

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EnergiaSaves.com

"Our partnership with Energia has been highly rewarding, and the outcomes have significantly enriched the lives of our students, staff, and community members. The Energia team demonstrates exceptional cooperation, vast expertise, and an impressive knack for simplifying complex subject matter for all District stakeholders. Amidst the challenges of the contemporary operating environment with its competing fiscal and staffing demands, the Energia staff provides stability, continuity, and enhances our ability to be good stewards of the resources entrusted to our care. I enthusiastically recommend Energia to any school district considering an energy performance project, as they ensure the protection of your interests under the guidance of respected, unbiased industry experts throughout the process."

Oz Hill

Chief Operating Officer, School District of Philadelphia

The School District of Philadelphia Profile

- Enrollment: 197,288 Students
- District size: 216 District Operated Facilities
- 26.5M Square Feet
- Operating budget: \$4.5B
- Annual Energy Spend: \$36M

Why Philly Chose an Energy Performance Contract

- \$4B in needed repair or replacement
- Reinvest savings to address deferred maintenance
- Opportunity to use Green Bond funding
- Quick turnkey installation
- Comprehensive improvement of learning environments
- Alignment with Sustainability Plan
- W/MBE participation



Project Goals



IMPROVED LEARNING ENVIRONMENT

- Address code issues
- Improve indoor air quality
- Optimize lighting solutions
- Low noise/functional heating and ventilation
- Adding cooling

LOWER OPERATING COSTS

- 15-45% reduction in utility costs
- Focus on building staff training
- Transition from reactive to preventative maintenance
- Ongoing staff training support
- Standardize on high-efficiency systems with ease of use



EDUCATIONAL OPPORTUNITIES

- Curriculum enhancement program
- Apprenticeship programs
- Teacher workshops



LOWER OPERATING COSTS ADVANCE SUSTAINABILITY PLAN

- 15-45% reduction in utility costs
- Focus on building staff training
- Transition from reactive to preventative maintenance
- Ongoing staff training support
- Standardize on high-efficiency systems with ease of use



SOCIALLY CONSCIOUS IMPLEMENTATION

- Equity across schools
- High levels of M/WBE participation
- Driving local labor
- Communications to local community



ACHIEVE CAPITAL IMPROVEMENTS

- Holistic upgrades major systems
- Central plants (heating and cooling)
- HVAC and ventilations systems
- Electrical infrastructure
- Temperature control systems
- Building envelope
- Equipment selections for long term reliability & maintainability

How One Major School District is Benefiting through Energy Efficiency



By Dave Newman, PE, CEM, LEED-AP, CEA, Vice President, Engineering, Energia

As one of the top 25 largest school districts in the United States, the School District of Philadelphia faced a complex challenge: Many of its 250+ buildings need major infrastructure upgrades, which became

even more urgent with the additional classroom health and safety demands created by the COVID-19 pandemic. Updating such a large infrastructure is a complicated scenario, including everything from lighting upgrades to new heating, ventilation and air conditioning systems, and digital temperature controls. The size of the district meant the costs were going to be substantial.

The district decided to pursue an Energy Performance Contract (EPC) to fund building upgrades, using guaranteed energy savings as a funding source to enable them to do more. In the summer of 2016, after a competitive RFP, The School District of Philadelphia selected Energia to provide Technical Owner's Representative Services for the EPC.

The Pilot Projects

What is an Energy Performance Contract (EPC)?

The purpose of the Energy Performance Contract (EPC) is to obtain long term energy and cost savings for school districts and municipal agencies by incorporating energy conservation improvements. In Pennsylvania, EPCs are often referred to as a Guaranteed Energy Savings Act (GESA) - the enabling law permitting school districts to use EPCs to make large-scale facility improvements that save energy and money without any upfront cost.

What types of improvements are included in an EPC project?

Lighting, lighting controls, and daylighting, modernized heating, cooling, ventilation, and temperature control systems; envelope components such as: windows, doors, roofs, insulation, and weatherization; Installation of renewable energy sources such as: photovoltaics (PV), geothermal, oil/coal to natural gas conversion and more.

We helped guide the district through the twists and turns of Pennsylvania's Guaranteed Energy Savings Act (GESA, the Commonwealth's version of an EPC) and coordinated all facets of initial planning. This meant steering the project through various departments and competing priorities, working with the Board of Education, dealing with the politics that accompany a project of this size, and, of course, the biggest lift of any EPC project–the planning and construction.

We took a three-step approach for the first phase of the challenge.

1. Analyze the Opportunity

Our first step was to research and get a complete view of the district's most pressing energy efficiency needs. Our Preliminary Energy Assessment was completed in the summer of 2017. We surveyed over 200 buildings across the district and ranked them according to needs. Then we grouped together those buildings that required the most extensive renovations, along with newer buildings whose upgrades provide quicker return on investment and were less invasive. From that informed perspective, we developed a plan to upgrade eligible buildings in phases starting with a small three school sampling of buildings in a "pilot project" to gain their comfort level with the EPC process.

2. Develop and Pilot Program

During our analysis, the District wanted to create a three-building pilot program to test a phased-approach to making improvements and understand the GESA process. The first building we identified was constructed in the 1930's and was in dire need of core ventilation systems, heating, and cooling. The other two buildings were newer high schools— significantly more modern but still in need of lighting, weatherization, digital temperature control upgrades and water-saving bathroom upgrades; simple steps that could be implemented quickly with minimal disruptions to the building.

3. Select Partner & Implement Upgrades

Next, we oversaw an RFP process to select an Energy Services Company (ESCO) contractor to complete the upgrades. We reviewed a number of strong responses and finally assisted the District in selecting Noresco as their partner. The Massachusetts-based company came in and performed a comprehensive energy audit of the three buildings, after which findings were presented, scope of work was customized to meet the District's needs and contracts were signed. Then came engineering design, and construction. Within a year, the \$22.4 million project was fully operational, delivering annual savings of \$330,000 and a 39% reduction in energy costs.

Moving Forward

With the Pilot complete, it was time to repeat the cycle, with a new set of twelve buildings scheduled incrementally over five groups, similar to the pilot project. Once again, Energia spearheaded the RFP process, helped review responses and assisted in competitively selecting another ESCO, Johnson Controls. The first group of three buildings was a similar strategy to the pilot. One building needed simpler improvements – standard lighting and weatherization upgrades, while two of the others required complete HVAC replacements, with new heating and air conditioning systems.

From there, we will continue the process, with strategic groupings of buildings and improvements until the entire project is complete.

Working to create better learning environments for students is the end goal of all our EPC projects, and that is a great reward in and of itself. Along the journey there are so many moments of pride. For me, it was during a walk-through with the Board of Education following the completion of the major HVAC upgrades in our project just in time for the start of the school year. We saw the profound improvements to the learning environment register on their faces; the lighting was bright and uniform, fresh air was circulating throughout the building, it was well temperature-controlled, and everything was up to code. Their satisfaction with the work was a reward on its own.

Lessons Learned

While the work is ongoing, there are lessons we have already learned here that are applicable to many districts, large and small:

- Leverage the power of an EPC to meet COVID-19 health and safety requirements while addressing critical infrastructure issues, with no out-of-pocket costs and no burden on taxpayers.
- Consider a phased approach to complex, multibuilding energy-efficiency building upgrades for maximum efficiency and minimal disruption.
- Work with an expert who brings in-depth knowledge of and commitment to school districts, combined with proven expertise in energy engineering and performance contracts.

UPDATE: Energia is currently overseeing the development and implementation 5-Phase GESA-1 project across 12 sites, GESA-2 implementation for 3 sites and a new GESA-3 in construction for 8 sites across the District. Working with Energia has been an incredibly positive experience. Their team is cooperative, highly knowledgeable, and effective in communicating what is sometimes complex subject matter in a way that is clear and understandable to all of the District's stakeholders. I strongly recommend Energia to any school district considering an energy performance project, to ensure your interests are protected at all times by respected, independent experts in the industry.



Secretary Reggie McNeil Pennsylvania Department of General Services (Former Chief Operating Officer, School District of Philadelphia)

Project Statistics

Scope includes: LED lighting upgrades, water conservation upgrades, building envelope improvements, heating systems upgrades, boiler replacement, chilled water cooling system, and more.

	THE PILOT PROJECTS	GESA-1, TASK-1	GESA-1, TASK-2
Project Size	\$23.3 Million	\$25.7 Million	\$22.5 Million
Buildings	3	3	4
Utility Rebates	\$163,000	\$126,021	\$117,575
Guaranteed Energy Savings (Annual)	\$339,800	\$187,946	\$100,783
Energy Cost Reduction	39%	10%	9%
M/WBE Participation	56%	69.8%	60%
Completion	2020	March 2022	December 2022
ESCO	Noresco	Johnson Controls	Johnson Controls

	GESA-1, TASK-3	GESA-1, TASK-4 IN DEVELOPMENT	GESA-2	GESA-3 IN CONSTRUCTION
Project Size	\$19.4 Million	\$19.55 Million	\$37.2 Million	\$125 Million
Buildings	1	1	3	8
Utility Rebates	-	-	\$22,147	-
Guaranteed Energy Savings (Annual)	\$44,161	\$27,630	\$252,679	\$167,390
Energy Cost Reduction	15%	18%	45%	15%
M/WBE Participation	63%	46%	65%	47.7%
Completion	2023	October 2024	April 2023	September 2024
ESCO	Johnson Controls	Johnson Controls	The Efficiency Network	Noresco

HOW CAN MY SCHOOL DISTRICT GET INVOLVED?

School districts nationwide can start saving for the future by choosing a partner who specializes in EPCs. Contact your expert technical owner's representative at Energia today at info@energiasaves.com.

ENERGIA'S 7 STEP PROVEN PROCESS

Energia uses a seven-step process that provides critical information and a detailed roadmap for achieving project success, making Energia the best choice to manage your energysavings project. This is the same proven and trusted process that has been used for more than 125 projects producing over \$1 billion in energy-saving improvements.



WHO WE ARE

Energia is a team of experienced engineers who partner with school districts to uncover energy cost savings that can be used to upgrade and modernize school buildings.

Energia provides objective, confidential counsel and advice to school business officials during the entire project to ensure capital upgrades will be paid by energy savings that are verified and achievable.