Blazing an Energy-Saving Trail

Learn how Hardin County Schools is improving existing buildings while creating new STEM opportunities for students – all while saving $280,000 a year.

Quick Facts

Location: Hardin County, KY
Industry: K-12
Products: Sustainability | Innovation | Efficiency | Cost-Saving | Optimal Comfort | Air Quality
Topics: Energy Efficiency Contracting

Results

$280,000
Projected Annual Savings in Energy Costs

900 MT
Projected Annual Savings in CO_2 Emissions

Highlights

- In 2025, a massive manufacturing plant for electric vehicle batteries is scheduled to open in Hardin County and the industry growth is expected to drive an exponential increase in the county's population.
- District leaders faced competing funding challenges — a need for new buildings plus updating existing buildings.
- They selected Trane to help them find a creative funding solution and comprehensive solution to upgrade existing buildings.
- The district implemented a performance-based guaranteed energy savings project, a Hardin County Board of Education-approved and facilitated program that leverages energy savings to make capital improvements in school districts.
- District leaders are actively pursuing Trane's STEM education and skilled workforce opportunities for their students which will enable the district to leverage building improvements as learning tools.
- The upgrades are expected to provide energy savings of more than $280,000 in annual energy costs while driving STEM learning opportunities and reducing the district's carbon footprint by 900 metric tons a year.

Challenge

Nestled in the heart of central Kentucky, Hardin County is known as a wonderful place to live, work and raise a family. The county is also the proud home of Fort Knox, which stores over half the nation's gold reserves.

In 2025, a massive manufacturing plant for electric vehicle batteries is scheduled to open in the county. The plant represents a $5.8 billion investment and is expected to ultimately create a direct payroll of $265 million. The industry growth is expected to drive an exponential increase in the county's population.

After the plant's opening was announced, the county's educational leaders recognized the need to upgrade existing buildings and undertake new construction to meet future educational needs driven by the population increase.

District Faces Competing School Funding Priorities

To upgrade existing buildings, district leaders needed a collaborative energy service company to work with them on a comprehensive solution addressing:

- Building comfort issues
- Aging heating ventilation and air conditioning (HVAC) systems
- Poor lighting
- Escalating energy costs

With school district funds tied up in new construction, leaders faced competing priorities. They wanted creative funding solutions to address upgrades needed for existing buildings.

On the educational side, district leaders also wanted to expand their STEM offerings to enhance students' future career opportunities while supporting the talent pipeline for the community's new battery plant and other industries.

The district had a long-term collaboration with Trane, supporting its HVAC systems and operators over the years. During the selection process, board members championed Trane for its high-quality solutions and STEM offerings that can transform educational buildings into student learning labs.

Based on these capabilities as well as Trane's reputation for identifying creative funding solutions and for providing a collaborative approach, district leaders selected Trane for the project.

> **We are pleased that the upgrades will lower electric bills and save money. The savings will help our students flourish in the classroom by funding tremendous opportunities. These building improvements reflect a long-term commitment and an ongoing collaboration with Trane to keep district schools optimized for student learning.**
>
> Teresa Morgan
> Superintendent

Solution

Guaranteed Energy Savings Supports Today's Improvements

The district first worked with Trane to complete district-wide building audits. The results were incorporated into a comprehensive solution to resolve the district's building comfort and other infrastructure challenges.

The comprehensive plan identified improvements to the district's academic environment that include a district-wide upgrade to LED lighting and the addition of renewable energy solutions. Renewable components include new geothermal HVAC systems and one of the state's largest public school solar installations (with solar panel systems added to 12 school facilities).

The district implemented a performance-based guaranteed energy savings project, a Hardin County Board of Education-approved and facilitated program that leverages energy savings to make capital improvements in school districts.

This project structure allows a district to finance improvements today using future guaranteed energy savings. This approach enabled the district to free up other funding for new construction and critical educational needs such as teaching staff. The district is also pursuing Federal Investment Tax Credit through the Inflation Reduction Act for its renewable energy projects. "Since schools haven't been able to participate in this program until the passage of the Inflation Reduction Act, we are blazing a trail as we pursue the Federal Investment Tax Credit," Hardin County Schools (HCS) Superintendent Teresa Morgan said.

Upgraded Lighting and Renewable Systems Offer Educational Opportunities

District leaders are actively pursuing Trane's STEM education and skilled workforce opportunities for their students. These educational efforts will enable the district to leverage building improvements as learning tools.

"The online energy dashboards that will accompany the installation of geothermal HVAC, LED lights and solar panels will allow our students to see the benefits of alternative energy for themselves in real time," Morgan explained. "The educational aspect can help spark student interest in future job opportunities like solar designers, solar/renewable technology installers, energy engineers, electricians and more."

Purchasing Process Streamlined

The district opted to expedite its purchasing process through Omnia Partners®, a premier cooperative purchasing organization for K-12 education. This enabled district leaders to streamline the procurement process and reduce costs.

> **This initiative provides incredible opportunities for us. We take great pride in providing students with quality instruction while serving as good stewards of the community's dollars. It moves us forward on both counts.**
>
> Teresa Morgan
> Superintendent

Results

District Faces Bright, Energy-Saving Future

With upgrades nearing completion, HCS leaders predict a bright future for the district. "We are pleased that the upgrades will lower electric bills and save money," Morgan said. "The savings will help our students flourish in the classroom by funding tremendous opportunities," she explained.

"These building improvements reflect a long-term commitment and an ongoing collaboration with Trane to keep district schools optimized for student learning," said Morgan. "Our students will be able to see the benefits of alternative energy firsthand through online dashboards showing the performance of the district's geothermal HVAC, LED lights and solar panels."

The upgrades are expected to provide energy savings of more than $280,000 in annual energy costs while driving STEM learning opportunities. The improvements are also expected to reduce the district's carbon footprint by 900 metric tons a year, equivalent to 770 gasoline-powered passenger vehicles driven for one year.

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