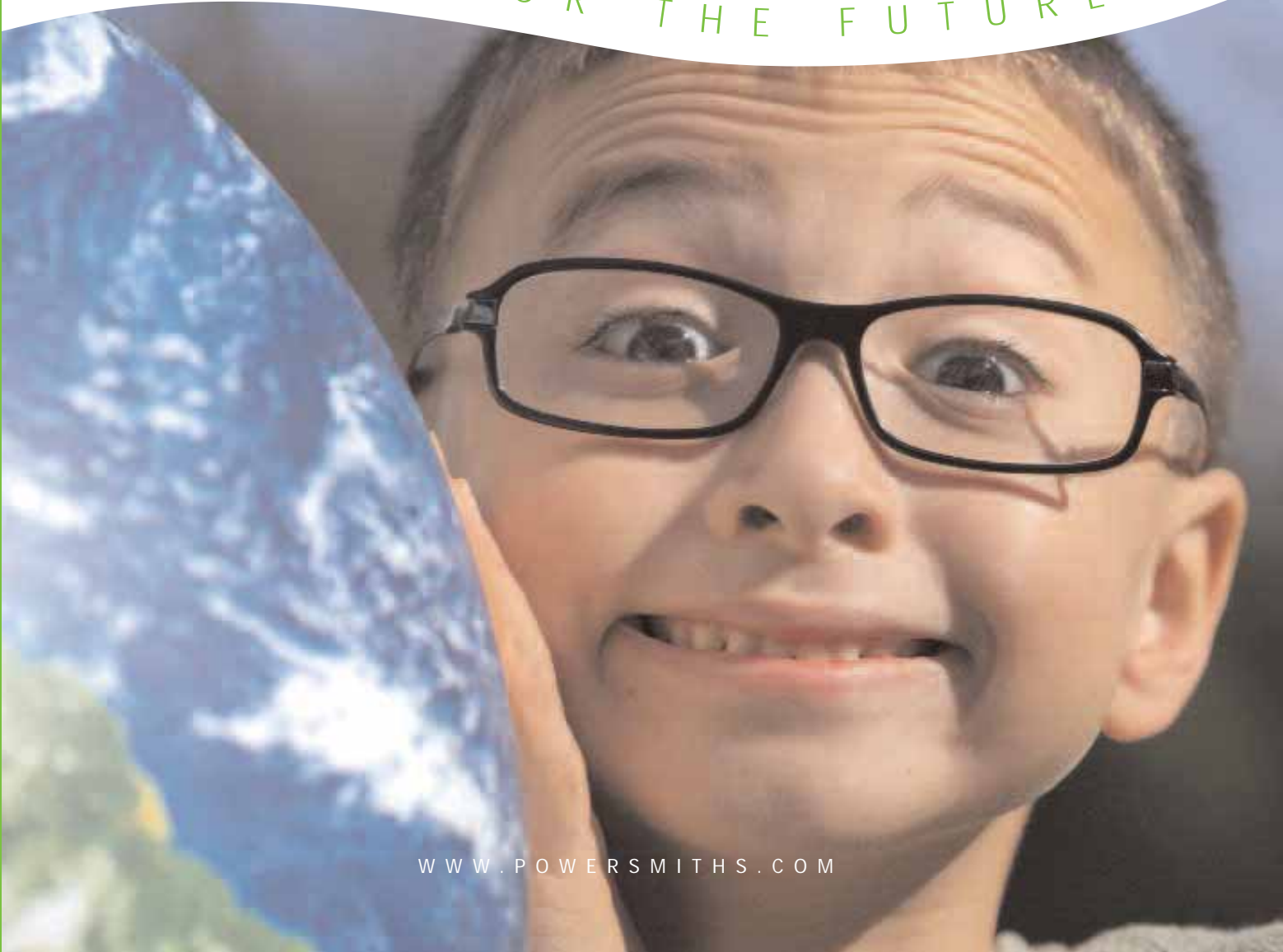


POWERSMITHS

Power for the Future for  
High Performance Schools

P O W E R F O R T H E F U T U R E



WWW.POWERSMITHS.COM

You are committed to providing your students with the best possible learning opportunities by modeling your school on high performance principles.

We are committed to helping you to meet your goals by providing you with the high performance electrical distribution systems that reduce electricity waste, lower operating costs and help to lower greenhouse gas emissions.

You are committed to helping to bring about a sustainable future for the generations to come.

We are committed to helping you by offering you tools and support for your sustainability education programs

You are committed to ensuring that the initiatives and programs you undertake are successfully achieving their desired outcomes.

We are committed to helping you to measure the success of your energy management programs by supplying you with advanced energy monitoring and metering systems.

## CASE STUDY:

### Twenhofel Middle School and Powersmiths Team up to Enhance Learning and Save Energy

The Kenton County Board of Education In northern Kentucky, is committed to building high performance schools to meet student needs. Here's how Powersmiths helped them meet their goals.



#### E-Saver C3 High Efficiency Transformers

Powersmiths E-Save-C3 transformers meet US DOE candidate level three efficiency – the level of efficiency offering the lowest lifecycle cost and significantly less electricity waste. To measure the savings potential of the E-Saver-C3 technology, the Board purchased five E-Saver-C3s and five standard off-the-shelf transformers for Twenhofel School. The Board then measured their actual savings using Powersmiths Cyberhawk metering technology.

#### Cyberhawk Energy Meter

To help the school ensure that their energy reduction and power quality goals are met today and in the future, the Board purchased the Cyberhawk 300 energy meter to acquire data for energy management and support for the school's education for sustainability programs.

#### Powersmiths WOW

Powersmiths interactive sustainability education system proved to be just the system the Board was looking for to help them to turn their school building into a teaching tool for sustainability.

#### Results

Tests conducted at Twenhofel demonstrated that the Board could make considerable savings by installing E-Saver-C3 transformers in their schools. Powersmiths E-Saver delivered a 70% reduction in electricity waste. There was no doubt that the measurement was accurate because the standard transformer and the E-Saver were measured simultaneously using Cyberhawks multiple input capabilities.

If Twenhofel School used only E-Saver-C3 transformers, their school could lower electricity costs by more than \$6000.00 annually based on today's electricity rate of 8 cents a kilowatt hour.

Kenton County's commitment to high performance is borne out by a student body actively engaged in conserving energy and learning sustainability principles and a school facility that serves as a model for the community.

To read the full Case study go to [www.powersmiths.com/twenhofel](http://www.powersmiths.com/twenhofel)

# Powersmiths Whole System Approach Builds High Performance into Your School

## Powersmiths Supports High Performance Schools

Today's educational leaders understand the role that a "great" building can play in helping students and staff to achieve their highest potential.

Powersmiths belongs in high performance buildings. With solutions that reduce electricity waste and ensure high quality reliable power, Powersmiths helps you meet the energy efficiency and reliability goals that are key criteria in high performance certification programs, such as LEED®, Energy Star® and CHPS.

Powersmiths WOW™ sustainability management system is a web-based that supports energy management, sustainably education and project based learning.

Whether you are working towards high performance certification, or just doing the right thing, Powersmiths green electrical solutions help you achieve your goals.

## Energy Conservation - an Economic and Environmental Imperative

Each year America's schools spend more than eight billion dollars on electricity. Next to salaries, energy costs are a school's greatest expense.

Powersmiths' integrated approach to schools' electrical distribution systems includes:

- Electrical transformers that reduce electricity waste and noise
- Energy monitoring and management systems to help you identify opportunities for further savings
- Power protection equipment to help ensure clean reliable power
- Performance validation software to help you stay on track

Your school plays a leadership role in your community. When you build in electrical efficiency you free up money for the classroom. You also help build a healthier community by reducing the adverse environmental impacts of electricity generation, including smog and greenhouse gas emissions.

### POWERSMITHS' INTEGRATED APPROACH TO POWER FOR THE FUTURE

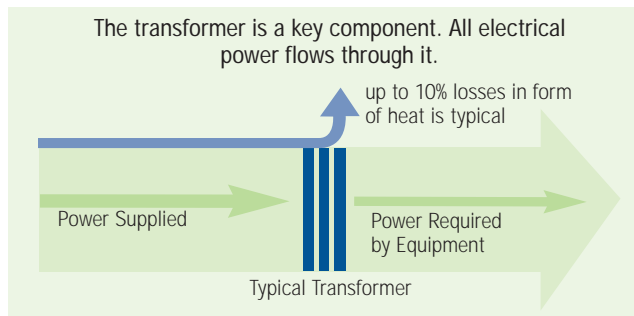


# Embed Decades of Savings with Powersmiths Green Transformers



Reliable electrical power remains a key resource for a high performance school. How you choose to distribute power in your new school will impact your school's electrical bills for decades.

Transformers are a fundamental component of your electrical system and they are normally in service for twenty-five to forty years. Sacrificing performance to buy a transformer with the lowest first cost can cost your schools tens of thousands of dollars over the lifetime of the transformer.



Powersmiths E-Saver-C3 transformer is The Green Transformer™. It exceeds regulated efficiency standards and will reduce electricity waste and lower operating costs in your school on an on-going basis.

This typical Middle School pays 8¢/kWh. Powersmiths transformers save them more than \$6000.00 annually.

Transformer Operating Cost	Annual Cost	Life Cycle Operating Cost and Savings	
SCENARIO:		25 years	40 years
Standard Transformers	\$ 7,945	\$289,664	\$ 599,052
Powersmiths Transformers	\$ 1,521	\$ 55,454	\$ 114,684
School Saves	\$ 6,424	\$234,210	\$484,368

Includes an annual 3% increase in electricity rates

And there are positive environmental impacts. Lower electric demand means less coal burned at generating plants, less smog and lower greenhouse gas emissions.

Annual Reduction GHGs	Equivalence
42 tons of CO <sub>2</sub>	8 acres of trees
137 tons of coal	emissions from 6 cars
332 kgs. SO <sub>2</sub> & 143 kgs. NO <sub>2</sub>	6 homes heated

# Support for Effective Power Management



Reducing energy consumption is one of the key criteria for high performance. Measuring and validating the effectiveness of your energy infrastructure on an on-going basis ensures that your goals continue to be met.

LEED® and other high performance certification programs require building commissioning and also offer an additional point for on-going performance validation. Powersmiths Cyberhawk™ energy meters and monitors facilitate commissioning and validation by providing a broad spectrum of power quality and consumption data available anytime, anywhere over the Web. Cyberhawk also supports education for sustainability systems such as Powersmiths WOW. For schools we recommend the Cyberhawk 100 or Cyberhawk 100M which can monitor up to 6 independent locations.



## GREEN START INITIATIVE for High Performance Retrofitting

Powersmiths' Green Start Initiative provides school boards with consultation and support to develop a pilot project that will identify the energy savings opportunities in their buildings.



Using advanced efficiency and power measurement tools, our technical experts will carry out an on site assessment of your school's power use and current efficiency levels. With your approval,

Powersmiths will replace a selected transformer with a Powersmiths high efficiency E-Saver-C3 transformer. Our technical representative will then return to your site to collect energy data. Using before and after data, our team will prepare a report that identifies the energy and environmental savings of the E-Saver-C3 transformer and extrapolates the building wide savings potential of your school building.

[Contact Powersmiths to find out how your school or school board can participate.](#)

# Educating for a Sustainable Future with Windows on the World™

## WOW™ Brings Your Building to Life

Educators understand the lasting impact that they can make through education for sustainability. Powersmiths WOW, sustainability management system supports your education for sustainability programs.

Using compelling web and touch screen interfaces, WOW helps students to learn about the relationship between their school building and the environment and demonstrates the role of personal choice on resource use and carbon emissions.

## Power to See Change

Using intuitive animated diagrams and dynamic graphs and gauges, WOW makes the invisible flows of energy and other resources visible and comprehensible to students. Using WOW your students can:

- See the types and quantity of resources your school uses and learn how weather and choice effect consumption
- Learn how the green features of your school building work
- See their and their classmates sustainability projects showcased on the schools Intranet
- Learn about carbon footprint
- Track and compare the contribution of various energy sources and conservation technologies in your school
- Discover how your school facility achieved LEED®, LEED-EB, Energy Star® or CHPS certification

## Power to Advance Sustainability

WOW provides templates and analytics to support carbon reporting at the school and School District level. Use WOW as the springboard to launch your School District's carbon emission reduction strategy.

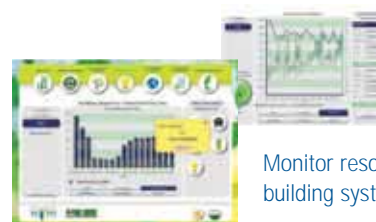
By providing students with the opportunity to relate environmental concepts to their own school, WOW enhances learning outcomes. And by providing tools for performance validation and carbon accounting, WOW helps your schools and School Districts to reduce their environmental footprint.



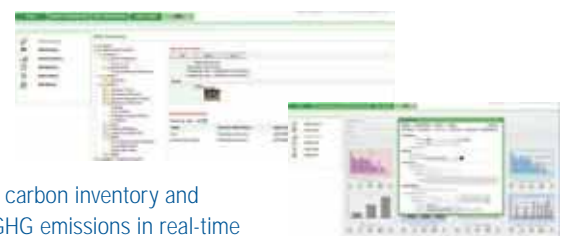
Provide interactive outreach and education on the WOW Kiosk and on the Web.



Showcase students' sustainability projects



Monitor resource use and validate building system performance



Calculate carbon inventory and monitor GHG emissions in real-time

Powersmiths has earned the prestigious ISO 14001 certification for its environmental management system. Initiatives such as increasing transformer efficiency, the use of biodegradable product packaging, the reduction of volatile organic compounds in production processes are just a few of the examples of the extent to which Powersmiths takes its values seriously.

By optimizing on lowest life cycle cost, maximizing efficiency and minimizing environmental impacts and packaging, Powersmiths products align with your green purchasing policies.



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