



One of many projects led by Dennis Kuchenmeister, director of buildings and grounds, this 19-kilowatt solar electric system was installed at Purdy Elementary School.

For more information, call **800.762.7077** or visit focusonenergy.com.

When it comes to energy efficiency and renewable energy, students in the School District of Fort Atkinson have been learning more than the basics.

Since 2002, the district has partnered with Focus on Energy, Wisconsin's statewide program for energy efficiency and renewable energy, and We Energies to aggressively improve its energy performance. It did this by managing energy strategically across the entire organization, making cost-effective building improvements, and getting students involved.

As a result, the district's overall energy usage has dropped 39 percent, with an overall cost savings of 20 percent compared to 2005. Together its efforts have saved more than 564,500 kilowatt-hours of electricity and 44,700 therms of natural gas annually—saving enough energy to power more than 45 Wisconsin homes for a year.

In addition to these efforts, the School District of Fort Atkinson earned two prestigious U.S. Environmental Protection Agency (EPA) ENERGY STAR awards. This honor was in recognition of two of the district's elementary schools, Purdy

and Barrie, for performing in the top 25 percentile for building energy efficiency. To earn the ENERGY STAR certification, buildings must use 35 percent less energy on average than a comparable building of its size and type.

At each elementary school, student groups made up of third, fourth, and fifth graders headed up the effort to earn the ENERGY STAR certifications. By working with teachers, staff, maintenance personnel, and building engineers, students measured building square footage, learned about energy-efficient technologies, determined equipment operating hours, counted the number of computers, and helped take lighting, temperature, humidity, and ventilation measurements.

STARTING FROM THE GROUND UP

In 2008, the district installed ground-source (geothermal) heat pump systems in three of its elementary schools and its middle school to provide for its heating and air conditioning needs. These systems transfer heat from the ground to the buildings in winter (providing a heat source) and from the buildings into the ground (providing cooling) in the summer.



Students at Purdy Elementary School monitor how much energy the solar electric system is producing.

The systems have reduced energy consumption by 50 percent in the buildings, lowered maintenance costs, and increased usable space since the systems take up considerably less room than their traditional counterparts. Ground-source heat pumps also have individual room controls to heat or cool an entire building, or just one room.

In addition, the district focused on several other energy-efficiency projects including:

- Replacing windows to improve air sealing and reduce heat loss
- Upgrading to energy-efficient lighting to improve light quality, reduce maintenance, and save more than \$70,000 annually
- Installing lighting occupancy sensors where appropriate
- Installing instantaneous (tankless) domestic water heaters in most of the district's buildings
- Using better roof insulation to increase R-values, which enhances the building's thermal resistance
- Installing PC energy management controls to power down computers when not in use

"Completing these projects really was the right thing to do," said Dennis Kuchenmeister, director of buildings and grounds at the School District of Fort Atkinson. "Once we took that first step, we realized there was a lot of help available to us and that made the projects incredibly worthwhile."

TAKING RENEWABLE ENERGY TO THE (ROOF) TOP

With several energy efficiency projects under its belt, the district looked to renewable energy as a way to generate some of its own power. By completing energy-efficiency projects first, the district was able to reduce its electricity and natural gas costs which allowed them to install smaller

(and less expensive) renewable energy systems capable of meeting its buildings' needs. On average, every dollar a facility spends on energy efficiency decreases the cost of a potential renewable energy system by three to six dollars.

Solar hot-water systems were added at both the middle school and high school to heat the schools' swimming pools. Not only do the systems work year round, but many days they completely replace the natural gas back-up system used to heat the high school pool, and the ground-source heat pump back-up system used to heat the middle school pool. "These two systems save our district over \$17,000 a year," Kuchenmeister said. "We'll see a complete return on investment within seven years."

The district also installed a roof-mounted, solar electric system above its gym at Purdy Elementary School. This system generates more than 23,000 kilowatt-hours of electricity annually and provides approximately 5 percent of the electricity that Purdy Elementary School consumes each year.

SAVINGS IN 2010 AND BEYOND

Even after seeing a substantial drop in energy consumption, the district isn't stopping its energy saving efforts now. "Once you start these projects it's hard to stop," explained Kuchenmeister. "You see strong results and always want to do more."

Currently the district is evaluating the possibility of installing a wind turbine to produce power at its high school and is working to receive ENERGY STAR certifications on its remaining four schools so that every school in the district will be ENERGY STAR certified.

"The School District of Fort Atkinson is extremely dedicated to energy efficiency and consistently goes above and beyond to save money, create a cleaner environment, and a more comfortable learning atmosphere," said Ken Williams, Focus on Energy's business programs director.

Bring Focus into your classroom

Focus on Energy offers specialized support for school and government facilities throughout Wisconsin by offering energy savings opportunities, project evaluation assistance, savings assessments, best-practice training, energy management tools, and more. Call **800.762.7077** or visit **focusonenergy.com** to get started today.

Focus on Energy works with eligible Wisconsin residents and businesses to install cost-effective energy efficiency and renewable energy projects. Focus information, resources, and financial incentives help to implement projects that otherwise would not be completed, or to complete projects sooner than scheduled. Its efforts help Wisconsin residents and businesses manage rising energy costs, promote in-state economic development, protect our environment, and control the state's growing demand for electricity and natural gas. For more information, call **800.762.7077** or visit **focusonenergy.com**.

