

# Here Comes the Sun: Is It Time for Solar Power?

*Solar power may be an option at a time of increasing electric rates.*

By Jody Andres, AIA LEED AP



In 1969, George Harrison wrote “Here Comes the Sun” for the Beatles album *Abbey Road*. Embracing the sun proved a great success for the group, and it certainly can be one for your school district as well. The time has come to give renewable solar energy strong consideration.

Rising electric rates are a significant burden for school districts, taxing already-challenging budgets. Because of global demand and

stricter environmental regulations, experts foresee the cost of electricity continuing to rise. In addition, schools may be dealing with a mixture of antiquated and upgraded equipment, the lack of an energy management system, and low levels of operational efficiency. Those factors combine to make controlling energy use a significant obstacle.

A decline in the cost of electricity-producing solar equipment, together with new and exciting options

for project funding, makes energy creation a real possibility for districts today. Solar power is also an environmentally friendly renewable energy source that can provide a valuable educational resource for students and community.

## Several alternatives are available for funding a solar project.

Northland Pines High School in Eagle River, Wisconsin, has embraced the power of the sun with a tracking photovoltaic system, or ground-based panel, which follows the sun. The school—which was the first LEED (Leadership in Energy and Environmental Design) Gold-certified public high school in the United States and Wisconsin’s first LEED-certified school—purchased the solar system as part of a grant from three partners and utility providers.

Although the solar system currently provides only a fraction of the school’s needs, the Northland Pines School District is watching for the time when it can make a substantial addition to its solar system.

## Financial Considerations

Lower energy bills are just one of the attractive financial aspects of solar power. What many school districts find inviting is the longer period of



## The Solar Process

When considering solar power options, five primary areas are typically addressed.

- 1. Evaluation of site and sourcing.** Requirements are gathered; an analysis of the site is conducted to determine what options are available and practical; and prices are estimated. A key aspect is to determine the available location for the panels, such as the rooftop, vacant land, or, in some cases, creative solutions, such as a canopy over a parking lot.
- 2. Engineering and design.** Strong consideration is given to ensuring that the solar energy costs are minimized, and that the lifetime of a system is maximized.
- 3. Construction and installation.** As with any school construction project, much of the focus is on not disrupting the educational process. Timing is critical. The goal is to provide quality on-site control, to address any construction challenges, to mitigate risk, and to ensure quality results.
- 4. Educational engagement.** There are numerous ways to engage students in the initial acquisition, design, and construction process and in the ongoing use of the system. Providers can help teachers and students reap the academic and career benefits of a solar system.
- 5. System maintenance and monitoring.** It is vital to remain active in maintaining and monitoring the system to ensure that it performs at peak efficiency and that the school and community are aware of its ongoing performance.

fixed cost for energy usage than is common when purchasing from a power provider.

But the big game changer in solar energy is the lower up-front costs. Historically, high equipment purchase and installation costs prevented many school districts from considering the now-viable solar option. Several alternatives are available for funding a solar project. For example, districts are issuing bonds and owning their system from the outset. Doing so is more feasible now because of a consistent reduction in the price of manufacturing the solar cell during the past two decades, as well as reduced inverter costs.

Power purchase agreements (PPAs) are increasingly being used for sustainable energy solutions. The agreements are long-term contracts to provide roof or site space for the PPA source's equipment and to purchase clean electricity at a fixed rate. The PPA source absorbs the costs of design, construction, operation, and maintenance. School districts realize a lower utility

bill instantly, which frees up capital for other critical investments.

### Environmental Benefits

Solar system benefits actually go beyond the bottom line. Converting to solar energy can significantly reduce your carbon footprint. On average, 100 kilowatts of direct-current solar power installed in North America will reduce carbon dioxide emissions by approximately 175,000 pounds annually. When you consider our schools' consumption, that reduction could be a significant victory for the environment. Couple the reduction with the ripple effect of changed behaviors by all of those affected, and a real difference could be made in your community.

### Educational Benefits

Solar energy can be woven into the curriculum and activities for your students and faculty as benefits



for students, staff, faculty, and the community at large. In many instances, the schools' example provides a catalyst for further initiatives that truly change the mind-set of the region.

But it doesn't stop there. Schools are providing courses, maintaining solar labs, and connecting students to internships in the installation and service of solar power systems. Those opportunities give students a leg up on the competition in a fast-growing career field.

### Step by Step

Some districts are taking small solar steps by converting one school, or perhaps the administration building, rather than converting an entire campus or the

beyond the reduced carbon footprint and the bottom-line savings. The solar power system at Northland Pines High School is connected to the science labs where teachers and students monitor various functions, including how much electricity the system is producing for the school. Solar systems offer schools a unique hands-on opportunity to teach students about renewable energy and sustainability by incorporating live data into the classroom. Schools can be role models of sustainability

full district. That approach allows them to demonstrate the benefits and obtain needed buy-in without great risk.

Now is the time to look at what has changed in the solar market, and see whether your district can harness the energy of the sun.

---

**Jody Andres, AIA LEED AP**, is a project architect at Hoffman Planning, Design & Construction Inc. ([www.hoffman.net](http://www.hoffman.net)) and president of the Wisconsin Chapter of the American Institute of Architects.

## GETTING THE WORD OUT ABOUT EDUCATION REFORM

**S**tate and local educational agencies (SEAs and LEAs) are using new, more direct ways to communicate and engage with teachers, administrators, and other key stakeholders regarding critical reform issues. According to a Reform Support Network (RSN) report, "Measurable Success, Growing Adoption, Vast Potential: Social Media Use Among State and Local Education Agencies," 80% of the SEAs and LEAs that responded to a survey indicated they are using or plan to use social media and other innovative communications methods to communicate about key education reforms.

Here are some social media strategies districts can use to promote education reform in the community, in the district, and among stakeholders:

- Link to material that helps and guides teachers.
- Post pictures to build excitement around a specific event.
- Encourage participation by responding to questions and soliciting opinions from the public / audience on Facebook/Twitter pages.
- Post reminders for staff, teachers, and parents.
- Post information about when new reports/newsletters are available.
- Make information easy to find and navigate for readers.
- Maintain a high and engaging level of content.
- Monitor sites at least several times a day.
- Post videos on important and informative events.

Source: The Reform Support Network brief, "Using Social Media to More Effectively Communicate Reform Efforts," July 2013.