



US citizens pay for “solar school” foolishness

By Steve Goreham

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Solar systems are being installed at hundreds of schools across the United States. Educators use solar panels to teach students about the “miracle” of energy sourced from the sun. But a closer look at these projects shows poor economics and a big bill for citizens.

Earlier this month, the National Resources Defense Fund (NRDC) [launched](#) its “Solar Schools” campaign, an effort to raise \$54,000 to help “three to five to-be-determined schools move forward with solar rooftop projects.” The NRDC wants to “help every school in the country go solar.” The campaign uses a cute [video](#) featuring kids talking about how we’re “polluting the Earth with gas and coal” and how we can save the planet with solar.

Wisconsin is a leader in the solar school effort. More than 50 Wisconsin high schools have [installed](#) solar panels since 1996 as part of the SolarWise® program sponsored by Wisconsin Public Service (WPS), a state utility. The program solicits donations and provides funds to schools to install photovoltaic solar systems. The WPS website [praises](#) the program, stating, “The best way to leave a healthy planet for future generations is by teaching young people to become good stewards of the environment.”

But one has to question the utility of solar panels in Wisconsin, a state beset by low sunlight levels and ample winter snowfall. Last summer, solar panels were [installed](#) at Mishicot High School, the 50th school in the SolarWise® program, at a cost of \$30,000. The panels save the school about \$300 per year in electric bills. With a 100-year payback, this system would never be installed by anyone seeking an economic return on investment. Are they teaching economics at Mishicot High?

In Illinois, Lake Zurich Middle School South installed a five-panel one-kilowatt photovoltaic system in August. The *Lake Zurich Courier* [provided](#) the headline, “Lake Zurich, Vernon Hills schools save with solar power.” The panels will save the school a little over \$100 per year in electricity charges at a system cost of almost \$9,000, a project payback of more than 70 years.

While the school may be saving, Illinois citizens are paying. Ninety percent of project funding came from the Illinois Clean Energy Community Foundation, which was [established](#) by a \$225 million grant from Commonwealth Edison in 1999, provided from the electricity bills of Illinois citizens.

In Southwest Florida, 90 schools are [installing](#) 5- to 10-kilowatt solar arrays to “reduce energy costs and provide a learning opportunity” as part of Florida Power and Light’s “Solar for Schools” initiative. Panels cost from \$50,000 to \$80,000 and save electricity worth about \$600 to \$1,000 per year, depending upon the size of the system. With a 70- to 80-year payback, these projects will never pay off, because solar cells need to be replaced after 25 years of operation. Will they teach that to the kids? The program is funded from an energy conservation fee on customer electricity bills.

Solar energy is dilute. When the sun is directly overhead on a clear day, about 1,000 watts of sunshine reaches each square meter of Earth’s surface at the equator after absorption and scattering by the atmosphere. For the southern US, this is reduced to about 800 watts per square meter, since the angle of the sunlight is not quite perpendicular. Solar cells convert about 15 percent of the energy to electricity, meaning that only a single 100-watt bulb can be powered from every card-table-sized surface area of a solar panel, and only at noon on a clear day.

Los Angeles Community College (LACC) adopted solar energy in a big way. One of seven LACC solar systems is the Northwest Parking Lot Solar Farm, installed in 2008. The farm was [purchased](#) at a price of \$10 million to produce about one megawatt of rated power, a price more than five times the cost of a commercial wind turbine farm on a per-megawatt basis. LACC [spent](#) a whopping \$33 million to reduce electricity bills by only \$600,000 per year. The total cost, including government subsidies, was \$44 million to California taxpayers.

Solar energy has excellent uses, such as powering call boxes along highways, or swimming pool heating. But it’s trivial in our overall energy picture. Despite 20 years, billions in state and federal subsidies, and warm, happy solar school programs, solar [provided](#) only 1.1 percent of US electricity and only 0.2 percent of US energy in 2012.

Suppose our schools get back to the study of physics and economics and drop the “solar will save the planet” ideology?

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