



Renewable Energy Production at Schools

Many schools in Minnesota are looking at wind as a possible clean energy source. Wind is a renewable resource that can be “farmed” with wind turbines located on agricultural and rural lands. Turbines take up little space and wind energy has proven to be an economical source of electricity in areas with an adequate wind resource. A real and growing problem in Greater Minnesota is the migration of young people to urban centers. A renewable energy industry could provide a wide variety of high quality and stable jobs needed to retain Greater Minnesota’s most valuable resource, tomorrow’s leaders.¹ Schools are an ideal match with wind projects to help educate students to the possibilities of renewable energy as well as creating a energy source for the school.

Why Wind? The mid-continent portion of the United States is blessed with an abundance of wind resources. 4,250 megawatts of wind energy have been developed in the U.S since 1981. Since the mid 1990s, utilities and farmers in southwestern Minnesota have mined this wind resource, producing 336 megawatts. Another 259 megawatts is expected to be installed in the next years.

How does wind energy help the environment? A 1.65 megawatt turbine would reduce noxious emission of greenhouse gases in the amount of: Carbon Dioxide - 4,318.1 tons, Volatile Organic Compounds - 170.8 lbs, Nitrous Oxide - 11.6 tons, Carbon Monoxide - 1,665.8 lbs, Sulfur Dioxide - 11.5 tons, PM10 - 1,223.9 lbs, and Mercury - 0.1 lbs. The Danish study for the Ministry of the Environment also estimated that a coal-fired power plant emits 360 times more Sulfur Dioxide, Nitrous Oxide, and carbon dioxide to generate an equivalent amount of electricity over the 25-year life of a wind turbine.²

What steps should a school interested in wind power take?

Schools should begin collecting data to:

- Measure the wind speed on the proposed site
- Analyze the districts electrical costs
- Get acquainted with wind turbine manufacturing
- Understand both federal and state rules and regulations³

¹ Text taken from University of Minnesota Morris’ “Empowering Minnesota with Renewable Energy” link. Retrieved on February 14th, 2005, from: <http://wcroc.coafes.umn.edu/Renewable/Empowering%20Minnesota%20-%20Renewable%20Energy.htm>.

² The previous two questions and answers come from Carleton College’s “The History of Carleton’s Wind Turbine.” Retrieved on February 14th, 2005, from: http://webapps.acs.carleton.edu/campus/facilities/Sustainability/wind_turbine/.

³ The previous information was taken from the Spirit Lake Wind Project website. Retrieved on February 14th, 2005, from: <http://www.spirit-lake.k12.ia.us/~apeck/bg/SLCS%20Wind%20Energy%20History.htm>.

Besides wind, how else can schools produce renewable energy? Schools across the country are being equipped with solar energy systems that not only provide solar electricity, hot water, good quality lighting and other benefits to the school building, but also help the students augment their math and science studies, and even help them stay healthier and earn better grades overall.

How does a school get started on the path towards producing clean energy? Often it comes from the interest and impetus of a student and/or a teacher in the school. Many are the result of “green pricing” – voluntary programs in which utility consumers pay a little extra per month to support renewable or “green” energy or make actual donations to funds for renewable energy projects. Federal and state funding has contributed to the growth in solar school numbers. And, often, projects are the result of the work of a coalition of groups and organizations: utilities, local business, solar groups, environmental groups, teacher & parent groups, etc. There is no one best way to get it done. But there is a great deal of experience to help you if you would like to get a project going in your school.⁴

Links:

Windustry: <http://www.windustry.com/community/default.htm>.

Interstate Renewable Energy Council: <http://www.irecusa.org/home/whoweare.html>.

Solar Schools: <http://www.solarschools.com/>.

Clean Energy Resource Teams: <http://www.cleanenergyresourceteams.org/>.

Renew Northfield: http://www.renewnorthfield.org/local_wind_turbines.htm.

Northeast Sustainable Energy Association:

<http://www.nesea.org/buildings/greenschoolsresources.html>.
