

Abstract



Students at Idaho's Pocatello Community Charter School participated in a Wind for Schools project. PIX16749/Billie Johnson.

This poster provides an overview of the first two years of the Wind for Schools project, primarily supporting activities in Colorado, Kansas, Nebraska, South Dakota, Montana, and Idaho.

Objectives

The Wind for Schools project goals are to:

- Equip college juniors and seniors with an education in wind energy applications
- Engage America communities in wind energy applications, benefits, and challenges
- Introduce teachers and students to wind energy.

The Wind for Schools project focuses on K-12 and university educators and students, understanding that developing a national workforce for a relatively new technology requires an approach that considers the whole educational system while countering the trend of reduced numbers of U.S. students entering science fields. Studies indicate that if women and minority students are not interested in math by the 6th grade, they are unlikely to pursue math or science-based careers.

Workforce Development



The Wind for Schools project works to impact several of the key workforce development segments, insuring that a full educational pathway is put in place in states that will play a strong role in America's wind energy future.

Methods

- Build in-state capacity to provide technical assistance for community projects
- Develop college-level wind energy programs, incorporating wind curricula and small turbine installations at community schools
- Work with the American Wind Energy Association, the NEED Project, and others on K-12 curricula to incorporate wind energy education into the classroom
- Use a low-cost replicable system for installation at host K-12 schools
- Work collaboratively with communities and local utilities to implement cost-effective and community-supported school energy projects
- Provide technical assistance and training to universities by national laboratory staff
- Implement a low-cost data collection system with international accessibility
- Integrate information from a variety of school wind projects.

Curricula Development

The Wind for Schools project addresses educational concerns by engaging with and fostering relationships between universities and K-12 schools and recognizing the mutual benefits gained as university students learn not only through classroom instruction but also by participating as "consultants in training" on projects that involve analysis, planning, design, and implementation of small wind systems. Likewise, the relationships between university and K-12 schools provide young students and their teachers the opportunity to mine university resources for ideas and assistance and to apply context to principles of mathematics, science, and other applicable subjects. Activities include:

- Develop and implement standards-based curricula at the K-12 level using hands-on methodologies
- Work with the NEED Project, WindWise, Kidwind, and Wind for Educators (all leaders in K-12 wind education)
- Focus on bringing the turbine into the classroom.

Data Capture and Analysis

The project brings together wind installations and data acquisition technologies that allow schools and educators to collect electricity production and weather data to use in research, analysis, and expanded class curricula. The data from the wind turbine will be stored and made available so that schools can access their own turbine data from any Web-connected computer and other schools can access it for educational purposes.

This will greatly increase the impact of the turbine installations and allow schools that don't have a viable wind resource to become activity involved in wind energy education.



Affiliate Program

To accommodate the many stakeholders who are interested in the Wind for Schools concept but do not participate in the official project, a Wind for Schools affiliate program allows individual K-12 schools or states to join the network. Affiliate organizations will not receive financial support from DOE and NREL, but they will receive access to technical assistance, program Web sites, and information. The program is designed to support schools that wish to implement wind-related educational curricula and install a Wind for Schools wind turbine system or states that intend to implement a statewide program.



The City of Medford, Massachusetts owns a Northern Power Systems Northwind 100 wind turbine sited at McGlynn Elementary & Middle School. PIX16730/Northern Power Systems.

Results



Wind for Schools system installed at Greenbush High School, Kansas. PIX16245/Josh Cochran.

- Active programs in six states (Colorado, Idaho, Kansas, Montana, Nebraska, and South Dakota)
- Five additional states added in 2010 (Alaska, Arizona, North Carolina, Pennsylvania, and Virginia)
- At the university level, more than 60 students graduated in 2008, more than 125 students took wind-related classes in 2009, and almost 70 students were involved in the WACs in 2009
- Turbines installed in 42 schools with 20 more in progress (March 2010)
- Teacher-training programs implemented in participating states
- Strong interest in many other states
- Several states and schools interested in the affiliate program.

References

- More information on the Wind for Schools project: http://www.windpoweringamerica.gov/schools_wfs_project.asp
1. Baring-Gould, I.; Flowers, L.; Kelly, M.; Barnett, L.; Miles, J. (2009). *Wind for Schools: Developing Education Programs to Train the Next Generation of the Wind Energy Workforce*. 11 pp.; NREL Report No. CP-500-45473.
 2. Baring-Gould, I. (2009). *Wind for Schools: A Wind Powering America Project (Brochure)*. 8 pp.; NREL Report No. BR-500-45684; DOE/GO-102009-2830.
 3. *Wind for Schools Affiliate Programs: Wind and Hydropower Technologies Program (Fact Sheet)*. (2009). 4 pp.; NREL Report No. FS-7A2-45729; DOE/GO-102009-2833.

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