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Wind for Schools: Fostering the Human Talent Supply Chain for a 20% Wind Energy Future

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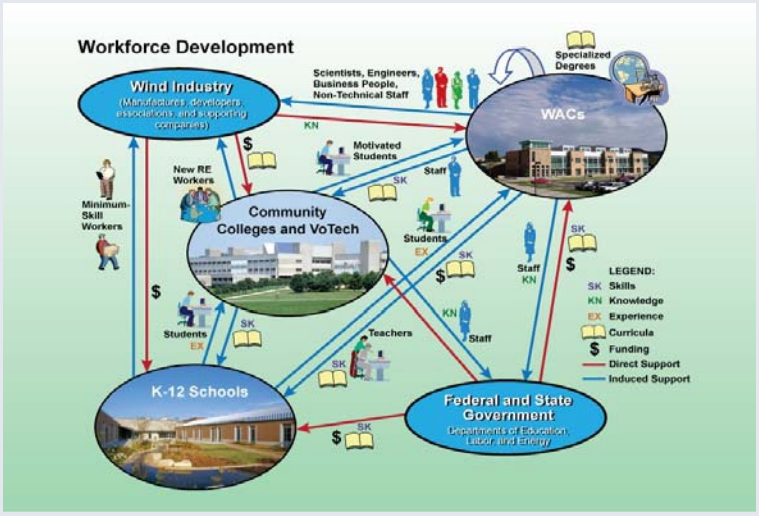
Abstract

As the United States dramatically expands wind energy deployment, the industry is challenged with developing a skilled workforce and addressing public resistance. Wind Powering America's Wind for Schools project addresses these issues by:

- Developing Wind Application Centers (WACs) at universities; WAC students assist in implementing school wind turbines and participate in wind courses
- Installing small wind turbines at community "host" schools
- Implementing teacher training with interactive curricula at each host school.

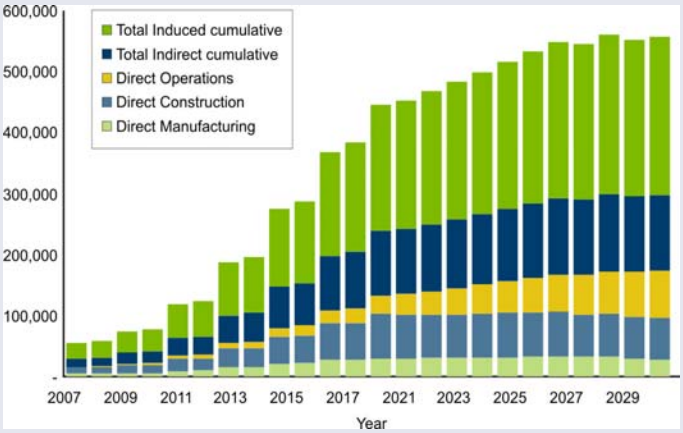
Students at Idaho's Pocatello Community Charter School participated in a Wind for Schools project. PIX16749/Billie Johnson.



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.



In 2008, the U.S. Department of Energy issued a report describing a 20% wind energy future by 2030. The report noted that 500,000 new jobs would be created, including:

- 5,000 construction
- 2,200 manufacturing
- 6,500 indirect positions.

The Wind for Schools project focuses on K-12 and university educators and students, 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 careers.

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.

Wind for Schools Project Team

Wind Application Center (WAC): The WACs are formed at universities in each participating state to train engineering students in wind applications analysis and deployment. WAC students gain valuable experience by providing technical assistance to school installations.
State facilitator: Assists the development of Wind for Schools projects in each state by identifying candidate K-12 schools and working with the community, teachers, school administration, local utility, and the WAC to implement the school wind project.
Host school, science teacher, school administration, and community: A Wind for Schools host school owns the small wind turbine, assists in its installation, and implements a wind energy educational curricula. The host school also provides land for the project, interconnection, facilities, and nominal financial support and agrees to make data from the turbine public.
Wind Powering America/National Renewable Energy Laboratory/U.S. Department of Energy: Provide technical and financial assistance to the WAC and facilitator over the first few years of the project in each state to help implement the activity. Provide wind measurement equipment to assess potential school sites and assist in curricula development at the university and K-12 levels.
Community: The community (including the local utility and business groups) assists in project development, funding, and implementation.
State government: Provides funding support for the wind turbines.

Results

Wind for Schools system installed at Sanborn Central School in Forestburg, South Dakota. PIX16032/ East River Electric Power Cooperative.

- Active programs in 11 states (Alaska, Arizona, Colorado, Idaho, Kansas, Montana, Nebraska, North Carolina, Pennsylvania, South Dakota, and Virginia)
- At the university level, more than 60 students graduated in 2010
- Turbines installed in more than 50 schools
- Teacher-training programs implemented in participating states
- Strong interest in many other states
- Defined affiliate program to allow interested schools to participate.

References

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