

WIND FOR SCHOOLS: DEVELOPING EDUCATIONAL PROGRAMS TO TRAIN THE NEXT GENERATION OF WIND ENERGY EXPERTS

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Introduction



As the world moves toward a vision of expanded wind energy, the industry is faced with the challenges of obtaining a skilled workforce and addressing local wind development concerns. Wind Powering America's Wind for Schools Program works to address these issues. The program installs small wind turbines at community "host" schools while developing wind application centers at higher education institutions. Teacher training with interactive and interschool curricula is implemented at each host school, while students at the universities assist in implementing the host school systems while participating in other wind course work.

Wind turbine at Sanborn Central School in Forestburg, South Dakota.

Photo credit: East River Electric Power Cooperative

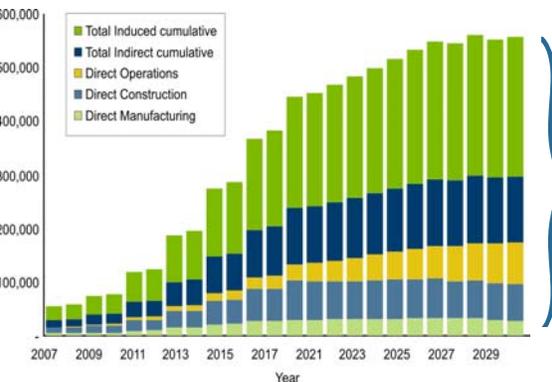
Objectives

One requirement for any expanding industry is the availability of talented and trained workers. Additionally, as wind energy continues to expand, the best way to overcome local concerns and combat misinformation is to educate the public about the real issues and benefits of the expanded use of wind energy.

Project Goals

- Engage rural America in the concept that wind offers an alternative energy and economic future for rural America
- Engage rural school teachers and students in energy education, specifically wind
- Equip college juniors and seniors with an education in wind energy applications to provide the growing U.S. wind industry with interested and trained engineers.

Wind for Schools is an activity focused on expanding the U.S. wind energy industry with the workforce that will be needed to guarantee the future development of wind technology in the United States.



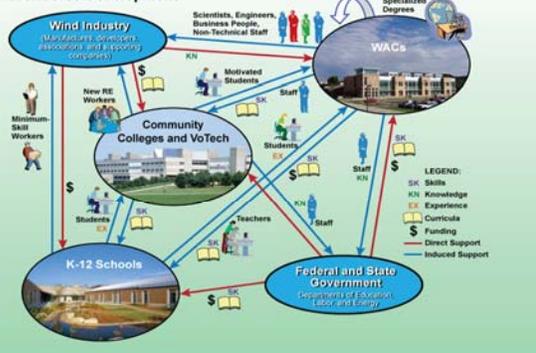
More than 500,000 jobs will be supported by the wind industry in 2030.

Approximately 180,000 will be directly employed by the wind industry.

Expected workforce needs to meet 20% electrical energy from wind by 2030.

Methods

Workforce Development



The Wind for Schools Program is one element of a larger activity to support expanded workforce development needs for the U.S. wind industry.

General Program Approach

- Build in-state capacity to provide technical assistance for community projects
- Work with state universities to develop college-level wind energy programs, incorporating wind curricula and small turbine installations at schools
- Work with the American Wind Energy Association and The NEED Project on K-12 curriculum to incorporate wind energy education into the classroom
- Use a low-cost replicable system for installation at host K-12 schools
- Work collaboratively with the community and local utility to implement a sustainable school project
- Ensure (to the extent possible) that all program elements can be implemented outside of the DOE Program
- Provide Laboratory-based technical assistance as needed to assist in implementing curricula and wind turbines
- Provide a means to implement programs if independent funding can be obtained through an auxiliary Wind for Schools Program.

Wind for Schools Project Team

State Facilitator: This individual or organization assists the program in developing the Wind for Schools activity within each state. Their primary responsibility is to identify candidate K-12 schools and support the project's development by working with the community, teachers, and school administration.

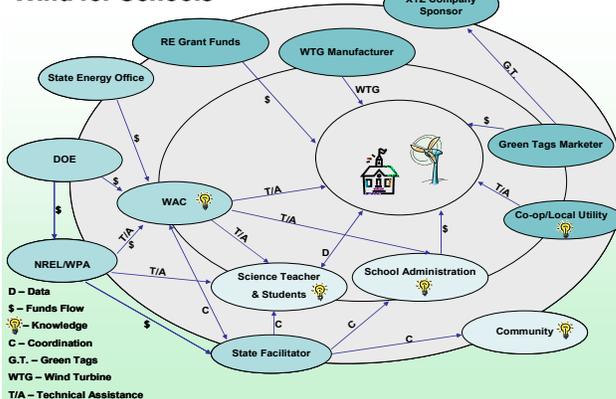
Wind Application Center (WAC): Center formed at a university in each state to train engineering students in wind technology deployment and analysis. WAC students gain valuable experience by providing technical assistance to school installations in addition to taking classes in wind energy.

Host school, science teacher, school administration, and community: A Wind for Schools host school installs a small wind turbine and implements a wind-energy-focused educational curricula that includes its turbine and turbines from other schools. The host school provides land for the project, interconnection, facilities, and limited financial support and agrees to make data from the turbine available.

WPA/NREL/DOE: Provides technical and financial assistance to the WAC and facilitator over the first few years of the project in each state to help set up the activity. Provides wind measurement equipment to assess potential school sites and assists in the development of curricula at both the university and K-12 level.

Community: The community (including the local power company and business groups) will assist in project development, funding, and implementation.

Wind for Schools



Schematic of the Wind for Schools Program showing key linkages.

Results

Initial Project Results

- Active programs in six states
- Three additional states expected to be added in 2009
- Turbines installed in more than 15 schools with 12 more expected by summer's end
- Teacher training programs to be implemented in each state; one completed
- Several Wind Applications Center graduates already working in the wind industry
- Strong interest in many other states.



Wind for Schools system installed at Greenbush High School in Kansas. Photo credit: Ruth Douglas Miller