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Wind powering America initiative: The wind and water power program (WWPP)

Energy Efficiency & Renewable Energy Information Center

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A WPA anemometer loan led to the construction of the 63-megawatt Dry Lake Wind Power Project, Arizona's first utility-scale wind farm.

Courtesy of Iberdrola Renewables /PIX 16702

The Wind Powering America Initiative

The U.S. Department of Energy's Wind Powering America initiative engages in technology market acceptance, barrier reduction, and technology deployment support activities.

When the U.S. Department of Energy (DOE) launched the Wind Powering America (WPA) initiative in 2000, there were 2,500 megawatts (MW) of installed wind capacity in the United States. By September 2010, the U.S. installed capacity exceeded 36,000 MW. As of the last quarter of 2010, 26 states have more than 100 MW installed, and nine states have more than 1,000 MW installed. The WPA team works to increase the level of technology market acceptance and reduce barriers to appropriate wind energy deployment, primarily by focusing on six program areas: workforce development, communications and outreach, stakeholder analysis and resource assessment, wind technology technical support, wind power for Native Americans, and federal sector support and collaboration.

Workforce Development

The nation's potential to capitalize on a new international green energy economy and to take advantage of the extensive national wind resource will hinge partially on the development of a highly trained and capable wind workforce. Although a few U.S. higher education institutions offer wind technology education programs and community and technical colleges provide job skills training, there is a shortage of programs to prepare

highly skilled graduates for the wide diversity of wind industry careers. WPA has conducted extensive activities to address this issue, including developing a wind workforce roadmap, conducting technology-specific training activities, supporting the identification of job classification to aid the industry, and developing wind energy curricula at all academic levels.

One of the key WPA education activities is the Wind for Schools project. The project's objectives are to 1) educate college students in wind energy applications, which will equip engineers for the growing U.S. wind industry; 2) engage K-12 teachers and students in wind energy, sparking the interest of the next generation to enter science, engineering, and energy fields; and 3) introduce wind energy to rural communities, initiating a discussion of wind energy's benefits and challenges.



PIX 16749

Boise State University students gained valuable work experience while helping to install a turbine at Pocatello Community Charter School (PCCS) in Pocatello, Idaho, and many now work in the wind industry. PCCS middle school students were engaged with the project from the beginning and now incorporate the turbine's data into their lessons. Courtesy of Billie Johnson

Through this activity, Wind Application Centers at higher education institutions develop and implement wind energy curricula, and the college students participate as “consultants in training” while performing all of the steps to install small wind systems at interested K-12 host schools. The project provides curricula, teacher-training workshops, and integrated data systems so that schools and universities can serve as “living laboratories” for the students (and even for schools without access to a viable wind resource). The Wind for Schools project currently operates in 11 states, but WPA also supports other states or schools interested in implementing similar projects through a defined affiliate program.

Communications and Outreach

WPA helps to coordinate and support a network of more than 33 state wind working groups and many regional partners that form strategic alliances to communicate the benefits and challenges of wind energy to state, regional, and national stakeholders. WPA's stakeholders include state energy officials, rural community leaders, landowners, agricultural-sector representatives, county commissioners, and rural-development specialists. To support informed decisions about how wind energy contributes to the U.S. electricity supply, WPA staff work to identify key stakeholder groups, develop effective and targeted communications strategies, and disseminate success stories and lessons learned while providing objective, third-party information on stakeholder concerns.

Stakeholder Analysis and Resource Assessment

WPA advances wind technology social acceptance by developing analytic tools, conducting rigorous assessments, and addressing deployment issues. One of the main stakeholder analysis tools that exemplifies this approach is the Jobs and Economic Development Impacts (JEDI) model, a user-friendly tool developed by WPA to estimate the jobs and economic impacts of constructing and operating wind farms at the local and state level. JEDI models are used by county and state decision-makers, public utility commissions, potential project owners, and others interested in the economic impacts from new electricity generation projects. The model allows a clear and easy comparison of the economic impacts of different energy options.

In addition, the WPA team supports resource assessment research, including a collaborative effort between the National Renewable Energy Laboratory and AWS Truepower to update the map of U.S. wind energy potential for the first time in almost two decades. New wind energy resource maps with potential estimates at 80-m and 100-m heights were recently completed, and a 30-m estimate map will soon follow. These public assessments and resulting products support

understanding of the U.S. wind energy potential at the local, state, and national level.

Wind Technology Technical Support

Wind technologies can be used in many applications: land-based and offshore utility-scale wind farms, community-scale projects, and in distributed applications for homes and businesses. The WPA team provides information to stakeholders in each of these sectors, answering questions like “Can I use wind energy to power my home, farm, or business?” or “What are the regulatory barriers to the deployment of offshore wind technologies?” The WPA team produces application-specific information such as a series of small wind consumer's guides and other outreach materials to educate consumers about the benefits of wind technologies.

Wind Power for Native Americans

The United States is home to more than 700 Native American tribes located on 96 million acres. Much of this land has excellent wind resources that can be commercially developed to provide electricity and revenue to the reservations. To support the development of Native American wind resources, WPA provides technical assistance and outreach activities to more than 50 tribes from 20 states, including an anemometer loan program, pre-feasibility studies, and a semi-annual workshop, largely in collaboration with DOE's Tribal Energy Program.

Federal Sector Support and Collaboration

Finally, the WPA team works to support the deployment of wind projects and wind-related energy assessments, supporting and collaborating with federal agencies, states, and international governments. These activities include direct technical assistance on wind project siting, permitting, and environmental issues on specific projects, allowing agencies or nations to meet renewable energy generation directives. Deployment staff also provide technical and education support to agencies or organizations responsible for public lands, supporting expanded appropriate use while maintaining the agencies' abilities to focus on their prime missions. The program works collaboratively to develop national, state, and regional energy assessments, supporting wind-focused deployment activities in states, U.S. territories, and protectorates.

Through these joint efforts and others, WPA continues to expand acceptance of wind energy as a viable option for power generation.



www.windpoweringamerica.gov
U.S. Department of Energy