



Conference Highlights

Challenges and Opportunities in Wind Energy

by Margaret Hopkins

Proven wind resources, supportive state initiatives and manufacturing and technical capabilities—these position Pennsylvania to be a leader in the wind energy industry, but capitalizing on those requires building a vibrant and sustainable market, developing a supply-chain and training the necessary workforce.

These were among the conclusions that emerged from the recent 2008 Pennsylvania Wind Energy Symposium: Power for the Future (Nov. 17-18) held at Penn State.

“The market for renewable energies will grow, but competition among states will be fierce,” said Tom Tuffey, director of the Center for Energy, Enterprise and the Environment of the nonprofit PennFuture. “Manufacturing follows markets, so development is critical, and we have to think and support the whole thing from the supply chain side to the policy side.”

Tuffey was one of about three dozen invited speakers who explored the opportunities and challenges in wind energy at the symposium organized by Penn State and held at the Penn State Conference Center. Among the more than 270 attendees were wind-farm developers, environmental consultants, business owners, local and state officials and economic-development professionals.

The goal of the symposium was to introduce participants to the wind energy industry as Gov.

Rendell’s Energy Independence strategy targets meeting eight percent of the state’s energy needs from renewables such as wind energy by 2020. To aid in those efforts, the state legislature recently approved \$650 million in funding for the promotion of renewable energy and the economic development that will be associated with the growth of new industries like wind energy.

Ramping up the industry, however, cannot occur with a business-as-usual approach, said symposium co-chairman George Lesieutre.

“Achieving this involves numerous challenges from reducing costs via technology advancement to improving transmission infrastructure and addressing local concerns related to siting turbines,” said Lesieutre, head of aerospace engineering.

But increasing the state’s wind energy capacity to 4000 megawatts (MW) also includes opportunities for Pennsylvania firms. These range from constructing wind farms and supplying parts to turbine manufacturers to developing a workforce for operation and maintenance of turbines.

Currently, 70 percent of all U.S. wind farms have been built by two firms in

Minnesota, said Gary Verkleeren, senior business developer of Iberdrola Renewables, the second largest generator of wind energy in the U.S. and owner and developer of several wind farms in Pennsylvania, including Locust Ridge Wind Farm in Schuylkill County.

“The industry needs qualified contractors for the civil engineering and erection of the towers as well as suppliers of materials from steel, aggregate and concrete,” said Verkleeren, who participated in a panel discussion titled “Perspectives on Business Challenges: Supply Chain.”

Because the wind energy industry also needs qualified workers for the manufacture of blades and turbine gears and maintenance of the machines, the symposium devoted a session to exploring what skill sets Pennsylvania workers need to be employable in this industry. The more workers with relevant skill sets, the more likely Pennsylvania can attract wind companies to locate their manufacturing plants and R&D facilities to the state.

The Office of International Business Development in the state Department of Community and Economic Development continuously seeks to promote Pennsylvania’s capabilities to foreign companies, said Tom Burkley, international marketing executive.

Several of the sessions dealt with the how-to of wind-farm development with developers describing how sites are chosen and what steps are required for permitting which include everything from rattlesnake monitoring to wetlands mitigation.

“The process is detailed and comprehensive and offers many opportunities for public comment and input,” said Doug Miller, director, Penn State Center for Environmental Informatics who led a discussion on

“Siting and Project Implementation.” “If closely followed, it can work about as well as possible to protect the environment.”

Questions also remain about how best to integrate wind power into the existing electric grid. A significant amount of investment in new transmission facilities is required to facilitate large-scale wind power development.

“The challenge is that getting transmission built is very difficult,” said Seth Blumsack, assistant professor of energy policy, who led a breakout session on “Transmission and Distribution.” “Construction costs are going up, and transmission developers must contend with siting and permitting processes that cross many different local, state and federal jurisdictions.”

Still the inaugural event went a long way to answering how the wind energy industry works, what the challenges are in harnessing wind energy and how the environment can be protected during the development process.

“Wind energy currently provides us with the best opportunity to build

toward a sustainable energy future,” said Susan Stewart, research associate with the Applied Research Laboratory. “While continual improvements are being made in the siting process, technology and operation of wind turbines, one thing is clear: There are many opportunities for companies and researchers to apply their expertise from other technologies to this rapidly developing industry.”

Presentations from the conference are available online at www.psiee.psu.edu/windenergy/symposium.asp. ■

The 2008 Pennsylvania Wind Energy Symposium was organized by the Penn State College of Engineering, College of Earth and Mineral Sciences, Earth and Environmental Systems Institute, Applied Research Laboratory, Social Science Research Institute and the Penn State Institutes of Energy and the Environment in conjunction with the Office of Economic and Workforce Development, Department of Aerospace Engineering, Materials Research Institute, Smeal College of Business, Penn State Center for Sustainability and Office of Institutes and Conferences.

Non-University partners included PennFuture, Iberdrola Renewables, Central Pennsylvania Workforce Development Corporation, SEDA-Council of Government Energy Resource Center, and St. Francis University Renewable Energy Center.



Conference attendees braved the weather to tour the Allegheny Ridge Wind Farm located in Cambria and Blair counties. Photo: Susan Stewart