

Illinois Institute of Technology to Lead Wind Energy Research Consortium

Department of Energy Invests Up to \$8 Million for University-Led Effort to Improve Wind Generation

Chicago, Oct. 16, 2009 — U.S. Energy Secretary Steven Chu has announced new investments in three university-led wind energy research facilities that will enhance the United States' leadership role in testing and producing the most advanced and efficient wind turbines in the world. An Illinois Institute of Technology (IIT) led consortium has been selected for up to \$8 million to support university research and development programs, and will include partners from private industry, state and local governments, and other universities.

Funding is from the American Recovery and Reinvestment Act, and the research will focus on improving land-based and offshore wind turbine performance and reliability, as well as provide career educational opportunities for undergraduate and graduate students in wind energy technologies. The projects selected today support the Obama Administration's focus on increasing clean energy generation, while supporting the long-term development of a clean energy workforce.

"Wind power has the potential to provide 20 percent of our electricity and create hundreds of thousands of jobs," said Secretary Chu. "We need to position the United States as the clear leader in this industry, or watch these high-paying jobs go overseas. The investment we're making today will help ensure that America has both the talent and the technology we need to compete."



The IIT-led consortium members will perform focused research on critical wind energy challenges identified in the "20% Wind Energy by 2030" report, including wind technology challenge, grid system integration, and workforce challenge. The university consortium's research and development plan includes advanced concepts for rotor control and drive train control, robust sensors for blades, and improved aero elastic models to improve wind turbine performance and reliability. The plan has been created under the direction of IIT's Wanger Institute for Sustainable Energy Research (WISER), and involves the participation of eleven faculty and more than two dozen Ph.D. students at the university. IIT Henry R. Linden Professor of Energy Hamid Arastoopour is director of WISER.

"Illinois Institute of Technology's consortium is pleased to have been chosen to help advance wind energy for the nation," said IIT President John Anderson. "The combination of research and academic opportunities at IIT and its academic consortium partners, in conjunction with industry, will help the United States be at the forefront of this technology."

Chicago is quickly becoming a center for wind energy research in the United States. The IIT-led wind energy consortium will work with world-leading, Chicago-based wind energy developer Invenergy, to procure and install a 1.5MW GE wind turbine and perform turbine reliability studies. The proposed installation site for the GE wind turbine is adjacent to Marseilles, Illinois. Invenergy's extensive experience in deploying large numbers of wind turbines will help the wind consortium conduct a world-class wind energy research and development. The consortium will also work with the world-leading small wind turbine manufacturer, Viryd Technologies, to procure and install an 8KW Viryd wind turbine at IIT campus, and deliver the second turbine at one of the IIT's engineering laboratories to perform turbine reliability studies.

"IIT has been a leader in electric power research and education since the 1930s," said Bodine Distinguished Professor and Chair of the Electrical and Computer Engineering Department Mohammad Shahidehpour, who is principal investigator for the consortium. "We are excited to continue this work, together with our consortium partners, to meet the energy challenges of the 21st century." Shahidehpour is also currently leading a DOE-funded Perfect Power project which integrates renewable energy into a ground-breaking approach to electricity distribution and management, as well as several other research projects focusing on wind energy integration, deployment and operation.

The close proximity of IIT's turbine in Marseilles to an existing wind farm provides an ideal opportunity to study turbine-to-turbine wake interaction, wind farm interaction, and wind energy efficiencies. IIT will develop and offer wind energy courses addressing the technical, operational, social, and environmental aspects of wind energy in consultation with industry. Fellowships will be offered annually to masters and undergraduate students in wind energy engineering fields of study.

Other university consortium members include the world-renowned University of Chicago, Southern

Illinois University which is a leading university in clean energy research, and four internationally prestigious universities with a strong wind energy program: University of Castilla-La Mancha (Spain), University of São Paulo (Brazil), Aristotle University of Thessaloniki (Greece), and Polytechnic University of Bucharest (Romania). Faculty and students from the international university members will be invited to IIT to attend consortium workshops in the United States and to share their innovative ideas with their American counterparts. The industry consortium members include all types of wind energy stakeholders: wind turbine companies (GE Energy, Viryd Technologies, Acciona Wind Energy USA), wind energy developers (Invenergy, Pampa Energia Eolica (Brazil), PS Wind Management (Romania)), power transmission system operators (ComEd/Exelon, ISO New England, British Columbia Transmission Corporation), wind energy control devices and software companies (Boeing Advanced Global Services & Support, Honeywell, Dakota Power, EnerNex Corporation, SmartSignal Corporation, Innovation Technology Applications Company) and energy system consultants (Keywords, Electric Power Research Institute, AREVA T&D, Intelligent Power Solutions, McCoy Energy, Wiedman Power System Consulting).

The University of Minnesota and University of Maine were the other two institutions who received grants for wind energy research projects.

Founded in 1890, IIT is a Ph.D.-granting university with more than 7,300 students in engineering, sciences, architecture, psychology, design, humanities, business and law. IIT's interprofessional, technology-focused curriculum is designed to advance knowledge through research and scholarship, to cultivate invention improving the human condition, and to prepare students from throughout the world for a life of professional achievement, service to society, and individual fulfillment. Visit www.iit.edu.

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