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An International Consortium for Wind Integration Research, Education, and Workforce Development

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The panel presentation will discuss the details and the mission of a DOE-funded wind energy consortium for the promotion of research, education, and workforce development.

The Illinois Institute of Technology (IIT) is leading an \$8 million initiative funded by the U.S. Department of Energy for establishing an international wind energy consortium of multiple universities (domestic and international) and multiple industry participants (all types of wind energy stakeholders). The consortium members will perform a 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 proposed technical phases of the project include: Phase I: Partnership for Wind Unit Installation; Phase II: Wind Turbine Reliability Research; Phase III: Wind Energy Research and Development; Phase IV: Workforce Development for Sustaining the Wind Energy Research and Development in US; and Phase V: Final Reporting. These phases and the corresponding task are discussed thoroughly in the proposal.

The proposed wind energy consortium will work with the world-leading 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. The Invenergy's extensive experience in deploying a large number 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.

The proposed wind energy consortium will have a world-class leading team and advisory board. The principal investigator (PI) is Dr. Mohammad Shahidehpour, who is the Bodine Chair Professor of the IIT's ECE Department. Dr. Shahidehpour is currently leading a DOE-funded Perfect Power project with a total budget of \$12,000,000, a DOE-funded wind integration project with a two-year

budget of \$750,000 and several NSF-funded projects on wind energy deployment and operation.

The consortium advisory board is composed of Dr. Henry Linden, former CEO of Gas Research Institute which is the U.S. gas industry's cooperative research and development arm, Kurt Yeager, who is the former CEO of Electric Power Research Institute (EPRI), Dr. Richard Gowen, former president of IEEE which is the world's leading professional association for the advancement of technology, Mr. Robert Galvin, former Chairman of the Motorola Corporation who intends to demonstrate that "Perfect Power" can be delivered to the consumer by applying Six Sigma quality principles, and Mr. Michael Polsky, President of Invenergy which is one of the top five largest owners of wind generation assets in the United States.

The proposed wind energy consortium is led by IIT, which has a long history of offering one of the finest electric power programs since 1930's. 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 (Keyworks, Electric Power Research Institute, AREVA T&D, Intelligent Power Solutions, McCoy Energy, Wiedman Power System Consulting).