

ILLINOIS INSTITUTE OF TECHNOLOGY'S WIND ENERGY RESEARCH CONSORTIUM

Wanger Institute for Sustainable Energy Research (WISER)

Illinois Institute of Technology

The U.S. Department of Energy has invested \$8 Million in the IIT-led Wind Energy Consortium to improve wind generation. The consortium includes partners from private industry, state and local governments, and universities.

Funding from the American Recovery and Reinvestment Act will allow the consortium to:

- Improve **land-based** and **offshore wind turbine performance** and reliability
- Provide **career and educational opportunities for students** in wind energy technologies
- Support long-term development of a **domestic clean energy workforce**
- Address wind technology challenges and **power grid system integration**

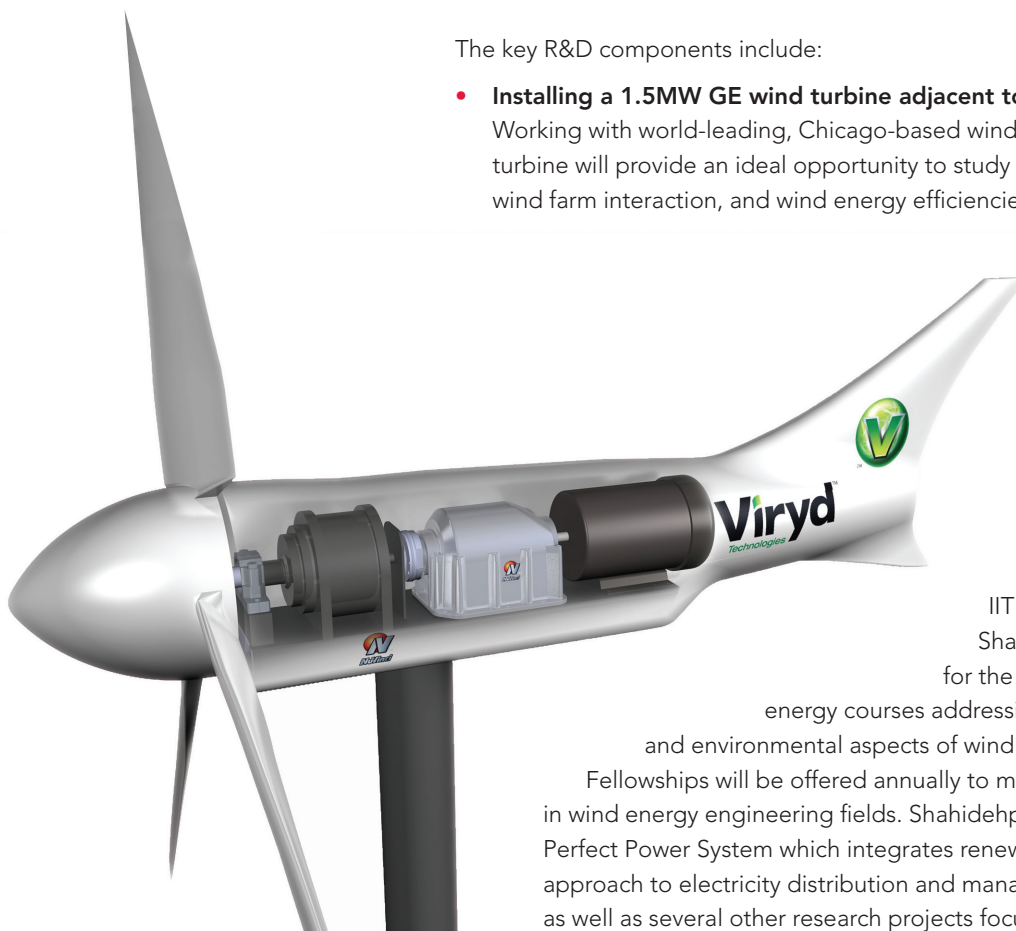
Research and Development

The consortium's R&D plan includes advanced concepts for rotor control and drive train control, robust sensors for blades, and improved aero elastic models to advance wind turbine performance and reliability. The plan was created under the direction of IIT's Wanger Institute for Sustainable Energy Research (WISER), and involves the participation of eleven faculty members and more than two dozen Ph.D. candidates.

The key R&D components include:

- **Installing a 1.5MW GE wind turbine adjacent to a Marseilles, Illinois wind farm.** Working with world-leading, Chicago-based wind energy developer Invenergy, this turbine will provide an ideal opportunity to study turbine-to-turbine wake interaction, wind farm interaction, and wind energy efficiencies.

- **Installing an 8KW wind turbine at IIT's campus provided by wind turbine manufacturer, Viryd Technologies**
- **A second Viryd wind turbine to be housed and studied in an IIT engineering laboratory**



On-campus wind turbine

IIT Bodine Chair Professor Mohammad Shahidehpour, who is principal investigator for the consortium, is developing 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. Shahidehpour is also leading the DOE-funded Perfect Power System which integrates renewable energy into a ground-breaking approach to electricity distribution and management using smart grid technology, as well as several other research projects focusing on wind energy integration, deployment, and operation.



University Consortium Members

University of Chicago, Southern Illinois University, and four internationally prestigious universities with strong wind energy programs: University of Castilla-La Mancha (Spain), University of São Paulo (Brazil), Aristotle University of Thessaloniki (Greece), and Polytechnic University of Bucharest (Romania).

Industry Consortium Members

Wind turbine companies (GE Energy, Vird 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).



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