

ILLINOIS INSTITUTE OF TECHNOLOGY

GALVIN CENTER FOR ELECTRICITY INNOVATION

About the Galvin Center:

Illinois Institute of Technology (IIT) has launched a Galvin Center for Electricity Innovation (the Center) that is establishing the University as a global leader in microgrids, smart grid technology, and sustainable energy. The Center has become a leader of the Smart Grid technological revolution by building the first ever fully-functional Perfect Power system, a smart microgrid demonstration project, on IIT's Main Campus in Chicago. The Perfect Power system has positioned the Center as a pioneer in electricity delivery and infrastructure, and as a hub, or sandbox, for new research and innovations in Smart Grid technology. The Center has become a global "thought-leader" in microgrid and smart grid technology research and innovation.

The Center has grown to 40 members from academia and industry (funded engineering researchers), 30 PhD student researchers, and 20 undergraduate students in just three years, and has recruited over 100 affiliate members (non-funded participants) from academia and industry for its projects. The Center has secured more than \$40 million in funding from the government and private sectors for research and development in microgrids, smart grid technology, and sustainable energy.

The Center will have a national impact on the way this country pursues the adoption of a smarter, more efficient, and more reliable electric grid. It is a landmark initiative to create the next generation of power and electrical engineers and leaders and is building a research capability that stimulates entrepreneurs and innovation.

The funded projects in the Center include the following:

Perfect Power – In 2008, Illinois Institute of Technology (IIT) entered into a \$12 million partnership with the Department of Energy to build the first-ever prototype of a Perfect Power microgrid – an electric system that will not fail – on its Main Campus in Chicago. The Center is working with entities across the world to replicate and scale the Perfect Power model for communities, military bases, corporate parks, sports facilities, and other universities.

Smart Grid Workforce Education & Training Initiative – In 2010, the Center leadership initiated a \$12.6 million project, supported by the Department of Energy, the State of Illinois, and private industry, to educate and train the nation's workforce to meet the global challenges and opportunities of the smart grid. The Center is leading a revolutionary initiative to engage over 49,000 people in smart grid-related education, from university-level undergraduate and degree programs, to community college and applied training, and even K-12 schools in order to inspire a new generation of electrical engineers.

IIT Wind Consortium – In 2010, the Center leadership was awarded an \$8 million grant from the U.S. Department of Energy to establish a University-Industry Consortium for Wind Energy Research, Education, and Workforce Development. The Center leadership was also awarded \$750,000 from DOE to study wind integration into the grid. The Consortium has engaged 8 universities in the U.S. and around the world in research related to next-generation wind power generation and grid integration.

IIT-Korea Smart Grid Research Partnership – The Center is helping to lead the Illinois-Korea Smart Grid R&D Collaboration, a joint international collaboration to accelerate the development of smart grid-supporting technology. This R&D research partnership will stimulate new intersections of smart grid related research in communications IT, electric grid hardware, and consumer appliances. Current projects as part of the partnership include research in the areas of Distributed Energy Resource Integration, Workforce Development, and Building Energy Management Systems.

Illinois Smart Grid Regional Innovation Cluster – IIT is leading the development of an innovation platform for Smart Grid technology that recently was awarded \$600,000 from the Small Business Administration. The Center is providing technical and business support to speed new Smart Grid technologies on the path to commercialization.

Smart Grid community deployments – IIT is serving as a thought-leader and planning lead for the development of several smart grid community deployments in the Chicago region. The Center is providing engineering assistance, research support, planning and guidance to several communities looking to expand demand-response pilots, redevelop brownfield sites into smart microgrids and sustainable communities, and find ways to retrofit large commercial and residential buildings in downtown Chicago to become net-zero or net-energy-positive buildings.

Advanced Energy Research Laboratories – The Galvin Center for Electricity Innovation is working to build new advanced energy laboratories that will allow researchers to use the Perfect Power System as a test bed for new technology research and Smart Grid systems evaluation. This will serve as a national resource for research and innovators who are seeking leadership and guidance in developing new advanced grid technologies.

Contact Information:

Dr. Mohammad Shahidehpour
Bodine Distinguished Professor and Director,
Galvin Center for Electricity Innovation
Illinois Institute of Technology

ms@iit.edu
312.567.5737

