SUMMARY OF A PANEL PRESENTATION AT THE 2011 GENERAL MEETING OF IEEE/PES

Establishment of Campus Microgrid for Power Engineering Education and Research

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Illinois Institute of Technology (IIT) was awarded a grant by the US Department of Energy to to build the first ever fully-functional microgrid on its Main Campus in Chicago. Microgrid is a system that provides U.S. businesses and cities with a distinct competitive advantage by providing access to an electric system that offers

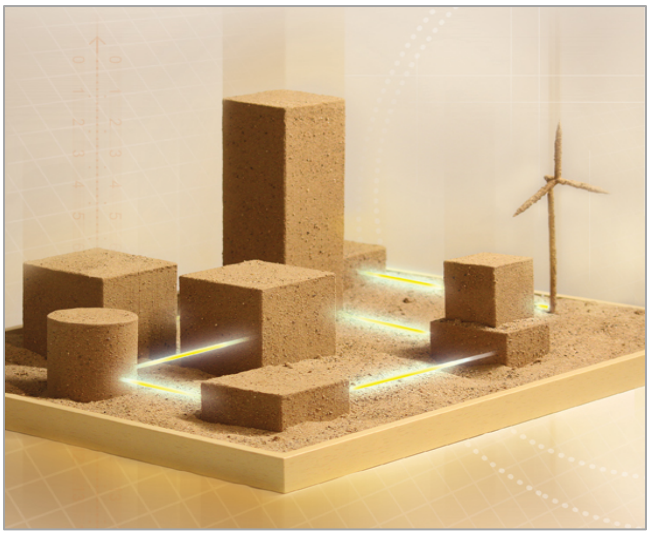
(1) Reliability: does not fail,
(2) Sustainability: does not harm the environment, and
(3) Efficiency: provides customer choices in innovation.

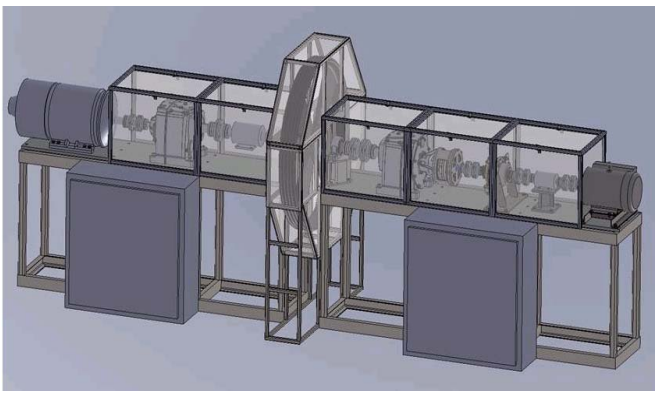
IIT's microgrid Initiative will ensure that the R&D innovation and achievements necessary to rebuild the electric grid will happen in the United States, providing a new American opportunity for manufacturing and entrepreneurial jobs.

The integration of renewable supply into the electricity grid would enhance the social sustainability of energy infrastructure. However, such integration could inevitably result in a new electric supply risk on a significantly large scale associated with the security of the supply infrastructure. In such cases, microgrids which could be fueled by renewable energy sources and managed by smart grid and a series of smart sensors could offer a perfect power system with higher reliabilities which would guide customers to lower their costs and utilize electricity more efficiently. The task of improving the efficiency and upgrading the resiliency of electric grid, in order to support clean and renewable energy, is one that cannot be overlooked.

When replicated across the country, a microgrid will be a network of small, self-contained smart gridss (modern, small-scale versions of today's centralized electric grid) that connect to and augment the larger electricity grids. Each smart microgrid would be locally controlled, operated and enhanced by smart grid technology, and designed in a loop system with redundant electricity and local power generation.

IIT was also granted a wind energy consortium project funded by the US Department of Energy, which consists of over twenty major companies and universities, for developing the next generation of wind turbines that can supply a major portion of electricity consumption in a microgrid. IIT and its partners will perform focused research and development on critical wind energy challenges identified in the "20% Wind Energy by 2030" report, including wind technology challenges and workforce development for sustaining the United State's leading edge on the integration of wind energy. The wind energy consortium studies and results will also be implemented at IIT to enhance the established microgrid which could be replicable at other communities in the United States.





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