

Keynote by Robert E. Hebner, University of Texas at Austin, USA

The US Grid in the 21st Century - A Focus of UT R&D

ABSTRACT

As is the case in Europe, the legacy electric grid in the United States is aging and new technology promises better ways of providing electricity to consumers. An estimate by a University of Texas researcher is that the replacement cost of the US grid is about 5 trillion US dollars and that infrastructure has recently been given a grade of D+, the lowest possible passing grade, by a US civil engineering society. The US is using a variety of approaches to address the problem in the face of level demand, rising costs, emerging technologies, legacy financial and regulatory systems, and the escalating importance of electric energy. The solutions combine such approaches as microgrids, distributed generation, load management, storage, renewable penetration, data and modeling. This evolving situation is providing significant research opportunities for the University of Texas.

Robert E. Hebner is the Director of the Center for Electromechanics at the University of Texas at Austin. The Center develops advanced technology, generally in the areas of power and energy, and teams with companies to get the technology into the market. Before joining the University of Texas, he had been the acting Director of the National Institute of Standards and Technology (NIST), an agency of the U.S. Department of Commerce. In this position, he had responsibility for the Advanced Technology Program, which was intended to stimulate industrial research and development for the benefit of the U.S. economy.



He also worked in the Office of Management and Budget to help prepare the technology portions of the Administration's 1990 budget and at the Advanced Research Projects Agency of the Department of Defense where he developed programs to stimulate technical advances in semiconductor manufacturing. He has served on a number of government review teams to assess the management of technical programs in other organizations. Throughout his career, Dr. Hebner has been active in technically having received a Ph.D. in physics and having authored or coauthored more than one hundred technical papers and reports. He is a past president of the Dielectrics and Electrical Insulation Society of the Institute of Electrical and Electronics Engineers. Dr. Hebner is a fellow of the Institute of Electrical and Electronics Engineers and a member of the American Physical Society and the American Association for the Advancement of Science. Awards he has received include the U.S. Department of Commerce Gold, Silver, and Bronze Medals and the 1990 Harry Diamond Memorial Award, given annually by the Institute of Electrical and Electronics Engineers, for outstanding technical contributions by a government employee.