Dr. Robert E. Hebner
Robert E. Hebner, Ph.D.
Director, Center for Electromechanics
The University of Texas at Austin

Bob Hebner, IEEE vice president for Technical Activities, is the Director of the Center for Electromechanics and Associate Director for Technology of the Center for Energy Security, both at the University of Texas at Austin. His personal research focuses on smart grid technologies, microgrids, renewable energy, and energy storage. He is an active contributor to the Pecan Street program that is helping to gather the information needed to design a smart grid architecture that is attractive to both consumers and industry.

Dr. Hebner has had extensive experience in technical collaborations being former chair of the Board of the Center for Transportation and the Environment and chair of the Electric Ship Research and Development Consortium. He is also a member of the Board of Directors of the IEEE.

Before joining the University of Texas, he spent many years at the National Institute of Standards and Technology (NIST), culminating his time there as acting Director. He also worked in the U. S. Office of Management and Budget and at the U. S. Defense Advanced Research Projects Agency.

Throughout his career, Dr. Hebner has been active technically having received a Ph.D. in physics and having authored or coauthored more than 150 technical papers and reports. He is a fellow of the IEEE.

Speech Title:
Technology Needs for Wider Use of Microgrids

Abstract:
While the world is becoming more energy efficient, it is also becoming more electricity intensive. While electricity initially provided lighting, now it underpins communication, heating and air conditioning, banking, health care, increasingly transportation, much of the food supply chain, and many other aspects of modern life. Recent disasters have shown that microgrids often have advantages in being less likely to fail and quicker to repair during emergencies. At the same time, globally, we have taken advantage of the economies of scale provided by large isolated power plants with extensive transmission networks to reduce energy cost. And this system normally provides significant advantages. These two factors are stimulating small, but global, efforts to effectively merge the two approaches.

While microgrids are frequently considered an electrical system, the modern approach must account for all energy inputs into the microgrid, including but not limited to the legacy power system. Modeling and simulation provide localized solutions to evolve at minimum cost making best use of the existing infrastructure. At the same time, the technology for sources, controls, and sensing are advancing rapidly. This world-wide research, development, and demonstration activity show promise of providing cleaner power that is less vulnerable to natural or man-made disasters.