



**Clark W. Gellings, P.E., LFIEEE, FEIES, HMCIGRÉ** received the B.S. degree in electrical engineering from Newark College of Engineering in Newark, New Jersey, USA in 1968. That same year, he joined Public Service Electric and Gas Company (PSE&G) in New Jersey. Over his 14-year tenure there, he worked in Sales, Rates and Load Management. While at PSE&G, he also held a position of Adjunct Professor of Electrical Engineering at New Jersey Institute of Technology. While at PSE&G, he also earned a Master of Management Science in the Wesley J. Howe School at Steven's Institute of Technology and a Master of Science in Mechanical Engineering at New Jersey Institute of Technology. He joined the Electric Power Research Institute (EPRI) in 1982 progressing through a series of technical management and executive positions including seven

Vice President positions and founder, CEO and member of the Board of several of what were EPRI's subsidiaries.

During his work at EPRI, he has managed and directed EPRI research in energy utilization, electrotechnologies (new uses of electricity), demand response, power delivery (transmission and distribution), power quality, communications, innovation, electric transportation, thermal and electrical energy, storage and renewables.

Clark is a world-renowned expert in energy utilization and power delivery. During his career, he invented the concept of demand-side management (DSM) and directed the development of all of the frameworks, guide books, and models to support DSM which are in worldwide use today. He established the largest non-government program of research and development in electric energy utilization than ever existed in the world.

He is responsible for conducting one of the first integrated resource plans for a utility which necessitated development of unique modeling and planning tools including the first load shape modeling software. He is also responsible for introducing the concept of needs-based segmentation of utility markets and developed the software and guide books to support that concept. He originated the development of integrated end-use econometric modeling.

Clark founded the first coordinated program in the nation of the Smart Grid concept by initiating the IntelliGrid Architecture and launched the program of research which was responsible for the recent National Institute of Science and Technology (NIST) roadmap for Smart Grid standards. Clark was EPRI's lead in forming the United States Advanced Battery Consortium (USABC) with Ford, Chrysler and GM. Without the USABC, today's nickel metal hydride, sodium sulfur and lithium ion batteries would not be as advanced as they are. Clark also invented the ElectriNet concept, formed the basis for the Green Circuits work, and guided the recent resurgence in EPRI's energy efficiency work.

Clark has received distinguished awards from CIGRÉ (International Council on Large Electric Systems), the South African Institute of Electrical Engineers (SAIEE), the Illuminating Engineering Society of North America (IESNA) and the Association of Energy Services Professionals.

Currently, Clark is a Fellow at the Electric Power Research Institute in Palo Alto, California, USA.

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## **Lecture Topics**

1. The Smart Grid's role in enabling a fully functional electric power delivery system
  - What is the Smart Grid
  - Drivers, opportunities and benefits
  - Conceptual models
  - Migrating from today's power delivery system to a Smart Grid
2. Electric end use energy efficiency and its ability to reduce electricity use 30% by 2030
  - Converting electricity into useful services
  - The potential for energy efficiency
  - The key technologies
  - Saving energy with electricity
3. The use of demand response in improving electric power system reliability and reducing peak demand
  - Demand response
  - Prices-to-devices
  - Peak reduction potential
  - Ubiquitous demand response