Virtual Power Plants and MicroGrids

Panel Organizer: Dr. Johan Enslin, Clemson University, USA

When: Thursday September 6th, 2018, 8.00 am – 10.00 am

Where: Ballroom B

The introduction of regulatory mandates and economic incentives, the proliferation of variable and intermittent renewable generation, the growing expectations from customers regarding distribution system reliability and resiliency and the steady reduction of technology costs, including energy storage, have converged to create a favorable business environment for the wide scale adoption of distributed generation sources and energy storage. By adding more converter-based generation from these distributed energy resources (DER) and MicroGrids, in conjunction with retiring traditional steam generators, the traditional power system is losing spinning reserves and system inertia. Significant mechanical inertia of the rotor in a synchronous generator is crucial for facilitating the cooperative grid forming capability of multiple such generators on the transmission and distribution network. As a result, complete feeders need to become more intelligent that represent all the operational characteristics of traditional power systems. This trend is developing into the need for Virtual Power Plants that consists of distributed generation, energy storage and fast communication technology with distributed intelligence. The objective of this panel session is to discuss industry experiences and technology in the application of distributed energy resources and storage in distribution grids, including a discussion on virtual power plant operation, inertia requirements as well as cyber security concerns around the deployment of distributed intelligent systems.

Panelists:

- Challenges in Getting to Utility Scale VPP's at Duke Energy

  Tom Fenimore, Duke Energy, USA

- Leveraging VPPs and MicroGrids for Increased Community Resilience

  Scott Sternfeld, eCubed us LLC, USA

- Energy storage and Combined Cycle Plants

  Chris Davidson, Siemens, USA

- Developing Economically Viable & Resilient Microgrids

  Eliot Assimakopoulos, General Electric Energy, USA