Distributed Energy Resources Integration

Wednesday May 1, 2019

Bloomington, MN

What is this course about?

Power, once provided exclusively by bulk generation facilities, has become a commodity that dots the electric distribution landscape. Traditional radial circuits must now accommodate the flow of power from the outer reaches which require additional analysis and planning. This creates issues that electric distributers must address to provide system stability and safety, to both the general public and utility employees. Consumer and utility scale installations will be considered with regard to protection and power quality. A variety of energy resources will be discussed with special emphasis on solar generation.

Who should attend?

Engineers who are currently engaged with distributed energy providers will find this course valuable. Those in power distribution leadership positions must understand the issues, both technical and commercial, associated with the addition of energy resources to their system in order to create effective connection policy and procedures.

Continuing Education

Upon completion, attendees will receive a certificate for 6 Professional Development Hours (PDH). Pike Engineering is a continuing education partner for Florida and North Carolina Board of Engineers. Pike Courses have never been refused as continuing education by any State PE Board.

Instructor Bio:

Pike Engineering has conducted more than 5GW of distributed generation connection studies.

David Farmer, PE, is the Director of System Planning & Grid Analytics for Pike Engineering. He holds a Bachelor's Degree in Electrical Engineering from West Virginia University Institute of Technology and is a registered professional engineer in multiple states. Since 1983, Mr. Farmer has worked with electric utilities in power delivery planning, load forecasting, reliability analysis, engineering and operations, construction and design, training, and project management. David has worked for both investor owned utilities and electric cooperatives.

Chris Sticht, is a Senior Consultant for Pike Engineering. Mr. Sticht is a specialist in utility system planning, load analysis, planning software, underground, solar and Smart Grid. Chris has extensive background in power deliver planning, design, operations and protection. His background includes work on transmission systems, distribution systems, substations, and commercial building electrical systems. He has managed teams of engineers, designers and electricians. His experience includes consulting, contracting, work at two power flow software companies, and at several major utilities. He holds a MSEE from the University of Washington and a BSEE from Georgia Tech.

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Course Outline

Distribution System Overview
- Traditional radial distribution
- Distributed Generation

DG Classification
- Utility vs. Consumer Scale
- Inertia vs. Non-Inertia Based

Types of Generation
- Micro Hydro
- Combined Heat & Power
- Small Steam Turbines
- Wind
- Solar
  - Photo Voltaic (PV)
  - Thermal
- Landfill Gas
- Geothermal

Focus on Solar PV
- DC to AC Converters
- Contribution to Fault Current

PV Generation vs. Load Profile
- Daily Peak of PV Generation
- Predicting Solar Impact

Issues with Distributed Generation
- Unintended Islands
- Voltage Fluctuations
- Regulator/LTC Cycling
- Temporary Overvoltage
- Overcurrent Protection
- Harmonics
- Flicker

Power Distributors creating DG Policy

This course will be conducted May 1, 2019 following the IEEE Rural Electric Power Conference (April 28 – 30, 2019) at the Doubletree Hotel in Bloomington, MN. The meeting will begin at 8:30AM CDT and conclude at 4:00PM CDT.

Conference attendance is not required but encouraged.

Course fee of $150.00 includes continental breakfast, lunch and course notes. Click here to register.