

# 2019 WEBINAR SCHEDULE



## Start Planning for 2019.

Hi-Line Engineering is excited to offer the following webinars geared toward keeping you up-to-date on industry issues and standards.

Below are the **1.5 hour webinars** for 2019. Each webinar will consist of one hour of instruction and a thirty minute question and answer session. **All webinars will begin at 10:00am Central Time.** Most presentations will be in Power Point format with handouts in pdf format, although more extensive materials may be available for some of the sessions.

### February 12 – Impact of New Communication Equipment on Joint Use Clearances

The use of fiber optic lines in the supply space, and the desire of telecommunication to install 5G antennas in the supply space present challenges to electric utilities. This webinar addresses the NESC requirements as they relate to safe clearances for communication workers and supply utility workers. In addition, the webinar addresses methods to use for sharing space on the pole with telecommunication companies.

### March 5 – Changes in Arc Flash Calculations

IEEE Standard 1584 was updated in late 2018. Significant changes were made that could change the PPE used by electric utilities. These changes include elimination of the 2 second rule, elimination of the exception for transformers below 125 kVA, and elimination of the 85% rule. Further, the calculation now includes more shape factors for arcs that are considered to be enclosed in switchgear or similar enclosures. The new calculations are more accurate, but present challenges for electric utilities. This webinar addresses the changes and the new calculation methods.

### April 16 – Underground Distribution Design

Designing underground distribution differs from designing overhead distribution in terms of resiliency of the system. This webinar addresses common underground design criteria such as methods for design in underground subdivisions and commercial developments, routing of cable systems, use of conduit, burial depth, and common errors in design. Single contingency outage and overcurrent protection scheme will be addressed along with limiting factors of system components.

### May 14 – Specifying and Placing Lightning Arresters

Lightning can cause 20% of the outages on overhead power lines. The webinar discusses the type of arresters currently on the market for distribution lines. In addition, the presentation discusses the common basic impulse insulation level (BIL) with emphasis on a new method to prevent flashovers referred to as critical impulse flashover voltage (CFO). The combine BIL of equipment are not additive as once thought. The CFO technique for overvoltage protection will be discussed with explanations for adequately protecting overhead lines based on ground flash density, shielding, and earth resistivity.

### June 18 – Resource Planning for Distributed Energy Resources

Distributed Energy Resources (DER) are changing the landscape for distribution engineers in terms of planning and designing of their systems. This webinar addresses the positive and negative impacts to the grid from DER. In addition, how to plan for future system growth and resiliency with DER added to the system will be discussed.

### July 16 – Single Phase Metering

This webinar addresses the fundamentals of single phase metering including meter bases and connectivity of the single phase meters. However, AMI metering has changed the landscape on single phase metering. So, the presentation will address new data being collected, new controls at the meter, and alarms. Specifically, what do the alarms mean and how to address alarms such as high voltage, hot socket, and low voltage. Further, the use of demand reads, ping of the meters, and load side voltage tests will be addressed.

### August 13 – Three Phase Metering

Metering of three phase services is complex and often represents a larger percentage of utility income compared to single phase loads. Meter Forms 8/9 and 15/16 will be addressed including methods for sizing current transformers and potential transformers. Common wiring methods and common errors will also be discussed.

### September 10 – Battery Energy Storage Systems

Utility scale batteries are beginning to make an impact on distribution systems to the point that some utilities are providing assistance to consumers who install batteries behind the meter. This webinar provides a fundamental understanding of battery energy storage systems. Further, the webinar discusses the application of battery storage both on the utility system as well as on the consumer side of the metering.

### October 8 – Wood Poles – Standards and Design

Wood poles have been used in the electric utility industry since its inception. There are standards for wood poles (ANSI O5.1), and the NESC provides loading and strength requirements of poles. This webinar addresses limitations set forth in the standards, NESC loading requirements such as ice, wind, joint-use attachments, vertical loads and the need for strength reduction factors for wood poles.

### November 12 – Application of Voltage Regulators

Voltage regulators are needed on all distribution systems and serve an important role in maintaining quality service to customers. This webinar will address the fundamentals of how voltage regulators operate. In addition, the presentation will cover application of the voltage regulators including placement, how to coordinate cascading regulators, and the use of line drop compensation.

### About Hi-Line Engineering

Hi-Line Engineering specializes in providing engineering consulting services to electric utilities. The firm is a wholly owned subsidiary of GDS Associates, Inc.



Hi-Line's mission is to provide quality **energy delivery consulting** services at rates conducive to the demands of the deregulated marketplace. We specialize in safe, reliable, and *efficient* planning, design, and contract administration.

Our staff exhibits diverse experience in the planning, design, operation, and maintenance of electric distribution systems. We have designed hundreds of miles of distribution line in all types of terrain and loading conditions. Many of these projects included contract administration and right-of-way acquisition. Our planning services include experience in a variety of environments consisting of dense urban, resort beach, rural agricultural, and sparsely populated areas. Hi-Line has prepared planning studies for rural electric cooperatives, municipals, and military bases.

### About Webinar Instructors

**Kevin Mara, P.E.**, a Vice President of GDS Associates, and the Principal Engineer of Hi-Line Engineering, a GDS Company, is considered an expert in many of the facets of power distribution systems including system planning, system operation, power system modeling and analysis, and system design. He has 20 years of experience as a distribution engineer including six years as Distribution Engineer at Savannah Electric and Power.

Kevin has extensive knowledge in power quality analysis, system reliability, loss analysis, territory, joint-use issues, as well as management and operation of electric utilities. He has designed SPCC plans, broadband over powerline (BPL), street lighting systems, system valuations, and substations.

Kevin manages a team of engineers and analysts who together assess the valuation of electric distribution systems for privatization. His team has reviewed and reported on more than 50 systems located throughout the United States. Kevin earned his BS in Electrical Engineering from Georgia Institute of Technology. He is a Registered Professional Engineer in 17 states including Georgia, Alabama Florida, Indiana, Kentucky, Louisiana, Michigan, North Carolina, Ohio, South Carolina, Tennessee, Texas, Virginia, Missouri, Kansas, Mississippi, and South Dakota.

**Jason Settle, P.E.** has a BS in Electrical Engineering Technology and Math with an option in Power from Southern College of Technology, and is a registered Professional Engineer in Alabama. He has over 17 years of experience in engineering, operations and safety management of electrical utility systems. He is skilled in the preparation of construction work plans, substation justifications, and hands-on system operations. He also conducts engineering and operations training for Hi-Line. Mr. Settle's additional work experience includes developing long range plans, developing substation and distribution line switching procedures, performing coordination studies on distribution lines, performing voltage drop calculations, and staking distribution lines.

# 2019 WEBINAR REGISTRATION FORM



Webinar Dates and Subjects		\$149 Per Person	\$447 Unlimited
1.	<b>February 12</b> – Impact of New Communication Equipment on Joint Use Clearances		
2.	<b>March 5</b> – Changes in Arc Flash Calculations		
3.	<b>April 16</b> – Underground Distribution Design		
4.	<b>May 14</b> – Specifying and Placing Lightning Arresters		
5.	<b>June 18</b> – Resource Planning for Distributed Energy Resources		
6.	<b>July 16</b> – Single Phase Metering		
7.	<b>August 13</b> – Three Phase Metering		
8.	<b>September 10</b> – Battery Energy Storage Systems		
9.	<b>October 8</b> – Wood Poles – Standards and Design		
10.	<b>November 12</b> – Application of Voltage Regulators		

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Please fill in the information below and email to [rachael.harms@gdsassociates.com](mailto:rachael.harms@gdsassociates.com)  
**Questions?** Call Rachael Harms at **334-887-3297** or email [rachael.harms@gdsassociates.com](mailto:rachael.harms@gdsassociates.com)

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