



## Plan Your 2020 Training.

Hi-Line Engineering is excited to offer **12 webinars** in 2020, all geared toward keeping you up-to-date on industry issues and standards.

Below are the twelve **1.5 hour webinars** for **2020**. 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.

### January 7 – Utility Easements – Rights and Obligations

Easements are necessary to have legal permission to build and operate a power line on someone's land. What are the property owner's rights within the easements? What are the utility's rights? This webinar will provide a review of the property owner's rights and the utility's obligations to the property owner.

### February 4 – Understanding Wire Slap

Modern overcurrent protection schemes have two or more three-phase reclosers in a series. Often, what is seen as mis-coordination by upstream devices is actually wire slap. The fault current in the overhead lines creates a magnetic field that draws conductors together resulting in wire slap. Wire slap faults can lead to the lockout of an upstream device. This webinar will explore wire slap and mitigation techniques to avoid this type of mis-coordination.

### March 10 – Separable Connectors in Underground Systems

This webinar is a tutorial on the installation and operation of separable connectors. These connectors are at the heart of all underground distribution systems. The webinar will provide operational knowledge to designers for the use and application of separable connectors. Items to be addressed include bleed wires, operating tools, termination techniques, and operating limits.

### April 14 – Designing Roadway Illumination

More than 50 percent of all fatal highway crashes occur at night, even though night time traffic volumes are only 25 percent of all traffic. Roadway lighting helps to reduce this hazard. This webinar will discuss AASHTO and IES standards for luminance and illumination. The effects of glare as well as methods for glare reduction will be presented. In addition, the standards for lens and lateral distribution patterns, standard pole spacing, and lighting layouts will be discussed.

### May 12 – Designing Poles near Airports

Regardless of whether the airport is a licensed regional airport or a turf runway airport, it will need electric power. Tall poles near runways and taxi ways can present a hazard. The glide paths and obstruction free zones adjacent to the runway have specific maximum height requirements given the type of plane using the runway. This webinar will discuss the FFA requirements for glide paths and maximum height of poles. The webinar will also address hazard marking of poles near landing zones.

### June 9 – Designing Secondary and Services

This webinar will address voltage drop and flicker requirements for electric services. The voltage drop through the transformer, secondary and service conductor can create a power quality problem if not designed properly. A new software tool for estimating the drop voltage and flicker will be demonstrated and provided to attendees.

### July 7 – Load Balancing on Wye Systems

Every winter and summer, utilities dispatch crews to change phases on taps in an effort to balance the load on the system. This webinar will explain the importance of load balance to reduce losses and to improve the overcurrent protection systems. Techniques and methods will be presented as well as best practices for system load balancing.

### August 11 – Pole Foundations

The strength of a distribution pole relies on the stability the pole foundation. This webinar will discuss various methods to improve foundation stability including pole foam, deeper setting depths, gravel backfill, and pole keys. Additionally, the discussion will include methods for estimating the stability of the soil.

### September 15 – Comparison of Wood and Non-Wood Crossarms

Utility designers have more options available for support arms than ever before. This webinar will focus on the different types of support arms and materials used. The mounting techniques and braces will also be addressed. Application based pros and cons of different crossarms will be discussed to aid in selecting arms. Strength of the arm and NESC requirements will be discussed.

### October 13 – Conservation Potential Assessments

On national, regional, and local levels, energy conservation, or energy efficiency, is viewed as a reliable, low risk, and high return energy resource. A conservation potential assessment (CPA) helps utilities determine where the most cost-effective energy efficiency lies and where to target program efforts. The results of a CPA are often used in conjunction with Integrated Resource Plans (IRPs) to help optimize a utility's electric supply resources. This webinar will discuss the elements of a CPA, a comparison of the CPA with supply-side resources, and the utilization with the IRP.

### November 10 – Reducing Animal Caused Outages

Since animals cause many outages, it is often easy to blame an unknown outage on a squirrel. Many different products are on the market to help reduce animal caused outages and each product focuses on a certain animal and situation. This webinar will explore the logistics of animal caused outages and the theories behind the deterrent systems. Squirrels, snakes, birds, gophers, and large animals will be discussed along with the environmental factors that need to be considered in the selection of deterrents. For instance, snakes often come into a substation because of nesting birds. Preventing nesting birds will reduce snake caused outages.

#### 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, municipalities, and military bases.

### December 8 – Storm Hardening – Best Practices

The industry is moving from reliability to resiliency where resiliency defines how quickly a system recovers from a major event. Although storm hardening of the entire system may not be practical, focused storm hardening for key structures is both effective and economical. The webinar will present best practices used throughout the industry to harden key structures or segments of line which will aid in faster restoration of the system. The webinar will discuss best practices for different types of events (flood, wind, ice, etc.) and how these practices create cost effective means for resiliency.

#### 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.



Webinar Dates and Subjects		\$149 Per Person	\$447 Unlimited
1.	<b>January 7</b> – Utility Easements – Rights and Obligations		
2.	<b>February 4</b> – Understanding Wire Slap		
3.	<b>March 10</b> – Separable Connectors in Underground Systems		
4.	<b>April 14</b> – Designing Roadway Illumination		
5.	<b>May 12</b> – Designing Poles near Airports		
6.	<b>June 9</b> – Designing Secondary and Services		
7.	<b>July 7</b> – Load Balancing on Wye Systems		
8.	<b>August 11</b> – Pole Foundations		
9.	<b>September 15</b> – Comparison of Wood and Non-Wood Crossarms		
10.	<b>October 13</b> – Conservation Potential Assessments		
11.	<b>November 10</b> – Reducing Animal Caused Outages		
12.	<b>December 8</b> – Storm Hardening – Best Practices		

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**Questions?** Call Rachael Harms at 334-887-3297 or email [rachael.harms@gdsassociates.com](mailto:rachael.harms@gdsassociates.com)

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