



## 2021 WEBINAR SCHEDULE

Hi-Line Engineering is excited to offer **12 webinars**, one per month throughout **2021**, all geared toward keeping you up-to-date on industry issues and standards.

Below are the twelve **1.5 hour webinars** for **2021**. 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 PowerPoint format with handouts in pdf format, although more extensive materials may be available for some of the sessions.

### January 12 – Fundamentals of Guys and Anchors for Overhead Distribution Lines

When a pole is unable to support wind loading and conductor tension, guys and anchors are required. This webinar focuses on the understanding of the forces to be supported by guys and anchors. Further, strength rating of the guy and anchor assemblies are required with emphasis on NESC requirements. The effect of guys on the strength of assembly will be addressed.

### February 9 – Unique Guying Applications

Most down guy situations are simple, straight forward application to support wind loading and conductor tension, but exceptions are inevitable. This webinar addresses guying options to solve problems of insufficient guy leads and space limitations on poles. Specific applications to be addressed are span guys, spread guys, and sidewalk guys.

### March 9 – 2017 NESC Clearances from Buildings

Many accidental contacts occur near buildings. This webinar addresses the clearances required by NESC Table 234-1 when passing by a building, but not attached to the building. This presentation provides a working understanding of the clearances required over or beside buildings and other structures.

### April 13 – NESC Grounding Requirements

The NESC provides methods and requirements for grounding distribution systems. Proper grounding is an important component of safety for line workers and the public. This webinar addresses the safety goals and describes approved methods for effectively grounding the system neutral and other non-current carrying equipment. Different types of grounding electrodes are covered which provide options for achieving a well-grounded system. The rules for grounding guys and insulating guys are also addressed including secondary guys and span guys. Equipment to be grounded is covered along with common methods used by utilities.

### May 11 – Connecting Residential Solar and Batteries to the Grid

More roof top solar and commercial solar are being installed by consumers to defray their energy bills. Batteries such as the Tesla Powerwalls are gaining in popularity. The presentation provides a detailed review and application of IEEE Standard 1547 for interconnection of inverter-based systems including solar and batteries. The presentation will focus on residential scale interconnection.

### June 15 – Product Review of Three-Phase Pad-Mounted Switchgear

There are many different manufacturers of pad-mounted switchgear. This webinar will explore the characteristics of different devices with summaries of capabilities and applications. This will include insulating mediums (air, oil, SF6, solid dielectric), overcurrent protections, automation and mounting methods.

### July 13 – How to Place Capacitors on a Distribution System

This webinar will discuss placing distribution capacitors to maintain an efficiently operating distribution system. Issues assessed will include defining var flows, and their impact on the distribution system. Placement of capacitors must consider daily and seasonal variability of var flows which will be presented in the webinar. Strategies for placement of capacitors will be presented including voltage support, loss reduction, and capacity release.

### August 10 – NESC Clearances on Poles

Separation and spacing requirements for conductors on the pole are provided throughout the NESC. Often this spacing is reflected in the construction specifications. The webinar will explore the spacing requirements and how those requirements affect the design. In addition, the webinar will address the requirements of the NESC as it relates to safe clearances for communication workers and supply utility workers.

### September 14 – Application and Coordination of Overhead Fuses

Fuses are the most common overcurrent devices used on overhead power systems. This webinar will discuss the characteristics and application limitations of expulsion fuses. The concept of fuse savings and the coordination requirements for upstream reclosers will be explained. The methods used for sizing fuses to protect overhead taps will be addressed. In addition, the webinar will discuss coordination methods used to coordinate multiple fuses in services.

## 2021 Webinars – continued

### October 12 – Multi-Circuit Design Considerations

Designing a double circuit line is similar to designing a single circuit with an added degree of complexity. This webinar discusses the challenges of designing a double circuit line including large angle poles, equipment poles, circuit spacing, and guying and anchoring.

### November 9 – Methods for Improving Reliability

Reliability, expressed as SAIDI, SAIFI, and CAIDI, is used to help compare the reliability of a system from year to year as well as comparison to other utilities. The webinar will explain the indices (SAIDI, SAIFI and CAIDI), and the use of outage data to develop actionable methods for improving reliability. The webinar will discuss methods for improving reliability with several case studies.

### 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 7 – Motor Starting

Mitigation of power quality issues due to motor starting on the power system can be one of the most difficult challenges faced by electric utility personnel. This presentation discusses how to prepare a motor starting analysis for various types of motor starters. The impact of the various motor starters on the starting current and starting torque will also be discussed as well as mitigation techniques.

### 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.

# 2021 WEBINAR REGISTRATION FORM

Webinar Dates and Subjects		\$159 Per Person	\$457 Unlimited
1.	<b>January 12</b> – Fundamentals of Guys and Anchors for Overhead Distribution Lines		
2.	<b>February 9</b> – Unique Guying Applications		
3.	<b>March 9</b> – 2017 NESC Clearances from Buildings		
4.	<b>April 13</b> – NESC Grounding Requirements		
5.	<b>May 11</b> – Connecting Residential Solar and Batteries to the Grid		
6.	<b>June 15</b> – Product Review of Three-Phase Pad-Mounted Switchgear		
7.	<b>July 13</b> – How to Place Capacitors on a Distribution System		
8.	<b>August 10</b> – NESC Clearances on Poles		
9.	<b>September 14</b> – Applications and Coordination of Overhead Fuses		
10.	<b>October 12</b> – Multi-Circuit Design Considerations		
11.	<b>November 9</b> – Methods for Improving Reliability		
12.	<b>December 7</b> – Motor Starting		

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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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