



## 2024 WEBINAR SCHEDULE

Hi-Line Engineering is excited to offer **twelve webinars**, one per month throughout **2024**, all geared toward keeping you up-to-date on industry issues and standards.

Below are the twelve **1.5 hour webinars** for **2024**. 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.

<b>JANUARY 9</b> <b>Impacts of Electric Vehicles</b>	<p>Individuals as well as fleet operators are switching to electric vehicles to reduce costs, cut emissions, and to lower their carbon footprint. This presentation explores the impact of charger and charging station deployment on utility supply and the grid infrastructure. The different vehicles and charger types that utilities may see on their system will be presented. Also included is information on peak demand mitigation strategies and rate strategies.</p>
<b>FEBRUARY 13</b> <b>Basics of Distribution System Planning</b>	<p>A safe and reliable distribution system is designed to serve existing and future loads under normal and some abnormal conditions at a reasonable cost. System design planning should include provisions for both historic loads and newer loads like distributed energy resources and EV chargers. This webinar will discuss development of planning criteria, cost effective solutions, and contingency planning.</p>
<b>MARCH 12</b> <b>NESC Grounding Requirements</b>	<p>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.</p>
<b>APRIL 9</b> <b>Fundamentals of Guys and Anchors for Overhead Distribution Lines</b>	<p>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.</p>
<b>MAY 14</b> <b>Overview of Arc Flash</b>	<p>OSHA requires employers to analyze and protect their employees from risks associated with arc-flashes. OSHA and NESC guidelines have changed over the years and different methods exist for making the necessary arc-flash calculations. Historic guideline changes will be reviewed as well as the applicability and limitations of the different calculation methods. The presentation will discuss the steps needed to make an arc-flash study including information needed, establishing work zones, methods for assessing incident energy levels, work rules and their impacts, examples of actual calculations and use of table values, mitigation methods, and protective gear options and applicability.</p>
<b>JUNE 11</b> <b>Single Phase Metering</b>	<p>This webinar addresses the fundamentals of single-phase metering including meter bases and connectivity of single-phase meters. However, AMI metering has changed the landscape on single phase metering. The presentation will address new data being collected and new controls at the meter. The presentation will also delve into what alarms mean and how to address alarms for high voltage, hot socket, and low voltage. Also addressed will be the use of demand reads, ping of the meters, and load side voltage tests.</p>
<b>JULY 9</b> <b>Three Phase Metering</b>	<p>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.</p>
<b>AUGUST 13</b> <b>High Impedance Fault Detection</b>	<p>When energized conductors contact poorly conductive surfaces, they create High Impedance Faults (HIFs) that are difficult to detect and problematic to clear by traditional equipment which creates a safety concern for the public. This webinar explains the characteristics of a high impedance fault and the system conditions that can lead up to the occurrence of these faults. The presentation will discuss some of the historic HIF detection methods used as well as some new and emerging technologies under use and development.</p>

## 2024 Webinars – continued

<b>SEPTEMBER 10</b> <b>Application of Voltage Regulators</b>	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.
<b>OCTOBER 8</b> <b>Application and Use of Ductile Iron Poles</b>	Historically, most power poles have been made of wood. There are applications that also make use of concrete, steel, and fiberglass poles. Ductile iron poles are ceramic or epoxy coated poles made of recycled iron and are similar to pipes that have been used for years in the water and sewer industry. This webinar will discuss the unique application and use of ductile iron poles on the electric utility system compared to other pole types. The presentation will also discuss the available coatings, pole strength, cost, life expectancy, as well as installation, maintenance, and engineering design considerations.
<b>NOVEMBER 12</b> <b>Designing Extra-Long Spans</b>	Sometimes system conditions such as rough terrain produce a need for extra-long spans. This webinar will discuss the unique challenges associated with designing extra-long spans to maintain conductor spacing, ensure adequate structure and equipment strength, and handle increased sag and tension. The presentation will discuss the design considerations as well as the conductors, equipment, and structure types that are more suitable for extra-long spans.
<b>DECEMBER 10</b> <b>Separable Connectors Used in Underground Distribution</b>	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.

### 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.

### 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 over 30 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 25 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.

# 2024 WEBINAR REGISTRATION FORM

Webinar Dates and Subjects		Check desired webinars
1.	January 9 – Impacts of Electric Vehicles	<input type="checkbox"/>
2.	February 13 – Basics of Distribution System Planning	<input type="checkbox"/>
3.	March 12 – NESC Grounding Requirements	<input type="checkbox"/>
4.	April 9 – Fundamentals of Guys and Anchors for Overhead Distribution Lines	<input type="checkbox"/>
5.	May 14 – Overview of Arc Flash	<input type="checkbox"/>
6.	June 11 – Single Phase Metering	<input type="checkbox"/>
7.	July 9 – Three Phase Metering	<input type="checkbox"/>
8.	August 13 – High Impedance Fault Detection	<input type="checkbox"/>
9.	September 10 – Application of Voltage Regulators	<input type="checkbox"/>
10.	October 8 – Application and Use of Ductile Iron Poles	<input type="checkbox"/>
11.	November 12 – Designing Extra-Long Spans	<input type="checkbox"/>
12.	December 10 – Separable Connectors Used in Underground Distribution	<input type="checkbox"/>

Pricing Subscriptions and Savings					
# of Attendees	# of Webinars and Pricing (check desired subscription below)				
	1 webinar	4 webinars for the price of 3	8 webinars for the price of 6	12 webinars for the price of 9	
Single	\$175 <input type="checkbox"/>	\$525 <input type="checkbox"/>	\$1050 <input type="checkbox"/>	\$1575 <input type="checkbox"/>	
3 to 20	\$525 <input type="checkbox"/>	\$1575 <input type="checkbox"/>	\$3150 <input type="checkbox"/>	\$4725 <input type="checkbox"/>	
20 to 50	\$1050 <input type="checkbox"/>	\$3150 <input type="checkbox"/>	\$6300 <input type="checkbox"/>	\$9450 <input type="checkbox"/>	
>50	\$1575 <input type="checkbox"/>	\$4725 <input type="checkbox"/>	\$9450 <input type="checkbox"/>	\$14175 <input type="checkbox"/>	

Checkmark desired webinars above, based on selected pricing subscription checked at left.

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)

Company Name \_\_\_\_\_ Company Contact \_\_\_\_\_  
Mailing Address \_\_\_\_\_ Contact Email \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_ Contact Phone \_\_\_\_\_  
Student 1 \_\_\_\_\_ Email 1 \_\_\_\_\_  
Student 2 \_\_\_\_\_ Email 2 \_\_\_\_\_  
Student 3 \_\_\_\_\_ Email 3 \_\_\_\_\_  
Student 4 \_\_\_\_\_ Email 4 \_\_\_\_\_  
Student 5 \_\_\_\_\_ Email 5 \_\_\_\_\_  
Student 6 \_\_\_\_\_ Email 6 \_\_\_\_\_

☐ Invoice Company – P.O. # (if required by your company) \_\_\_\_\_

☐ Bill \$ \_\_\_\_\_ to Charge Card – ☐ Master Card ☐ Visa

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