CEATI | Grounding & Lightning

Grounding systems are installed throughout power and telecommunication systems to dissipate energy under lightning, fault, and steady-state conditions.

Today there is a greater awareness and desire to ensure that grounding for safety is achieved. There is also a stronger focus on improving lightning performance of transmission and distribution systems.

Grounding issues across the world have typically been dealt with by technical groups, each with their own specific terms of reference. The Grounding and Lightning interest group takes a broad-spectrum view of grounding issues, providing clarity and understanding to grounding and lightning related topics. It provides an avenue for moving information from one technical area to another through peer-to-peer guidance, creates networking opportunities, and defines the direction of future research.

Topics & Issues

1. Distribution and Transmission System Grounding
2. Lightning Protection and Performance
3. Substation Grounding
4. Personal Protective Grounding
5. Copper Theft from Grounding Systems
6. Pipelines Located Near T&D Lines and Stations

Technical Advisor

Mr. John Williamson received his Bachelor Degree in Electrical Engineering in 1974 from the University of New Brunswick. He is a professional engineer in the province of New Brunswick with 36 years of experience in the electrical utility industry. He served NB Power Transmission Corp. as Manager of Transmission Engineering. His recognized expertise in grounding-related issues from 40 years of experience in troubleshooting utility grounding problems has made him a natural and effective technical advisor of the CEATI Grounding and Lightning interest group and the Grounding & Lightning annual conferences. He was a previous participant of the CEATI Transmission Overhead Line Design and Extreme Event Mitigation (TODEM) Program, and instigated the creation of CEATI's Grounding & Lightning group in 2009. His accomplishments in the area of transmission line lightning protection include practical issues in the application of line arresters.

Grounding & Lightning

Projects

- Grounding System Maintenance Guide & Health Index Methodology
- Evaluation and Comparison of Grounding Test Equipment
- Risks in Design, Construction, and Testing of Grounding Systems
- Personal Protective Grounding Reference Guide
- Determination of Minimum Separation Between Underground Pipelines and Electric Supply Line Structures
- Improvements to Fall of Potential Testing
- Gradient Control around Bucket Trucks and Line Stringing Vehicles
- Placement and Inspection of Working Grounds
- Review of Distribution System Grounding Practices and Rules
- Ensuring the Integrity of Working Ground Connection Points
- Performance Review of Gradient Control Mats
- Comparison of CSA, IEEE, and IEC Approaches to Lightning Protection
- Best Practices in Rehabilitating Deficient Grounding Grid Performance

Topics from Past Conferences

- Open Forum on Grounding, Lightning & Safety
- Utility Practices in Grounding Design, Construction, and Testing
- Lightning Information and its Electric Power Applications
- Soil Resistivity Results for High Frequency versus Low Frequency Measurements
- The Evolution of Integrity Testing and its Reliable Use in Proving Grounding Systems
- Copper Theft: Planning for the Future
- Stray Voltage and Distributed Generation

Recent Training Sessions & Webinars

- OSHA MAD Requirements for Utility Workers on Power Systems
- Personal Protective Grounding Cables and Hardware
- The Application of Deadfront Arresters
- Copper Theft: Costs, Damages, and Solutions
- Distribution: Primary to Secondary Neutral Isolation Devices
- Arrester Applications Commonly Used on Power Systems
- Geomagnetic Disturbances and their Impacts on Electric Power Grids
- Lightning Safety Solutions for Transmission and Distribution Systems
- Selection and Performance Tools for Transmission Line Arresters
- Lightning Protection System Design
- Ground Potential Rise at Transmission Line Structures during Power Frequency Faults: CIGRE TB 694

Annual Activities

- 2 Face-to-Face Meetings
- 2-Day Industry Conference
- Training Webinars
- Conference Calls
- On-Demand Information Exchange
- Collaborative Project Development

*Participation is open to Electrical Utilities.

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