Guide for Transmission Line Grounding

Key Highlights

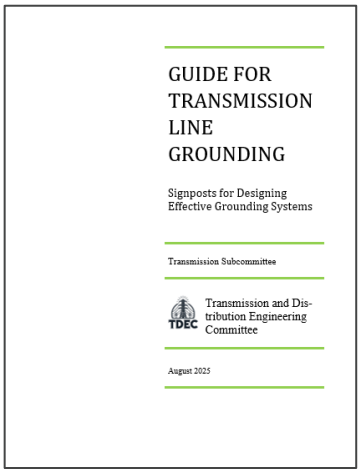
- The *Guide for Transmission Line Grounding - Signposts for Designing Effective Grounding Systems* was developed by the Transmission & Distribution Engineering Committee (TDEC) Transmission Subcommittee.
- This user-friendly Guide is meant to provide useful, practical information applicable to designing effective grounding systems for electric transmission lines to: (1) manage steady state and fault currents, and (2) enhance safety and reliability by reducing lightning outages due to insulator flashover.
- This Guide contains recommendations and signposts to help guide the engineer in designing effective grounding systems.

What has changed?

The 2025 *Guide for Transmission Line Grounding* (Guide), developed by the Transmission & Distribution Engineering Committee (TDEC) Transmission Subcommittee, supersedes the 2014 edition. It features updated tables, equipment specifications, and references to current standards and codes. Given the increasing frequency and severity of natural hazards, particularly lightning, which poses significant risks to electrical infrastructure, the guide emphasizes the importance of effective shielding and achieving minimal ground resistance in transmission grounding systems.

What is the impact on cooperatives?

The Guide offers practical guidance for designing effective grounding systems for electric transmission lines. Grounding systems typically consist of overhead ground wires, ground conductors and ground electrodes. This Guide focuses on ground conductors and electrodes, whose design is influenced by climate, geography and site-specific soil or rock conditions. Because earth resistivity can vary significantly between structures, electrode design, including size, depth, and width, must be tailored to each location to achieve low ground resistance.



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What do cooperatives need to know or do about it?

Throughout this Guide, references are made to standards and data from sources such as IEEE, NESC, and NEC. Users should consult the official versions of these standards, as rule language, numbering, and content may have changed since the edition used at time of development.

Additional Resources

- Transmission Distribution Engineering Committee

Contacts for Questions

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