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Empowering Engineers

Overhead Power Line Coordination Reference Guide

- Line Type Definitions
  - Transmission Voltage: Over 100kV
  - Distribution Voltage: Over 1000V
  - Service Voltage: 1000V and below
- Line Ownership
  - Mapping
    - Transmission system public GIS: United States - Maps - U.S. Energy Information Administration (EIA)
    - Distribution: check state utility regulator for service territories.
  - One Call
- Line Proximity
  - Use OSHA clearance Tables for Common Use Zones
    - https://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.269#1910.269(l)(10)
    - Adjust for Elevation
  - Phase to Phase means between conductors
  - Phase to Ground means conductor to anything else
- Overhead line interference with your design:
  - NESC code provides information to calculate required clearance under overhead line with various conditions for roads, agriculture, pedestrians, etc.
    - Transmission line design:
      - Conductor is made out of aluminum and steel
      - It functions as an electric resistance heater, and experiences thermal expansion accordingly
      - When conductor gets too close to other objects or other conductors it faults and/or arcs, which is bad.
  - Data Gathering:
    - Location of bottom of sag (catenary)
    - Location of attachment points at poles
    - Get exact time, date, and weather conditions when shots are taken
    - This information allows utility to calculate the worst-case condition.
  - Metallic linear infrastructure needs to have mitigation
    - Cathodic protection
    - Induced current mitigation-
      - Safety issue, electrocution hazard during operations and maintenance.