



Southern Nevada International Code Council

Establishing Effective Standards for Sustainable and Safe Transmission Systems
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2/13/2025

Southern Nevada ICC Meeting



Agenda

- About
- Distribution
- Transmission
- Service Conditions
- Industry Codes and Standards
- NVE Design, Construction, and Installation Standards
- Major Initiatives



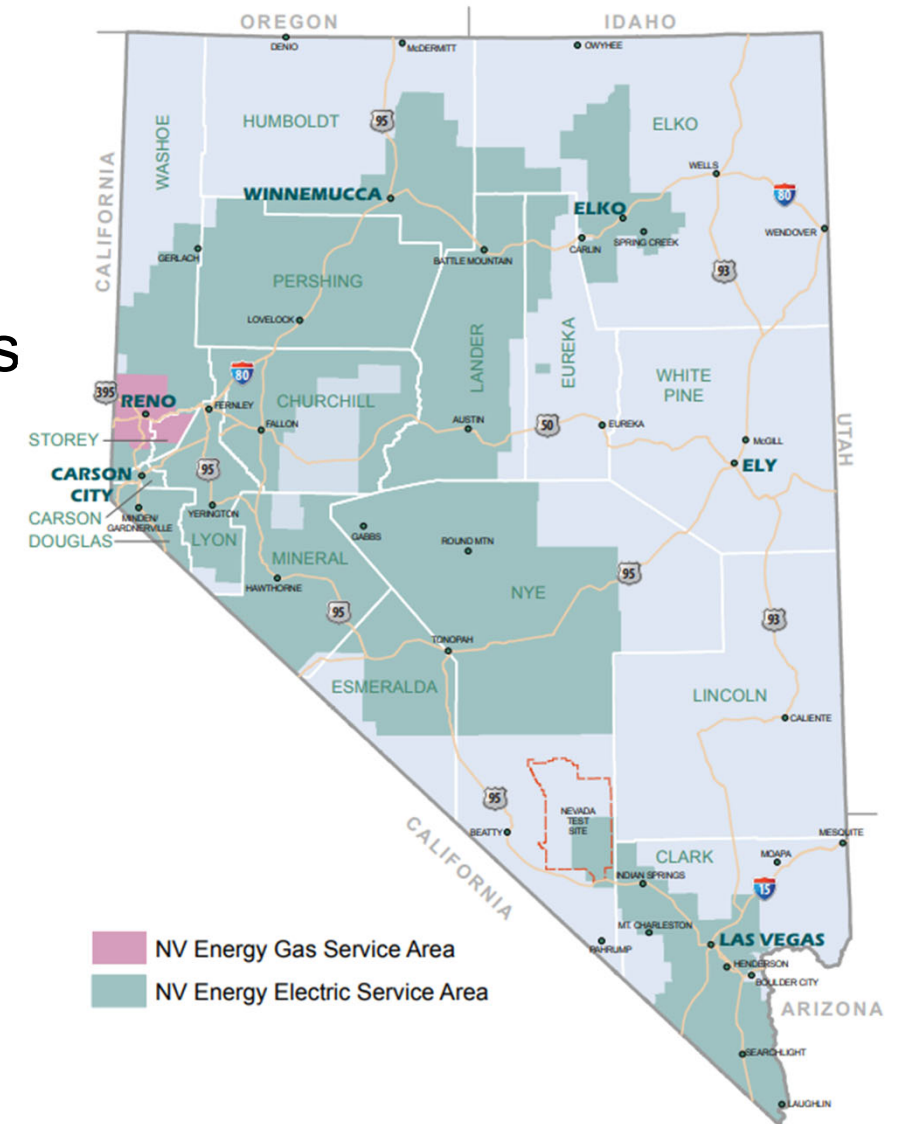
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About

NVE T&D Standards Department was formed in 2005 to build and maintain material, design, construction, and installation requirements for across the NVE service territory

The T&D Standards scope of work includes:

- Distribution
- Substation
- Transmission
- Telecommunications
- Apparatus



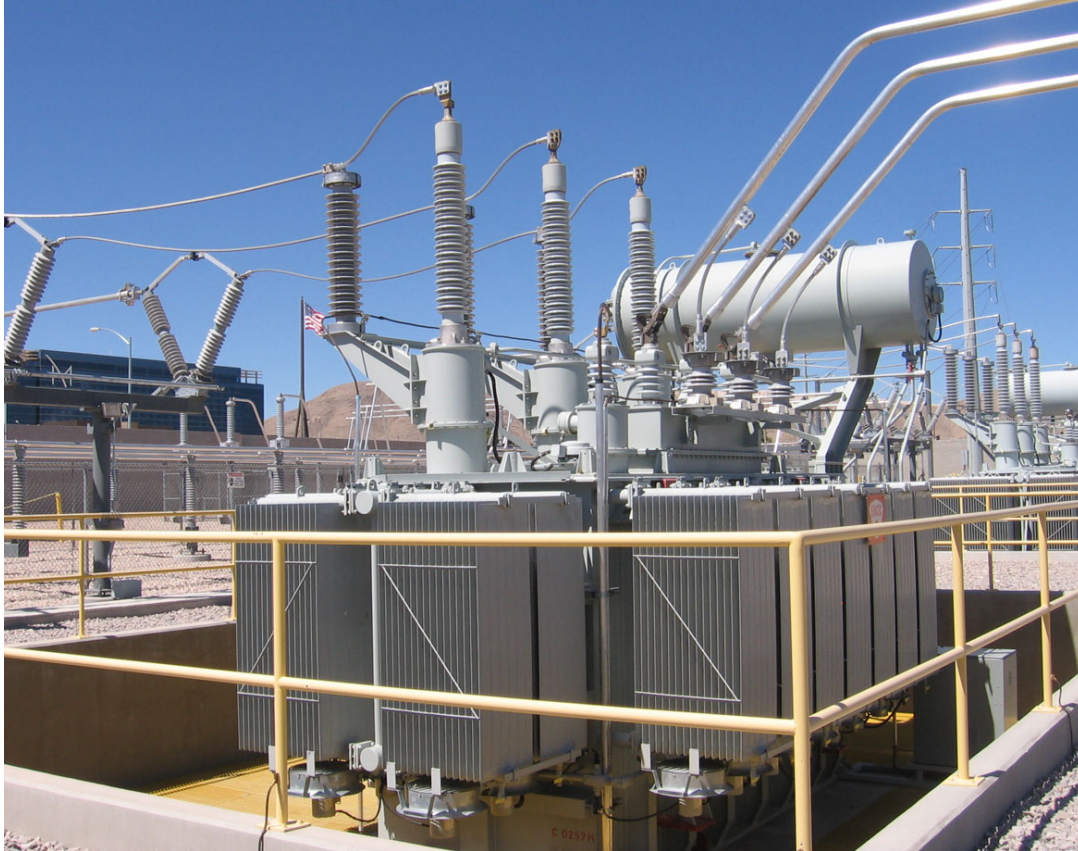
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Distribution

- Electric Distribution runs from the substation feeder to the meter on your home
- Includes wire/cable, transformers, switches, capacitor banks, regulators, etc.
- About 80% of the Southern Nevada distribution system is underground
- Operate 9 different voltages across the service territory from 4.16 kV to 34.5 kV and includes delta systems in Northern Nevada
- Electric Service Requirements provide guidance for the Electric Distribution Design for most Nevada communities





Transmission

- Operate 7 different transmission voltages that range from 60 kV to 500 kV
- Consists of several hundred substations and thousands of miles of lines throughout Nevada
- Substations are designed to step-up or step-down voltages and provide for system protection and switching capability
- Includes electrical bus, transformers, power circuit breakers, disconnect switches, capacitor banks, reactors, protection systems, etc.



Service Conditions

- Elevations range from about 10,500 feet to 500 feet
- Ambient temperatures range from -40F (40C) to 122F (50C)
- Moderate to high seismic design (0.25g to .5g per IEEE 693)
- High dust and contamination areas (ASTM)
- Wind and Ice Performance (ASCE 7)



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Industry Codes and Standards

- **Per NAC 704.450, NVE facilities must be designed and constructed to meet or exceed the latest edition of the IEEE National Electric Safety Code**
- The NESC contains 4 parts
 - Part 1: Electric Supply Stations and Equipment
 - Part 2: Overhead Electric Supply and Communication Lines
 - Part 3: Underground Electric Supply and Communication Lines
 - Part 4: Work Rules for the Operation





Industry Codes and Standards

- Per specification, NVE facilities must be furnished in complete accordance with the latest applicable industry codes and standards.
 - Includes ANSI, AWS, IBC, ASTM, IEEE, ASCE, AISC, AISI, ACI, NEMA, OSHA
- Interface points containing customer owned equipment must meet the requirements of the adopted jurisdictional codes and standards
- Perform an impact analysis on the NVE Design and Construction Standards after each revision
- This is every 5 years for the NESC



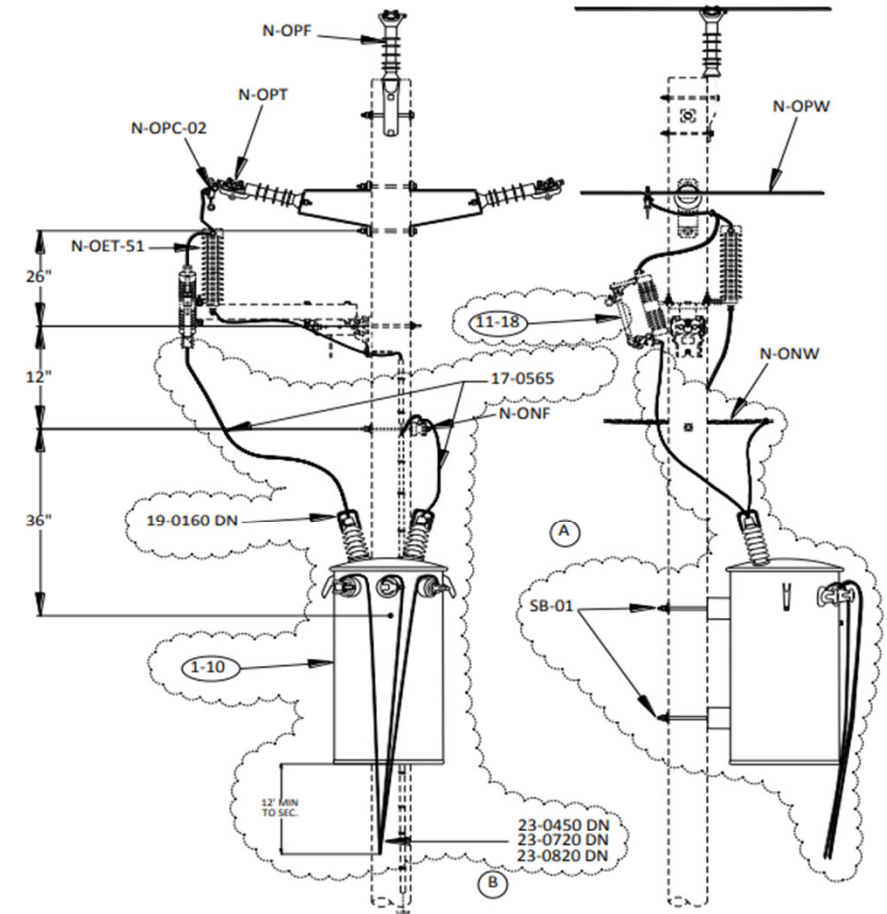
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NVE Design, Construction, and Installation Standards

- Database of standards that provides guidance for the design, construction, and installation of NVE facilities
- Sets the baseline to build-out our T&D network
- Includes
 - Material Standards and Specifications
 - Design and Installation Standards
 - Construction Specifications
 - Estimating Units
 - Apparatus Specification and Procurement and Factory Coordination
 - Electric Service Requirements

Transformer, 1PH Line-to-Ground
Labor Factor = 1.0
Filter Code: AA-AF, EA-ED, GA-GF



KVA Rating	Secondary Voltage	Maximum Amps	Buss Amps
15-25	120/240	188	270A
50-75	120/240	375	430A
100	120/240	500	665A



NVE Design, Construction, and Installation Standards



- **Function**
 - **Compliance**
- **Cost**
 - **Safety**
- **Environment**



Major Initiatives - NDPP

- NDPP program that is a system hardening solution for wildfire risk mitigation
- Covered conductor will reduce the risk of wildfire ignition associated with vegetation contact and downed conductors of overhead distribution lines
- Developed standards that are used to implement these technologies
 - Covered wire and connections
 - Cover materials
 - Fast trip devices



Major Initiatives – High Rise Development

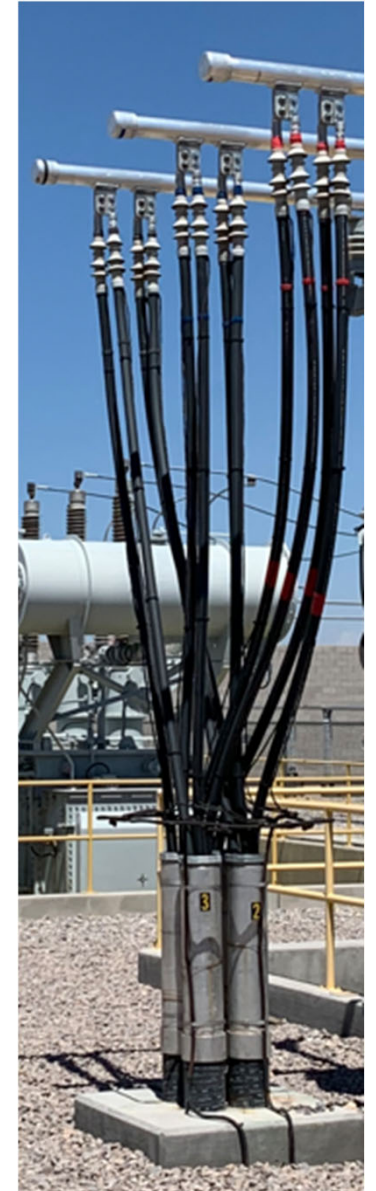
- Rules 16 (North) and 20 (South) require electric meters to be installed on the ground floor
- Limiting for high rise developments that want NVE meters for each unit
- Working with the PUCN to change the rules in a way that will allow the installation of meters above the ground floor for future high-rise developments





Copper Theft

- Started to see a significant ramp in copper theft in 2006
- Implemented copper clad conductors over solid bare conductors for ground grids
- Copper clad conductor is composed of wires that have a galvanized steel core with copper outer layer
- Recently converted this material to camouflage
- No recyclable value





Open Discussion



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