



Marne and Associates, Inc.  
Experts in Electrical Code

# Applying the NESC: Transmission Voltage Focus (1-Day)

(Presented In-House at your Utility/Association)



- ◆ Provides an overview of the NESC<sup>®</sup> Rules with a focus on Transmission Line Voltage Levels
- ◆ Designed for:
  - Transmission Line Engineers
  - Substation Engineers
  - Transmission Linemen
  - Substation Linemen
  - Safety Personnel
  - Transmission Line and Substation Inspectors
- ◆ Rich in graphics and practical applications

**Conforms to the 2017 National  
Electrical Safety Code<sup>®</sup> (NESC<sup>®</sup>)**

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## About the Seminar

Applying the NESC: Transmission Voltage Focus is a 1-day class focusing on the transmission voltage rules in the National Electrical Safety Code (NESC). This class provides a general overview of each part of the NESC and applying the rules in the NESC related to transmission voltage levels will be stressed by focusing on practical NESC examples and applications. During this 1-day class you will learn:

- ◆ Scope and Purpose of the Code
- ◆ Transmission Voltage Levels in:
  - Substations
  - Overhead Lines
  - Underground Lines

## Who Should Attend

- ◆ Transmission Line Engineers
- ◆ Substation Engineers
- ◆ Transmission Linemen
- ◆ Substation Linemen
- ◆ Safety Personnel
- ◆ Transmission Line and Substation Inspectors
- ◆ Prior working knowledge of the NESC is not required

## Trademarks

National Electrical Safety Code® and NESC® are registered trademarks of the Institute of Electrical and Electronics Engineers (IEEE). OSHA (Occupational Safety & Health Administration) is a branch of the U.S. Department of Labor.

## Continuing Education Units

This course provides 0.6 Continuing Education Units (CEUs) or 6 Professional Development Hours (PDHs). Please note that the CEU/PDH for this class have been approved by New York State\* and the State of Alaska.

\*For any course where multiple versions of the course are taken within the same three-year license registration period, NYS will recognize only one course.

## Course Objectives

Upon successful completion of this course the learner will be able to:

1. Understand the organization, scope, purpose, and general application of the National Electrical Safety Code.
2. Apply the Code to transmission voltages found on overhead and underground lines and in substations.
3. Recognize how the Code is integrated into design and construction standards and operating practices.
4. Work example problems requiring transmission voltage adders to standard Code values.
5. Design and build facilities that comply with Code requirements.
6. Understand the actions needed to work safely.

## Class Format/ Learning Methods

- ◆ Presented live
- ◆ Lecture format
- ◆ Real time Q & A
- ◆ Presentation slides rich in graphics and practical applications
- ◆ Ample time for questions and class discussion

## Benefits of a Marne and Associates in-house training

- ◆ Save on travel time and out-of-office expenses
- ◆ Entire departments can be trained together
- ◆ The presentation can be designed to meet the needs of your organization
- ◆ Training schedule can be modified to meet your needs

## About the Instructor

**David J. Marne, P.E.**, is a registered professional electrical engineer. Mr. Marne is the author of *McGraw-Hill's National Electrical Safety Code® (NESC®) 2017 Handbook* and is a nationally recognized speaker on the NESC.

He serves on NESC Subcommittee 4 Overhead Lines Clearances, Subcommittee 7 Underground Lines, Subcommittee 3 Electric Supply Stations, and the Interpretations Subcommittee. He is company president and senior electrical engineer for Marne and Associates, Inc. in Missoula, MT where he specializes in National Electrical Safety Code (NESC) training, OSHA training for power and communication workers, engineering design training, and expert witness services related to the NESC, the OSHA Standards for Power and Communication workers, and California's General Orders GO95, GO128, and GO165.

Mr. Marne has over 30 years of experience in the utility industry engineering and managing transmission and distribution line projects, substation projects, electrical system planning studies, joint use (power and communication) projects, and providing training and expert witness services.



**David J. Marne, P.E.**

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619 S.W. Higgins Ave, Suite C Missoula, MT 59803 · (406) 544-8997 · [www.marneassociates.com](http://www.marneassociates.com)

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## Class Schedule - Day 1

8:00 a.m. Registration begins

8:30 a.m. Welcome

8:45 a.m. Transmission Voltage Focus:  
General Sessions

- ◆ Introduction - Section 01
- ◆ Definitions - Section 02
- ◆ References - Section 03
- ◆ Grounding - Section 09

10:15 a.m. Break

10:30 a.m. Transmission Voltage Focus:  
Part 1 - Electric Supply Stations

- ◆ Fencing, Signing, and General Substation Requirements
- ◆ Transmission Voltage Setback from Fence
- ◆ Transmission Voltage Clearance above Substation Grade

12 Noon Lunch

1:00 p.m. Transmission Voltage Focus:  
Part 2 - Overhead Lines

- ◆ Clearance of a Transmission Line above Ground (Rule 232)
- ◆ Clearance between a Transmission Line Crossing over a Distribution Line (Rule 233)
- ◆ Clearance from a Transmission Line to a Building (Rule 234)

2:30 p.m. Break

2:45 p.m. Transmission Voltage Focus:  
Part 2 - Overhead Lines (cont.)

- ◆ Clearance of a Transmission Line to a Distribution Underbuild (Rule 235)
- ◆ Clearance of a Transmission Line to a Communications Circuit and a Communications Antenna (Rule 235)
- ◆ Strength and Overload Factors for Transmission Line Design (Sections 24-27)

## Class Schedule (continued)

Transmission Voltage Focus:

Part 3 - Underground Lines

- ◆ Burial Depth of Transmission Cables

Transmission Voltage Focus:

Part 4 - Work Rules

- ◆ Approach Distances to Transmission Conductors
- ◆ Arc Flash Calculations and Arc Rated Clothing

4:15 p.m. Adjourn

## Enrollment/Pricing/ Cancellation

- ◆ Please contact us for a quote to have this class presented at your utility or association.
- ◆ Our in-house presentations are typically economical on a per person basis when the utility or association has 15 or more individuals to train. For in-house training, the utility or association provides the conference room and any desired meals and beverages for the attendees.
- ◆ Class cancellations can be made by contacting Marne and Associates, Inc. at any time prior to the presentation date. No payment is due until the class is completed.

## Comments by Past Participants...

"Good for people new to the NESC."

"Great seminar! Learned a ton of new information."

"Dave is a very good presenter. He took the time to address the things we deal with regularly."

## Class Materials

- ◆ Attendees will receive a hard copy or pdf copy of the class presentation slides. The presentation materials are copyrighted by Marne and Associates, Inc. with permissions from the McGraw-Hill companies, Inc. Class materials are reserved for class attendees only and may not be duplicated.
- ◆ Attendees are encouraged (but not required) to bring a copy of McGraw-Hill's NESC Handbook.
- ◆ Attendees are required to have a copy of the 2017 NESC Codebook for class exercises.
- ◆ Books are available for purchase on [www.codehandbook.com](http://www.codehandbook.com).



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