



Mike Terbrueggen, CEO, O-T-S



Mike Terbrueggen is the CEO and Principal Engineer at Operations-Training-Solutions, which he founded in 1994. He designs, develops, and delivers advanced training seminars, develops training

programs and materials, and provides consulting services for power operations and engineering personnel.

Mike received his undergraduate degree in Electronics Engineering from the University of Michigan (Go Blue!) and his graduate degree in Power Engineering from the University of Colorado.

Mike was born in Detroit, Michigan. After high school, he entered the U.S. Army and was stationed at Fort Carson, Colorado. He was in the 4th infantry with the 4th Combat Engineers. Mike has two daughters, one son, and four grandchildren. He lives in Longmont, Colorado, where he enjoys golf, music, and home improvement projects in his spare time.

NERC

NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION

Operations-Training-Solutions and Otter Tail Power Company are recognized by the North American Electric Reliability Corporation as a continuing education provider that adheres to NERC Continuing Education Program Criteria.

2025

NERC Reliability Standards Training

HOSTED BY



Primary Business Address
215 South Cascade Street
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September 22-25, 2025

Thumper Pond Resort
Ottertail MN

2025

NERC Reliability Standards Training

Presented by Mike Terbrueggen, CEO, O-T-S

NERC RELIABILITY STANDARDS DESCRIPTION (32/30)

This 32 CEH class briefly states the purpose of each of the NERC Reliability Standards. We will discuss the impact on System Operations of the BAL, COM, EOP, FAC, INT, IRO, NUC, MOD, PER, PRC, TOP, TPL and VAR series of Reliability Standards.

This course is designed to provide Operations Personnel with an understanding of power system fundamental concepts and applications and includes NERC CEH-allocated learning activities.

Course Schedule

MONDAY, SEPTEMBER 22, 2025

0800-1700

- State the function of NERC and Describe NERC's Role and Responsibilities within the power system.
- Describe and Evaluate the Impact on System Operations of the BAL & COM Series of Reliability Standards including:
 - Energy Balance Concept, Load Damping, Acceptable Frequency Range, Operating Reserves, Governor control Process including Droop and Deadband, AGC Process, AGC Modes, Inertia, CPS1, CPS2, BAAL, DCS, Concept of RSG, Frequency Response, FRSG & Frequency Bias
 - Interpersonal and 3-way Communications

TUESDAY, SEPTEMBER 23, 2025

0800-1700

- Describe and evaluate the impact on System Operations of the EOP, FAC, & INT Series of the Standards including:
 - Event Reporting, Restoration Plans, Back Up Control Center Functionality, GMDs, Cold Weather Operations and EEA levels.
 - Facility Connection Requirements, Vegetation Management Procedures, Facility Ratings, Concepts of SOL, IROL, and TV, and Real-Time Assessment and Operational Planning Analysis.
 - E-Tag, Interchange Transactions and Schedules, Dynamic Schedules and Pseudo Ties, WART's used in different interconnections, Ancillary Service, 4 Step Process in Interchange Transactions and the Role of a TSP

WEDNESDAY, SEPTEMBER 24, 2025

0800-1700

- Describe and evaluate the impact on System Operations of the IRO, MOD & NUC Series of Reliability including:
 - Operating Instructions, Tools of the RC, Congestion Management Process, TLR Process, Distribution Factors, State Estimator, Angle Instability, Cascading and Uncontrolled Separation, Real-Time Assessments, Need for Data Collection and the RC's Coordination during outages.
 - ATC, AFC, TTC, and TFC Concepts
 - Computer Models created and used to simulate behavior of Power Systems
 - Importance of documenting Nuclear Plant Interface Requirements (NPIRs).

THURSDAY, SEPTEMBER 25, 2025

0800-1700

- Describe and evaluate the impact on System Operations of the PER, PRC, TOP, & TPL & VAR Series of the Standards including:
 - IEEE Numbering System, Disturbance monitoring equipment, Mis-Operation Reporting, how relays are applied, UFLS Systems, purpose and application of RAS, Generator Voltage and Frequency protective systems and the Protective Relay Coordination Process.
 - Issue and receive Operational instruction, Outage Scheduling, SOL and IROL Exceedances, Monitor RAS, Real-Time Assessments and Monitoring, Operational Planning Analysis and Substation Configurations used in the BES.
 - MVar Flow, TOP's Voltage Control Function, Rotating and Static Reactive Reserve Sources, Dynamic and Manual Reactive Reserve Response, Generator Voltage control, Generator's Reactive Capability Curve and the concept of a PSS.

Registration

NAME

COMPANY

BILLING ADDRESS

PHONE

EMAIL

NERC CERT#

Fee: \$1,400.00 per attendee

(Includes breakfast, breaks, and lunches)

Method of payment: Bill me Check

Please note: all attendees are expected to arrange and pay for their own hotel accommodations.

Hotel accommodations:

Thumper Pond Resort

218-367-2000

300 Thumper Lodge Rd, Ottertail, MN 56571

A block of 10 rooms has been held from Sunday–Thursday for the week. Rooms are blocked under **Otter Tail Power Company Training**.

Room rate:

\$129.95 for Otter Tail Power Company.

Government rate available upon request.

To register, email this form or contact:

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