OES-NA Training Modules To Go

Power System Mathematics

ACTIVITY TITLE:	Power System Mathematics
TARGET AUDIENCE:	☒ Transmission Operator ☒ Market Operator ☒ Reliability Operator ☒ Operations and Planning Eng ☒ Balancing & Interchange ☒ Supervisor/Manager/Support ☒ Generator Operator ☐ Other _____
NERC CEHs:	Operating Topics CE Hours: 2.0 NERC Standards CE Hours: 0.0 Simulation CE Hours: 0.0 Professional Related CE Hours: 2.0
NERC EMERGENCY TRAINING HOURS:	2.0 hours
ACTIVITY SUBJECT MATTER:	☒ Basic Concepts ☐ Power System Restoration ☐ Power Transfer ☐ Market Operations ☐ System Protection ☐ Tools ☐ Interconnected Operation ☐ Operator Awareness ☐ Emergency Operations ☐ Policies and Procedures
DELIVERY SCHEDULE:	Activity is expected to be delivered over a 2.25 hour period with 2.0 hours intended for material deliveries and .25 hours for activity assessment.

Educating System Operators in the New Millennium!

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A. ACTIVITY OVERVIEW

This activity is intended for real-time system operators and support personnel operating on the Bulk Electric System who wishes to expand their knowledge related to the basic mathematics applicable to operating the electric system. The activity content is intended to provide attendees with the necessary training to understand the mathematical concepts related to Right Triangles, Applicable Trigonometric Functions, Sine and Cosine, Applicable Ratios and Percentages, and Per-Unit System.

B. METHOD OF INSTRUCTION

The activity is expected to be delivered in an Instructor Led environment. The activity is expected to be delivered utilizing a PowerPoint presentation in conjunction with the various exercises that are integrated into the material.

C. ACTIVITY OBJECTIVES

Upon completion of this training activity, the trainee shall be able to:

1. Review Basic Concepts
2. Define Right Triangles
3. Define Applicable Trigonometric Functions
4. Identify Sine and Cosine
5. Define Applicable Ratios and Percentages
6. Identify Per-Unit System

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D. ACTIVITY CONTENT

1. Define Communications
2. Mathematics Review
3. Right Triangles
4. Sine Function
5. Cosine Function
6. Vectors
7. Phase Angle
8. Phasors
9. Per-Unit

E. ASSESSMENT VEHICLE

The activity assessment is accomplished through a multiple choice quiz that addresses the activity objectives and content.

F. MISCELLANEOUS ELEMENTS

None identified for this activity.