



Generator Operator Restoration Training



Background

This online course is delivered through [Spark! By OES-NA](#). This course is intended to provide Generating Operating Personnel with the necessary training to understand their role and the operating principles associated with system restoration. The course also provides System Operating personnel with an awareness of how Generating Operating Personnel support their task in restoring the system following a full or partial system blackout event.

Course Level

Not Applicable

Target Audience

This online course is intended for: Generating Operating Personnel that play a role in supporting System Operators in their efforts to restore the system following a full or partial system blackout. In addition to providing awareness to System Operators in how Generating Operating Personnel can assist in the restoration effort.

NERC Continuing Education Hours

TOTAL: 2.0 CEHs

Standards: 0.0 CEHs

Ops Topics: 2.0 CEHs

Sim: 0.0 CEHS

NERC Emergency Training

2.0 hours of Emergency Training

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Course Content

This online course includes eight lessons which cover the following:

Lesson 1: History of Blackouts: System Blackout Events, Initiating Events, Extent of Events, Level of Impacts, and Event Statistics

Lesson 2: Types of Blackout: Degrees of Blackout Events, Various Impacts of Events, General Restoration for Each Event Type, External Impacts

Lesson 3: Blackout Causes: TIME of Events, Contributing System Conditions, CIGRE Study, Initiating Events, Voltage Collapse, Cascading Overloads, and Instability

Lesson 4: NERC Responsibilities, Authorities, and Standards: NERC Responsibilities, Functional Model, Functional Entity Responsibilities, EOP-005, and EOP-006

Lesson 5: Frequency and Voltage Control: Imbalance Conditions, Over and Under Generation, Voltage Control, Generator Excitation, and AVRs

Lesson 6: Load Pick-ups: Priorities of Restoration, Priority and Critical Loads, Load Pick-up Considerations, Frequency Implications, UF Protected Load

Lesson 7: Synchronization of Islands: Synchroscopes, Synchronizing Theory, Voltage-Frequency-Phase Angle Considerations, Synchronizing Guidelines, Pre and Post Assessments, Generator Operator Role

Lesson 8: Generating Operating Personnel Responsibilities: Isolation, Cranking Path, Black Starting Generation, Communications, Generator Testing

Delivery Schedule

Because the course is delivered on an individual basis via the Internet, individuals have the ability to set their own pace and schedule for completion of the course. Registered students are provided with 6 months from the time of registration to complete the course.

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Student Requirements

- Students must sign-in using their individual log-in and password to access the course.
- Students are required to provide their NERC SO Certification # and other applicable contact information during the course registration process, as applicable to the awarding of NERC CEHs.
- Students must complete all course material prior to attempting the final assessment.
- Students must successfully earn a 70% grade on the final activity assessment.
- Students must submit a course evaluation form. (Level of completion is not measured, but full completion is desired)

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