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Course Name

Electrical System Resilience & Power Continuity

Sector Name

Electrical Engineering

Document Type

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Electrical System Resilience & Power Continuity

Course Introduction

Electrical systems are expected to maintain power to essential operations even when equipment fails, supply sources are lost, or unexpected disturbances affect normal network conditions. Yet continuity cannot depend on backup equipment alone. Weak system configurations, hidden dependencies, insufficient redundancy, poorly prioritized loads, and ineffective restoration arrangements can turn a manageable electrical event into a prolonged interruption with wider operational consequences.

Boost Consulting & Training has designed this course to help electrical professionals strengthen the ability of power systems to withstand disruption and maintain critical supply. Participants will examine system vulnerabilities, critical loads, redundancy, alternative supply arrangements, contingency conditions, backup power, restoration priorities, and recovery strategies. The course focuses on engineering the complete electrical response to disruption, from anticipating vulnerable points to restoring stable operation after an interruption.

The main concept of this course is to build electrical systems that can absorb failures, protect essential loads, adapt to abnormal conditions, and restore reliable power with minimum operational disruption.

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Electrical System Resilience & Power Continuity

Target Audience

- ✓ Electrical and power systems engineers
- ✓ Plant and facility electrical engineers
- ✓ Electrical operations and maintenance engineers
- ✓ Reliability and technical engineering professionals

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Learning Objectives

- ✓ Identify vulnerabilities that can threaten electrical supply continuity.
- ✓ Determine critical loads and establish appropriate continuity requirements.
- ✓ Evaluate redundancy and alternative supply arrangements within electrical networks.
- ✓ Identify single points of failure and hidden dependencies within power systems.
- ✓ Assess backup power solutions according to operational requirements.
- ✓ Evaluate electrical system behavior under different contingency conditions.
- ✓ Develop effective power restoration priorities and recovery sequences.
- ✓ Design practical resilience improvements for electrical power systems.

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Course Outline

✓ DAY 01

Finding Vulnerabilities in the Electrical System

Mapping Continuity Risks

- ✓ Identifying supply sources, transformers, feeders, switchboards, backup systems, and critical loads
- ✓ Examining dependencies between electrical components and the operations they support
- ✓ Recognizing configurations where one equipment failure can interrupt multiple essential functions

Identifying Critical Electrical Loads

- ✓ Classifying loads according to operational importance and acceptable interruption duration
- ✓ Defining different continuity requirements across critical and noncritical services
- ✓ Developing a Critical Load & Vulnerability Map for a realistic electrical network

Electrical System Resilience & Power Continuity

Course Outline

✓ DAY 02

Designing Effective Electrical Redundancy

Building Alternative Supply Paths

- ✓ Evaluating dual supplies, redundant feeders, bus arrangements, and alternative network configurations
- ✓ Identifying situations where duplicated equipment does not provide genuine electrical redundancy
- ✓ Assessing common dependencies that can defeat apparently independent supply arrangements

Strengthening Network Flexibility

- ✓ Using sectionalization and switching arrangements to isolate problems while maintaining healthy sections
- ✓ Evaluating load transfer possibilities during abnormal operating conditions
- ✓ Completing a Redundancy & Supply Path Challenge for a constrained electrical network

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Course Outline

✓ DAY 03

Securing Backup Power for Critical Operations

Matching Backup Supply to Critical Loads

- ✓ Comparing generators, UPS systems, battery storage, and other applicable backup arrangements
- ✓ Matching backup capacity and response characteristics to load requirements
- ✓ Considering starting currents, load sequencing, autonomy, and transition requirements

Testing Backup Readiness

- ✓ Evaluating transfer arrangements and the sequence from normal supply loss to backup operation
- ✓ Identifying capacity limitations and dependencies that can affect backup performance
- ✓ Conducting a Backup Power Readiness Exercise under changing load conditions

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Course Outline

✓ DAY 04

Managing Electrical Contingencies

Operating Under Abnormal Network Conditions

- ✓ Assessing loss of incoming supply, transformer, feeder, switchboard, or major equipment
- ✓ Determining which loads can remain energized under reduced system capacity
- ✓ Reconfiguring the network while respecting equipment and operating limitations

Containing the Impact of Electrical Disruption

- ✓ Preventing local failures from escalating into wider power interruptions
- ✓ Coordinating isolation, switching, alternative supply, and load management decisions
- ✓ Running an Electrical Contingency Simulation involving multiple system constraints

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Course Outline

✓ DAY 05

Restoring Stable Power After Disruption

Planning the Restoration Sequence

- ✓ Establishing restoration priorities according to critical loads and available electrical capacity
- ✓ Coordinating staged energization to avoid excessive demand and unstable operating conditions
- ✓ Verifying system readiness before returning major equipment and loads to service

Strengthening Long Term Power Continuity

- ✓ Using disruption scenarios and previous events to identify resilience improvement opportunities
- ✓ Prioritizing configuration changes, backup improvements, equipment upgrades, and operating measures
- ✓ Developing an Electrical Resilience & Power Continuity Plan for an integrated power system case



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Electrical System Resilience & Power Continuity

Confirmed Sessions

FROM	TO	DURATION	FEES	LOCATION
Dec. 21, 2026	Dec. 25, 2026	5 days	4250.00 \$	UAE , Abu Dhabi

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