Lockout Tagout Training for Power Plants

> Purpose-built for UAE generation facilities and aligned with OSHA 29 CFR 1910.147, NFPA 70E, OSHAD and Dubai Municipality EHS. Integrates with site Permit-to-Work (PTW) and switching procedures.

Service Objectives

- Identify hazardous energies across GT/HRSG/boiler islands, balance-of-plant, fuel gas skids, condensate/feedwater, instrument air and auxiliary steam.
- Develop equipment-specific LOTO procedures integrated with site PTW and electrical switching controls.
- Select and apply correct devices: breaker hasps, lockable disconnects, valve lockouts, chain-and-lock for non-lockable valves, blanks/spades, grounding/bonding, turbine lock pins.
- Execute critical steps: de-energisation, dissipation of stored energy (inertia, pressure, gravity, capacitors, springs), verification/try-out, and LOTO register documentation.
- Manage group LOTO with lockboxes, SIMOPS coordination and shift handovers during outages without loss of accountability.
- Audit and supervise LOTO per OSHA 1910.147(c)(6), align with ISO 45001, apply NFPA 70E electrical controls, and handle interlock/override authorisations with clear residual risk documentation.

Who This Service Is For

- Electrical technicians/engineers on HV/LV switchgear, MCCs and protection systems; mechanical and rotating equipment technicians; I&C engineers and operations teams coordinating isolations via the control room and PTW.
- Shift charge engineers, permit coordinators, safety officers, outage planners and OEM field service representatives.
- UAE generation assets: gas-turbine, steam, HRSG, waste-to-energy, diesel and solar-hybrid plants.
- Multi-employer outage environments (EPCs and maintenance contractors) requiring consistent, auditable zero-energy controls and group lockbox management.
- Sites managing mixed energy sources: electrical, mechanical, hydraulic, pneumatic, thermal and chemical (e.g., stored steam, hydrogen cooling, condensate/feedwater pressure, battery/inverter cabinets, rotating inertia).
- Combined-cycle and simple-cycle operators seeking isolation quality that protects people, equipment and availability KPIs.

Duration & Process Overview

- Awareness: 1 day (foundations, roles, PTW alignment) — on-site or virtual.
- Practitioner: 2 days (ESP workshops, practical demonstrations) — on-site preferred or hybrid.
- Supervisor/Author: 3 days (field verification, audit techniques, complex ESP authoring) — on-site.

- Refresher: 0.5–1 day — on-site or virtual. Typical class size 8–16; English and Arabic delivery; on-plant walkdowns where permitted; pre-delivery training needs analysis using site LOTO policy, PTW, P&IDs and single-line diagrams.

Methodology

A progressive pathway combining classroom learning, scenario-based workshops and (where permitted) on-plant walkdowns, mapped to OSHA 1910.147, NFPA 70E and UAE frameworks (OSHAD, Dubai Municipality EHS).

Phase	Objective / What It Covers	Deliverable
Training Needs Analysis & Site Inputs	Collect LOTO policy, PTW forms, representative P&IDs and single-line diagrams; align scope to plant assets.	Tailored scenarios and ESP exercise pack.
Regulatory & Standards Foundation	OSHA 1910.147, NFPA 70E, OSHAD SF, Dubai EHS, ISO 45001 linkages.	Mapped compliance requirements.
Energy Identification & Isolation Logic	HV/LV switching, breaker rack-out/lockout, steam/condensate depressurisation, venting, blinds/spades, valve positions, turbine interlocks, hydraulic/pneumatic isolation, thermal energy.	Asset energy maps and isolation pathways.
Device Selection & Stored Energy Controls	Device choice and application; dissipation of inertia, pressure, gravity, capacitors, springs; grounding/bonding.	Device application matrix and try-out steps.
ESP Authoring Workshops	Draft equipment-specific procedures from P&IDs and single-line diagrams for GT/HRSG/boiler/BOP systems.	Draft/refined ESPs ready for site review.
Outage & Contractor Control	Group lockout using lockboxes, SIMOPS coordination, shift handover and accountability controls.	Group LOTO plan and lockbox workflow.
Supervision, Field Verification & Auditing	Field checks, annual LOTO audits, performance metrics and corrective actions per OSHA 1910.147(c)(6).	Audit checklist, verification templates.
Practical Demonstrations & Walkdowns	Controlled demonstrations on de-energised or mock-up equipment; on-plant walkdowns where permitted.	Reinforced skills and field application.
Assessment & Certification	Short quizzes, ESP drafting, supervised verification drills; certificate of completion issued by NPM.	Assessment record and certificate.

Training Needs Analysis & Site Inputs

- Gather site policies, PTW, P&IDs and single-line diagrams.
- Define representative assets for ESP exercises.

Regulatory & Standards Foundation

- Connect OSHA 1910.147 and NFPA 70E to OSHAD and Dubai EHS.
- Clarify governance and audit expectations.

Energy Identification & Isolation Logic

- Map electrical, mechanical, hydraulic, pneumatic, thermal and chemical energies.
- Define practical isolation/verification steps for typical plant systems.

ESP Authoring Workshops

- Draft/refine procedures using site drawings and equipment lists.
- Integrate with PTW, switching and LOTO registers.

Outage & Contractor Control

- Use group lockboxes; manage SIMOPS and shift change protocols.
- Maintain accountability across multi-employer sites.

Supervision, Field Verification & Auditing

- Conduct field checks and annual audits; define performance metrics and corrective actions.
- Emphasise NFPA 70E electrical verification and boundaries.

Practical Demonstrations & Assessment

- Run controlled demos and (where permitted) walkdowns; verify zero energy on representative equipment.
- Complete quizzes and ESP tasks; NPM issues certificate of completion.
