

Electrical Safety: Shock, Arc Flash and Lock-out/Tag-out Stats and Facts

FACTS

- **Shock and Electrocution:** Contact with live conductors can stop the heart in seconds, even at low voltages, when current passes through the chest.
- **Arc Flash:** A short circuit can release a fireball reaching 35,000°F, causing severe burns, blindness, and lung damage from inhaled superheated air.
- **Arc Blast:** The pressure wave from an arc can throw workers across a room, collapse lungs, and rupture eardrums in an instant.
- **Overhead Power Line Contact:** Tools, ladders, scaffolds, lifts, and cranes regularly bridge the gap to energized lines, causing immediate electrocution.
- **Failure to Lock Out:** Equipment switched “off” but not locked, tagged, and verified dead can re-energize from stored energy, control errors, or another worker.
- **Damaged Cords and Tools:** Frayed insulation, missing ground pins, and lack of GFCI protection turn ordinary corded tools into electrocution hazards.
- **Improper PPE:** Working energized without arc-rated clothing, voltage-rated gloves, face shield, and boundary control exposes the worker to fatal burns.

STATS

- BLS data show 2,070 workplace electrical fatalities in the U.S. between 2011 and 2024.
- ESFI reports 5,180 non-fatal electrical injuries with days away from work in 2023–2024, a 59% jump over the prior two years.

- Overhead power line contact accounts for 49% of all workplace electrical fatalities (ESFI).
- About 70% of workplace electrical fatalities occur in non-electrical occupations (ESFI/BLS).
- OSHA's Top 10 Most Cited Standards for FY2023 ranked Control of Hazardous Energy (29 CFR 1910.147) sixth, with 2,539 violations.
- OSHA logged 2,532 LOTO citations across 1,368 inspections in FY2023, totaling more than \$20.7 million in penalties – a 29% increase from 2022.
- The utility sector has the highest U.S. electrical fatality rate at 0.75 per 100,000 workers, followed by construction at 0.73 (ESFI 2011–2024).