

Lockout Tagout Employer's Guide

Step 3: Recognize Types and Sources of Hazardous Energy

What You NEED To Do

Each year, approximately 3,000 workers suffer lost-time injuries from being caught in dangerous parts of equipment or machinery during maintenance or cleaning, according to Bureau of Labor Statistics (BLS) data. Further, each year there are approximately 60 fatalities from similar exposures.

In addition to caught-in exposure, workers face struck-by, crushing, electric shock, burn, and other hazards when maintenance work is done without properly controlling the release of energy, i.e., through a lockout tagout (LOTO) program.

Energy sources including electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other sources in machines and equipment can be hazardous to workers. During the servicing and maintenance of machines and equipment, the unexpected startup or release of stored energy can result in [serious injury or death to workers](#).

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When machines or equipment are being prepared for service or maintenance, they often contain some form of "[hazardous energy](#)" that can cause harm to people in the area.

When we talk about [hazardous energy](#), we mean any type of energy that can be released and might harm a person. This could include energy of the following types:

- Chemical
- Electrical
- Hydraulic
- Mechanical
- Pneumatic
- Thermal

- Other sources of energy

Without the use of proper LOTO safety procedures, the serviced equipment can unexpectedly start up or otherwise release these forms of energy. This can lead to injuries and even death to the people working on the machine and even to others working in the area or living in the community.

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[Guide to Types of Hazardous Energy](#)

Consider just a few examples:

- A worker is servicing a press, another worker comes by and starts the press, and the service worker is caught up in the press, causing an amputation
- Workers are repairing a connection in piping, and somewhere up that same line another worker opens a valve, sending fluids down the pipe that ultimately spill on and burn the maintenance workers
- A conveyor jams, a worker reaches in to try to clear the jam, the conveyor jam is suddenly and unexpectedly freed, and the worker is crushed as a result
- A worker is servicing a machine, and at the same time internal wiring in the machine shorts, causing the maintenance worker to be shocked

All of these are examples of [hazardous energy](#) causing harm. And that's what LOTO safety is all about—making these these types of hazardous energy are controlled so they're never released and never cause harm.

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