



## Discretion is better than valor - Lockout and Tag out (LOTO)

- ◆ Lockout is the primary means of preventing the unplanned release of hazardous energy.
- ◆ For electrical workers, it often involves using a padlock to keep a switch in the “off” position. It may also be necessary to isolate the energy of moving parts, chemical reactions etc that can endanger lives. Lockout is a physical way to ensure that the energy source is de-energized, deactivated, or otherwise inoperable. Lockout involves:
  1. identifying all energy sources that may affect the work and work area
  2. redirecting or stopping the energy from doing what it is normally intended to do
  3. physically preventing the accidental reenergizing of the system, and
  4. verifying zero energy.
- ◆ It is important to control all energy systems involved in the work. A piece of equipment may have an electrically-operated component as well as a hydraulic or pneumatic parts. Failure to control each energy system could jeopardize the safety of workers involved. In addition, gravity, momentum, and stored energy can present unexpected hazards.
- ◆ Tags are an important part of a lockout. After attaching his or her personal lock, the worker attaches a tag to the lock. Tags are a means of communication. Tags are used to inform others that:
  1. The device is locked out,
  2. Who has locked it out, and
  3. Why?
- ◆ Tagged devices and systems must not be re-energized without the authority of those named on the tag.
- ◆ **Forms of energy**
  - ◆ When most people think of uncontrolled hazardous energy, they think of electricity. But electricians overseeing a lockout procedure need to consider a variety of energy sources. Here are the main types of energy.
    1. Electrical (electrical panels, generators, lighting systems, storage batteries, etc.)
    2. Mechanical—the energy of moving parts (flywheels, blades, fans, conveyor belts, etc.)
    3. Potential—stored energy that can be released during work. Examples of systems having potential energy include suspended loads, compressed air, coiled springs, chemical reactions, changing states (solid—liquid—gas), etc.
    4. Hydraulic (presses, cylinders, cranes, forklifts, etc.)
    5. Pneumatic (lines, compression tanks, etc.)
    6. Thermal (steam, hot water, fire, etc.)
    7. Chemical (flammable materials, corrosive substances, vapours, etc.)
  - ◆ As mentioned above, some equipment may involve more than one type of energy, and pose unexpected hazards.
  - ◆ A de-energized electrical system must be discharged by short circuit and phase to ground. A temporary ground cable must be attached to the system and remain in place until work is completed.
  - ◆ Switches, power sources, pneumatics, hydraulics, computer-controlled sources, gravity-operated sources—all of these must be locked out by each worker involved and appropriately tagged.
- ◆ **Employers must have a lockout policy as part of their overall health and safety policy and program, with a clear objective of isolating (locking) and identifying (tagging) all energy sources before work begins.**
- ◆ **The policy should also identify procedure to return to work after lock out.**



## LOCK OUT, TAG OUT - FLOW CHARTS

Specific lockout procedures will vary depending on the work and the processes which must be shut down. The following chart can help you develop specific procedures.

