

Forms of Hazardous Energy

Mechanical Energy (also known as *kinetic energy*) refers to the actual movement of equipment components or materials.

Stored Energy (also known as *potential energy*) can be released as mechanical (*kinetic*) energy if it is not properly controlled. There are several types of stored energy that are common, including:

- ***The potential for gravity*** or other mechanical movement
 - Suspended, elevated or coiled materials
 - Springs, which can be under tension or compression
- ***Fluids under pressure*** – includes gases or liquids, such as these:
 - Pressure vessels
 - Gas tanks
 - Hydraulic systems
 - Pneumatic systems
 - Steam lines
 - Chemical piping

Stored energy can be handled in several ways:

- ***Items subject to gravity*** or mechanical movement can be either blocked or released.
- ***Fluids under pressure*** can be blocked, dissipated or released.
 - But ***don't*** release them directly into the atmosphere if they are toxic, flammable or explosive substances.

Electrical Energy can occur in a number of forms, such as:

- Electrical power
- Static electricity
- Electrical storage devices
- Batteries
- Capacitors – store electrical energy: they must be discharged before work begins.

Thermal Energy can occur in high or low temperature systems. Some of the sources of thermal energy include:

- Heated water
- Steam
- Mechanical work
- Radiation
 - Non-ionizing radiation, such as: lights, lasers, microwaves
 - Ionizing radiation, such as: X-rays
- Chemical reaction
- Electrical resistance

Combinations of many of the above forms of energy are common in industrial equipment.

SOURCES: *Searching for the Switch to Locking Out*
Canadian Auto Workers Union.

Preventing Worker Deaths from Uncontrolled Release of Electrical, Mechanical and Other Types of Hazardous Energy
US Dept of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health. DHHS (NIOSH) Publication No. 99-110, August 1999.

