PROCESS SAFETY + ESC ENERGY WHEEL = SAFER OUTCOMES

ENERGY SAFETY CANADA

The Energy Wheel helps us see, understand and control all forms of hazardous energy — a core principle of Process Safety.

What is Process Safety?

Process Safety prevents high-consequence incidents by controlling hazardous energy and maintaining barriers, system integrity and safeguards.

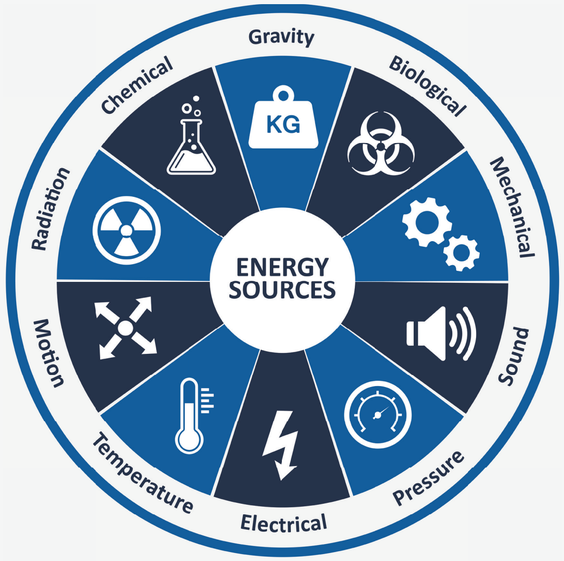
Process Safety focuses on preventing:

- Loss of containment
- Fires and explosions
- Toxic releases
- Overpressure events
- Equipment failures
- Catastrophic incidents

Same Goal, Same Risk

Process Safety manages the system.

The Energy Wheel helps people recognize and control the energy that can cause a major incident.



Stronger Together

By combining Process Safety principles with the Energy Wheel, we improve hazard recognition, strengthen barrier thinking and reduce the risk of major incidents.

How the Energy Wheel Relates to Process Safety

- **Identifies all energy sources**
  Prevents tunnel vision and blind spots.
- **Supports barrier thinking**
  Connects hazards to the controls that keep energy contained.
- **Improves hazard recognition**
  Looks beyond the obvious.
- **Reinforces system integrity**
  Considers stored and residual energy.
- **Bridges personal and process safety**
  Links everyday work to high-consequence risk.

Lifecycle Integration

The Energy Wheel supports Process Safety across the entire asset lifecycle.

01 Design

- Hazard identification (HAZID/HAZOP)
- Inherently safer design
- Safeguard selection
- Human factors

Goal: Design out or control hazards early.

02 Operations

- Pre-job assessments
- Permit-to-work
- SIMOPS planning
- Abnormal operations

Goal: Maintain barrier integrity and control live energy sources.

03 Maintenance

- Lockout/tagout (LOTO)
- Isolation and verification
- Mechanical integrity
- Confined space entry

Goal: Safely isolate, verify and control energy when barriers are temporarily removed.

The Result

Safer People | **Protected Assets** | **A Healthier Environment**

Same principles. One goal. Prevent major incidents.

The Energy Wheel is a hazard recognition tool adopted by Energy Safety Canada (ESC) to help workers identify and control hazardous energy.