



Energy Safety Practices

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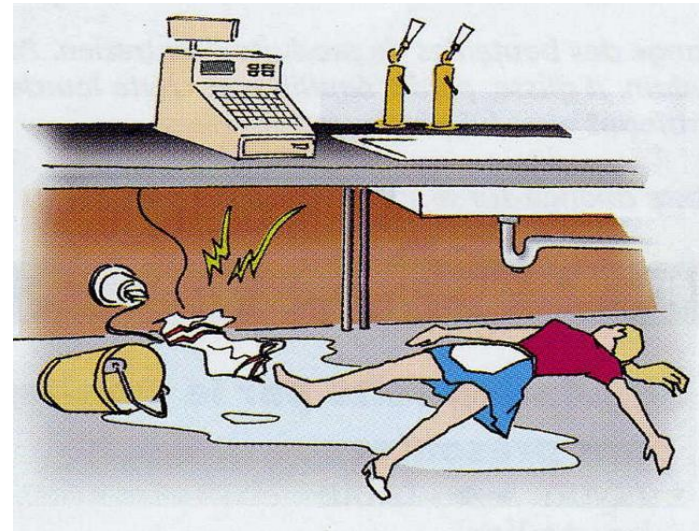
Importance of Energy



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Dangers in Energy



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Presentation Outline

Energy Safety Practices

I. Liquefied Petroleum Gas(LPG)

- Refilling/Dispensing Station
- Household

II. Electrical Energy

- Commercial/Industrial
- Residential



LPG Characteristics

Liquefied Petroleum Gas (LPG)

- either **propane** or **butane** or a **mixture of both**.
- **liquid inside** the cylinder, but immediately **transforms** to a **gaseous state** when released.
- **heavier** than Air; it is readily **liquefied** under moderate **pressure**.
- **odorless** and **colorless**, but is **given** its distinctive smell by adding a **special substance** that can be **detected** even if the **leakage** is **well below** the level of **flammability**(2.1% to 9.5% volume of gas in air).
- LPG is non-poisonous and environment-friendly, but is an asphyxiant.



Liquefied Petroleum Gas(LPG)

LPG Industry Safety Practices

Compliance to code and standard

- Bureau of Philippine Standard(BPS)
- Philippines National Standard(PNS)
- PLPGA Safety Code
- Other Codes/Certifications



Liquefied Petroleum Gas(LPG)

Safe Practices



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Liquefied Petroleum Gas(LPG)

Unsafe Practices



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Liquefied Petroleum Gas(LPG)

Safety Tips

- Never buy an unbranded LPG cylinder.**
- Always check the markings and security seal**
- Make sure that the cylinder is in good condition.**



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Liquefied Petroleum Gas(LPG)

Safety Tips

- Have the **tank installation or repair done by qualified LPG serviceman**
- Clean** your gas stove **regularly** and **always check** the condition of the **LPG hose**
- Check** your **cylinder for leaks** by applying a soap solution
- Ensure** the **cylinder is located** in a **well-ventilated area**



Liquefied Petroleum Gas(LPG)

Safety Tips

- Always handle **LPG cylinders** in an **upright position**
- Cylinders **must not** be **installed** near any **heat source** or near **source of ignition**
- Make sure the **regulator used** is the **same diameter** as the **cylinder valve**
- If you **smell gas** in your kitchen, **do not turn on/off electrical switch** or **connect/disconnect electrical plug** and **ventilate** by **opening windows** and **doors**



What is Electricity

- It's a form of energy caused by the movement of electrons from atom to atom in a conductor.
- Electricity always travels in a circuit, and when you switch on an appliance, you complete a circuit for electricity to travel.
- It travels along power lines to your home, from power stations to switchyards to substations to distribution system using power lines.



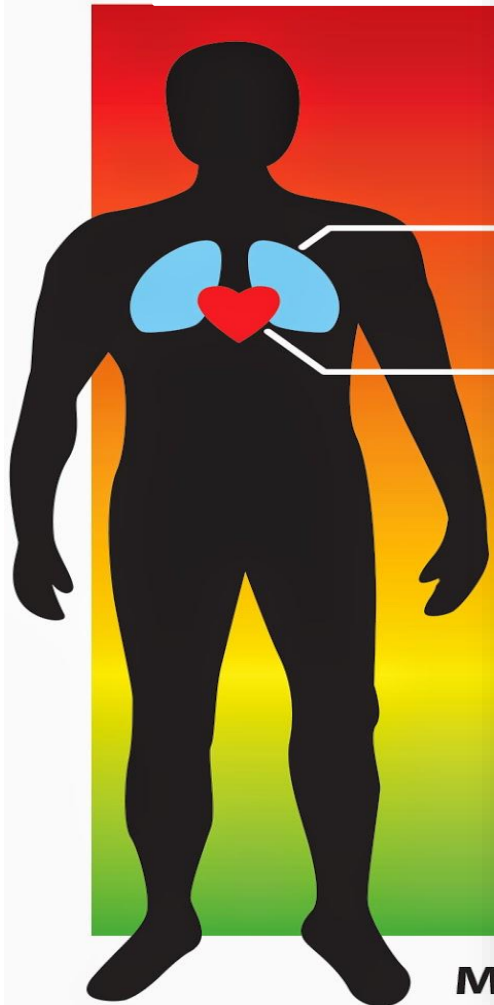
Working with Electricity

Good Safety Practices

- Inspect work area daily
- Be an observer - stay alert
- Housekeeping, Housekeeping, Housekeeping
- Use your best safety device – THINK
- If you're not sure - ASK someone!!
- Report Injuries/Incidents/Illnesses
- Report safety issues to the safety committee



Human Body Vs. Electricity



Effects of Electrical Current in the Human Body^{3,4}

Current	Reaction
Below 1 milliamperes	Generally not perceptible.
1 milliamperes	Faint tingle.
5 milliamperes	Slight shock felt; not painful but disturbing. Average individual can let go. Strong involuntary reactions can lead to other injuries.
6–25 milliamperes (women)	Painful shock, loss of muscular control. The freezing current or "let-go" range. Individual cannot let go, but can be thrown away from the circuit if extensor muscles are stimulated.*
9–30 milliamperes (men)	
50–150 milliamperes	Extreme pain, respiratory arrest (breathing stops), severe muscular contractions. Death is possible.
1,000–4,300 milliamperes	Rhythmic pumping action of the heart ceases. Muscular contraction and nerve damage occur; death likely.
10,000 milliamperes	Cardiac arrest and severe burns occur. Death is probable.
15,000 milliamperes	Lowest overcurrent at which a typical fuse or circuit breaker opens a circuit!

*If the extensor muscles are excited by the shock, the person may be thrown away from the power source. The lowest overcurrent at which a typical fuse or circuit breaker will open is 15,000 milliamps (15 amps).



Electrical Energy

Safety Tips

- Use extension cords temporarily.
- Pull the plastic housing of the electric plug to take it out of the wall socket; never pull on the cord.
- Do not overload electric outlets with too many items plugged in at once.
- Do not operate electric appliances near a bathtub or sink full of water.



Electrical Energy

Safety Tips

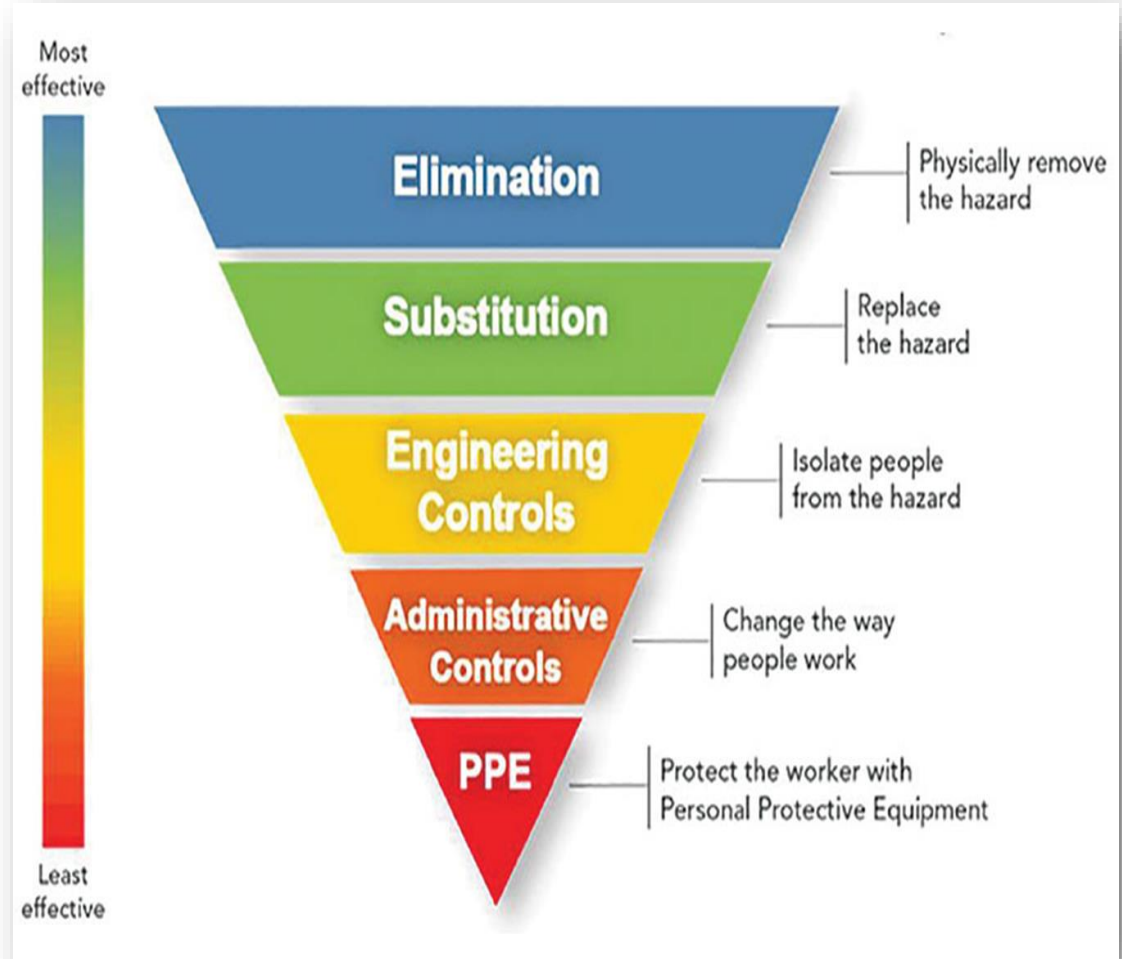
- Always unplug an appliance before cleaning or repairing it.
- Do not plug equipment into defective receptacles.
- Do not touch a person or electrical apparatus in the event of an electrical accident. Always disconnect the power source first.
- Search and fix faulty electrical wiring



Energy Safety Practices

Overview of the Safety Model

- Recognized Hazard
- Evaluate Hazard
- Control Hazard



“Public safety is our paramount concern.
Let us use our energy resources wisely.”

- Energy Sec. Alfonso G. Cusi



Thank You!



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