Overhead Electrical Hazards for Municipalities Meeting Kit

WHAT´S AT STAKE

An overhead power line is an electric power transmission line suspended by towers or poles. Towers for support of the lines are made of wood (as grown or laminated), steel (either lattice structures or tubular poles), concrete, aluminum, and occasionally reinforced plastics. The bar wire conductors on the line are generally made of aluminum (either plain or reinforced with steel or sometimes composite materials), though some copper wires are used in medium-voltage distribution and low-voltage connections to customer premises.

WHAT´S THE DANGER

HAZARDS OF HIGH VOLTAGE POWER LINES

- Overhead high voltage transmission lines are not insulated and if a person comes in contact or even closer to them through a ladder, crane, truck a person may get a life-threatening electrical shock.
- Electricity can flash over a gap, so any equipment or a person at some distance from the power lines can still be in danger.
- During storms or strong winds, overhead electric lines may fall to the ground.
- Working at heights on overhead power lines is not safe as an operator may fall to the ground if not properly equipped with relevant PPE (personal protective equipment).

OTHER HAZARDS – TIPPING OVERHEAD POWER LINE

Workers are at risk in a number of scenarios.

- The equipment is high enough to reach the line while driving along in its normal configuration.
- A trailer is tipped up, making contact with the line, rendering the entire vehicle “live”.
- A hydraulic boom or jib, controlled from a cab, makes contact with an overhead line, e.g., a crane lifting a load.
- A hydraulic boom, jib, pipe, or conveyor, controlled by an operator in a standing position, makes contact with a line while lifting or conveying material.

HOW TO PROTECT YOURSELF

OVERHEAD POWER LINE ELECTRICAL HAZARD BEST PRACTICES

1. **Locate and identify hazards.** Look for overhead power lines. Select safe job site locations with ample power line clearances for equipment and materials. Many power lines are buried underground. Contact a utility locator service at least two full business days before digging if the task involves any excavating.
2. **De-energize power lines.** Always assume all overhead power lines are energized. Call the utility company to determine the line's voltage and to discuss de-energizing and grounding or shielding the lines before performing any work near power lines.
3. **Work at a safe distance.** A safe working distance depends on the voltage of the power lines. Always maintain a distance of at least 10 feet from overhead lines and more than 10 feet if the voltage to ground is over 50 kilovolts (50,000 volts). The higher the voltage, the greater the distance that is needed between the lines and the workers.
4. **Wear personal protective equipment (PPE).** Employers need to provide employees with free PPE for protection from electrical hazards. Depending on the job task performed, PPE when working near power lines includes safety glasses, face shields, hard hats, insulated boots, rubber gloves with leather protectors, insulating sleeves, and flame-resistant clothing to reduce the risk of electrocution.
5. **Use insulated protective equipment.** Crews should use ladders made of wood or other non-conductive materials as needed, such as line hoses, rubber hoods, rubber blankets, and insulating live-line tools. Never rely solely on insulated equipment for protection.
6. **Use extreme caution around trees or when moving equipment.** Watch for power lines when putting up scaffolding, framing a building, painting, pruning, or picking fruit. Trees conduct electricity, so take extra caution when working with trees around overhead power lines. Equipment carried by workers – such as metal or non-metallic ladders, paint equipment with extensions, and pieces of building materials – can hit live lines, creating a path through workers' bodies.
7. **Stay away from downed power lines.** Downed power lines can energize other nearby objects, such as fences, water pipes, bushes, trees, buildings, and telephone, television, or fiber optic cables. Even maintenance hole castings and reinforcement bars (rebar) in the pavement can become energized by downed wires. Ensure workers are trained never to approach fallen power lines.
8. **Know when to move and when to stay.** If equipment comes into contact with power lines, but there is no threat of fire or power-line strikes, stay put and remain inside the equipment until the power company de-energizes the circuit. If fire or power-line strikes present an immediate threat, jump as far away from the equipment as possible. Keep both feet together to avoid landing in power ripples with different voltage.
9. **Never touch an electrocuted worker.** A worker who tries to touch or grab another worker who is receiving an electrical shock can become part of the electric circuit and sustain personal injuries or death. If an employee is electrocuted stay away and warn other to stand back at least 35 feet. Call 911 immediately.

POWER LINE SAFETY PRECAUTIONS TO AVOID OVERHEAD ELECTRICAL HAZARDS

- Towers carrying live conductors must not be climbed as it can cause electric shock if the tower is energized.
- Animals should never be tied to a transmission tower as it can risk their life.
- Any object made up of metal or conducting material should not be thrown on overhead lines.
- During rain, towers or poles must not be touched by any person because the tower body becomes energized due to the conductivity of water.
- During storms or strong winds, keep a safe distance from powerlines as live conductors may accidentally fall over a person.

- If a person sees any spark on overhead live conductors, the first responsibility should be to inform the relevant authorities to avoid any accident.

FINAL WORD

Electricity it creates a number of hazards and health issues thus endangering our life. If we properly follow the safety rules, standards, and precautions, then we can reduce and even eliminate the risks and hazards caused by electricity.