

Power Line Safety Fact Sheet

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Thousands of miles of power lines span the Texas landscape delivering electricity to more than 26 million customers in cities, suburbs, and rural communities.¹ From the wooden poles that bring electricity to local customers to the giant transmission towers carrying high-voltage lines around the Texas and [U.S. power grids](#), power lines present major safety hazards to workers whose equipment may come in contact with them.

In 2019, exposure to electricity resulted in 120 work-related injuries and 29 deaths in Texas.² More than 58% of these injuries occurred to workers who were on the job for less than three months.³ While electricians and line workers are generally well-informed about the dangers, other workers -- such as [tree trimmers](#), [farmworkers](#), [construction workers](#), and [those in charge of natural disaster cleanup and recovery efforts](#) -- often lack the needed information to avoid these risks. Fortunately, with proper training and equipment, injuries and deaths associated with power lines are preventable.



Prevention & Protection

Working with or near power lines can expose workers to electrical hazards. The first step in preventing injuries is developing and implementing a comprehensive safety training program that includes written rules and procedures including, but not limited to, the following:

- **Locate and Identify Hazards.**
 A glance around the job site can help workers identify overhead lines, but many power lines are buried underground. Contact a utility locator service or the [Texas Railroad Commission](#) at **811** at least two full business days before digging if the task involves any excavating. Also, select safe locations with ample power line clearance for equipment and materials.
- **De-Energize Power Lines.**
 Always assume all overhead lines are energized. Before performing any work near power lines, the employer must call the utility company to determine the line's voltage. They should also discuss de-energizing and

grounding or shielding the power lines. If de-energizing the lines is not possible, the utility company may install temporary protective barriers or insulation to limit the possibility of equipment coming in contact with the lines.

- **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. (See Occupational Safety and Health Administration (OSHA) Title 29 of the Code of Federal Regulations (CFR) Part [1926.1408](#).)

TABLE A -- MINIMUM CLEARANCE DISTANCES

Voltage (nominal, kV, alternating current)	Minimum Clearance Distance (feet)
Up to 50	10
Over 50 to 200	15
Over 200 to 350	20
Over 500 to 750	25
Over 750 to 1,000	35
Over 1,000	45
	(as established by the utility owner/operator or registered professional engineer who is a qualified person with respect to electrical power transmission and distribution).

Note: The value that follows “to” is up to and includes that value. For example, over 50 to 200 means up to and including 200kV.

- **Wear Personal Protection 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. Additionally, crews should use ladders made of wood or other non-conductive materials and other [insulating protective equipment](#) as needed, such as line hoses, rubber hoods, rubber blankets, and

insulating live-line tools. Never rely solely on PPE or insulated equipment for protection. (See OSHA regulations for general PPE: [1910.269\(g\)](#); energized parts and PPE: [1910.269\(l\)\(2\)\(i\)](#), [1910.269\(l\)\(3\)](#), and [1910.269\(l\)\(7\)](#); brush chippers and PPE: [1910.269\(r\)\(2\)\(v\)](#); and stump chippers and PPE: [1910.269\(r\)\(4\)\(ii\)](#).)

- **Use Extreme Caution Around Trees or When Moving Equipment**

Ensure all employees know the risks of working near power lines. 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. If workers must use long tools or carry long

objects near power lines, designate an employee to watch the work activities and alert others of potential dangers.

When using cranes, boom trucks, dump trucks, concrete pumpers, or other equipment capable of extending vertically or horizontally, ensure that no part of the load or line gets closer than 20 to 50 feet. Mark a 360-degree area around the zone with cones or other objects to ensure a safe working area is visible. Use insulated barriers when available. Never allow a dump truck to move forward or backward with a raised bed when power lines are nearby. Crane and derrick operators have additional responsibilities mandated by OSHA [29 CFR 1926, Subpart CC](#) and [29 CFR 1926.1408](#).

Before transporting a large object, identify a safe route that avoids power lines. Additionally, call the local utility company to coordinate temporary de-energizing of power lines for a fee.

- **Stay Away and Stay Calm.**

Ensure workers are trained never to touch or approach fallen power lines, and never touch or grab another worker who is receiving an electrical shock. A worker who tries to do so can become part of the electric circuit, sustaining personal injuries or death.

Downed wires can energize other nearby objects, such as fences, water pipes, bushes, trees, buildings, and telephone, CATV, or fiber optic cables. Even maintenance hole castings and reinforcement bars (rebar) in the pavement can become energized by downed wires. Downed wires can also energize wind-blown objects such as canopies, aluminum roofs, siding, and sheds during storms.

Should equipment contact a power line, **call 911 and the local utility company.**

- o **If no one is in danger** from fire or power-line strikes, move the equipment away from the power line, if possible. If the equipment is not on fire and cannot be carried away or disentangled from the line, stay put (or remain inside the machine) until the power company de-energizes the circuit and

confirms that conditions are safe. Warn others to stay away.

- o **If in danger** from fire or power-line strikes, jump as far away from the equipment as possible, keeping both feet together. Do not let the body touch the equipment and the ground at the same time to avoid electrocution. Do not walk away, but shuffle, keeping both feet on the ground, to prevent feet landing in power ripples with different voltage. Electricity can spread outward through the ground in a circular shape from the point of contact. Large differences in voltages are often created as a person moves away from the center.
- o **If another employee is in danger**, stay away and warn others to stand back at least 35 feet. Call 911 immediately.



- **Know Workers' Rights.**

Speak out if there are on-the-job safety concerns. The [Occupational Safety and Health Act of 1970](#) states that each employer “shall furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employee.” Contact OSHA at **1-800-321-OSHA (6742)** for job safety concerns.



References

- ¹ Texas Comptroller. *Economy Fiscal Notes*. Texas' Electricity Resources: Where Power Comes From -- And How It Gets To You. Website. <https://comptroller.texas.gov/economy/fiscal-notes/2020/august/ercot.php>. Accessed January 15, 2021.
- ² Texas Department of Insurance, Division of Workers' Compensation. 2019 Fatal Occupational injuries in Texas. Table 3. Number of Fatal Occupational Injuries by Event or Exposure, Texas 2018-2019. "Exposure to Electricity." Website. <https://www.tdi.texas.gov/wc/safety/sis/documents/2019fatalrpt.pdf>. Accessed January 15, 2021.
- ³ U.S. Bureau of Labor Statistics. Number of Nonfatal Occupational Injuries and Illnesses Involving Days Away from Work by Selected Worker and Case Characteristics and Event or Exposure, Texas, All Ownerships, 2019. Website. <https://data.bls.gov/gqt/RequestData>. Accessed January 15, 2021.



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