PPL Electric Utilities

Power Line Safety for Drivers
Instructor's Guide

This guide helps you equip your driving students to respond safely to downed power lines and utility pole crashes.

Part One consists of a script that you can deliver in under 10 minutes. After presenting Part One, we recommend you give each student a *Power Line Safety for Drivers* brochure to take home and a glovebox card for quick reference in a power line emergency. If you do not have these materials, you can order them for free on PPL Electric Utilities' *Power Line Safety for Drivers* website, while supplies last: ppl.e-smartdrivers.com.

If you would like to spend additional time on this topic, you'll find actual power line tragedies and discussion prompts in Part Two.

Part One

INTRODUCTION (1-2 minutes)

Today we're going to learn what to do if a power line comes down on the roadway or if you crash into a utility pole. Both situations are rare, but they can be VERY dangerous!

Before we talk about what to do, there are five important things you need to know about electricity from power lines.

1. Electricity is always trying to get to the ground.

2. It will stay in a power line unless the line touches the ground, or unless something provides a path for electricity to flow between the power line and the ground.

3. The electricity in power lines is so strong that it can use almost anything as its path to the ground.

4. If your body provides this path, you could be injured or even killed by electrical shock.

5. Last but not least, you don't have to touch a power line directly to provide a path for electricity. You can also provide a path if you touch a power line indirectly with an object or if you touch something or someone that is in contact with a power line.

DOWNED POWER LINES (2-3 minutes)

Now we'll learn how to stay safe if you encounter a downed power line while driving.

Be especially alert for downed power lines during or after storms, floods or strong winds. Keep in mind that downed power lines are not always visible; they can be hidden by water or tangled in tree branches. And you can't always hear them because downed power lines may not hum or spark.

Here's what to do if you see a downed power line:

- Call 911 immediately. Do this for ANY downed line, even if you're not sure it's a power line or whether it has a protective coating. Most lines have a coating on them to protect the lines from weather, not to protect people from shock.

- Keep yourself and your vehicle as far away from downed power lines as possible. Do not drive over or near them.

- Never drive through water that's in contact with downed lines of any kind. Tires may not provide enough insulation to keep a vehicle from becoming energized, especially where water is involved.

- Do not touch a downed line or try to move it with a branch, pole or stick. Remember, you can be shocked even from indirect contact with a power line.

- Do not touch anything in contact with a downed power line, including trees, vehicles, poles, other utility lines and fences. If you do, electricity will use you as its path to the ground.

- Do not try to rescue someone who is being shocked by a downed power line. Touching a person who is in contact with a source of electricity is another form of indirect contact. You could be hurt or killed while trying to help. Leave the rescue to first responders.

UTILITY POLE CRASHES (1-2 minutes)

If you crash into a power pole, do NOT get out of your vehicle! Downed power lines may energize your vehicle, the ground and objects nearby. If you step out of the vehicle, you will become electricity's path to the ground. You could be seriously injured or even killed.

Stay in the vehicle. You're safer there because if a power line is contacting your vehicle electricity will use the metal shell of the vehicle as a conductor, not you.

Warn bystanders to stay far away. Anyone who contacts a downed line, the vehicle, or the surrounding area can be injured or killed.

Call 911 and wait for utility workers to arrive. They'll de-energize the power lines and tell you when it's okay to exit your vehicle. Not all rescue workers are trained to deal with energized power lines. Only utility workers can tell you when it's safe to get out.

Follow these same procedures if you crash into a pad-mounted transformer or if a power line comes down on or near your vehicle in a non-crash situation.

UTILITY POLE CRASHES WITH SMOKE OR FIRE (3 minutes)

There is only ONE situation in which it's okay to exit a vehicle with a downed power line on or near it, and that is if you notice smoke or fire. If this happens, you must precisely follow the steps that I'm going to show you right now. (**Note to instructor:** This guidance will be most memorable and repeatable for your students if you demonstrate each step as you describe it. If you are unable to do this, consider asking for a volunteer to act out the steps.)

1. Plan your exit route to avoid contact with sagging or downed lines. Look up, down and all around the vehicle to make sure you won't contact a power line. Also look around for anything a power line is touching, such as a tree branch, fence or other utility lines.

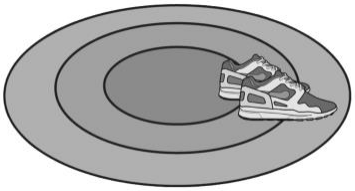
2. Jump clear of your vehicle. DO NOT touch the vehicle and the ground at the same time. If you do, you will become a path for electricity.

3. Land with your feet together and shuffle away with small movements. Keep your feet close together and on the ground at all times. Do not allow the heel of one foot to pass the toes of the other. Keep shuffling as far away as possible from the crash area.

4. Stay at least 100 feet away from the crash area until utility personnel tell you it's safe to go back to your vehicle. Remember, this message must come from utility personnel.

You may be wondering why you need to shuffle away from a downed power line instead of walking or running. Downed power lines can energize the ground with high-voltage electricity. The voltage is strongest where the power lines touch the ground or an object and it gets lower with distance from that point. If you walk normally across an energized area, electricity may travel up one leg and down through the other to get from a higher-voltage to a lower-voltage zone. This could cause a serious or fatal electrical shock. Shuffling keeps one foot in a similar voltage zone as the other foot, making electrical shock less likely.

(**Note to instructor:** It may be easier to explain the shuffle technique with the help of an illustration similar to the one below. If you have a projector, you can show students an animated version of this illustration at ppl.e-smartdrivers.com/if-you-crash-into-a-power-pole.)



CLOSING (1 minute)

Thank you for your attention to this important topic. If you'd like more information about power line safety, visit PPL Electric Utilities' website: ppl.e-smartdrivers.com.

(For instructors who have ordered materials.) Now I'll hand out a brochure and some glovebox cards from PPL Electric Utilities. Please share the brochure with your household and put the card in your vehicle glovebox. It's also a good idea to take pictures of the front and back of this card. That way you'll have it handy in your phone if you're a passenger in someone else's vehicle during a power line emergency.

Part Two

ACTUAL POWER LINE TRAGEDIES

I'm going to tell you three true stories involving downed power lines. In each of these, the victims made decisions that turned out to be fatal. We'll discuss what they did wrong and how you can stay safe in similar situations. (**Note to instructor:** For each incident, we've provided questions for you to ask your students and some possible answers in italics.)

- A 20-year-old driver crashed into a wooden power pole. According to witnesses, he had been racing another vehicle, lost control in a curve and slid off the roadway into the pole. When he got out to inspect the damage, his head contacted a sagging power line and he was fatally electrocuted.

    ◊ What were his mistakes? *(Racing. Getting out of the vehicle after the crash.)*
    ◊ It's natural to want to get out of your vehicle quickly after a crash. But when utility poles are involved, that instinct can be lethal. It's much safer to stay inside the vehicle. Why is this? (*When a power line comes down, it can energize anything it touches, including the ground nearby. If you step out of the vehicle, you could be electrocuted. While you're inside the vehicle, your body is not creating a path to the ground for electricity.)*

- 23-year-old twins were driving together when they saw a downed power line that had come down near the road. The brother got out of the vehicle and tried to move the power line; when he touched it, he was electrocuted. His sister tried to save him and was also shocked. The brother died at the scene; the sister died of her injuries at a nearby hospital.

    ◊ What were their mistakes? *(Touching a downed power line. Trying to rescue someone who is being shocked by one.)*
    ◊ You should never touch a downed power line, try to move it with any object or try to rescue someone else who is being shocked by a power line. What should you do instead? *(Call 911 immediately. Keep yourself and your vehicle as far away from the line as possible. Warn bystanders to stay far away.)*

- Due to heavy winds and rains, a tree came down on a dark rural road and caused a pickup truck to crash into a ditch. Two 17-year-olds got out of the truck, walked toward the front of the vehicle and were fatally electrocuted by downed power lines. The lines were tangled in the branches of the tree and scattered across the road.

    ◊ What was their mistake? *(Getting out of the vehicle after a crash that involved storm-damaged power lines.)*
    ◊ Downed power lines are more common after storms, floods and strong winds. How can you protect yourself in severe weather*? (Stay alert for downed power lines during and after storms. Be especially alert for power lines hidden in tree branches and obscured by water. After any crash, look up, down and all around for sagging and downed power lines. If you see them, stay in the vehicle.)*

I hope you never find yourself in a power line emergency. But if you do, now you know how to keep yourself and your passengers safe.