Ag for Life Safety

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For more information, email info@agricultureforlife.ca

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What are utilities?

Water, gas, electricity, and internet are all examples of utilities.

Utilities are an important part of everyday life, keeping our homes and buildings running. Electricity keeps our lights on and charges our devices, gas heats our houses, and water keeps us clean and hydrated.

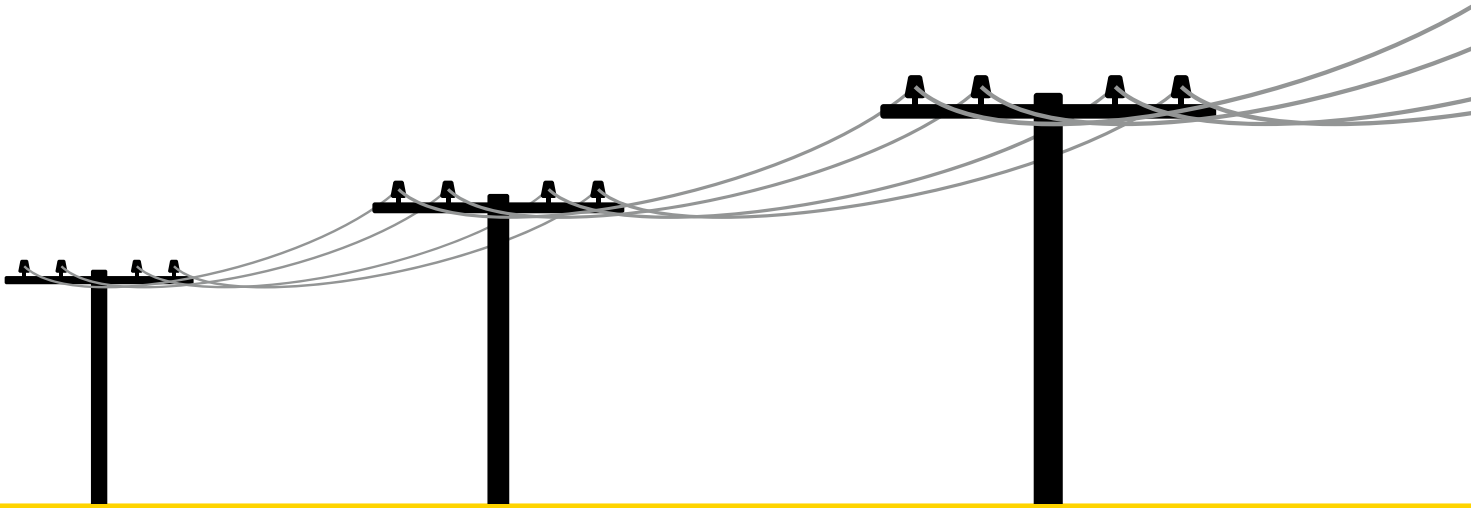
Utilities reach our homes through wires or pipes. These can be above our heads or below the ground. Contact with these wires or pipes can be harmful, so it is important to know where they are and practice safety around them.

Prevention

You might have seen overhead power lines running alongside the road, your street, or even up to your house. These power lines carry electricity.

Electricity can be dangerous; if touched, it can cause harmful shocks, burns, or even death.

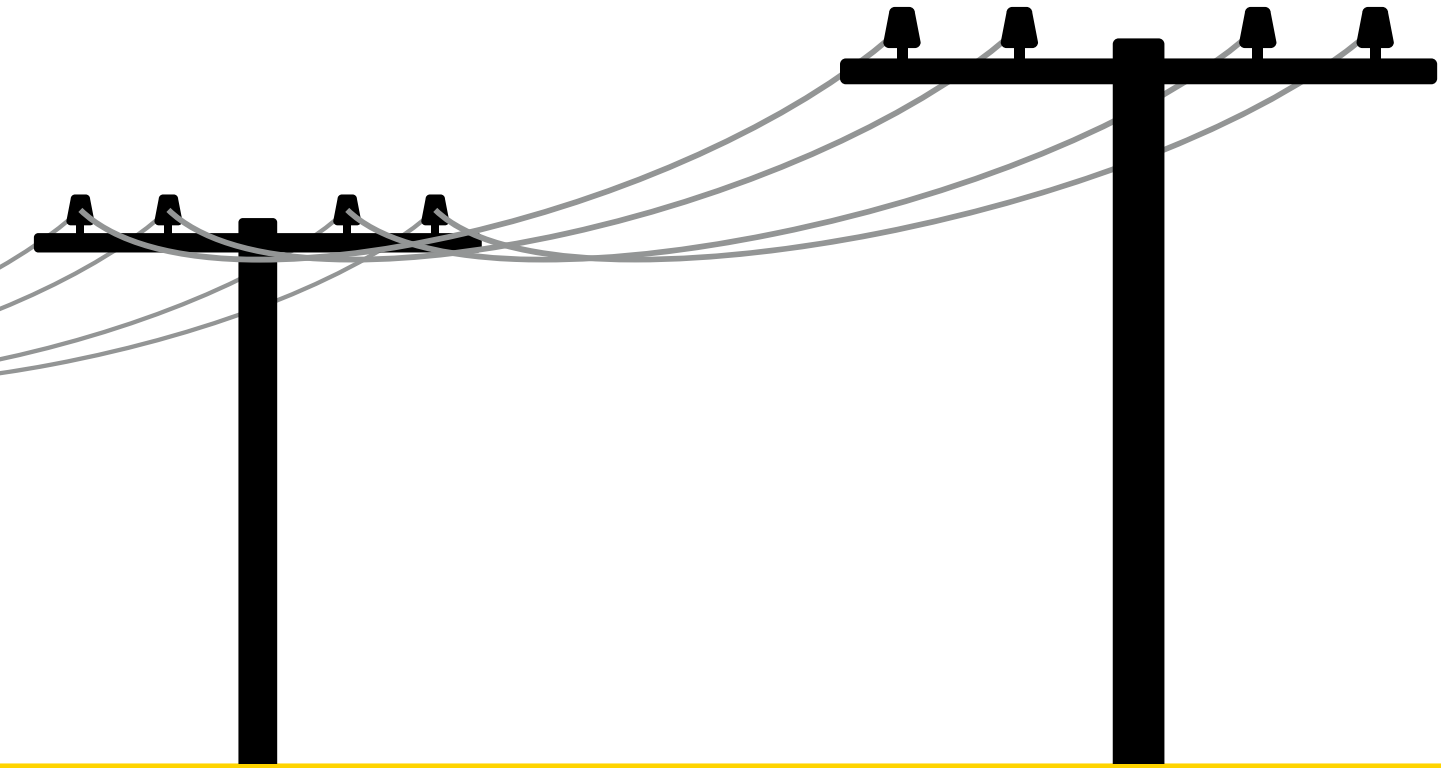
The electric current running through the wires is always trying to look for the easiest path to the ground, and if you touch an overhead power line, you will become a part of the path the electricity takes to reach the earth. This is not good for our bodies! The attraction electricity has to the ground is similar to the magnets that stick to your fridge or the lightning that strikes the earth; one is pulled towards the other. You wouldn't want to be struck by lightning, and you certainly don't want to touch a power line!

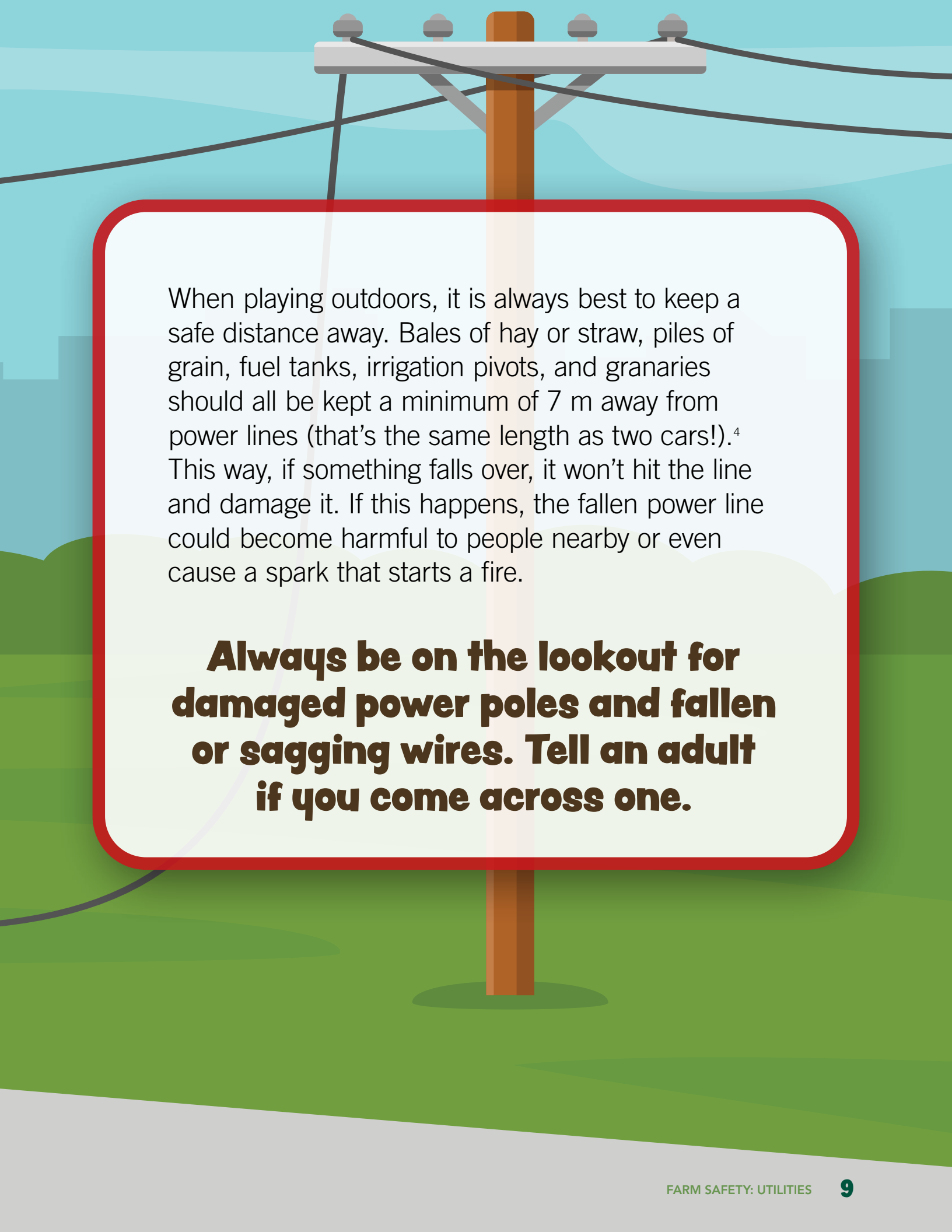


Even if you don't plan to touch an electric wire, incidents can still happen, so safety must be practiced at all times.

Electricity can also arc, which means if you get too close, it might jump through the air to connect with you or the object you are holding.

Contact with a power line doesn't always have to be direct to do harm. If an object you're holding or machine you're sitting in touches the line, the electrical current can travel through the object and into you on its journey to find the ground. This means it is never a good idea to try and rescue a kite or balloon if it gets caught in the wires.





When playing outdoors, it is always best to keep a safe distance away. Bales of hay or straw, piles of grain, fuel tanks, irrigation pivots, and granaries should all be kept a minimum of 7 m away from power lines (that's the same length as two cars!).[4] This way, if something falls over, it won't hit the line and damage it. If this happens, the fallen power line could become harmful to people nearby or even cause a spark that starts a fire.

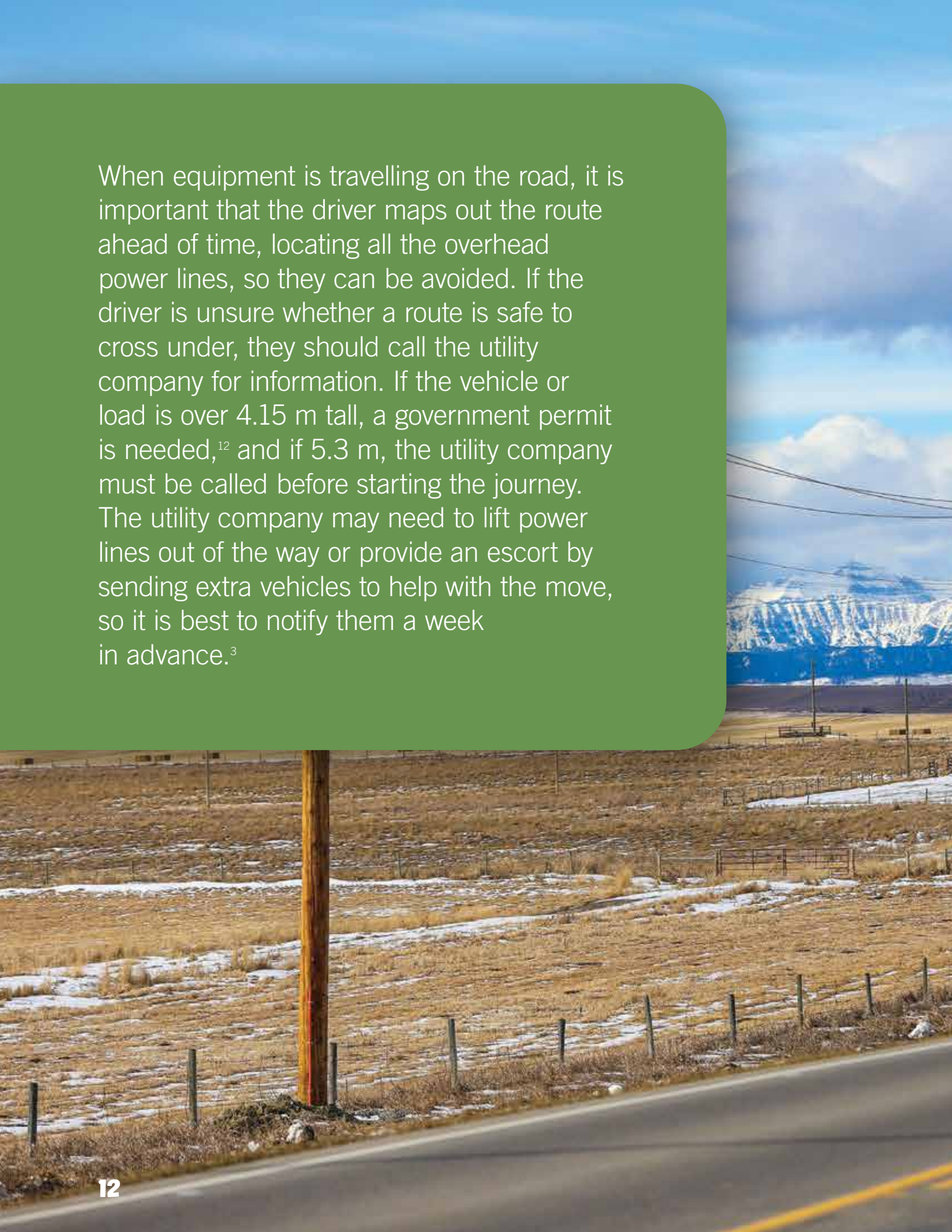
Always be on the lookout for damaged power poles and fallen or sagging wires. Tell an adult if you come across one.

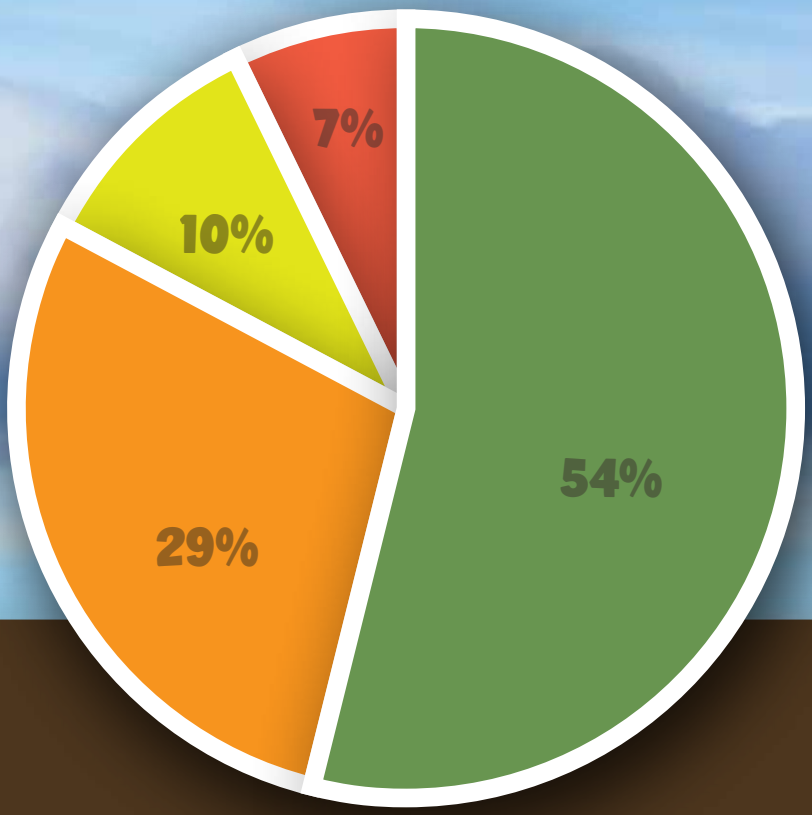
Farm equipment can be very tall, and if its path is not carefully planned, it can hit an overhead power line.

When driving or riding in large equipment, it's important to look up for overhead power lines and keep 7 m away while working. If work needs to be done closer than 7 m, call the utility company in charge of the power line two days before beginning any work.[12]

Since 1950, farm equipment has doubled in size. In 1950, power lines were 4.2 m tall, while tractors were only 1.98 m. Today, tractors can be up to 3.95 m tall, while the height of the power lines hasn't changed.[5] It is because of this that it is important to know your clearance, which is the height of the vehicle or equipment. Equipment can only be a maximum of 4.2 m tall in yards or fields and 4.1 m in driveways.[10] It is also important to watch the width of your equipment, as some power lines have guy-wires to help anchor them into the ground, and these can be snagged, causing damage.

When equipment is travelling on the road, it is important that the driver maps out the route ahead of time, locating all the overhead power lines, so they can be avoided. If the driver is unsure whether a route is safe to cross under, they should call the utility company for information. If the vehicle or load is over 4.15 m tall, a government permit is needed,[12] and if 5.3 m, the utility company must be called before starting the journey. The utility company may need to lift power lines out of the way or provide an escort by sending extra vehicles to help with the move, so it is best to notify them a week in advance.[3]





Did You Know?

FortisAlberta power lines are struck between 300 and 400 times each year.

54% of these incidents were caused by the general public

29% by construction workers

10% by farm workers

7% by transportation workers

Utilities like electricity aren't always above our heads—power lines can be found in the ground as well. Other utilities like water, sewage, and gas are always placed in the ground. These use pipelines instead of wires to travel to our homes.

When standing in your yard or field, these could be under your feet and you wouldn't even know it!

It is because of this that it is important to get the pipelines marked with a flag and paint before you dig. You can get the lines located by going to **clickbeforeyoudig.com**.[8]

Within three working days, utility owners will come to put up flags or spray paint markings that show where the pipes and wires are underground.[3] Even after these utilities are marked, it is still important to follow the instructions provided by the utility owners and not use any digging tools within 1 m of the flags or spray paint. If a power line is hit, you could receive a deadly shock, while a burst pipe could mean flooding or even the release of dangerously explosive gas.


WATER
LINE
clickbeforeyoudig.com

Ever wonder what the different flags or spray-painted colours mean? Here's a guide![7]

Red: electrical or lighting cables

Yellow: gas, oil, or steam pipelines

Orange: telecommunications cables (internet, phone, or TV cable wires)

Blue: drinkable water pipeline

Green: sewer or storm water pipelines

Purple: reclaimed water (waste water that has been treated until it is pure again), irrigation (water used to water plants in farmers' fields), or slurry (mining waste) pipelines

Did You Know?

In Alberta, 25% of power line strikes happened because of digging.

When in Danger

What happens if you come across a fallen power line? Stop where you are and keep a safe distance of 10 m away. This is about the length of a school bus.[8]

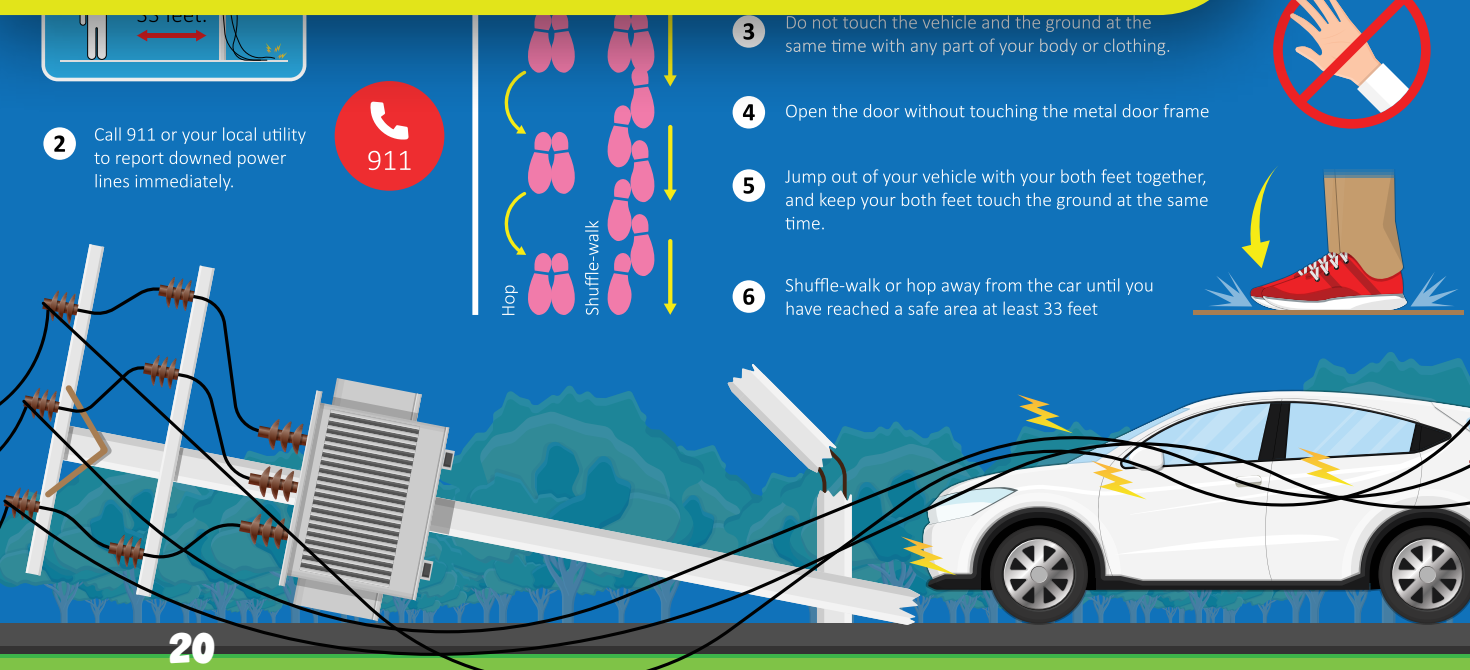
It is possible that electricity is still running through the wires, and this will also make the ground around it energized and dangerous. You can't tell if something is energized just by looking at it. The electricity will flow through the ground like ripples in a pond, only fading away after 10 m. If the ground is wet, the electricity could reach even further, so stay clear! Once you are safely away, warn others, and tell an adult so they can call the utility company.

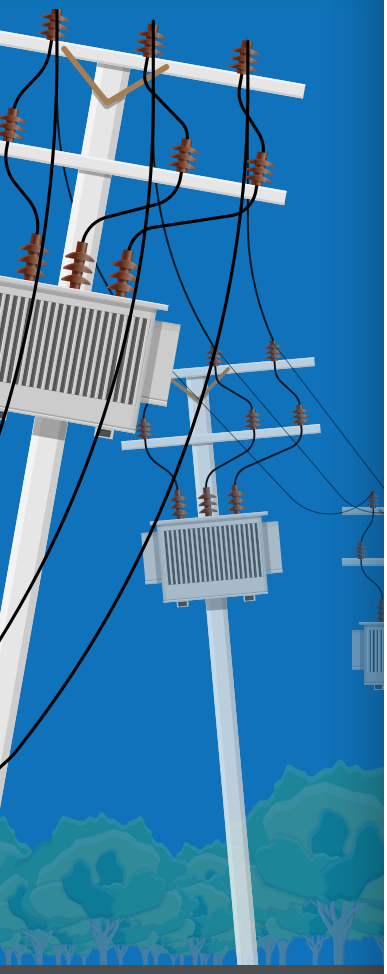
The sooner the company knows there's a problem, the sooner they can fix it!

If you are in a vehicle, tractor, or other large piece of equipment and it hits a power line, the driver can try to break the connection by moving the vehicle or machinery away.

Do not get out! Instead, call 911 and wait for the emergency crew to turn off the power.

Stop anyone from coming close by calling out a warning.





If a fire starts and you need to leave before help arrives, jump from the vehicle and land with both feet together. Never touch the vehicle and ground at the same time! If you do, the electricity will travel from the vehicle, through you, and into the ground. This is called "touch potential." When electricity travels through your body it can cause serious injury or even death. Once you've safely jumped from the vehicle, hop like a bunny or shuffle to a safe distance 10 m away. Do not take steps; when shuffling, your feet should stay touching.

The heel of one foot should never pass the toes of the other![3]

As electricity ripples outwards, each ring of power has different energy levels, and if you step on two different rings, the electricity will try to make the two points equal by traveling through your body, using it like a bridge. This is called "step potential." If you think you're 10 m away, but feel tingling in your legs as you start to separate them, keep hopping and shuffling a little farther, as you might still be in danger.[11]

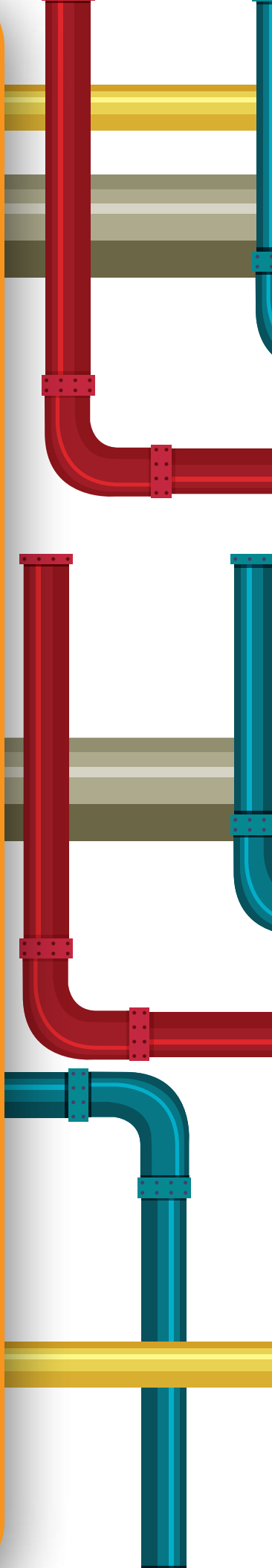
If you are a bystander and notice someone is injured in an electrical incident, don't become a victim yourself. Call 911 and do not go near them. Stay at least 10 m away from the incident.

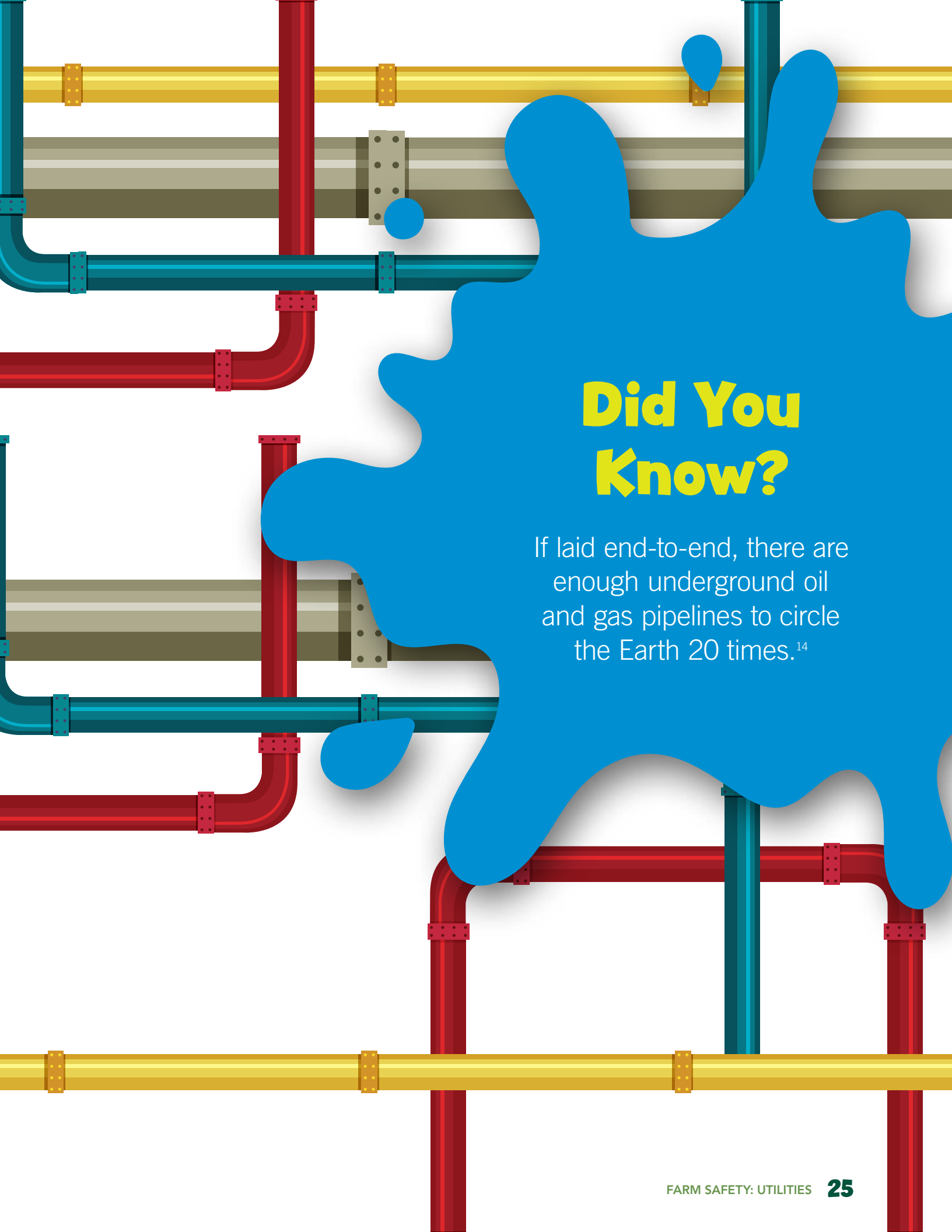
You can help by stopping others from getting too close while you wait for the emergency crew. This will prevent more people from becoming hurt.

If an underground pipeline is hit, be sure to watch out for leaks. Some of these leaks, like water or sewage, you can see, but other leaks, like gas, might be invisible. But just because you can't see it, doesn't mean it isn't dangerous. Some gas lines are odorized and can smell like rotten eggs. High concentrations of gas can cause suffocation, and if a spark or flame is lit with too much gas in the air, it can cause an explosion.

So, if any pipeline is damaged, move away to a safe location, warn others in the area that there is a leak, and tell an adult so they can call 911.

If a fibre optic telecommunications cable (more accessible in urban neighbourhoods and growing in rural areas) is hit, it is important not to touch or even look at the damaged fibre cables. The glass fibres can get stuck in your skin and the light (made up of harmful infrared rays) can hurt your eyes![6]





Did You Know?

If laid end-to-end, there are enough underground oil and gas pipelines to circle the Earth 20 times.[14]


BURIED
GAS
LINE

Utilities are an important part of our everyday lives, and it is our job to make sure we are using them safely.

Always ask yourself: where's the line?

Being aware of your surroundings and avoiding unsafe locations or activities is the first step of utility safety. If work needs to be done, call or click before you dig or work near underground utilities. If you do find yourself in danger, remember: hop, don't step, avoid touching anything, get to a safe distance of 10 m away, tell an adult or call 911, and keep others away.

Distribution Lines:

Distribution lines are medium-voltage-level lines that run in the country and through communities. Their voltage can be between 2,000–25,000 volts, with lines mainly occurring underground in cities and above ground (held up by poles) in rural communities like farms and acreages.[13]

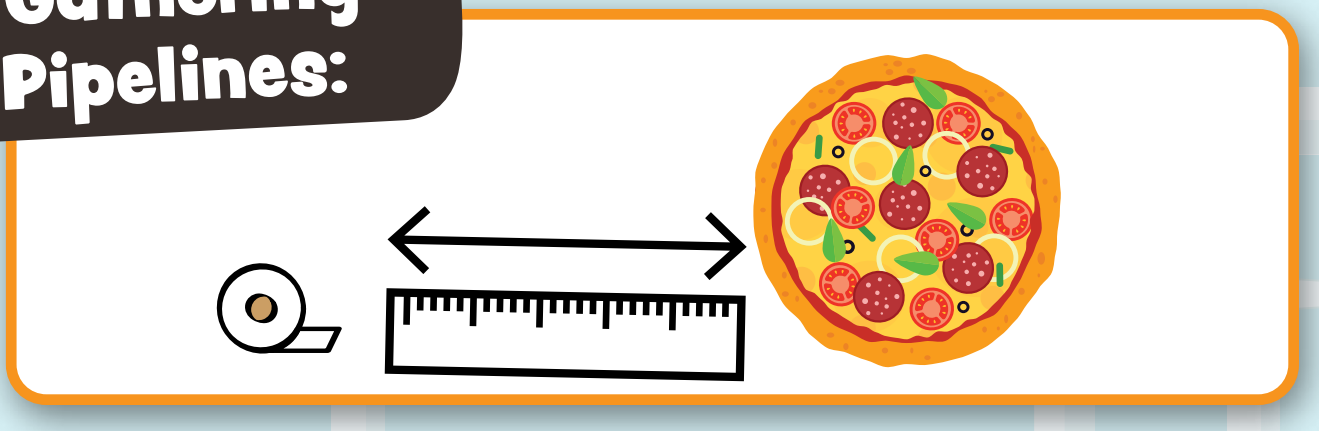
Transmission Lines:

Transmission lines are high-power-level lines connected right to the power substation that transmits the electricity. Transmission lines are above the ground and attached to steel towers or high poles. They can carry up to 800,000 volts, so the electricity can travel long distances without losing its power. There are also some underground transmission lines, but these are less common.[13]

Padmount Boxes:

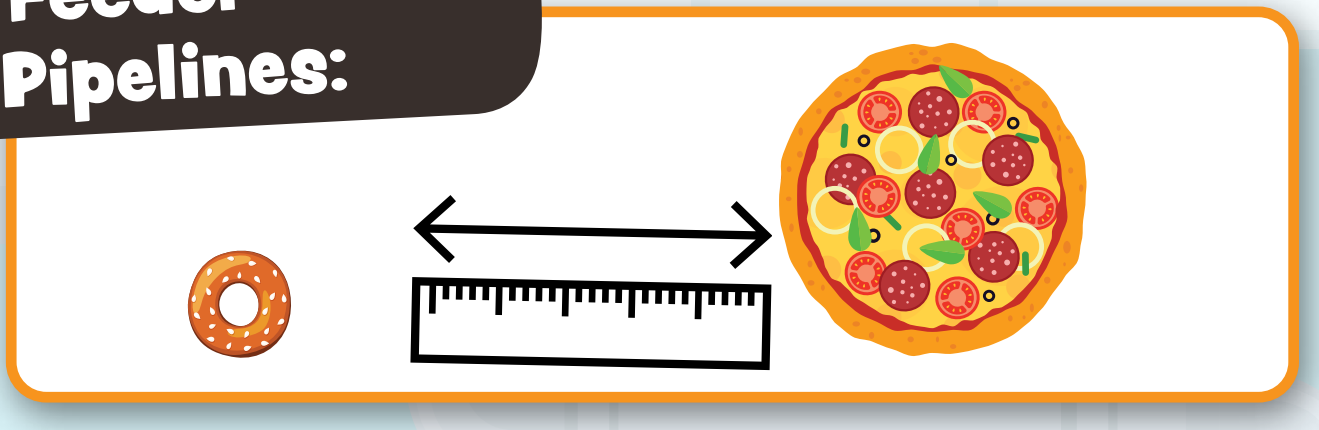
A padmount or padmounted transformer is a green or gray electrical box seen in city or town yards and streets or industrial areas. These transformers are usually placed on top of a concrete pad and are connected to underground distribution lines, which deliver electricity to homes and businesses. You should never play on or around these boxes, instead it is best to keep a safe distance away. Digging near these boxes or operating equipment close by that could break through the protective cover of the box is also dangerous.[13]

Gathering Pipelines:



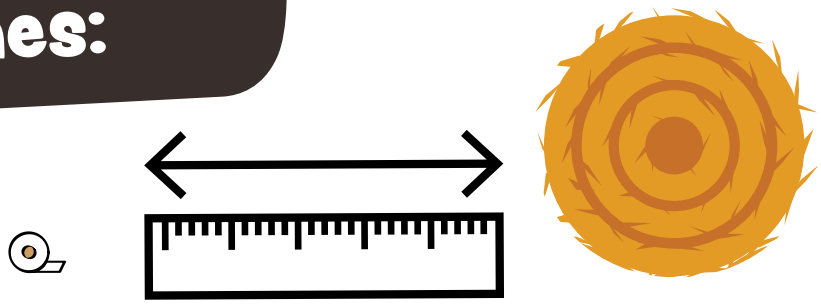
Gathering pipelines carry oil and gas from the wells (where these products are pulled out of the ground) to the facilities where they are processed (made into fuel we can use). These pipes stretch across 250,000 km and have openings anywhere from the size of a roll of paper towel (101 mm) to the size of a large pizza (304 mm).[14]

Feeder Pipelines:



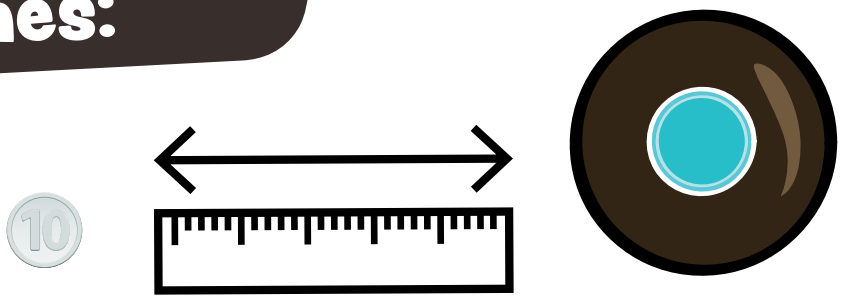
Feeder pipelines move the oil and gas products from the processing facilities and storage tanks to the pipelines that are built for carrying them long distances. These pipelines stretch across 25,000 km and have openings anywhere from the size of a bagel (152 mm) to the size of a large pizza (304 mm).[14]

Transmission Pipelines:



Transmission pipelines are used to move oil and gas products long distances. They carry 97 per cent of Canada's daily oil and gas, which takes between 30–35 days to travel from Alberta to southern Ontario. Gas in these lines has no smell or odor. These pipelines stretch across 119,000 km and have openings anywhere from the size of a roll of paper towel (101 mm) to the size of a large bale of hay (1,212 mm).[14]

Distribution Pipelines:



Distribution pipelines are used to deliver natural gas to homes and businesses. This can be used for heating, cooking, or fireplaces. These pipelines stretch across 450,000 km and have openings anywhere from smaller than a dime (12.7 mm) to the size of a pop bottle (152.4 mm).[14]

PEX Pipe:

PEX Pipes (or cross-linked polyethylene pipes) are one of the newest and most popular types of water pipes. PEX is tough enough to withstand water pressure but is also flexible enough to weave throughout walls, ceilings, basements, and crawlspaces, delivering water to our homes and businesses.[15]

PVC & ABS Sewer Pipes:

PVC (polyvinyl chloride) and ABS (acrylonitrile butadiene styrene) are the newest and most popular types of sewer pipes. PVC and ABS pipes are rust-proof, affordable, and smooth, preventing roots from growing through them.[16]

Fibre Optic Cables:

Fibre Optic cables are the newest type of telecommunication cables. Currently more accessible in urban neighbourhoods, this system is slowly growing in rural areas. They use glass fibre and light to carry information to and from our TVs and computers. Thousands of kilometres of fibre optic cables are found underground, in tunnels, building walls, and ceilings.[17]

Sources

1 http://waterheatertimer.org/Amp-rating-of-power-lines.html

2 https://www.fortisalberta.com/farmsafety

3 https://open.alberta.ca/dataset/a5751d55-bd6f-4782-b770-23fbfd294739/resource/f8b44525-68e0-4250-8772-602f6e9c727c/download/088-1.pdf

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