

Together we can make it safer.



Electrical Safety on Saskatchewan Farms

 SaskPower®



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43% of AG WORKERS in Canada have reported direct hits or near misses with power lines.

Electrocution incidents are a serious cause of injury or death on the farm and are PREVENTABLE. Be aware of the electrical hazards on your farm and make sure you discuss them with your family, workers, and others who may be at risk. Awareness and education of electrical hazards can protect farmers, farm families, and farm workers from injury and fatality.

The Electrical Safety on Saskatchewan Farms resource was designed to fill an existing gap in knowledge in the Saskatchewan agricultural community and provide a comprehensive overview of farm electrical safety. The Agricultural Health and Safety Network collaborated with SaskPower for their expertise on the subject and development of this resource.

We are surrounded by electricity and often fail to treat it with the respect it deserves. The electrical system on your farm, just like other equipment, must be assessed for risk, proper installation, and operated safely.

In the last 10 years there have been more than 6,000 powerline contacts in Saskatchewan. While many people don't die, that doesn't make overhead line contacts any less dangerous. The potential for devastating injury or death exists with each incident.

Don't take the chance, be aware, be safe.



SASKPOWER FARM RELATED INCIDENTS 2015-2019

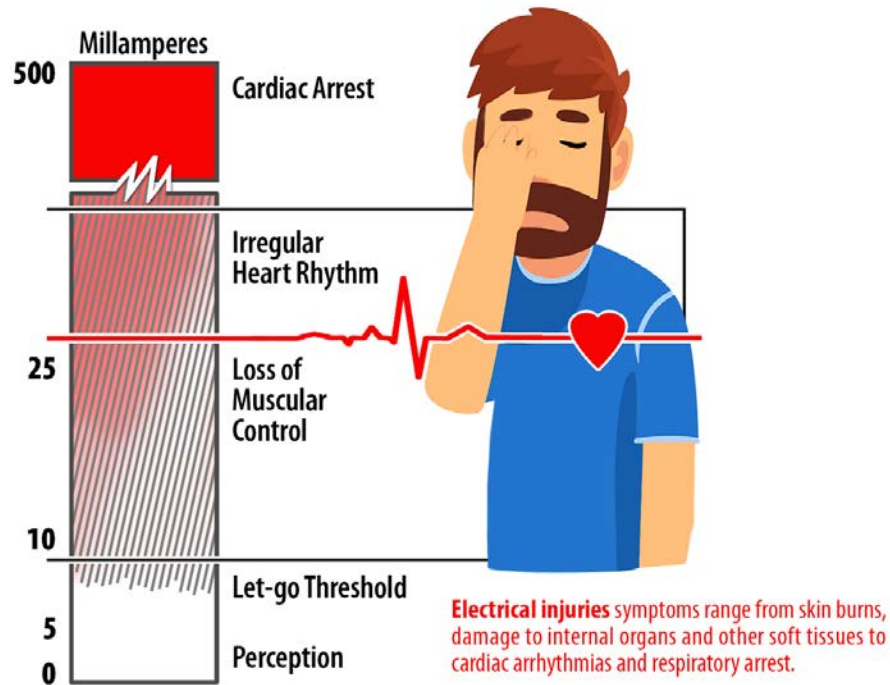
YEAR	NUMBER OF FARM SAFETY INCIDENTS	NUMBER OF FARM-RELATED FATALITIES
2015	224	0
2016	292	1
2017	322	0
2018	314	1
2019	326	0

It is important to remember that there may not be many fatalities that result from contact with power lines, but there is always the **POTENTIAL** for serious injury and death.

WHAT IS THE RISK?

Electrocution is one of the most overlooked hazards of farm work. The most common causes of electrocutions on the farm are portable grain augers, oversized wagons, large combines, high clearance sprayers and other tall equipment that can come into contact with overhead power lines.

ELECTRICAL INJURIES



What happens when a person comes in contact with electricity?

- Muscles tighten up, making it almost impossible to pull away from the circuit
- Lungs constrict, making it hard to breathe
- Heartbeat is interrupted and blood vessels tighten
- Burns
- Internal organ damage
- Death

ELECTRICAL HAZARDS DEFINED:

A dangerous condition where making contact with energized equipment or a conductor may result in injury including a flash or burn, thermal burn or blast injury.

- All electrical systems have the potential to cause injury
- The human body is a good conductor of electricity because it is 70% water!
- Electricity always tries to find the easiest path to the ground, even if it is through you!
- Electricity travels at the speed of light, 299,792 kilometres per second, and the effects can be felt immediately. You have no chance of being able to pull away and avoid the shock.
- Anyone who touches someone who is being shocked can become part of the circuit. NEVER contact someone who's being shocked.

TYPES OF ELECTRICAL INJURIES:

Type 1: Electric Shock

- Occurs when electric current passes through the body
- Electrical current may:
 - Cause involuntary physical movements of your body
 - Prevent you from releasing your grip from a live conductor
 - Throw you into contact with a higher voltage conductor
 - Cause you to lose your balance and fall
 - Cause severe internal and external burns
 - Kill you

Type 2: Arc Flash

- Arc flash is a release of energy caused by an electric arc
- Blast produces:
 - A dangerous pressure wave
 - A dangerous sound wave
 - Shrapnel
 - Extreme heat
 - Extreme light
- These dangers can cause blast injuries, lung injuries, ruptured eardrums, shrapnel wounds, severe burns, blindness, and injuries causing death.

POWERFUL STORIES CAMPAIGN

Visit SaskPower's website to view the stories of farmer's and farm families who have had first hand experiences with contacting overhead power lines.

In many of these stories long hours and resulting fatigue during seeding and harvest played a role in farmer's contacting power poles or power lines with equipment. Contacting a power line can happen to anyone – young or old, new or experienced. There are apps such as AlertMeter that can help you judge if you are struggling with alertness and help you recognize when it's time to call it quits for the night before it is too late.

"We were very fortunate that day, but lots of people aren't."

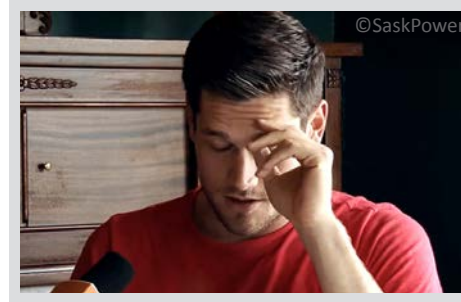
Erik - Macoun, SK



"There is going to be a day where you are in a rush, in a hurry, and you think 'I've done it a hundred times before', but look up, be aware, know where your lines are."

Renita - Admiral, SK

These powerful stories and many others can be found at www.saskpower.com/Safety/Electrical-Safety/Worker-Safety/Powerful-Stories

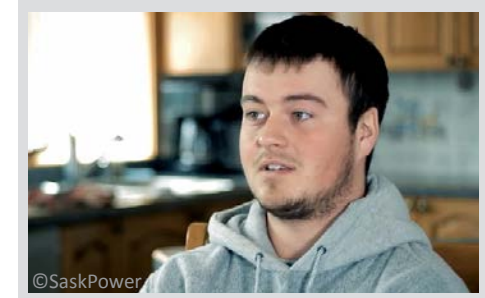


"Running long hours... I closed my eyes for a second and next thing I knew I had contacted the power pole with the tractor."

Bobby - Sovereign, SK

"You always think, 'it won't happen to me', all it takes is 30 seconds. Hitting a powerline can happen to anybody."

Bryant - Montmarte, SK



SCAN THIS QR CODE AND WATCH THESE POWERFUL STORIES ON SASKPOWER YOUTUBE CHANNEL



follow #skpowersafe



Click on icons to follow pages





**WHAT TO DO WHEN FARM MACHINERY IS ENTANGLED WITH POWER LINE?
IF ANY FARM EQUIPMENT MAKES CONTACT WITH A POWER LINE, POLE OR GUY WIRE?**

STOP!

If there is no immediate danger such as a fire, the operator can attempt to move the machine away from the power line, pole or guy wire. If the operator is unable to free the equipment, or if they are causing further damage, they must stop, stay in the machine and call SaskPower to await further instructions.

If they do free themselves, they should call SaskPower immediately so the line can be repaired.

HOW TO PREVENT A CONTACT:

1 LOOK UP AND LIVE

Plan your work in advance, lower equipment and use a spotter to prevent contact with overhead power lines.



2 BEFORE YOU DIG

To avoid contacting underground power lines call Sask 1st Call at 1-866-828-4888 or visit www.sask1stcall.com.



HOW TO REACT TO A DOWNED POWER LINE:

1 STAY BACK

If you see a downed power line, stay back at least 10 metres (33 feet) and call SaskPower at 310-2220 or call 911.



2 STAY PUT

If your equipment contacts a power line call SaskPower at 310-2220 or call 911 and stay put until help arrives.



3 LAST RESORT

If your vehicle is on fire and you must exit:

1. Make sure no wires are in your way.
2. Stand in doorway, cross arms, put feet together.
3. Jump as far as possible, land with feet together.
4. Do not touch the vehicle.
5. Keep arms crossed, feet together, and HOP at least 10 metres to safety.



MINIMUM HORIZONTAL CLEARANCE FOR HIGH VOLTAGE LINES

HOW FAR AWAY SHOULD ITEMS BE FROM >	OVERHEAD LINES	BURIED LINES	PAD-MOUNT TRANSFORMERS
FUEL TANKS	7.5m / 25ft	1.5m / 5ft	7.5m / 25ft
BALES, HAYSTACKS, FEEDLOTS	15m / 50ft	N/A	6m / 20ft
HOMES	15m / 50ft	0.6m / 2ft	6m / 20ft
BARNs, SHEDS, QUONSETS, GARAGES	15m / 50ft	0.6m / 2ft	6m / 20ft
GRANARIES	15m / 50ft	0.6m / 2ft	6m / 20ft
WATER WELLS	15m / 50ft	1.5m / 5ft	1.5m* / 5ft
ANTENNAS	3m + height of antenna	1.5m / 5ft	3m / 10ft

If you are worried that your buildings, storage areas, and other installations don't meet minimum clearances **call SaskPower at 1-888-757-6937 or apply online** at <https://www.saskpower.com/Forms/Electrical-Service-Changes-Form> to have an evaluation of the circumstances of your installation.

Visit saskpower.com/safety to learn more safety tips. For everyone you love... come home safe tonight.





General Electrical Safety Tips for the Farm

Stack & Store Safety

Never stack bales or pile grain near power lines as these can be inviting for kids who may climb too close to a power line. Remember that even non-metallic materials such as lumber, tires, ropes, straw and hay, can conduct electricity depending on dampness and surface dirt.

Installing or Moving Grain Bins?

Plan before you place. Locate any overhead power lines and stay **15 meters/50 feet** away.

Utility Breaker Constantly Tripping?

Before you flip the switch, determine whether it's a power outage or problem with your breaker.

Water & Electricity are a Dangerous Mix

Don't spray or move pivots near power lines.

Use ground fault circuit interrupters (GFCI) in areas where water and electricity may come into contact.

GFCIs shut off power to prevent injury from electrical shock.

3 SIMPLE SAFETY TIPS FOR ELECTRICITY

1. Electrical equipment must be safe and properly maintained
2. Work near electrical equipment or overhead power lines should be carried out safely
3. Isolate the power supply before carrying out any repair or maintenance work

Call SaskPower at **1-888-757-6937**

or visit saskpower.com/safety to apply online.



Grain Dryer Safety Tips

Hazard: gas leaks, fires that can result in property damage, injury, and even loss of life.

Anyone who operates a grain dryer should know the owner's manual well and understand the safety measures related to the equipment.



RELOCATING FARMYARD POWER LINES

Reduce or eliminate the risk and inconvenience of working around overhead power lines. SaskPower primary 25 kilovolt (kV) or 14.4 kV overhead power lines that are located within farm yards can be replaced with safe and convenient underground cables.

Eligibility – E34 Farm rate customers are eligible for the Farmyard Power Line Relocation program.

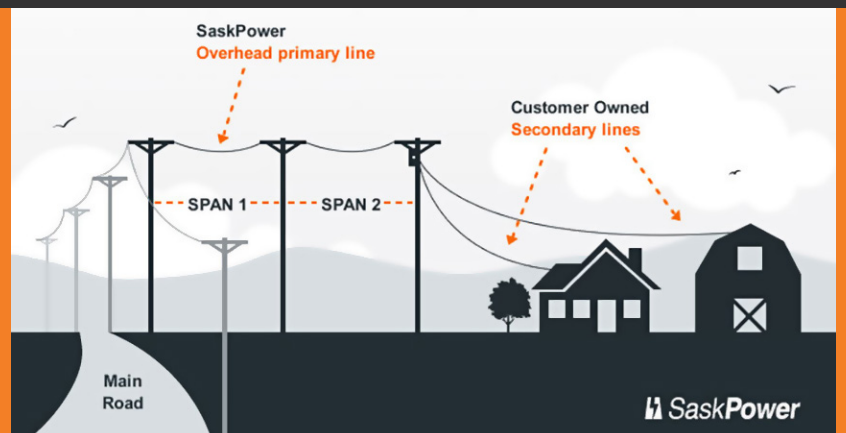
Call SaskPower at **1-888-757-6937**

or visit saskpower.com/safety to apply online.

Call Before You Dig

Be safe when working in your yard. Before you dig for any reason, contact **SaskFirst Call at 1-866-828-4888** and they will come out and mark all underground power, telephone, and gas lines free of charge.

RELOCATING FARMYARD POWER LINES



For more information on Powerline Relocation contact SaskPower.





Safety Tips

1. Keep visitors, children, and untrained personnel away from grain dryers at all times.
2. Routinely check for any developing gas plumbing leaks. If you detect a leak, shut down and repair the equipment.
3. Avoid damage or stress to any gas lines that could cause a leak. Do not drive over the hose with vehicles or farm equipment.
4. Inspect and clear away any dust, dirt, cobwebs and nests from equipment before starting. Check for chaff build-up every day during operating season.
5. Have your grain dryer equipment installed by a licensed gas contractor to ensure that all safety controls are connected and functioning properly.

Basics to Staying Safe with Electricity

- Make sure extension cords are in good condition, not frayed or cracked, and only used them temporarily.
- Make sure electrical cords are insulated with plastic to avoid getting shocked.
- Replace damaged cords immediately.
- Do not use indoor extension cords outdoors.
- Keep outdoor electrical connections above ground and out of puddles and snow.
- Never staple or nail extension cords to the wall or another object. Place them where no one will trip over them.
- Never remove the ground pin (the round 3rd prong) to make a 3-prong plug fit a 2-conductor outlet.
- Use ground fault circuit interrupters (GFCI) in areas where water and electricity may come into contact. GFCIs shut off power to prevent injury from electrical shock.
- Never operate a home generator without first getting a Saskatchewan licensed electrical contractor to install a transfer switch which isolates your home wiring from main powerlines.

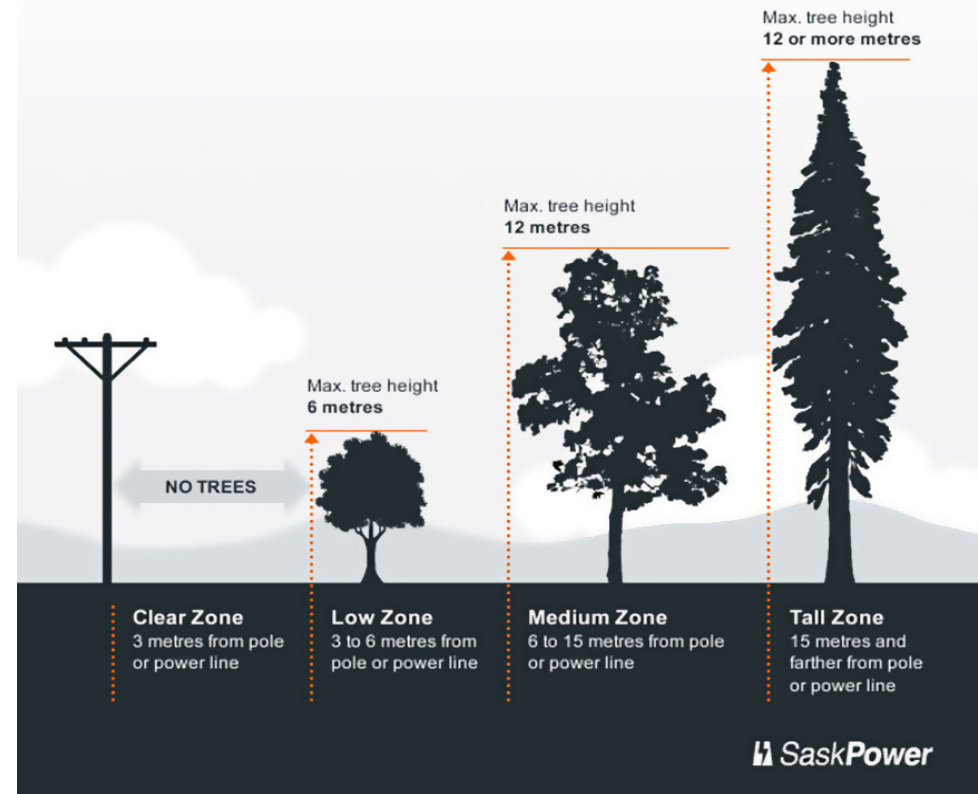


TREES AND POWERLINE SAFETY

In Saskatchewan, trees cause approximately 2,000 power outages a year when they come in contact with power lines. No matter which zone you are planting in, be sure that the tree and its branches will not reach into the clear zone when fully grown. A minimum of 3 meters (~10 feet) clearance should be left between a powerline and any branches.

Planting around SaskPower Equipment

Remember that SaskPower employees must always be able to open ground-mounted pedestals for emergency and maintenance work. Leave 2-3 meters on all sides free of trees and shrubs.



Technology to keep you Safe: THE FUTURE



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Some of these technologies are available, but the cost is often prohibitive and others are areas of active research and investigation for improving safety when operating farm machinery around overhead power lines.



- ▶ Development of technologies to help detect object and alert farmers/operators of power poles and power lines
- ▶ Marking GPS locations of power poles
- ▶ Adding cameras to equipment extremities

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and Safety in Agriculture
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PREVENT SERIOUS INJURIES AND FATALITIES

LOCATE OVERHEAD POWER LINES BEFORE STARTING ANY WORK



Image provided by SaskPower

How Does Electricity Work?

- Electricity cannot exist without an unbroken path to and from the conductor
- Electricity forms a path to and from the conductor
- When you plug in a device, the electricity takes the easiest path to and from the plug-in, to the tool and back to the power source, resulting in completing an electrical circuit

Farm Electrical Safety CHECKLIST

Be Proactive & Prevent Incidents

THERE SHOULD ALWAYS BE 3 METERS (10 FEET) BETWEEN EQUIPMENT AND POWER LINES
 All farming incidents are preventable if you are mindful of the dangers. Talk to your family and anyone else working on the farm about electrical safety hazards. Make sure everyone on the farm knows how to avoid overhead power lines and what to do if an incident occurs.

	YES	NO
Do you locate overhead power lines before starting any work? Keep equipment at least 3 m/10ft away from overhead power lines.		
Are you using large equipment that may come in contact with power lines? Getting too close or making direct contact with power lines can cause electricity to travel through your body to the ground causing serious injury or death.		
Have you checked with SaskPower, SaskEnergy, and SaskTel to find the exact location of underground lines before you dig for any reason? Call Sask 1 st Call at 1-888-828-4888		
Have you placed your grain bins, barns, fuel tanks, and other structures at least 15 m/50 ft away from overhead power lines and 6 m/20 ft away from pad-mounted transformers or underground cables?		
Have you lowered large equipment like your grain auger, air seeder, and air sprayer before moving it? This will prevent contact with overhead power lines.		
Do you have someone to act as a safety watch when you move tall equipment and other machinery under power lines?		
Have you planned what to do if there isn't enough clearance when moving tall equipment under power lines? You can take another route or call 1-888-757-6937 to raise the wires. Never attempt to raise wires yourself.		
Have you ensured irrigation water is not directed at overhead lines? Electricity could be conducted through the water and irrigation pipe to you.		
Have you devoted time to family safety instructions? Ensure your family knows how to work safely around electricity, too.		
Have you shielded dangerous machinery components, electrical boxes, and wiring and fitted them with locks?		
Do you shut off the power and use lockout procedures when repairing/maintaining electrical components?		

KNOW THE HEIGHT OF YOUR EQUIPMENT

Record the height of your equipment for quick reference here:

Air Seeder (in/out of transport mode)	Grain Truck
<input type="text"/>	<input type="text"/>
Sprayer (in/out of transport mode)	Silage Truck
<input type="text"/>	<input type="text"/>
Cultivator (in/out of transport mode)	Bale Hauler
<input type="text"/>	<input type="text"/>
Tractor	Combine
<input type="text"/>	<input type="text"/>
Trackhoe/Backhoe	Grain Auger (fully upright)
<input type="text"/>	<input type="text"/>
Other	Other
<input type="text"/>	<input type="text"/>



RURAL OUTREACH INJURY PREVENTION FARM FAMILIES HEALTH PROMOTION
AGRICULTURAL WORKER BUILDING PARTNERSHIPS KNOWLEDGE TRANSLATION



HEALTHY & SAFE. EVERY SEASON.



For everyone you love
COME HOME SAFE TONIGHT

**REMEMBER:
 LOOK UP AND LIVE**

Almost half of all power line contacts involve large equipment. Always be aware of your surroundings, such as overhead wires. Remember to look up and live!

**PLAN YOUR WORK
 IN ADVANCE**

Take time to note the location of all power lines in and around your worksite. Always use a spotter on the ground to warn you of any dangers when moving equipment.

**33 FEET IS THE
 SAFE DISTANCE**

If you see a downed power line, stay back at least 33 feet – about 10 metres. Report the downed line immediately by calling SaskPower at **310-2220** or call **911**.

**STAY PUT
 AND SURVIVE**

If you contact a power line, do not get out of your vehicle. Call SaskPower immediately at **310-2220** or call **911**. Tell bystanders to stay at least 33 feet (about 10 metres) away.



OK. You're having a very bad day. You've contacted a power line and your vehicle is on fire. You have no choice but to exit the cab. Here's how to do it safely:

CHECK and make sure no wires are in your way.



STAND in the doorway, cross your arms and put your feet together.



JUMP as far as possible away from the vehicle, and land with both feet together.



DO NOT touch the vehicle.



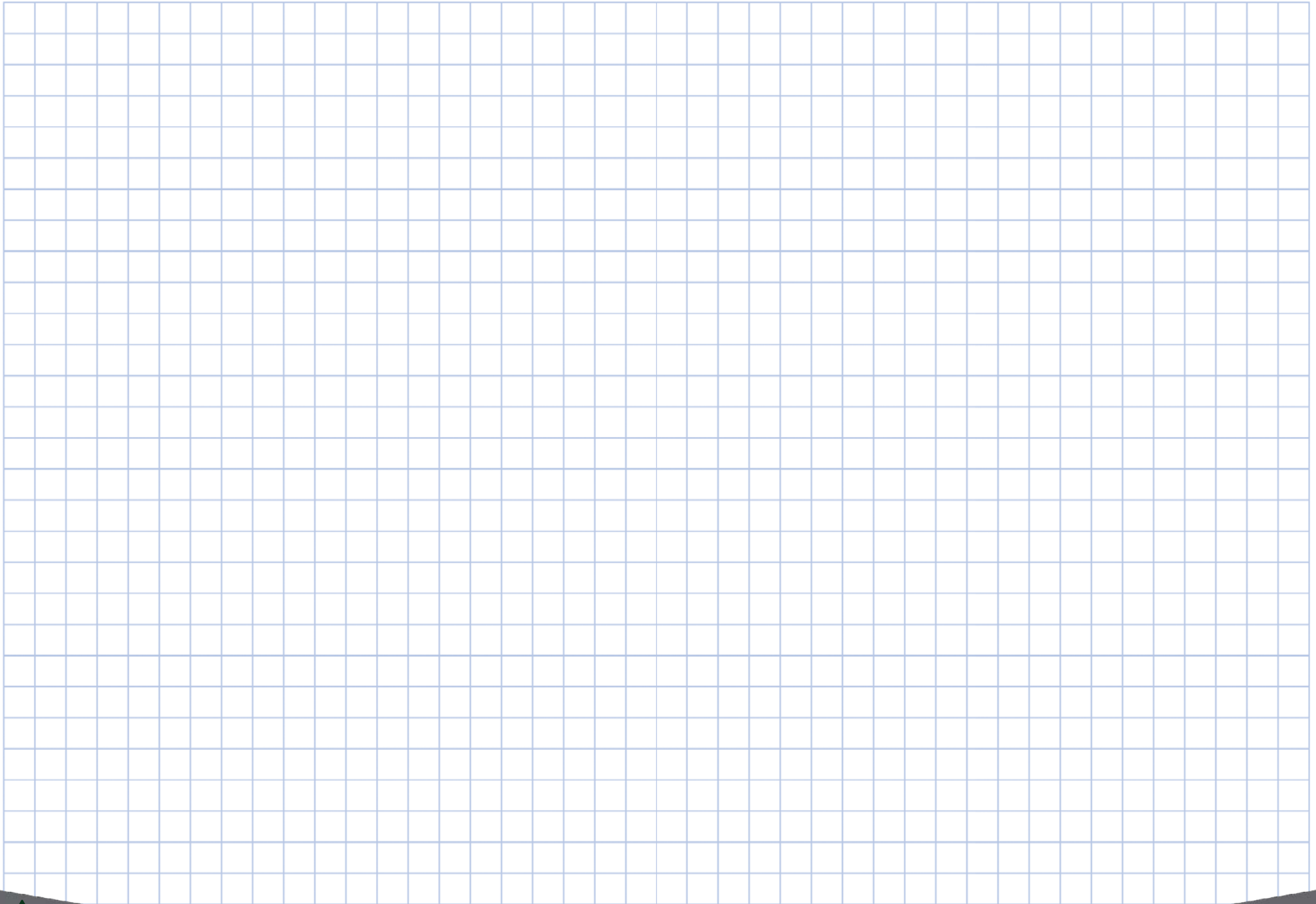
KEEP your arms crossed, feet together, and HOP at least 10 metres to safety. If you feel any tingling, HOP further away.

Want to learn more about staying safe around electricity?
 Please visit us online at saskpower.com/safety



Where are the Power Lines on your Farm?

Use the grid below to map out your farm. Mark overhead lines with a solid red line AND underground lines with a dotted red line.



Resources

SaskPower | saskpower.com/safety

Agricultural Health and Safety Network | aghealth.usask.ca

SaskEnergy | saskenergy.com/safety

Call Sask 1st | sask1stcall.com

References

Fortis Alberta: fortisalberta.com

Safe Electricity: safeelectricity.org

Infrastructure Health & Safety Association: ihsa.ca

Canadian Centre for Occupational Health and Safety: ccohs.ca

Alliant Energy Kids: alliantenergykids.com

Electrical Safety Authority: esasafe.com

University of Wisconsin-Madison Extension: fyi.extension.wisc.edu

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Funding:



Design by: CanaCanadian Communications | canacanadian.com

POWER LINE SAFETY PLAN

A plan helps you identify power line hazards on your farm and respond to dangerous situations if they do arise. If you need more information please contact **SaskPower at 1-888-757-6937** or visit saskpower.com/safety.

Rural Address: _____

Land Location & Description: _____

Fire: _____

Ambulance: _____

SaskPower Emergency Line: 310-2220 (toll free)

Call Before You Dig: Sask 1st 1-866-828-4888/www.sask1stcall.com

SaskPower Electrical Inspections Line: 1-888-757-6937

SaskPower Natural Disaster Information Line: 1-844-231-1155





HIT A POWER LINE?



Call 310-2220
and wait for
SaskPower
to arrive.



**Do not exit
your vehicle**
and keep
others away.

VEHICLE ON FIRE?

- 1 Make sure **no wires** are in your way.
- 2 **Stand** in doorway, **cross arms**,
put **feet together**.
- 3 **Jump** as far as possible,
land with **feet together**.
- 4 **Do not touch** your vehicle.
- 5 Keep arms crossed, feet together,
and **hop** at least 10 metres to safety.



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