

Model Policy On Electrical Safety (Saskatchewan Version)

Electricity represents a significant hazard that must be addressed as part of your OHS Program.

OHS managers in any part of the country can adapt this Model Policy for use at their

ELECTRICAL WORKERS SAFETY POLICY

This Model Policy deals with one aspect of electrical safety: electrical workers. The Policy is based on Saskatchewan laws and you'll need to adapt it to meet the requirements of your own jurisdiction's OHS regulations.

1. PURPOSE

ABC Company has adopted this Policy to prevent electrical injuries and property damage and ensure compliance with the Saskatchewan *Occupational Health and Safety Act* ("Act"), the *Occupational Health and Safety Regulations* ("Regulations") (including but not limited to Part XXX of the Regulations, the ABC Company Occupational Health and Safety Program ("OHS Program") and other applicable requirements standards for electrical safety at ABC Company workplaces.

2. DEFINITIONS

For purposes of this Policy:

- **"Approved"** means approved by the chief inspector appointed by the Saskatchewan Power Corporation in accordance with Section 6 of *The Electrical Inspection Act, 1993* ("EI Act");
- **"Competent"** means possessing knowledge, experience, and training to perform a specific duty safely and effectively;
- **"Electrical equipment"**:
 - Means any apparatus, appliance, device, instrument, fitting, fixture, machinery, material, or thing used, or capable of being used, in or for: (A) the generation, transformation, transmission, distribution, supply, or utilization of electrical power or energy; or (B) the protection of buildings or premises from damage by lightning; and
 - Includes any assemblage or combination of materials or things used, or capable of being used or adapted, to serve or perform any purpose or function when connected to an electrical installation, notwithstanding that any of the materials or things may be mechanical, metallic, or non-electric in origin;
- **"Electrical installation"** includes electrical equipment and any connected wiring;
- **"Electrical worker"** means:
 - In the case of work of electrical installation regulated by the EI Act, a person who is authorized under the EI Act to perform that work;
 - In the case of any work with electrical equipment not regulated by the EI Act, a person who is qualified to perform that work;
- **"Guarded"** means covered, shielded, fenced, enclosed, or otherwise protected by suitable covers, casings, barriers, rails, screens, mats, platforms, or other equally effective means;
- **"High voltage"** means any voltage over 750 volts;
- **"Lamp"** means an artificial source of electric light;
- **"Luminaire"** means a complete lighting unit designed to accommodate a lamp and connect the lamp to an electrical power supply;
- **"Maintained"** means kept in a condition of efficient and safe functioning by a system of regular examination, testing and servicing or repair;

- **“Powered mobile equipment”** means a self-propelled machine or combination of machine, including a prime mover, that is designed to manipulate or move materials or provide a work platform for workers;
- **“Practicable”** means possible given current knowledge, technology and invention;
- **“Qualified”** means possessing a recognized degree, a recognized certificate or a recognized professional standing and demonstrating, by knowledge, training and experience, the ability to deal with problems related to the subject-matter, the work, or the project;
- **“Reasonably practicable”** means practicable unless the person on whom a duty is placed can show that there is a gross disproportion between the benefit of the duty and the cost, in time, trouble and money, of the measures to secure the duty;
- **“Readily accessible”** means capable of being reached quickly for operation, renewal, or inspection, without requiring a worker to climb over or remove obstacles or to resort to a portable means of access.

3. POLICY STATEMENT

All electrical work performed at ABC Company workplaces must be carried out safely and in accordance with the requirements of the Act, the Regulations, the EI Act, the OHS Program, and other electrical safety standards that apply.

4. WORKERS COVERED BY THIS POLICY

ABC Company is committed to protecting the health and safety of **all workers** at its site regardless of who pays or employs them. Accordingly, this Policy is intended to protect:

- Full- or part-time workers employed by ABC Company;
- Temporary employees placed by an outside agency to work at the site;
- Contract labourers engaged to perform work at the site;
- Volunteers who work at the site for free; and
- Workers employed by prime contractors, contractors, and subcontractors to perform work at the site under a contract with ABC Company.

5. ELECTRICAL HAZARD ASSESSMENT

To provide for electrical safety, ABC Company will ensure electrical hazard assessments are carried out. Electrical hazards identified during hazard assessment are rated as a high priority for purposes of determining corrective measures.

6. WORKERS THAT CAN PERFORM ELECTRICAL WORK

ABC Company will ensure that only electrical workers (as defined in Section 2 above) are permitted to construct, install, alter, repair, or maintain electrical equipment. However, a competent worker who is **not** an electrical worker may be allowed to:

- Operate powered mobile equipment and perform non-electrical work on or near de-energized equipment;

- Extend a portable power cable for routine advancement by interconnection of approved cord connectors, cord caps, or similar devices;
- Change light bulbs or tubes;
- Insert or replace an approved fuse, to a maximum of 750 volts, that controls circuits or equipment;
- Connect small portable electrical equipment that operates at less than 750 volts to supply circuits by means of attachment plugs, where the connection does not overload the circuit conductors, or to use or operate small portable electrical equipment that is connected in that way.

7. ELECTRICAL EQUIPMENT

7.1. General Standards for Electrical Equipment

ABC Company will ensure that only workers are permitted to use only approved electrical equipment that is:

- Approved for the intended use and location of the electrical equipment;
- Maintained in proper working condition and capable of safe operation; and
- Tested in accordance with the manufacturer's recommendations.

If electrical equipment is found to have any defects or unsafe conditions, EITHER:

- The electrical equipment is disconnected and removed from use; OR, BOTH:
- Immediate steps are taken to protect the health and safety of any worker who may be at risk until the defects are repaired and/or the unsafe conditions are corrected; AND
- Such defects and unsafe conditions are remedied as soon as reasonably practicable.

7.2. Covers for Switches, Receptacles, Connections, Etc.

ABC Company will ensure that:

- All switches, receptacles, luminaires, and junction boxes are fitted with a cover that is approved for the cover's intended use and location;
- All wire joints or connections are:
 - Fitted with an approved cap or other approved cover;
 - Enclosed in an approved box; or
 - Where the wire joints or connections are not permanently installed, protected from damage by another approved means;
- All dead, abandoned, or disused electrical conductors or equipment are removed from the workplace or disconnected and secured to prevent inadvertent energization.

7.3. Electrical Equipment in Tunnels or Manholes

If electrical equipment is installed in a tunnel or manhole, ABC Company will ensure, where reasonably practicable, that:

- The tunnel or manhole is kept clear of water; and

- The electrical equipment is protected from physical or mechanical damage.

7.4. Luminaires

ABC Company will ensure that:

- A luminaire located at a height of less than 2.1 metres above a walking or working surface is protected against physical or mechanical damage by installation of a safeguard or by the location of the luminaire;
- Where a portable luminaire is used:
 - The electrical extension cord and fittings are approved for the intended use and location of the cord and fittings;
 - The electrical extension cord and fittings are properly maintained;
 - The electrical extension cord is not used to supply power to any equipment other than the portable luminaire unless the cord meets the requirements of Section 7.5. below;
- A portable luminaire used in a damp location or metallic enclosure, including a drum, tank, vessel, or boiler, is:
 - Operated at a potential of no more than 12 volts; or
 - Supplied by a circuit protected by a class A ground fault circuit interrupter.

7.5. Extension & Power Supply Cords

ABC Company will ensure that an electrical extension or power supply cord used to supply energy to any electrical equipment is:

- Approved for the intended use and location of the particular cord;
- Fitted with approved cord end attachment devices that are installed in an approved manner;
- Provided with a grounding conductor; and
- Maintained and protected from physical or mechanical damage.

7.6. Portable Power Cables & Cable Couplers

ABC Company will ensure that every portable power cable and cable coupler is:

- Protected from physical or mechanical damage; and
- Inspected by a competent person frequently enough to protect workers' health and safety.

ABC Company will also ensure that:

- If any unsafe condition is identified in a portable power cable or cable coupler, the cable or coupler is either repaired or taken out of service; and
- Every splice in a portable power cable is strong enough and adequately insulated to retain the mechanical and dielectric strength of the original cable.

Workers will take all reasonably practicable steps not to drive equipment over, or otherwise damage, a portable power cable or cable coupler.

7.7. Exposed Metal Parts of Portable Electrical Equipment

ABC Company will ensure that every exposed metal part of portable electrical equipment that is not designed to carry electrical current is connected to the ground unless:

- The electrical equipment is of an approved, double-insulated type, and is clearly marked as such;
- Power is supplied to the equipment through an isolating transformer having a non-grounded secondary of no more than 50 volts potential;
- Power is supplied to the equipment through a class A ground fault circuit interrupter; or
- Power is supplied to the equipment from a battery of no more than 50 volts potential.

7.8. Portable Electric Power Plants

ABC Company will ensure that:

- A portable electric power plant that is operated at voltages exceeding 240 volts to ground or rated in excess of 12.0 kilovolt-amperes is connected to ground in a manner approved under the EI Act; and
- All electrical equipment connected to an ungrounded portable electric power plant is:
 - Of the double insulated type; and
 - Clearly marked as being of the double insulated type or is supplied from a class A ground fault interrupting device.

Exception: The above requirements do not apply where the electrical energy is used for electric arc welding.

7.9. Electrical Panels

ABC Company will ensure that every electrical panel is:

- Approved for the panel's intended use and location;
- Protected from physical or mechanical damage;
- Readily accessible; and
- Fitted with an approved cover that has an approved filler in any unused opening.

7.10. High Voltage Switchgear & Transformers

ABC Company will ensure that a place housing electrical switchgear or transformers operating at high voltage is:

- Guarded;
- Kept free of extraneous materials; and
- Adequately ventilated.

ABC Company will post a warning sign at a place housing high voltage switchgear or transformers that:

- Indicates the highest voltage in use; and

- States that access is restricted to authorized persons only.

ABC Company will ensure that a fire extinguisher approved for Class C fires is readily available to workers working on or near energized high voltage electrical equipment.

8. GROUNDING OF EQUIPMENT BEFORE WORK STARTS

Before any work on an electrical conductor or electrical equipment begins and during the progress of the work, ABC Company will ensure that:

- The electrical conductor or electrical equipment is isolated, locked out, and connected to ground; or
- Other effective procedures are followed to ensure workers' safety.

Exception: The above provision does not apply to work performed by a qualified electrical worker working closer than prescribed minimum distance that is covered by Section 9.3. of this Policy below.

9. ADDITIONAL REQUIREMENTS FOR ESPECIALLY DANGEROUS ELECTRICAL WORK

9.1. Definition

For purposes of this Section, “**qualified electrical worker**” means a person who:

- Holds a valid journeyman's certificate in the electrician trade, and includes an apprentice in the trade while under the supervision of a journeyman;
- Holds a valid journeyman's certificate in the power lineperson trade, and includes an apprentice in the trade while under the supervision of a journeyman; or
- For the purpose of design, calibrating of equipment, inspection, monitoring, testing, and commissioning of equipment in high voltage installations, individuals who are electrical engineers, applied science technologists, or certified technicians who have achieved professional certification within an electrical, electronics, industrial, or instrumentation discipline.

9.2. High Voltage Work

ABC Company will ensure that a qualified electrical worker has received approved training in high voltage safety. No qualified electrical worker may perform high voltage electrical work unless the worker has:

- Written proof of approved training in high voltage electrical safety; and
- Has that written proof of approved training readily accessible at all times while working near energized high voltage electrical conductors.

ABC Company will provide and ensure workers at risk of making contact with an exposed energized high voltage electrical conductor use approved rubber insulating gloves and mitts and approved rubber insulating sleeves.

9.3. Minimum Approach Distance when Working Near Exposed Energized Electrical Conductors

Except as otherwise provided in this Section, ABC Company will ensure that no worker works, no material is piled, stored, or handled, no scaffold is erected or dismantled, and no equipment or powered mobile equipment is used or operated within the minimum distance from any exposed electrical set out in Column 1 of Table 22 of the Appendix to the Regulations:

Table 22: Minimum Distances from Exposed Energized High Voltage Electrical Conductors

Risk Factor		Col. 1	Col. 2	Col. 3	Col. 4	Col. 5	Col. 6
Voltage Phase to Phase	Voltage to Ground	Non-Electrical Worker, Material, Equipment	Qualified Electrical Workers	Vehicles & Load	Limit of approach for utility tree trimmers using conducting objects exposed to energized parts	Limit of approach for utility tree trimmers using rated tools to exposed energized parts	Limit of approach for utility tree trimmers using rated insulated booms
kV	kV	Metres	Metres	Metres	Metres	Metres	Metres
230	133	6.1	1.4	1.83	2.4	1.41	1.85
138	79.8	4.6	1	1.22	1.9	0.92	1.35
72	41.6	4.6	0.6	0.8	1.6	0.61	1.05
25	14.4	3	0.3	0.6	1.2	0.12	0.55
15	8.6	3	0.3	0.6	1.1	0.12	0.55
4.16	2.4	3	0.15	0.6	1.05	0.4	0.50
0.75	0.75	3	0.15	0.6	1.05	0.4	0.05

Exception: The above requirement does not apply to a worker undertaking a specific, one-time activity under the direct supervision of a qualified electrical worker;

ABC Company will ensure that no worker who is at ground potential approaches an exposed energized electrical conductor closer than the minimum distance set out in Column 2 of Table 22 above. ABC Company will ensure that only a qualified electrical worker works closer to an exposed energized electrical conductor than the minimum distance set out in Column 2 of Table 22.

Where a qualified electrical worker does, in fact, work closer to an exposed conductor than the Column 2, Table 22 distance, ABC Company will ensure that:

- The qualified electrical worker:
 - Performs the work in accordance with written instructions for a safe work procedure that have been developed and signed by a competent person appointed by ABC Company for that purpose;

- Uses equipment approved for the intended use of the equipment; and
- Uses appropriate personal protective equipment in accordance with the Section 04 – Personal Protective Equipment Policy;
- The conductor is operating at 25 kilovolts or less and is fitted with rubber and rubber-like insulating barriers that meet the requirements of an approved standard.

ABC Company will ensure that no part of a vehicle that is operated on a public road, highway, street, lane, or alley, or the load the vehicle is carrying comes within the minimum distance from an exposed energized electrical conductor set out in Column 3 of Table 22.

ABC Company will ensure that no utility tree trimmer works within the minimum distance from an exposed energized electrical conductor set out in:

- Column 4 of Table 22 if the utility tree trimmer is using conducting objects exposed to energized parts;
- Column 5 of Table 22 if the utility tree trimmer is using rated tools exposed to energized parts;
- Column 6 of Table 22 if the utility tree trimmer is using rated insulating booms.

9.4. Exposed Energized Electrical Conductors Operating at 31 to 750 Volts

ABC Company will ensure that where work is carried out in proximity to exposed energized electrical conductors operating at 31 to 750 volts, the work is carried out in a way that prevents workers from making accidental contact with the exposed energized conductor.

10. EMERGENCY PROGRAM

Where an electrical worker is at risk of making harmful contact with an exposed energized electrical conductor, ABC Company will develop and implement an emergency program setting out procedures to be followed in case such contact is made, including procedures to:

- Rescue the worker who comes into contact with a live conductor;
- Administer first aid to a worker who has sustained electrical shock; and
- Obtain medical assistance.

ABC Company will ensure that workers are properly trained to implement the emergency program.

11. INSPECTION

Monthly workplace inspections carried out in accordance with the OHS Program will include inspection of electrical equipment, conductors, and system and verification that the electrical safety measures set out in this Policy are being effectively implemented. Any electrical safety hazards identified during such inspections will be reported and appropriately addressed, including removing defective electrical equipment from service.

12. PRIME CONTRACTORS, CONTRACTORS & SUBCONTRACTORS

ABC Company will ensure that any prime contractors, contractors, and subcontractors it hires to perform work involving exposure to electrical hazards at an ABC Company work site are:

- Notified of the electrical hazards at the site, the dangers they pose, and the controls used to protect exposed workers;
- Notified of the terms of this Policy and applicable ABC Company safe work procedures in place at the work site.

Prime contractors and contractors hired to control work at ABC Company work sites that involves exposure to electrical hazards must carry out the electrical safety obligations imposed on ABC Company under this Policy by either:

- Directly following the terms of this Policy and any ABC Company safe work procedures that apply to the work; or
- Developing and implementing equivalent electrical safe work policies and safe work procedures that meet the requirements of the Regulations and are coordinated with and provide workers at least the same amount of protection as this Policy and ABC Company safe work procedures.

13. EVALUATION

This Policy and safe work procedures developed under it will be reviewed at least once a year and immediately in response to incidents, injuries, or significant changes to work conditions affecting electrical safety.

Legislation/Regulations/Standards

Occupational Health and Safety Act, 1993, SS 1993, c O-1.1

Occupational Health and Safety Regulations, 1996, RRS c O-1.1, Reg 1

The Electrical Inspection Act, 1993, SS 1993, c E-6.3