What is an acceptable level of stray voltage?

The U.S. Department of Agriculture (USDA) states that cow contact voltages from low impedance sources should be kept less than 2 to 4 volts. This is slightly more than the voltage of a standard flashlight battery (1.5 volts). If Idaho Power's stray voltage technicians find that our lines are contributing more than 1 volt (60 Hertz steady state rms) of neutral-to-earth voltage at the customer's service entrance, we will take appropriate action to reduce the level to 1 volt or less.

Where can I learn more about stray voltage?

Idaho Power representatives are always available to give you information about stray voltage. We also maintain a library of publications relevant to stray voltage research and legislation, including the U.S. Department of Agriculture Handbook 696 on Stray Voltage/Current. This information is accessible to Idaho Power's customers and other interested parties at 1221 W. Idaho St. in Boise. The USDA handbook may be ordered from the corporate library at 208-388-2316.

For all other questions, contact Idaho Power at 1-800-488-6151 (208-388-2323 in the Treasure Valley) or visit www.idahopower.com.

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Helping you understand stray voltage

Working hard to resolve electric service issues for the benefit of our customers and communities.

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At Idaho Power, our goal is to provide you with electricity safely, reliably and responsibly.

We work hard to resolve electric service issues for the benefit of our customers and communities. Stray voltage is one of these issues. It is a phenomenon that has been studied for the past 40 years, and is the normal result of the process of providing electricity. Unfortunately, it is often misunderstood. We want to help you understand what it is and where it comes from.

What is "stray voltage"?

Stray voltage is not "the voltage that got away." It is a voltage that develops on the grounded neutral system of either the farm wiring or utility distribution system. If an animal touches metal equipment under the right conditions, any voltage on the grounded neutral system will cause a small current to flow through the animal into the ground. Under normal conditions, the voltage is too weak to generate any physical or behavioral changes in the animal.

Why would there be any voltage in farming equipment?

The utility's system that supplies electricity to a farm has two conductors. A "hot" conductor brings electricity to the farm, and a "neutral" conductor returns the current to the original source. It is possible for a very small amount of voltage to develop on the neutral conductor because of resistance to electrical current flowing through the wire. Because milking stanchions and other electrical equipment must be connected to a grounded neutral wire for safety, the voltage on the farm's grounded neutral may be present on the equipment.

Can my cows get stray voltage from a power pole?

No. A human or animal cannot get stray voltage from a nearby distribution line. The only time that an animal could perceive stray voltage is if it touches grounded metal equipment that has a larger-than-normal amount of voltage in relation to the ground.

How do I know if there is stray voltage on my property?

Stray voltage may be a result of damaged or improper wiring on the farm or a nearby farm, or from Idaho Power's electricity lines. A checklist is available at www.idahopower.com for you to investigate potential voltage sources on your property. These potential sources could include corroded electrical fixtures, wires lying in damp areas or broken connections to the ground rods.

If you have any concerns about stray voltage on your property, call Idaho Power's Customer Service Center at 1-800-488-6151 (208-388-2323 in the Treasure Valley) and ask to speak with a stray voltage investigator. Our trained staff will complete a free on-site investigation and work directly with you to determine the level of voltage on your property and how to ensure that it does not create a stray voltage problem. Staff also will perform tests on the company's electrical lines to ensure they are not producing above-normal levels of voltage.

A certified stray voltage technician measures the level of stray voltage between a farm's grounded metal equipment and the floor.