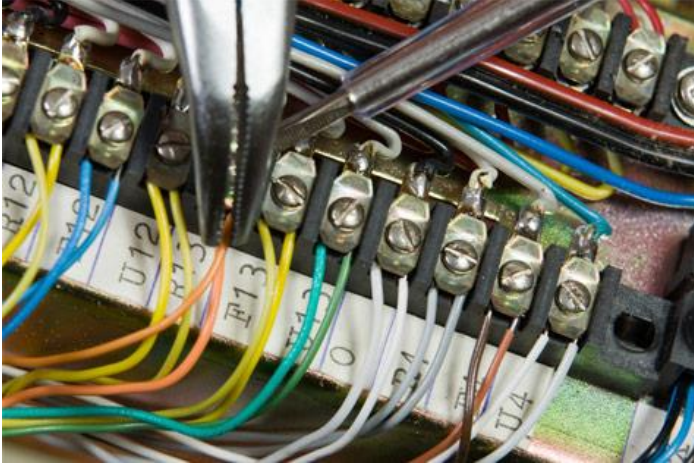


5 Causes of Power Surges and How to Protect Your Property



Power surges happen whenever the wiring in your home or office experiences brief jolts of high electrical voltage. Power surges can be minor or severe. Even appliances or electronics that are turned off can flicker or buzz during a power surge, making it seem as though Casper is paying you a visit.

Far from harmless though, power surges can damage your electrical outlets, fry your appliances and electronics and start dangerous electrical fires. Being cognizant and proactive against the causes of power surges can potentially save your electronics and more importantly, your life. Here are five serious causes of power surges and what you can do to protect your home or business.

1. Overloaded Outlets or Circuits

Survey the outlets under your desk, behind your television set, or anywhere else you have a tangled web of wires. Plugging in too many appliances or electronics in the same socket can lead to power surges and electrical fires.

If you are experiencing power surges, have an electrician check to see if all of the outlets in a room might be operating on the same circuit. If so, overloading one outlet might not be the problem. The circuit itself may be overloaded trying to power too many appliances in the same room.

2. Damaged or Exposed Wiring

Pesky little critters such as mice or squirrels can chew on the wiring inside the walls of your house or building causing the wiring to fail. Damaged or exposed wires can cause power surges because the electricity flowing through them is not being directed or handled in the way it normally should.

If wires are damaged, you may even smell smoke as the wires can melt or burn up due to the abnormal flow of voltage. Note that exposed wires should not be handled as they can cause electrocution. Instead, consult an electrician who can test and replace the affected outlets and wires as needed to ensure safety.

3. Lightning Strikes

Lightning touching down simply near your power line can lead to an extra spike in electrical voltage of millions of volts. That's why your cable box, lamp, or computer do not stand a chance against a power surge caused by lightning strikes, unless you are using a surge protector. During especially severe storms however, it may be best to power down and unplug expensive equipment.

Power surges from lightning strikes can destroy your electronics causing them to fail to power back on. This can be an expensive and annoying problem. For a business this can lead to data loss, or the need to replace costly equipment.

4. High-Power Electrical Devices

High-energy appliances or machines like elevators, refrigerators and air conditioners can cause energy spikes and power surges. That is because when they power on they tend to draw an abnormally large amount of electricity and that excess power courses throughout the circuit, overpowering other appliances and electronics in its path. When this happens it is common to notice the lights flickering or blinking off and on in your house or office.

5. Power Outages

Ever notice how momentarily bright all your lights get when they first come back on after a power outage? The idea that a power outage can cause a power surge seems counter-intuitive. However, that massive burst of energy that turns the power back on for a whole neighborhood, town or state may lead to excess energy coursing through the lines.

How to Protect Your Home or Business

The easiest way to prevent damage from power surges is to be proactive. What can you do? Have a whole-home or building surge protector installed. You may also use individual surge protectors at the outlet level. If you are experiencing power surges in your home or office, [contact](#) Supreme Electric so we can effectively fix your electrical problems to keep you safe.

Should you worry about power surges?

Lightning strikes are a common cause, but most power surges stem from inside your home.

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Power surges occur when the flow of electricity is interrupted, then started again, or when something sends electricity flowing back into the system.

Surges can range from five or ten volts when you turn on your hair dryer to thousands of volts if lightning strikes a transformer.

Internal power surges

More than half of household power surges are internal. These happen dozens of times of day, usually when devices with motors start up or shut off, diverting electricity to and from other appliances.

Refrigerators and air conditioners are the biggest culprits, but smaller devices like hair dryers and power tools can also cause problems.

External power surges

An external power surge, stemming from outside your home, is most commonly caused by a tree limb touching a power line, lightning striking utility equipment or a small animal getting into a transformer.

Surges can also occur when the power comes back on after an outage, and can even come into your home through telephone and cable TV lines.

Why worry about power surges?

Your home is filled with items susceptible to power surges. Anything containing a microprocessor is especially vulnerable - the tiny digital components are so sensitive that even a 10-volt fluctuation can disrupt proper functioning.

Microprocessors are found in hundreds of consumer items, including TVs, cordless phones, computers, microwaves, and even seemingly "low-tech" large appliances like dishwashers, washing machines and refrigerators.

Large power surges, as with a lightning strike, can cause instantaneous damage, "frying" circuits and melting plastic and metal parts. Fortunately, these types of power surges are rare.

Low-level power surges won't melt parts or blow fuses, but they can cause "electronic rust," gradually degrading internal circuitry until it ultimately fails.

Small surges won't leave any outward evidence, so you may not even be aware they're happening - even though they may occur dozens or even hundreds of times each day.

What causes power outages?

Equipment failure, storms, wildlife, tree limbs and public damage cause power outages. Westar tracks outage causes and works to identify areas we can improve service reliability.

Equipment failure



Many components make up the electrical system. Electrical equipment, like any piece of equipment, can fail due to age, performance and other factors. Electrical equipment is often weakened by lightning strikes and temporary faults, such as those that happen when a tree limb comes in contact with a line. Over time, equipment becomes more susceptible and can not withstand the increased flow of electricity during high demands.

Wildlife



Squirrels, snakes and birds can come in contact with equipment such as transformers and fuses and cause equipment to momentarily fail or shut down completely. Many times, these critters are looking for a warm spot or food. Westar installs guards and protective fencing and uses various [methods to help protect equipment](#).

Trees



Outages are caused when trees interfere with power lines. [ReliabiliTree](#), Westar's tree trimming program, is running in all parts of our service territory. The goal of ReliabiliTree is to clear and prune trees on a four to five year cycle. During high winds and ice storms, tree limbs or entire trees are commonly what come in contact with poles and power lines. ReliabiliTree crews use professional directional pruning methods to trim trees. This is the accepted industry pruning standard approved by the [Tree Care Industry Association](#).

Weather



Lightning, high winds, and ice are common weather-related power interruptions. Severe weather can cause outage situations that last for several days. Lightning can strike equipment or trees causing them to fall into electrical lines and equipment. To decrease the effects of a lightning strike, we install lightning arrestors at substations and on high voltage equipment. Arrestors may safely short lightning energy to the ground. Storms and high winds can cause lines to come into contact with tree limbs or other power lines. Straight line winds and tornadoes can knock down poles and cause extensive damage for several miles. Ice builds up on power lines, poles and tree limbs, causing them to fall or break under the weight. High winds can play a factor in how much weight a power line can sustain.

Public damage



Damage by vehicle accidents or construction equipment can cause broken utility poles, downed power lines and equipment damage. Outages can be extended and affect a large number of customers. It is important to keep electric safety in mind if you are involved in a vehicle crash around power lines.

Tracking outages



Outages caused by "tracking" can occur when dust accumulates on the insulators of utility poles and then combines with light moisture, usually caused by fog or drizzle. When there is a long dry spell, dust builds up on equipment. Light moisture combining with dust acts as a conductor, causing equipment to fail. It is possible that these outages result in a spark and pole or equipment catching fire. In such dry circumstances, it is beneficial to get a harder rain to wash dust away.

Momentary circuit interruptions



We know that blinks or short duration interruptions can be annoying. A momentary outage is defined as a brief electrical service interruption lasting no longer than five minutes. While these interruptions can be irritating, they also serve a valuable purpose; they demonstrate that the electrical system is working properly and that it has prevented an even longer power outage. When an object comes in contact with electric lines, it causes a fault. Breakers - similar to a circuit breaker in your home - sense the fault and interrupt power momentarily in an attempt to allow the lines to clear and check the system. This prevents further damage to equipment and prevents longer-duration outages requiring our personnel to respond to. Blinking lights should be reported to 800-544-4857.

What Causes Power Surges?

Odds are you have surge protectors in your home. Maybe they're cluttering the living-room floor. Or, perhaps you have surge protector receptacles elegantly installed in the wall.

You know you need protection for your electronic gadgets, but how much do you understand about power surges? Spikes in your home's electrical current happen with surprising frequency. Most surges last for a fraction of a second. While the spikes don't last long, they can be powerful enough to cause damage to electronic devices.

What Are Power Surges?

A power surge can happen when electricity is interrupted then immediately re-established. This occurrence forces too much current through the system. Power surges have the ability to knock out your delicate electronics, cause fires, and wreak havoc up and down the circuitry of your home or business.

Internal Power Surges

Internal power surges are the most common type. More than 50 percent of household power surges are of this variety. They may occur dozens of times every day. Most power surges are too small to be detected by the human senses. They pass through your home's wires, and no one's ever the wiser. Fortunately, modern electronics are designed to resist these kinds of minuscule spikes.

Refrigerators, air conditioners and other appliances can cause surges when they're switched on. This type of problem happens most often when your home has faulty wiring. Tripped circuit breakers and short circuits can also create spikes in current. This kind of internal surge is powerful enough to cause damage. If you suspect your home has bad wiring, call us immediately.

External Power Surges

External power surges are usually greater than the internal variety. They may happen when a tree, branch or anything else, drops on a power line. Lightning is another cause. One strike near a power line could fry a television or computer monitor.



How to Prevent Power Surges

Eighty percent of all power surges and voltage spikes that occur in the home are caused by the everyday powering on and off of major appliances. Any appliances that are connected to individual circuits will cause big power draws and major power stoppages when they are powered on and off, and any electronics that are connected to the same circuit will deal with the same impact across the board.

This is why it is so mission critical to take advantage of individual power surge protector “bricks” as much as possible, but especially when plugging expensive and rather delicate electronics into the wall. The last thing you want to happen is to have your expensive new laptop or beautiful new big screen TV fried simply because your washing machine kicked on and your laptop or TV was plugged into the same circuit.

Get your hands on a whole home surge arrester.

The first thing you need to do when you are looking to protect your entire home from power surge attacks is to invest in a whole home arrester as soon as possible. While a bit more expensive than plugging power surge protectors into all of your outlets and hoping for the best, a whole home surge device is going to protect your circuits directly at the electrical panel, modulating and controlling power and making sure that it flows efficiently and steadily no matter what.

This is the kind of upgrade you want to make with the help of the best electrician in the area, as they will have to do all the heavy lifting to install this kind of setup. Once installed, however, you will never have to worry about power surges again.

Experienced, Professional Electricians in the Pacific Northwest