LCUB'S COMPLETE GUIDE TO POWER OUTAGES

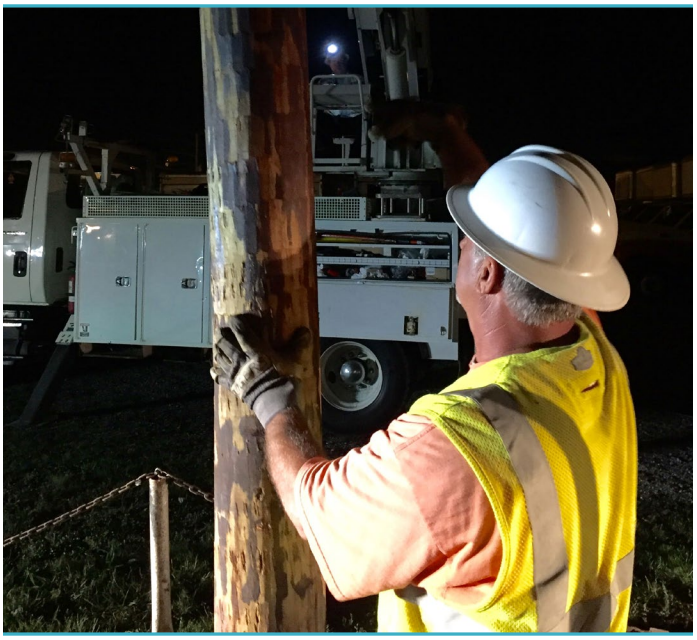
Understand and Protect Against Power Outages and Disruptions

LCUB.com

WHY DOES MY POWER GO OUT?

Here at Lenoir City Utilities Board (LCUB) we frequently get asked, *"What causes my power to go out, especially if there's not even bad weather in the area?"* It's a fair question because we understand that any power outage is an inconvenience, even if it's just a power flicker that causes the lights to momentarily go off and on. That's why we work hard to remain on top of technological advancements. In fact, LCUB deploys state-of-the-art technology, working to become one of the leaders in the region.

LCUB's newly installed SCADA system and Outage Management System (OMS) help engineers identify problems and address them appropriately. LCUB is also installing the latest technology in substation relaying/automation and field reclosers. The installation of these technologies, along with newly installed fiber, allows LCUB to start moving toward the operation of a self-healing grid. A self-healing grid will automatically restore sections of the power grid unaffected by damage, thus reducing the number of customers without power for any given outage.



To further ensure quality of service for our customers and help prevent outages and power flickers, LCUB crews regularly trim trees along approximately 400 miles of power lines per year.

However, despite our best efforts and no matter the level of technology, no utility is immune to service interruptions. Many unpreventable forces can cause power outages and flickers. If you experience an outage or recurring power problem, please call LCUB at 1-844-Our-LCUB (1-844-687-5282) and we will dispatch a crew to investigate and resolve your issue as quickly as possible.

Power Outages Come in Many Forms

Power outages or disturbances can range from complete outages to brief (mere seconds) outages that appear as if your lights are flickering, and will often leave you resetting the clocks on multiple household devices.

FLICKERING

If you notice your lights flickering or you return home to a household full of equipment and appliances with blinking clocks, then you've

probably experienced a common power outage known as a power flicker. Common causes of flickering are:

- Tree limbs or debris falling on or coming into contact with power lines
- Lightning strikes
- Car accidents striking electrical poles
- Construction accidents
- Damage to power lines
- Animals coming in contact with power lines or electrical equipment

Power flickers are typically harmless (outages lasting less than 60 seconds) and will usually correct themselves very quickly. Here's an example of what may cause a power flicker. A tree limb falls or comes into contact with a power line. Generally, the tree limb or debris will fall to the ground on its own or the contact is broken. For the power line that was impacted, the electric system quickly shuts itself off in order for the problem to resolve itself. Often, the issue is automatically corrected, power is restored, and this can all happen in just a matter of seconds. This process most often prevents much longer outage times.

SURGES AND SPIKES

A surge or spike is a sudden increase in the amount of electricity in your home and are most often caused by lightning strikes. They are usually harmless and last less than a second, but like power flickers, can sometimes affect your appliances and potentially your sensitive electronic equipment.

PARTIAL OUTAGE

If you've lost power in just part of your home it's possible that a tripped circuit breaker is the reason. Check your main electrical panel for a tripped breaker. If one has been tripped, reset it by firmly pushing the breaker to the "off" position and then turning it back to the "on" position. It should snap into place. If the breaker continues to trip, call a qualified electrician.

If no breaker is tripped, it's possible there's a broken connector or loose wire. Please contact LCUB and a crew will be dispatched as soon as possible. For more information on circuit breakers click HERE.

VOLTAGE SAGS AND SWELLS

Voltages sags and swells are just what you think, drops and rises in the amount of voltage delivered from the electric grid to your home. They are usually very brief and unnoticeable but may possibly cause momentary distortions to your TV screens or computer monitors.

Find out how to safeguard your electronic devices against all power disturbances click HERE.

Identify Your Power Problem

SYMPTOM	POSSIBLE CAUSE
Flickering Lights	Flicker, Sag or Swell
Electrical equipment issues	Surge or Spike
Air conditioning interruption	Flicker, Sag or Swell
Shrunken TV screen or computer monitor	Sag
Computer turning off and on	Flicker
Blinking digital display	Flicker
No electricity in entire home or business	Power Outage
No electricity in one room	Partial Outage

WHAT'S BEHIND YOUR POWER DISTURBANCE?

A Guide to Understanding Your Outage Problems

WHAT ARE YOU EXPERIENCING?	POSSIBLE SOLUTION
Are your neighbors or neighboring businesses also affected?	If no one else is experiencing a problem, check your circuit breaker and main breaker before calling an electrician or LCUB. If you are in an apartment building or business complex, contact the building's maintenance department for assistance. If it appears to be a widespread problem, please call LCUB's automated outage response system at 1-844-687-5282 to report the outage.
Does the problem come and go? When finding a cause and solution to your power outage problem, it's helpful for an electrician or LCUB if you can relay any patterns you may have noticed.	There has likely been some interference to cause your power disturbance. Patterns to be aware of: ▸ Does the problem occur at the same time of day? ▸ Are the interruptions caused by the same device or appliance? ▸ Is construction work going on in your area? ▸ What was the weather like when the problem occurred? ▸ Did you notice any loud noises outside near the time of the power interruption? ▸ Have you recently added any new appliances to your home or business?
Are there two or more appliances or pieces of equipment running at the same time?	Check to see if sensitive equipment (such as a computer) is sharing an electrical circuit with larger appliances or equipment such as motorized items.
Has work recently been done on your home or businesses electrical system?	Check any relevant installation manuals or troubleshooting guides, or call the electrician who did the work so that any incorrect installation, grounding or wiring can be corrected.
Have you had new appliances installed in your home or business recently? Is the problem occurring in only one appliance or piece of equipment?	First make sure the item is plugged in. Review the troubleshooting section of the appliance's instruction manual. Contact the manufacturer for assistance as needed.
Are lights in your home or business going dim or bright and staying that way for an extended period of time?	If you notice the lights in your home or business staying dim for an extended period, turn off major appliances and equipment and **call LCUB immediately at 1-844-687-5282.**

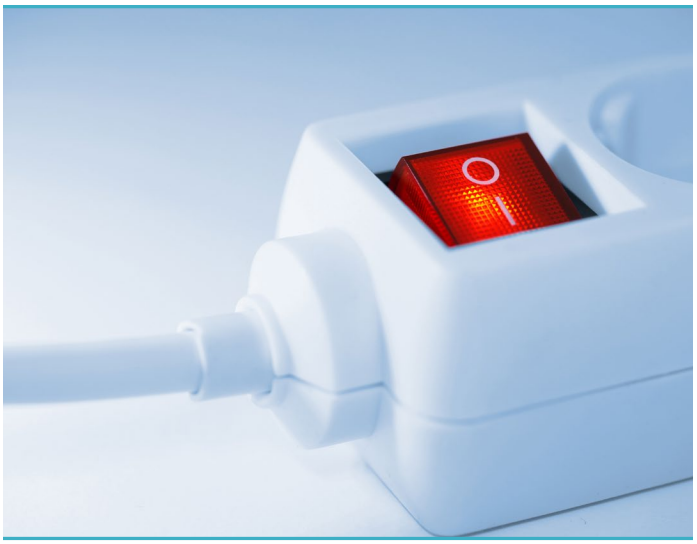
If any of the above problems continue after you complete the recommended steps, please contact LCUB's automated outage response system at **1-844-Our-LCUB (1-844-687-5282)**.

SAFEGUARD YOUR HOME AGAINST A POWER DISRUPTION

We all have electronic equipment in our homes. Large appliances like refrigerators, washers and dryers, and ovens, to smaller more sensitive items (and often more expensive) such as computers, sound systems and home security systems. These items all need protection from electrical disturbances, and particularly from voltage surges and power outages.

1) Surge Protectors

The quickest and most inexpensive way to protect appliances is to plug them into a power strip with a built-in surge protector. Equipped with a fuse designed to fail in the event of a voltage spike, these surge protectors will cut off the power to your appliances and protect them from this sudden jolt of electricity.



It's important to know the difference between a plain power strip and a surge protector. They look very similar. They both allow you to plug-in multiple electronics, but to really distinguish between the two, look for an electric rating. Surge protectors will be rated for the maximum voltage load it can take from a power surge.

LCUB also offers our customers surge protector installation services. For a small equipment fee, LCUB will install a Surge-Tec surge protector at your electric service meter. It is designed to provide an approximate 85% level of protection against surges and spikes. To learn more, visit our website at LCUB.com or visit a customer service location for more information or to schedule an installation.

2) Update to GFCI Outlets

If you own an older home, chances are you may not have GFCI (ground fault circuit interrupter) outlets. All new homes are built with ground fault circuit interrupter GFCIs installed, particularly where water is a factor such as bathrooms, kitchens, laundry rooms, garages and outside. GFCIs are designed to track the difference in the amount of electricity flowing into the circuit to that flowing out. If the amount is off by even mere milliamps the GFCI will shut off the circuit, preventing certain electric shock. To restore the electrical circuit, the outlet must be reset following these steps:

1) Unplug all appliances from the outlets served by the GFCI circuit.

2) Reset the switch by pressing the "reset" button until you hear a click.
3) Test the outlet by plugging the appliance back in and turning it on.
4) If the appliance doesn't work you may have tripped a breaker. Follow the steps for locating and resetting a circuit breaker by clicking HERE.
5) If after following all the above steps you still have no power to the outlet, contact an electrician.

3) Have a Back Up

- If you're still reliant on an alarm clock (and some of us are) buy one that has built-in battery backup so your clock and alarm settings aren't lost after a power flicker or outage.
- Back up your computer on a regular basis. Better yet, set up automatic backups and forget it.
- Protect your equipment with an Uninterruptible Power Supply (UPS). A UPS is a large power strip containing a backup battery, so should you need to save valuable data during an outage you would have the ability to do so.

4) Inspect Your Home for Potential Problems

- Check plugs, wires, and outlets and make any necessary repairs.
- Don't plug computers and other sensitive electronics into the same outlets that you're also using for other motor-driven equipment. Examples: Copy machines, air conditioners, heaters, vacuum cleaners, refrigerators, dishwashers, etc.
- Electrical equipment that requires a lot of energy should not share a circuit with your sensitive equipment. If you're unsure of what equipment is running off of what circuit, call a qualified electrician.
- Never plant trees near power lines and keep branches trimmed. Tree limbs and debris that interfere with power lines can cause power flickers or outages. Click HERE to see "Vegetation Management" on our website for more info.

* See back cover for useful charts on *How to Protect Your Electronic Investments*

Despite our best efforts and no matter the level of technology, no utility is immune to service interruptions. Many forces can cause power outages and flickers. If you experience an outage or recurring power problem, please call LCUB at 1-844-687-5282 and we will dispatch a crew to investigate and resolve your issue as quickly as possible.

HOW TO REPORT AN OUTAGE:

To report a power outage, please call LCUB's automated response system at **1-844-Our-LCUB (1-844-687-5282)**.

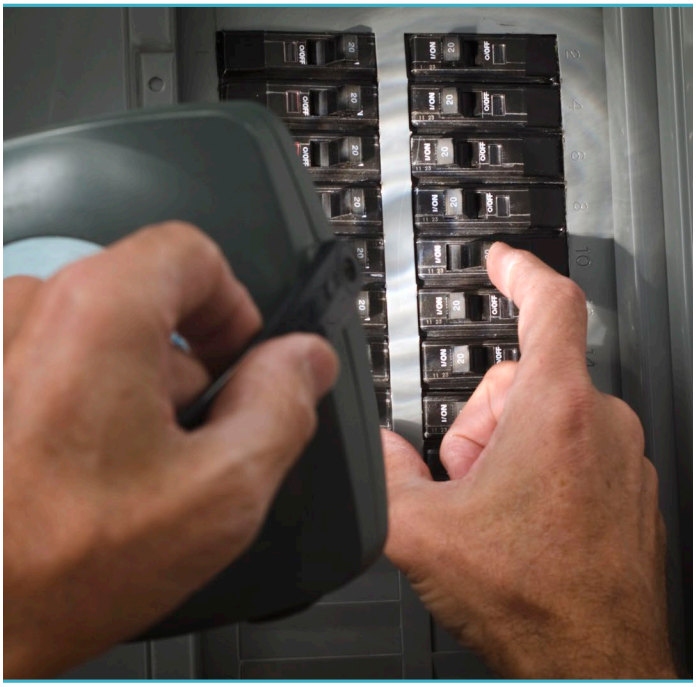
Make sure you are registered with our response system so we can quickly locate your home or business. It only takes a minute. Call **1-844-Our-LCUB** and choose option #1 to link your phone number(s) to your LCUB account #. Register now!

UNDERSTAND YOUR HOME'S ELECTRICAL EQUIPMENT

It may not always be necessary to call LCUB or an electrician if the lights are flickering or you're experiencing a power outage in only one section of your home or business. Sometimes a little deduction on your part can save you time, possibly money and light up your surroundings once again. Let's get to know the electrical equipment in your home, where it is and what it is.

Circuit Breakers

If you lose power to a single room, or a portion of your home, you may have tripped a circuit breaker. A circuit breaker is a safety device that stops the flow of electricity when an overload or fault occurs. Your home has multiple circuit breakers that are housed in your main breaker panel which can be in either a garage, basement, utility closet, laundry room, or outside near the electric meter.



How to Reset a Circuit Breaker

1) Open your breaker box and identify the tripped breaker switch. Most breakers will come with an orange or red marker that indicates a tripped breaker. If there is no indicator look for the switch in the off or middle position.
2) To reset the breaker, flip the switch all the way to the "off" position and then back "on". If the same breaker continues to trip, it may be time to call an electrician to diagnose the problem.

How to Reset a Main Breaker

Everyone around you appears to have power, but you are without power entirely. What's going on? You may have tripped the main breaker.

1) Turn every breaker switch inside your breaker panel to the "off" position, one by one.
2) Locate the main breaker switch, typically located inside your breaker box or outside near your electric meter.
3) Reset the main switch by turning it all the way to the "off" position and back to "on".
4) Turn every breaker switch inside the breaker box back to "on", one by one.

Protect Your Electronic Investments

ELECTRONIC EQUIPMENT	PROTECTION DEVICE
HVAC, Main electric breaker switch	Whole House Surge Protector, i.e., Surge-Tec installed by LCUB for small fee
Computers, telephone, data line, peripheral device, other equipment	Uninterruptible Power Supply (UPS) - to further protect your computer AND prevent data loss
Any sensitive electronic equipment containing electronic circuits, e.g., computers, printers, TVs, DVDs, stereos & microwave ovens, appliances with microchips (most modern appliances)	Surge Protectors
Satellite TV	Digital Satellite jack
TV, DVD player, DVR, cable modem	Cable Line Protection
Lamps, coffee makers, toasters, etc.	Power Strips with Surge Protectors

SURGE PROTECTOR PERFORMANCE RATINGS	PERFORMANCE RATINGS ARE MEASURED IN VPR, SVR AND JOULES OF RESPONSE TIME
United Laboratories (UL) 1449 Voltage Protection Rating (VPR)	A measure of the surge protector's let-through voltage, which is the maximum voltage a surge protector will let through to connected devices. The lower the VPR number, the better the protection.
UL 1449 Suppressed Voltage Rating (SVR)	An earlier measure of let-through voltage based on a test using 500-amp current. You may see this rating on some surge protectors instead of the newer VPR rating. When comparing SVR to SVR, a lower number usually indicates better protection. The lowest possible SVR rating is 330 volts.
Joule rating	The total amount of energy a surge protector is capable of absorbing over time. A higher joule rating may indicate a longer product lifespan. Look for a joule rating above 600.
Response time	Measures how quickly the surge protector reacts to a surge. The faster the response time, the better the protection.
Alarm or light	This will let you know when the surge protector is no longer working.