

Maintaining Your Electric Service Dependability

A guide to understanding power outages, protecting your appliances and equipment, troubleshooting issues, and more.

What Happened To **The Power?**

New Smyrna Beach Utilities (NSBU) understands that power outage is an inconvenience. That is why we continually invest in strengthening our infrastructure, use smart technology to prevent outages, and proactively keep power lines cleared.

Even with our best efforts, no utility can ever be totally interruption-proof. There are many forces that can cause an outage, flicker or changes in voltage. If you are experiencing reoccurring power problems, give us a call and we'll be happy to troubleshoot and get them resolved.

Electric Disturbances Appear In Different Forms

Brief Power Interruptions (Flickers)

What is a Flicker you ask? It's that "momentary outage" cause by something that your power line didn't like, leaving you with a blinking clock. Automated equipment senses the fault and shuts the power to the effect lines, but only for a few seconds. Moments later, the same equipment does a self-check and resets/restores power if possible.

Common causes of voltage flicker are:

- Lightning strikes
- Tree branches making contact with power lines
- Vehicle accidents involving electrical equipment
- Construction accidents involving power lines
- Salt spray affecting NSBU equipment
- Damage to underground equipment

Surges and Spikes

Unexpected burdens on the electric system, often from lightning, can cause a brief but intense increase in the amount of electricity in your home. Though they usually last less than a second, these surges and spikes can affect sensitive electronic equipment. **Find out how to best protect your electronic devices on the "Protect Your Home or Business Against Power Disturbances" page.**

Partial Power Outages

Sometimes, the power goes out in only part of your home or business. A partial power outage may be caused by a tripped circuit breaker, a blown fuse or a broken connector or wire at one of the service leads to the home or business.

Sags & Swells

Occasionally, the amount of voltage delivered to your home or business may briefly rise above or drop below normal. These variations are known as sags and swells and may cause shrunken displays on your TV or computer monitor.



Identify Your **Power Problem**

Symptom	Possible Causes
Flickering lights	Sag, Swell or Flicker
Electrical equipment issues	Surge or Spike
Air conditioning interruption	Sag, Swell or Flicker
Shrunken computer or TV picture	Sag
Computer turning on and off	Flicker
Blinking digital display	Flicker
No electricity in the entire home or business	Power Outage
No electricity in one room	Partial Power Outage

Investigating Your **Power Disturbance**

Clues To Become a Super-Sleuth For a Power Disturbance

Trouble Shooting

Who else around you is experiencing the same power concerns? Check with neighbors or other businesses in your area.

Solutions

If not, check your circuit breaker and main breaker before calling an electrician or NSBU. If you live in an apartment building or business complex and only you are out of power, call your building's maintenance person for assistance. To report a power outage or partial outage, please call our customer service line at 386-427-1361 between the hours of 8 a.m. and 5 p.m. Monday through Friday. During other times, please call our Electric Department dispatcher directly at 386-427-1366.



Does the problem come and go? Is there a trend here? Being aware of patterns can be helpful to you, an electrician or NSBU in finding the cause and solution for your power disturbances.

Look for patterns. It's likely something has interfered to cause your power interruptions. What to observe for when looking for patterns:

- 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 multiple appliances or equipment running at the same time?

Check if sensitive equipment is sharing an electrical circuit with larger appliances or equipment such as motorized items.

Has work recently been done on your home or business 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 recently added new appliances or equipment to your home or business? Is the problem occurring in only one appliance or piece of equipment?

Make sure the item is plugged in. Review the appliance instruction manual's troubleshooting section. 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?

When lights in your home or business stay dim for an extended period, turn off major appliances and equipment and call NSBU immediately.

When Simple Solutions **Don't Work**

If these solutions don't work, or if you suspect you have other electrical problems at your home or business, contact a qualified electrical contractor, licensed electrician or your building's maintenance staff.

Protect Your Home or Business Against Power Disturbances

NSBU's Top Tips for Power Disturbance Protection

Anything that plugs in at your home or business can be affected by a disturbance in the electricity entering the structure. More sophisticated equipment such as computers and security systems are the most sensitive to changes in electricity. Fortunately, you can take these simple steps to prevent problems when a power disturbance occurs. See a guide to selecting surge protection devices on the back page of this brochure.

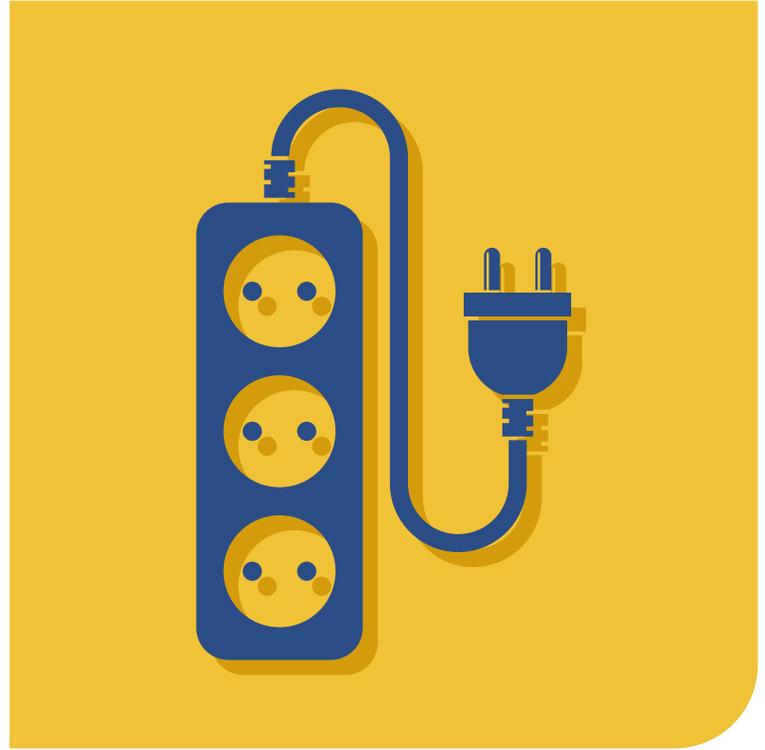
Step 1: Back It Up – Back It Up – Back It Up

- Purchase equipment with built-in backup protection, such as batteries that allow devices to remember clock and alarm settings after a power disturbance.
- Purchase UPS devices. These switch your computer or other equipment to battery backup during a power loss, giving you time to save data.
- Regularly back up computer data.
- Protect your equipment with inside or outside surge — or for your best protection, use both.

Step 2: Conduct an Electrical Checkup

Repair or replace damaged and loose wires, outlets and plugs.

- Never plug computers and sensitive electronics into outlets also being used for motor-driven equipment, such as:
 - ✓ Photocopiers
 - ✓ Air conditioners/heating and cooling equipment
 - ✓ Refrigerators and freezers
 - ✓ Dishwashers
 - ✓ Ventilators
 - ✓ Furnaces
 - ✓ Vacuum cleaners
 - ✓ Air compressors
 - ✓ Irrigation pumps
- Check your breaker box to make sure sensitive equipment, such as computers, doesn't share circuits with energy hungry equipment such as air conditioners, refrigerators, washers, dryers and microwaves. Relocate equipment to other circuits or have an electrician make needed changes.
- Plant trees away from power lines and keep branches trimmed. NSBU recommends using a qualified contractor. Branches touching lines may cause brief power interruptions.
- Equip your air conditioner with a time-delay relay if it doesn't already have one. This prevents the unit from restarting for about three to five minutes, minimizing the possibility of damage to your air conditioner's compressor.
- Follow manufacturers' instructions for setting up all appliances and equipment.



Step 3: Use Surge Protectors

- The use of surge protectors prevents damage to your electrical equipment and appliances. The most obvious problems occur when lightning travels down electric, telephone or cable lines and affects computers and other electronics. However, the effects of surges can cause less noticeable damage over time as electronic components gradually break down.
- Surge protectors act like electrical sponges, absorbing excess energy and preventing most of it from reaching your equipment. Like sponges, surge protectors have a limited ability to absorb energy. That's why it is important to select a surge protector with the right features and ratings to match the equipment you want to protect. NSBU recommends whole-house protection through a combination of inside and outside protection products.

Fix That **Power Problem**

Troubleshooting Power Disturbances

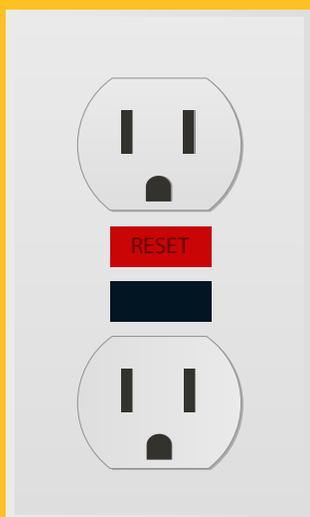
Flickering lights? Microwave clock flashing? You're experiencing a power disturbance. Before you call NSBU or an electrician, you can troubleshoot—and possibly fix your power problem yourself!

Sometimes solving a power problem is as easy as keeping track of when problems occur and what equipment in your home or business is affected. Start by knowing the electrical equipment in your home or business.

Ground Fault Interrupt Circuits

Ground fault interrupt (GFI) circuits are found where water can be a threat, such as near sinks, tubs, garages and outside your home or business. The GFI outlet is designed to shut off electricity to the entire circuit, as needed, to prevent electrical shock. To restore electricity to the circuit, the GFI outlet must be reset as follows:

1. **Unplug equipment from the outlets served by the GFI circuit.**
2. **Locate the outlet that includes the GFI reset switch.**
3. **Reset the switch. Make sure to press the (red) "reset" button, not the (black) "test" button. You should hear a click.**
4. **Test the outlet by plugging the appliance back in and turning it on.**
5. **If you still don't have power, try resetting the breaker at the breaker panel, usually located in your garage or utility space.**
6. **If these steps don't restore power, call 1-800-4OUTAGE (1-800-468-8243)**



Examining the Mystery of Breakers

If the power goes out in only a portion of your home or business or some appliances and equipment stop working, you may have a tripped breaker. Breakers are safety devices that protect your home or business when short circuits or electrical overloads occur.

Before problems occur, it is important to know where the breaker panel is located, and to make sure you can get to it quickly. Most can be found in the garage, a hallway, or outside near the electric meter. It helps to be sure your breaker switches are labeled properly so you can easily identify which switch needs attention.

A properly installed breaker is safe to operate, but remember that electricity can be dangerous, so it pays to call an electrician if you have problems with any of these steps.



Resetting a Breaker

1. **Open your breaker box and look at your breaker switches. You will know a breaker is "tripped" when the lever is halfway between the "On" and "Off" positions.**
2. **Reset the breaker by switching it all the way off, then back on. Note: If the breaker for your air conditioner is tripped, wait five minutes before resetting it. Doing this will prevent motor damage to your air conditioning unit. If the breaker trips again, do not reset it. You may have a serious electrical problem. Contact an electrician.**

Resetting a Main Breaker

If power is completely out at your home or business, but neighbors or nearby businesses are not affected, you may have a tripped main breaker.

1. **Turn off all circuit breakers inside your breaker box.**
2. **Find the main breaker switch, often located near the electric meter outside your home or in your breaker box.**
3. **Reset the switch by turning it off and on two times.**
4. **Turn all breakers back to "On" inside the breaker box.**

Surge Protection

Inside Surge Protection

Inside surge protection devices are installed directly between the equipment you want to protect and the wall outlet. Surge protectors act as the last line of defense against surges generated inside or outside your home or business.

Before buying surge protectors, determine how many and what type of surge protection you need. You can save money and space by purchasing multiple-outlet surge protectors that prevent damage to several pieces of equipment.

When protecting sensitive electronics such as computers and TVs, be sure to use a surge protector with connections for all attached cables. For example, all devices

connected to a computer, including the router or modem, should plug into the surge protector. The phone line should be routed to the modem from the surge protector.

Outside Surge Protection

Outside surge protectors, often called surge arresters, can be installed on the electric meter or breaker box to protect telephone and cable lines from being damaged by power surges.

Protection at the meter does not protect other points of entry such as phones, cable, data lines, DSL or satellite. For full protection, also **consider the options described in the table below.**

Protection Needed	Equipment
Power Line Protection	Any sensitive electronic device, appliances with microchips (most modern appliances) or microprocessors, telephone answering machines, fax machines, modems, TVs, DVD players, DVRs
Cable Line Protection	TV, DVD player, DVR, cable modem
Whole House Surge Arrester	Main electric breaker switch
Uninterruptible Power Supply (UPS)	Computer, telephone, data line, peripheral device, other equipment
Digital Satellite Jack	Satellite TV
Telephone Line Protection	Telephone, answering machine, fax machine, modem, credit-approval system, security system

Surge Protection Features: **Know What You're Buying**

When you purchase a surge protector, check for the following features:

United Laboratories (UL)-listed transient voltage surge suppressor	UL-listed surge protectors meet important industry standards.
Clamping Voltage / Let-Through Voltage	This is the amount of voltage the unit passes through to your equipment before diverting voltage to the ground. The lower the number, the better. The lowest clamping voltage recognized by UL is 330 volts, sometimes listed as .33 kilovolts.
Alarm or Light	These let you know when your surge protector no longer works.
Power Shutdown Protection	This shuts power off when the surge protector has stopped working so that no electricity can flow.
EMI/RFI Protection	This guards against data loss, audio static, video interference and possible computer memory loss from electromagnetic and radio frequency interference.
Response Time Rating	The faster the surge protector can react to high voltage, the better.