

Reducing power flickers

We've mounted a major effort to reduce those brief, yet frustrating, power outages that can momentarily shut off electricity to your electronic devices and appliances.

Although Florida Power & Light Company (FPL) continues to make good progress in reducing power outages – improving overall reliability by 21 percent since 2011 while providing customers with more than 99.98 percent service reliability – brief outages continue to be a challenge for us, and for electric utilities nationwide. That's why FPL has launched a major initiative – the first of its kind in the nation – to reduce power “flickers” (outages lasting less than 60 seconds) and their impact on our customers.

The following is an overview of power flickers and what we're doing about them.

Why they occur

Flickers may occur at any time – even on a sunny day – and can be caused by a number of factors, including:

- » Lightning strikes (Florida is the lightning capital of the nation)
- » Damaged electrical equipment
- » Vegetation – tree branches, palm fronds or other debris – making contact with power lines
- » Animals interfering with electrical equipment
- » Salt spray affecting FPL equipment in coastal areas

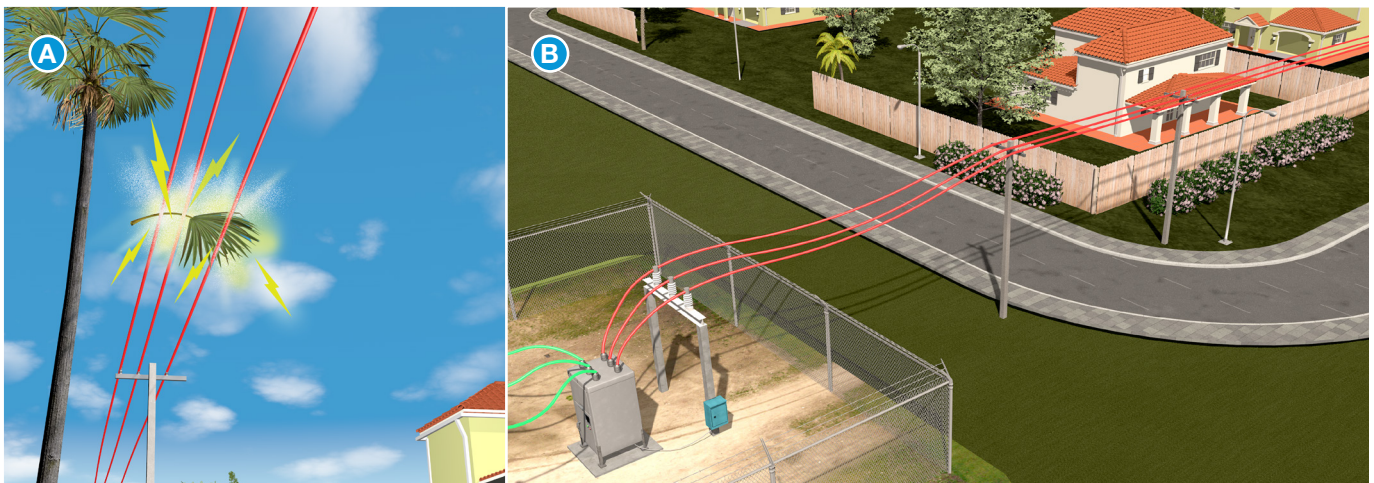
What happens

Let's look at one example. One of the most common causes of power flickers is when a tree branch or palm frond is blown into overhead power lines. See the illustration below. When the branch makes contact with our lines **A**, the system detects the interference and shuts off electricity to that section of the line for a brief period – usually a few seconds **B**. The tree branch or palm frond typically falls to the ground, allowing service to be restored quickly.

This process allows the system to determine if there is a break in the line or other electrical difficulty. Briefly shutting off power and isolating the problem area helps prevent damage to the electric system, which could result in a longer outage and affect many more customers.

For example, a flicker on your local power line could affect electric service for you and 200 of your neighbors. Without this brief interruption, the outage could last several hours, spread to other power lines and affect service for thousands of customers.

Additional information is included on the reverse side of this fact sheet. Also see our video at **FPL.com/flickers**.





Others may also be affected

In addition to affecting customers served directly by the power line impacted by the tree branch, other customers in the area who receive electric service from adjacent lines may also experience a flicker. The tree branch or other interference often produces a brief drop in electricity – called a “voltage sag” – on adjacent power lines that affects customers served by those wires. Conversely, a lightning strike could cause a power “surge” – a brief, but noticeable increase in electricity in your home or business that may cause a flicker.

Power flickers can even affect your service if you receive electricity from an *underground* power line. Underground wires ultimately connect with overhead lines and equipment located elsewhere on the power grid, away from your immediate area. Animals and reptiles also sometimes interfere with underground power cables.

How flickers affect you

You may notice the lights flicker or experience a brief outage lasting several seconds. There also could be a series of flickers over a period of a few minutes. Although these outages are brief, we understand how frustrating they can be for you. Your appliances and electronic devices may shut off and need to be reset.

In years past, the impact was minor, perhaps resulting in a flashing digital clock. But today, many of the items that have become commonplace in homes and businesses – computers, microwave ovens, TVs, DVRs and more – are highly sensitive to changes in electricity flow. Resetting them can be both aggravating and time-consuming. You want reliable electric service, and it's our job to provide it.

What we're doing about it

If you've experienced a problem with power flickers, we apologize – and want you to know we're working to reduce both their frequency and impact. FPL is further researching what's causing these brief outages, determining their full impact on customers and, most importantly, identifying and taking steps to reduce their number.

Advanced technologies – including smart meters – are helping us better understand what our customers experience when flickers occur. Before, we could accurately measure only the number of homes and businesses affected *directly* by the brief outage on their local power line. Today, we're able to more accurately gauge the outage's impact on customers in nearby areas whose electric service is affected *indirectly* – primarily due to a voltage sag or power surge.

We've conducted an extensive analysis of flickers over the past year, and it's apparent there is no single solution to reducing their frequency. As a result, FPL is working aggressively on several fronts to achieve near- and longer-term results, including:

- » Targeting power lines that experience the highest number of flickers for improvements, including equipment upgrades and new technology
- » Analyzing all technology options to prevent the initial flicker on a power line, and reduce its impact on adjacent lines
- » Investigating and testing a number of new cutting-edge technologies, including those designed to prevent problems caused by lightning and salt spray
- » Clearing vegetation from 15,000 miles of power lines annually
- » Adding new safeguards to discourage interference from animals and birds
- » Upgrading electrical equipment and inspecting more than 130,000 utility poles each year, repairing or replacing those that no longer meet our standards for strength

What you can do

As we focus on our program to reduce flickers, you can take steps to minimize their effect on your home or business. Devices such as uninterruptible power supplies (UPS) and surge protectors can help maintain the flow of electricity and prevent possible damage to your appliances and equipment. Surge protectors act like electrical sponges, absorbing excess energy and preventing most of it from reaching your electronic devices. See our “*Guide to Power Outages*” at FPL.com/powerquality for more information.

Reporting an outage

To report a power outage – whether it's a flicker or longer – please contact FPL at 1-800-4OUTAGE (1-800-468-8243) or report it online at FPL.com/outage.