

# THE STRAIGHT DOPE

FIGHTING IGNORANCE SINCE 1973  
(IT'S TAKING LONGER THAN WE THOUGHT)

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**What causes a short power outage?**

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05-28-2010, 10:24 PM

#1

[CookingWithGas](#)

Charter Member

Join Date: Mar 1999

Location: Tysons Corner, VA, USA

Posts: 10,880

### What causes a short power outage?

Last night there was a lightning strike somewhere nearby, and our power went out in the house. For about a minute or so. Then it came back on.

When a transformer blows and they have to send a crew out, I understand why it can take hours. But what causes the power to go out in such a way that it can come back on again in a couple of minutes? And what causes it to go back on?



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05-28-2010, 10:29 PM

#2

[beowulff](#)

Member

Join Date: May 2001

Location: Scottsdale, more-or-less

Posts: 13,971

Probably something like [this](#).

Lighting strike causes an arc, circuit breaker trips, circuit breaker re-closes after a short delay.



05-28-2010, 10:58 PM

#3

[Qwakkeddup](#)

Guest

Join Date: Sep 2006

Like [beowulff](#) said, there are automatic safeties on the power grid, something happens and a breaker trips, and after a moment it will reset. Sometimes a wire just brushes a bare spot on a wet

tree, or a power spike from lightning will trip these breakers and if it trips so many times it will stay open. Then you and your neighbors call to let them know the power is out giving them a good idea of where the problem might be. They don't really want all that hassle for a squirrel who crossed two lines and vaporized, and who isn't really a problem anymore.

Just last summer we had a squirrel cross a transformer, but he tripped a manual reset breaker. It is a lever type switch hooked up inline and hanging from the poles. We called and told them where it was and power was back up in 20 min.

Haven't heard from the squirrel since though.



05-28-2010, 11:43 PM

#4

[engineer\\_comp\\_geek](#)

Robot Mod in Beta Testing  
Moderator

Join Date: Mar 2001  
Location: Pennsylvania  
Posts: 16,612

Quote:

Originally Posted by [beowulff](#)  
Probably something like [this](#).

That would be my first guess. Power lines have breakers on them, which act a lot like really big versions of the breakers in your home. If there is a fault the breaker trips and shuts off the power.

Unlike the ones in your home, the big breakers used by the power company have automatic re-closers on them. It's kinda like having someone on standby who can automatically flip the breaker back on so you don't have to go all the way down to the basement and do it yourself. Re-closers are important because without them the power company guys would have to drive a long way out (much farther than your trip to the basement) to go to the nearest substation and reset the breakers every time one of them tripped.

Most faults on power systems are brief transitory faults like lightning or wind and rain blowing a tree limb into the power lines. Re-closers vary a bit, but they are usually set to re-close the breaker a couple of times fairly quickly (maybe after 1 second then 5 seconds). Then they wait a bit (typically a minute or two) and try one last time. If the fault is still present then at that point the re-closer gives up.

Another possibility is that your area's power line is fed from two different substations. Power companies often do this so that if something big fails, they can isolate the problem and switch you to the other substation. This happened to us yesterday. A substation transformer caught fire. The power company switched different sections of the lines to different substations which allowed most folks to have their power restored fairly quickly.



05-29-2010, 12:05 AM

#5

[Triskadecamus](#)

Guest

Join Date: Oct 1999

It is highly likely that there are more than two possible routes to send electrical power to your home. The short delay is while the system is reset to rout around breaks. The longer delays are while the areas actually cut off are repaired.

Tris



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