

Blackouts

What do you do when the power goes off?

Despite our best efforts, there will be times when the power goes off. There are two basic causes — faults or overloads. In either case, protection equipment operates to switch off supply to limit any damage and prevent further problems.

Faults are mainly caused by accidents or weather conditions. If your power lines are overhead, there is a greater chance of problems.

Overloads occur when the demand for electricity exceeds the capacity of the distribution system to supply it.

Faults and overloads can also occur inside your own home. So, the first thing to do if the power goes off is to find where the problem is.

Locating the Problem

Check your own switchboard. Has a circuit breaker or safety switch tripped or a fuse blown?

YES

Disconnect the equipment which might have caused the problem and try to switch the power back on again.

Simple overload (too many appliances) — switch off or unplug appliances and reset the breaker. Beware of multiple power boards which make it easy to connect too many appliances. If you really need all those appliances at the same time, have a licensed electrical contractor install additional power points or circuits. (If you're going to do this, think about having a separate circuit for sensitive equipment such as sound systems and computers.)

Faulty appliance — switch off or unplug appliances one by one until you've found the culprit. Have it repaired or replace it.

Faulty wiring — if you've disconnected everything on that circuit and the problem persists, there's a problem with the wiring. Call a licensed electrical contractor.

NO

If your switchboard is okay, look outside to see whether neighbouring houses or street lights are affected.

Report blackouts to your distributor — sometimes we don't know there's a problem and your call can help us respond more quickly. Contact numbers are in your phone book or on your electricity bill. Your distributor may also have a handy fridge magnet with emergency numbers.

Blackouts

Most blackouts are caused by the weather. In many cases, problems are only temporary — for example, a branch is blown across a line but then falls to the ground. To deal with these problems distributors

install automatic reclosing circuit breakers or "reclosers". The recloser responds to a fault by shutting off supply. It then waits for a few seconds and automatically switches the power back on. Sometimes it has to do this two or three times before the fault is cleared.

If the problem is more serious — if the power lines are damaged — the power will stay off until the damage can be found and repaired. This could take a few hours or even longer in some locations.

Coping with Blackouts

What can you do about lighting?

Keep one or two reliable torches with fresh batteries in prominent places around your home where anyone in the family can find them.

How do you look after frozen food?

Fridges and freezers are good insulators. If the power goes off, just leave them alone — even frozen food can maintain its temperature for up to 10 hours or even longer (depending on how hot the day is) if you don't open the doors.

Preventing Blackouts

A common cause of supply interruptions is contact between trees and power lines. This contact can also start fires. For these reasons, electricity distributors are obliged to ensure there is a safe distance between trees and power lines. Sometimes this can be achieved by special measures such as covered conductors; otherwise trees have to be kept trimmed clear of the wires.

Planned Interruptions

Occasionally the power has to be switched off so we can carry out essential repairs or connect new customers. Advance notice of a planned interruption will be given by your electricity distributor and supply will be restored as quickly as possible. If this presents a problem, contact your distributor to discuss alternative arrangements. People relying on home medical equipment should discuss a plan with their doctor or nurse.

During extreme conditions in high bushfire risk areas, supply may need to be switched off for a while for safety reasons.

Backup Supply

The cost of providing backup supply is usually only justified in business premises. However, many families in high bushfire risk areas are choosing to install a small generator which can supply power to part of their home. Normally this is done through a changeover switch which isolates your installation from the power supply (otherwise your generator can create safety hazards for line crews who think they are working on dead power lines). Your licensed electrical contractor should discuss the best arrangement with your distributor.

Restoring Supply

Most appliances in the home — including fridges — will happily restart when supply is restored. However, if large motors (eg, air conditioners over 5 kilowatts)

are still connected and try to restart, overload problems can result. Many distributors require that motors of this size be fitted with special controls so they have to be restarted manually.

Generally it's a good idea to switch appliances off but leave or switch on at least one light so you know when supply has been restored. When the power's back, wait a few minutes before switching everything on again — this will help avoid overloading the system and causing another interruption.

Resetting Clocks

Undoubtedly the biggest frustration is caused by having to reset digital clocks and timers. Many manufacturers now include battery backup in their appliances. If you have one of these units, make sure a battery is fitted (they're often not provided) and replace it regularly — perhaps as part of a yearly maintenance routine which includes replacing batteries in your smoke alarms, etc.

Flickers & Glitches

What do you do about supply disturbances?

Sometimes the lights don't just go out — they flicker or dim. These problems are caused by tiny variations in the power supply. In most cases, this is just a nuisance and other appliances such as motors and heaters are unaffected. But electronic equipment such as computers and sound systems can be very sensitive to these disturbances.

Locating the Problem

Many of these problems are caused by other electrical equipment in your home — for example, the fridge or air conditioner starting. Take a note of when problems occur and try to find out what other equipment was being used at the same time.

Unless the appliance causing the problem is faulty, your only option is to protect the electronic equipment itself. However, if you're planning a new home or rewiring an existing home, you could consider a special circuit to keep sensitive loads such as computers separate from other appliances.

Protecting Equipment

To avoid computer crashes, you need to install an uninterruptible power supply (UPS). This device protects your computer — or sound system — from power glitches. It also has an internal battery to maintain supply for 15 to 20 minutes so you can save your files and safely shut down your computer.

A UPS suitable for a personal computer or a small home office would cost a few hundred dollars.

Surge Protection

Some people are concerned about power "surges". This term refers to a range of sudden voltage increases with various causes ranging from

switching operations on the supply network to lightning strikes. If you think you're at risk, surge protection devices are relatively inexpensive. They can be installed on your switchboard by a licensed electrical contractor to protect the entire house or you can buy a multiple-outlet power board fitted with a device.

Low Supply Voltage

If your lights are dim for extended periods of time, you have a low supply voltage problem. Some heating appliances might also be affected — it takes longer to make toast or radiators aren't as effective.

Supply voltage changes all the time — falling as loads are switched on and rising again when they are switched off. This happens on a small scale inside your home and on a large scale throughout the electricity supply network. Your house wiring and the network are both designed to take this into account up to a certain load. If the load exceeds this value, the supply voltage can fall below normal values. This load increase is not enough to operate the overload protection but it will make your lights go dim.

Short-term problems are caused by specific items of very large equipment being used in your area. When they're switched off again, the supply voltage comes back to normal values. Long-term problems with the supply voltage being low most of the time are usually caused by a gradual increase in the use of electricity which is now overloading the system.

Most domestic appliances are able to tolerate wide variations in voltage. However, if you have any doubts about the safety or operation of any particular appliance, it would be best to turn it off and disconnect it until the problem is fixed.

Locating the Problem

Take a note of when problems occur and what other appliances were being used at the same time. You'll soon see whether the problem is caused by large heating appliances such as your oven or clothes dryer. If this is the case, have a licensed electrical contractor install additional power points or circuits.

If the problem seems to be outside your home, contact your electricity distributor. The distributor can carry out voltage tests and identify the likely causes if supply voltages do not meet prescribed voltage standards.

Snow & Hum

What do you do about radio or TV interference?

Interference with radio and television reception is often caused by your own appliances and equipment. Interference can be introduced by electronic control devices eg, dimmers or speed

controllers. Small motors are also a common cause (most home owners are familiar with drills, mixers or hair dryers interfering with the television picture). Loose connections, inadequate earthing, or imported equipment which doesn't meet Australian standards can contribute to interference problems. If you know one particular appliance is at fault, it would be worthwhile to have it checked.

Most people are prepared to put up with the wobbly television picture for a few minutes while the offending appliance is being used. This is certainly cheaper than replacing the appliance or installing special equipment to deal with the problem.

However, if electrical noise is a problem, the same measures which protect against glitches can also be applied. Specialised power filters are designed to minimise the effect of rapid voltage changes but they can also stop or reduce an interference problem. A line conditioner or uninterruptible power supply will also provide protection.

External Radio Interference

The problems described above are carried by the wiring from one appliance to another. Radio interference is caused by unwanted signals being picked up by your radio or television aerial. Some of these signals can be created by electricity distribution equipment.

If you think your problem might be caused by the electricity supply system, contact your distributor who will investigate the problem. Some sources of interference may be difficult to locate, especially if they are due to intermittent faults. However, once they are found, the equipment causing the interference can be repaired or replaced.

The Australian Communications Authority (ACA) has publications and technical advisory staff to assist customers in determining other likely causes of reception interference.

Audible Noise

Some power line equipment such as transformers emit an audible hum while they're working. This is

perfectly normal and shouldn't be a problem for nearby households. Distributors are conscious of potential noise problems and employ a variety of techniques to address them. These include the purchase of special low noise transformers and the use of low vibration mountings. A satisfactory outcome is often achieved by ensuring adequate separation between the equipment and any customer or public locations.

In wet weather, some power lines emit a crackling noise. This is caused by a layer of pollution building up on the insulators: when it is damp it can allow a small flow of current over the surface which produces the noise. Usually the next good shower of rain will remove the pollution and stop the crackle. In some areas (eg, along the coast or near certain factories) the distributor may have to wash the insulators using special equipment so that supply can be maintained to customers.

Your electricity distributor will comply with noise abatement standards and other relevant regulations, usually contained in Environmental Protection legislation.

Compensation

If you believe you've suffered loss or damage as a result of a blackout or other power supply problem, contact your electricity distributor who will assess your claim and advise you of your eligibility for compensation.

Electrical Safety

The safety of people and property is vitally important to electricity distributors.

There are a number of safety standards and procedures such as earthing and the use of safety switches which must be followed in any installation. However, they are not covered by this Guide. Safety information is available from electricity distributors, electricity retailers, and State or Territory Technical Regulators.

More Information

This Guide is produced by the Electricity Supply Association of Australia which represents all Australian electricity distributors.

It provides a brief and simple discussion of supply issues for residential customers.

A more detailed **Guide for Business Customers** is available from your electricity distributor.

Published by

Electricity Supply Association of Australia Limited
Level 6, 280 Pitt Street Sydney
PO Box A2492 Sydney South NSW 1235

Telephone (02) 9261 0141 Facsimile (02) 9261 3153

Email: mcmullan@esaa.com.au

www.esaa.com.au

© February 2002