

Electrical Safety

What you should know about backup power systems.



By Mike Holt, www.MikeHolt.com

Bad weather such as hurricanes, tornados, floods, ice storms, or other conditions can cause a loss of electrical power from a day to several days, depending on the damage to the utility grid. For anyone that's been through this experience you realize how fundamental power is to everything that we do.

When this happens you have a few options for temporary power and here are a few things that you need to know to stay safe:



Manual Portable Generator. This is the option that most people choose when getting temporary power. One of the things that you have to be aware of is that connecting a portable generator to house wiring by plugging the generator into a wall outlet (a practice known as “back feeding”) is dangerous. This is because it can lead to the electrocution of utility workers or neighbors served by the same utility transformer (www.doh.wa.gov/phepr/handbook/generator.htm).

To ensure electrical safety, the *National Electrical Code* requires a portable generator to be connected to the home by installing a “load-side” transfer switch (see photo to the right).



The disadvantages of a manual portable generator system include:

1. **Limited Power** — A portable generator system is only able to provide power for a few circuits, but not electric cooking or cooling.
2. **Carbon Monoxide (CO) Poisoning** — According to the Consumer Public Safety Commission (CPSC), over 170 people a year die from carbon monoxide (CO) poisoning produced by nonautomotive consumer products. The CPSC cautions that one must never operate a portable generator in or near an enclosed space such as a garage, house, or other building. Even with open doors and windows, these spaces can trap CO and allow it to quickly build up to lethal levels (www.cpsc.gov/cpsc/pub/pubs/466.html).
3. **Gas** — Additional dangers of portable generator systems include the management of gasoline near a hot generator, assuming you can secure the fuel after power has been lost; gas stations need electric power to run the pumps!
4. **Security** — With a portable generator located outdoor, you don't have the ability to lock and secure your home because you need to run extension cord(s) to the inside of your home in order to use outside generator power. Be sure to have a heavy chain and secure lock to prevent thieves from taking your portable generator.
5. **Run Time** — Extended run time is not an issue.

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Automatic Permanent Generator. The safest way to get backup power is via a permanently installed generator. The advantages of a permanently installed system is that it can provide power for all loads, including cooking and cooling. It's also quieter than a portable generator and there is:



1. No need to get, store, or manage dangerous gasoline (continuous propane fuel supply).
2. No danger of death from carbon monoxide (CO).
3. No one is going to steal it!
4. No extension cords run from outside to inside.

It's a wonderful feeling to have backup power within 30 seconds of the utility losing power and not having to do anything! No need to manhandle 5-gallon gas containers and there's no danger of the generator being stolen.

Here are some additional links that you may find helpful about this topic:

- How an Automatic Generator Works (video): www.youtube.com/watch?v=V89SP7bfill&
- Benefits of a Standby Generator: www.articlesbase.com/accessories-articles/the-benefits-of-a-standby-generator-512712.html
- Manual versus Automatic (video): www.youtube.com/watch?feature=player_embedded&v=rwstB8MIngA
- Manual versus Automatic (video): www.dailymotion.com/video/xgeyp3_benefits-of-a-home-standby-generator_lifestyle
- Connecting a generator safely to an electrical system: www.lni.wa.gov/TradesLicensing/Electrical/files/currents/elc0710special%20.pdf

I hope you find this information of some value. If you are interested in learning more about backup power systems, contact a licensed electrical contractor for advice and assistance.

God Bless,

A handwritten signature in blue ink that reads 'Mike Holt'.

Mike Holt