

# Generator Safety Tips

Portable generators can cause serious injury if not installed and used properly. Portable generators are not designed to be plugged into a normal power outlet. Doing so can send power back to the power lines which results in “backfeed” of thousands of volts, which can cause injury or death to neighbors or utility crewmen working on the lines far from your home, and damaging equipment in your or neighbors’ homes.

- The ONLY safe way to hook up a generator to a house is to have a licensed electrician install a lockable open transition transfer switch.
- The switch prevents dangerous backfeeds and transfers the power from utility lines to the generator.
- The transfer switch should be outside near your electric meter.
- Do not use a generator indoors or in a garage. It produces carbon monoxide, a deadly, odorless gas.
- The generator should be in a dry, well-ventilated area such as under a carport or in an open shed.
- Do not store gasoline indoors or try to refuel the generator while it is in use.
- Know the output rating of your generator to keep from overloading it. Overloading may damage the appliances connected to the generator.

## Power Outage Considerations:

In spite of our efforts to maintain system reliability, power outages happen. Whether they are storm related or the result of an equipment failure, power outages happen and you should always be prepared for such events.

- Keep flashlights with fresh batteries and/or light sticks readily accessible.
- Some people prefer a more significant power source such as a generator.
- If you chose the route of a generator, be aware that you will spend money on equipment that you may or may not use, and will require periodic maintenance.
- Most importantly, be aware of the proper usage of the equipment so you do not endanger your family, neighbors, or utility workers.

## Purchasing a Generator:

If you choose to buy a generator, make sure you get one that is listed with the Underwriter’s Laboratory (UL). These units have been tested and approved. By following all instructions and using the generator in a safe environment, you can expect years of emergency power supply.

- Before buying, look at the labels on the devices you plan to connect to the generator to determine the amount of power that will be needed to operate the equipment.
- For lighting, the wattage of the light bulb indicates the power needed. Fluorescent lights use up to 20-25% more energy than the bulb rating due to ballast losses.
- Appliances and equipment usually have labels indicating power requirements on them.
- Choose a generator that produces more power than will be drawn by the combination

of lighting, appliances, and equipment you plan to connect to the generator - including the initial surge when it is turned on.

- If your generator does not produce adequate power for all your needs, plan to stagger the operating times for your equipment.
- If you cannot determine the amount of power you will need, ask an electrician to determine that information for you.
- If your equipment draws more power than the generator can produce, you may blow a fuse on the generator or damage the connected equipment.

**Permitting and Inspection with the Local Building Inspection Department is required.**

<http://www.huntsvilleal.gov/inspection/>

<http://madisoncountyal.gov/inspection/>

#### **Installation:**

- Most installations involve placement of a generator subpanel, commonly due to the high cost of a whole house generator.
- The subpanel requires determining which critical loads to put on the standby system, and frequently requires additional circuits to break up the load, or an understanding of the generator's load capacity.
- Generators can be permanently installed or special interconnection equipment can be installed to allow reasonable temporary connection of a portable generator when needed. Either way, the critical loads must be separated to the generator subpanel, and an external open transition is required.
- Both portable and permanent generators require periodic maintenance, and have specific fuel, lubricant, and cooling needs which must be addressed.
- Proper bonding and grounding of the generation equipment is critical, and varies depending on the type of interconnection.

#### **Why shouldn't I Hook Up a Portable Generator Directly to My Home's Wiring?**

The safest thing to do is plug the equipment you want to power directly into the outlets on the generator. There are several reasons why you should not have a portable generator installed directly to your home's electrical service.

- Home-use (non-industrial) portable generators do not supply enough amperage to sufficiently power today's homes (that is, to air condition, light, or run appliances and other electronic equipment).
- Unless your home's power supply was installed with a lockable open transition transfer switch to the main power lines, power you put into your home from a generator could backfeed into the main line and cause problems for Huntsville Utilities, emergency personnel, your neighbors, or yourself.
- "Backfeeding" is supplying electrical power from a generator at the residence out through incoming utility lines.
- Simply connecting a cord from the generator to a point on the permanent wiring system creates backfeeding and is an unsafe method to supply a building during a utility outage.

- In 2005, several utility workers were killed helping restore power after Hurricanes Katrina and Rita when generators were improperly connected to homes. The generators current resulted in electrocution of workers.
- When properly used, generators can supply safe power during emergency situations. Please follow the manufacturer's instructions for installation and operation if you chose this alternative power source, for your safety as well as others.

### **Generator Precautions:**

Follow the directions supplied with the generator.

- **UNDER NO CIRCUMSTANCES** should portable generators be used indoors, including inside a garage. Adequate ventilation is necessary, and proper refueling practices, as described in the owner's manual, must be followed.
- It is a good idea to install one or more Carbon Monoxide (CO) alarms inside your home (following manufacturer's installation directions). If CO gas from the generator enters your home and poses a health risk, the alarm will sound to warn you.
- The Carbon Monoxide issues are frequently due to generator proximity to the structure allowing the gas to enter the home through various paths ranging from open windows, loose seals, and normal ventilation sources.
- When appliances are connected (typically with extension cords) directly into the generator outlets, care should be exercised that cord routes do not result in trip or overheating hazards.

### **Refueling:**

- Be sure to let the generator cool down before refueling. Store fuel for the generator in an approved safety can. Use the type of fuel recommended in the instructions or on the generator label.
- Local laws may restrict the amount of fuel you may store, or the storage location. Ask your fire department for additional information about local regulations.
- Do not store fuel in a garage, basement, or anywhere inside a home; as vapors can be released that may cause illness and are a potential fire or explosion hazard.

### **Natural Gas Generator Safety:**

Natural Gas stand-by generators are installed for convenience due to power outages. They eliminate the need for refueling the generator since the natural gas is supplied directly through your service line. Natural gas stand-by generators are also less noisy and produce less pollution in our environment than gasoline and diesel fueled generators.

- The installation of a stand-by generator requires a meter supplying 2 psi outlet pressure.
- The customer is responsible for installing pressure regulators as necessary.
- Be sure to read, understand, and follow all of the manufacturer's instructions for safe operation.
- All natural gas generators must be inspected by the City of Huntsville Inspection Department.
- Anytime you suspect a natural gas leak, take immediate action:
  - If it is a faint odor, call our gas emergency number at (256) 535-1200.

- If the gas odor is strong or if you hear a hissing sound, get all occupants out of the house immediately and call us from a neighbor's house.
- Do not call from your house or use any phone for any reason in the house.
- Do not strike a match, or switch lights/appliances on or off.
- Never try to put out a fire you suspect may be caused by escaping gas.
- Leave immediately. Do not return to your home until utility personnel tell you it is safe.

For more information installing a generator correctly and other generator safety issues contact Engineering Services at (256) 535-1315 or email [eleceng@hsvutil.org](mailto:eleceng@hsvutil.org).