

# Using Portable/Emergency Generators Safely

Office of Cybersecurity, Energy Security, and Emergency Response

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Power outages are common during disasters, and they can last for several days. You can reduce your losses and speed the recovery process with an emergency generator.

Portable generators made for household use can provide temporary power to a few appliances or lights. Commercial generators can help prevent service interruptions at businesses and critical infrastructure facilities, such as hospitals, water treatment facilities, telecommunications networks, and emergency response agencies. Federal, state, and local regulations may require you to obtain a permit to operate a generator. Make sure you follow these regulations when you operate and maintain your generator.

## General Safety and Usage Guidelines for Backup Generators

- **Be sure to use your generator correctly.** Using a generator incorrectly can lead to dangerous situations:
  1. Carbon monoxide poisoning from engine exhaust. Even if you can't smell exhaust fumes, you may still have been exposed to carbon monoxide. If you start to feel sick, dizzy, or weak while using a generator, get fresh air right away. If you experience serious symptoms, get medical attention immediately. Consider installing battery-operated carbon monoxide alarms. Be sure to read the manufacturer's instructions and take proper precautions.
  2. Electric shock or electrocution.
  3. Fire.

Use a portable generator only when necessary, and only to power essential equipment.

- **Position generators outdoors and well away from any structure.** Running a generator inside any enclosed or partially enclosed structure can lead to dangerous and often fatal levels of carbon monoxide. Keep generators positioned outside and at least 15 feet away

from open windows so exhaust does not enter your home/business or a neighboring home/business.

- **Keep the generator dry.** Operate your generator on a dry surface under an open, canopy-like structure and make sure your hands are dry before touching the generator. Do not use the generator in rainy or wet conditions.
- **Disconnect the power coming into your home/business.** Before you operate your generator, disconnect your normal source of power. Otherwise, power from your generator could be sent back into the utility company lines, creating a hazardous situation for utility workers.
- **Make sure your generator is properly grounded.** Grounding generators can help prevent shocks and electrocutions. Refer to [OSHA guidelines](#) for grounding requirements for portable generators.
- **Plug equipment directly into the generator.** Use heavy-duty, outdoor-rated extension cords that are in good working condition and have a wire gauge that can handle the electric load of any connected appliances.
- **DO NOT plug the generator into a wall outlet.** NEVER try to power your house/business by plugging the generator into a wall outlet or the main electrical panel. Only a licensed electrician should connect a generator to a main electrical panel by installing the proper equipment according to local electrical codes. Make sure the electrician installs an approved automatic transfer switch so you can disconnect your home's wiring from the utility system before you use the generator.
- **Maintain an adequate supply of fuel.** Know your generator's rate of fuel consumption at various power output levels. Carefully consider how much fuel you can safely store and for how long. Gasoline and diesel fuel stored for long periods may need added chemicals to keep them safe to use. Check with your supplier for recommendations. Store all fuels in specifically designed containers in a cool, dry, well-ventilated place, away from all potential heat sources.
- **Turn the generator off and let it cool before refueling.** Use the type of fuel recommended in the manufacturer's instructions.
- **Inspect and maintain your generator regularly.** Check aboveground storage tanks, pipes, and valves regularly for cracks and leaks, and replace damaged materials immediately. Tanks may require a permit or have to meet other regulatory requirements. Purchase a maintenance contract and schedule at least one maintenance service per year, such as at the beginning of every hurricane season. Keep fresh fuel in the tank, and run the generator periodically to ensure it will be ready when you need it.

*Disclaimer:* Because every emergency is different and for your safety, follow the guidance from your state and local emergency management authorities and local utility companies. The information provided on the U.S. Department of Energy's website is for general information and not an endorsement of any particular material or service. Before you engage in activities that could impact utility services, such as electricity or natural gas, contact your local utility company to ensure that your activities are done safely.

For additional resources, visit [ready.gov](#) or [benefits.gov](#). State and local emergency management authorities and local utility companies may also provide helpful guidance.