

# Using portable generators

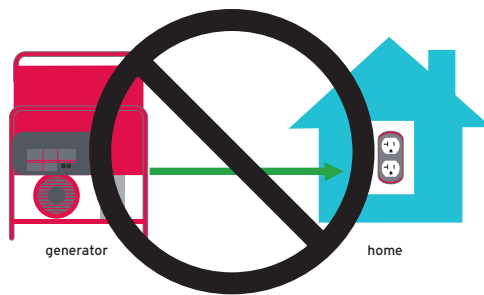
*A portable electric generator can be a valuable tool – but can also be extremely dangerous if not used correctly. If you’re thinking about buying a portable generator for back-up electricity, here are some facts you should know before you buy.*

Watch SDG&E’s five-minute video on the safe use of portable electric generators at [sdge.com/safety](http://sdge.com/safety).

## Safety notes

Connecting a generator to another power source could damage your appliances and seriously injure or kill you or an SDG&E® worker who may be working on nearby power lines. Under the law, you’re responsible for making sure your generator’s electricity can’t feed back into SDG&E’s power lines. A copy of the law relating to the operation of generators is included in this fact sheet.

## Don’t connect the generator directly into any electrical outlet in your home



When using a portable generator, your life and the lives of others depend on its safe operation. Please follow these safety tips:

- Read all manufacturer instructions. Make sure you understand them and are able to follow them before using the generator.



**Portable electric generators can provide electricity during outages or fire-related de-energizations, but following simple precautions is important for the safety of you and your family.**

- Carefully follow all instructions on properly “grounding” the generator.
- The total electric load on your generator should never exceed the manufacturer’s rating.
- Good ventilation is important. Generators produce carbon monoxide, a colorless, odorless, poisonous gas that can result in serious injuries, and sometimes even death, if levels become too high. For this reason, your generator should never be operated in your home, garage or other enclosed building. It should always be located outside in a dry location.
- Handle fuel carefully. Turn the generator off to refuel, because gasoline and its vapors can catch on fire if they come in contact with an electrical spark. Store fuel

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- ▶ in a properly designed container in a safe location, away from children.
- Use only UL-listed, three-prong extension cords of the proper size with your generator. Alteration of UL-listed extension cords or other electrical equipment is a violation of the National Electric Code (NEC).
- Keep cords out of the way so you don't trip over them, especially in dimly lit areas.
- Never run cords under rugs or carpets where you may not notice damage that could result in a fire.
- The National Electric Code requires that signs be placed at the service entrance of the electrical equipment indicating the type and location of the on-site standby power sources.

### How do you select a generator?

Portable generators come in many sizes. Following these steps will help you select the right size for your needs.

- 1. Determine the "constant wattage."** The energy you'll need on a constant basis to keep the appliances and lighting powered by the generator is your constant wattage. For help determining wattage information, see the Calculating Energy Use table on this page.
- 2. Determine the "start-up wattage."** Knowing the constant wattage alone of your appliances isn't good enough. Appliances with motors, such as refrigerators, freezers and air conditioners, can require two to three times their normal wattage when the motor starts up. The generator you pick must have a surge rating that meets or exceeds your added start-up wattage needs. To determine your start-up wattage, identify the appliances with motors that you will run with your generator. Double the constant wattage of these items, then add up the totals. If in doubt, contact the manufacturer of your generator for guidance. Multiply the constant wattage by four to get the start-up wattage for well pumps.

**Match voltage ratings.** Most appliances are rated at 120-volts, but some larger electric appliances, such as ovens, clothes dryers and well pumps, are rated at

240-volts. Portable generators may be rated at 120-volts only, or a combination of 120- and 240-volts. Make sure the generator you choose matches the voltage ratings of the items you want to run.

### 3. Make sure your generator is rated to provide power at a frequency of 60 hertz.

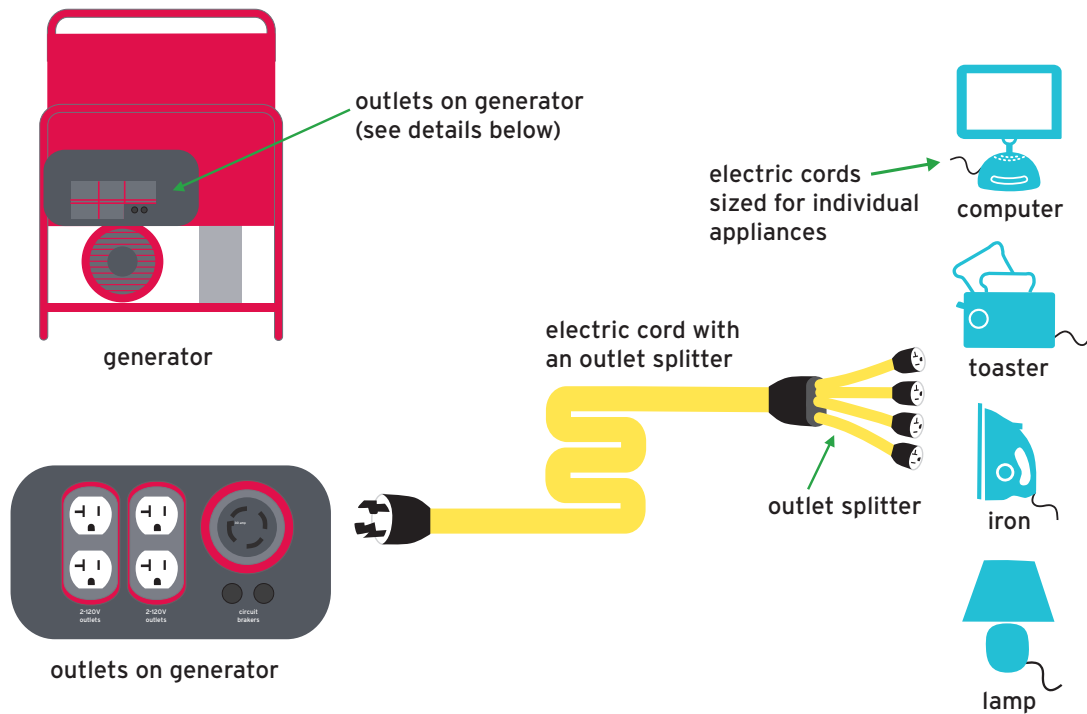
### Calculating Energy Use

To purchase the right generator, you'll need to know the wattage of the appliances you plan to run. First, check the owner's manual and serial plate on your appliance for the wattage (or watts) rating. If wattage isn't listed, find the amperage (amps) and voltage (volts) ratings on the same plate. Multiply amps by volts to get the wattage. Remember the cost of generation (renting or purchasing) is associated with the kilowatt (kW) rating of the generator. The higher the rating, the greater the cost.

The following chart gives you some information on the average wattage used by some common appliances:

Appliance	Average wattage
Air Conditioner (room/window)	
6,000 Btu	750-1200
12,000 Btu	1700-3250
Refrigerator/Freezer	500-800
Light Bulb	(100w) 100
AM/FM Radio	50-200
Microwave	700
Portable Heater	1400-1600
Television	300-400
Window Fan	200
Computer	400
Fax Machine	90
Copier	200

## Proper way to use your generator



### It's the law! California law (Health and Safety Code, Part 15 - Miscellaneous Requirements, Chapter 5 - Electric Hazards, Section 119075-119090) sets clear guidelines on the operation of electric generators:

**119075.** (a) The Legislature intends to prevent electricity generated by permanent or portable electric generators from back-feeding into a utility electrical distribution system by the enactment of this chapter.

(b) Any portable electrical generator that's capable of being connected temporarily to a customer's electrical system, that's normally supplied by an electrical corporation or state or local public agency, shall be connected only after opening the customer's main switch so as to isolate the customer's electrical system from that of the electrical corporation or state or local agency.

(c) Any electrical generator, other than a generator designed to run in parallel with the system of the serving utility and approved by that utility, that's capable of being

permanently connected to a customer's electrical system shall be connected only by means of a double throw switch so as to isolate the customer's electrical system from that of the electrical corporation or state or local agency.

**119080.** (a) Every manufacturer of a portable or permanent electrical generator that's capable of being connected either permanently or temporarily to a commercial, industrial, or residential structure's electrical system shall include a warning statement in the generator's instruction manual and a legible warning label on the generator that states the requirement of Section 119075 and explains the electrical hazards of back-feed into a utility's distribution system. The same warning information shall be included in all advertisements offering portable electric generators.

▶ (b) No person or public agency shall sell, rent to another person or public agency, or offer for sale or rent to another person or public agency a portable electrical generator unless the legible warning label is on a visible surface of the generator.

**119085.** (a) Every public utility or utility district shall notify all electrical service customers of the electrical back-feed hazards of portable and permanent electric generators.

(b) Any owner, renter, or lessee who possesses and operates an electric generator, when the generator is connected to a commercial, industrial, or residential structure's electrical system that's connected to the service of a public utility or utility district, shall notify the utility of the location of the generator.

**119090.** (a) Any person who violates Sections 119075 to 119085, inclusive, is guilty of a misdemeanor, and subject to a fine of not more than five hundred dollars (\$500) or not more than six months' imprisonment.

(b) For purposes of this section, "person" shall not include public agencies, officers or employees of public agencies, or public utilities.

### **For More Information**

For additional information on choosing a portable generator, talk to a licensed electrician. To talk to SDG&E about your plans to run a generator, please call us at **1-800-411-7343**.