How to Choose the Right Size Generator

CR's experts help you select the right type and size of generator to keep the electricity flowing during an outage

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Illustration: Consumer Reports

When the power goes off, whether it's because of a hurricane or heat stress on the power grid or just one downed tree, a generator can be a lifesaver.

If your TV won't turn on when "The Bachelorette" is airing, it's annoying but not much more than that. If your sump pump stops and your basement floods, you're looking at a costly repair. And if you have an oxygen machine or other critical medical device, having a backup source of power can be important.

Choosing a generator takes some thought, though, because they vary in type, price, and size.

Portable generators run the gamut from small recreational units that start at about $450 and can power a single appliance at home (or go on a camping trip or tailgating) to large portable models that can power most of a home. And within those size categories, you have both conventional generators and inverters that are quieter and more efficient but also more expensive. (There are a number of important differences between inverter and conventional portable generators.)

Another option is a whole-house generator—sometimes called a home standby generator—that powers an entire house seamlessly and without a need for frequent refueling. These generators cost as much as $7,000 and require permanent installation that can be quite expensive.

Consumer Reports members can use CR's generator ratings to choose a specific portable, inverter, or whole-home generator. We currently have about 80 models in the ratings.

Using a Generator Safely

Before we get to the specifics, here are a couple of notes on safety. Consumer Reports tests only portable generators with carbon monoxide (CO) safety technology—that is, a built-in sensor that triggers an automatic shutoff if carbon monoxide builds up to dangerous levels in an enclosed space. We recommend that you only use a generator with this feature.

With any generator, it's extremely important to follow safe practices, as described in detail by the Consumer Product Safety Commission. Never operate a generator indoors, including in a garage or carport. Operate your generator a minimum of 20 feet from your home with the exhaust directed away from it as well as from any windows, doors, and AC units.

Add Up Your Wattage Needs

To determine the size generator you need, make a list of the appliances you want to power and add up their wattages. And here's a tip: If you're considering a portable generator, don't spring for one that produces a lot more power than you'll be using.

"There's no need to go larger unless you want to be able to power more in a pinch and are comfortable with needing to keep more gas on hand," says Misha Kollontai, a Consumer Reports engineer with long experience in generator testing. Some of the larger portable generators in our ratings can burn through about 20 gallons of gasoline per day.

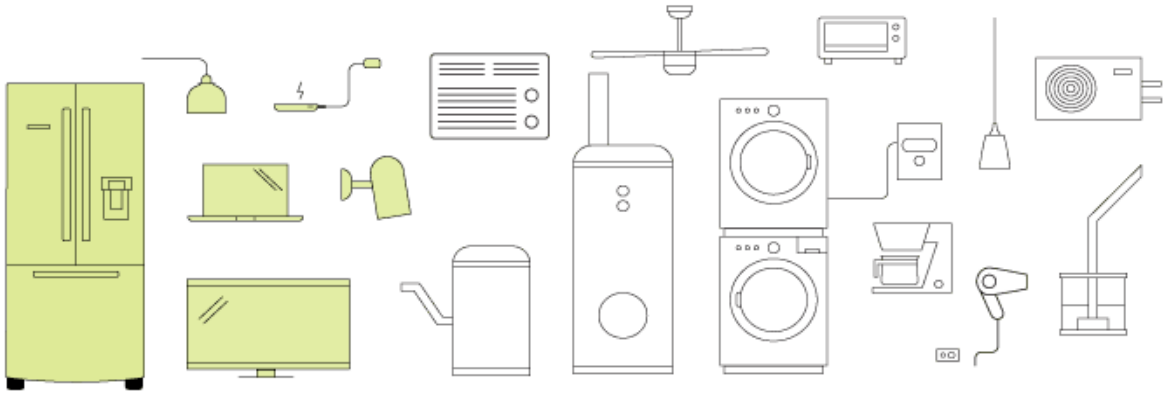
Depending on the size generator you need, you may have a choice between a traditional portable generator and an inverter generator, which electronically throttles the engine up and down to supply power more efficiently. "If you're willing to pay more up front for a quieter and more fuel-efficient unit, potentially saving down the road if you use it often, then look at inverters," Kollontai says.

The interactive tool below will help you estimate how powerful a generator you need. Just click on a type of generator to get a sense of what appliances you can run with it. The wattages for each type of appliance are general guidelines and may vary from what you have in your home. Also keep in mind that some appliances—air conditioners, refrigerators, and sump pumps, for instance—draw a lot more power at the moment they're cycling on. These surge watts can throw off your calculations if you don't account for them.

What a Generator Can Power

Click on any type of generator below to see what it will run in your home.

Recreational Inverter | **Midsized Inverter** | **Large Inverter or Portable** | **Home Standby**



UP TO 2,000 WATTS

GETS YOU: Refrigerator (700 watts), laptop (200 watts), five to 10 lights (250 watts), smartphone charger (20 watts), home security system (100 watts), TV (100 to 150 watts)

Another way to think about your generator choices is to consider how often you're likely to need one, and for how long. That's unpredictable to an extent, of course, but think about the outages you experienced in the past and what devices you needed to power. Then see which of the three power-outage scenarios below match your situation.

You can click on any generator type to jump down to a list of its pros and cons, as well as a specific product recommendations.

1. You Experience Frequent Power Outages

And when the power goes off, the outages are sometimes prolonged. This probably applies if you live in an area prone to severe weather events, such as blizzards, ice storms, tornadoes, and hurricanes, where a large number of homes may be affected at the same time.

Generator Types to Consider

- Home standby
- Large inverter
- Large portable

These three types have enough juice to power your entire household, and they can connect directly to your home's circuit breaker panel, allowing you to control and run appliances that are hardwired, such as central heat and air conditioning, well pumps, sump pumps, electric ranges, and water heaters. If you have any of these and you need them to work in a power outage, you'll need a transfer switch installed at your breaker box to hook up a large portable or inverter generator.

A licensed electrician should be able to handle the job, but be sure to budget for that installation cost when considering the cost of the generator. A home standby generator also needs costly professional installation, with the transfer switch generally included in the price.

2. You Have Occasional Outages

Sometimes they're sustained, but not typically, and you don't want to spend many thousands on a home standby generator.

Generator Types to Consider

- Large inverter
- Large portable

Unless you experience numerous power outages a year, you might not be willing to spring for the $10,000 or more it can cost to buy a home standby generator and have it installed. You can save thousands of dollars if you're willing to pull your large inverter or portable generator out of a garage or shed and hook it up during the outage. You'll still want to have a transfer switch installed and budget for that expense.

3. You Rarely Lose Power

Even so, you want a generator for some peace of mind, and to power a few important items.

Generator Types to Consider

- Midsized inverter
- Small inverter

Midsized inverter generators have ample power to run a fridge and a window AC or space heater, as you can see in our interactive tool above. Small recreational models are compact enough to toss into the back of a pickup to power a TV and cooktop or a small fridge at a tailgate, and can be used to charge phones and laptops, as well as lamps and small kitchen appliances.