



Emergency Electric Generators

With the probability of the loss of electrical service during an earthquake or other natural disaster (including winter storms), an emergency electric generator for your home and/or Neighborhood Command Centers (NCC) is worth considering.

Good information and a guide to help you choose a home/emergency generator can be found at:

<http://www.electricgeneratorsdirect.com/catalog/pickperfectportable.php>

You can purchase a generator from this Web site, or from local merchants such as Home Depot, Grainger, Lowes, or a contractor supply company. Honda generators have a great reputation as being durable and quiet, but they are a bit more expensive (check out <http://www.hondapowerequipment.com/gen.asp>). Coleman, Powermate, Troybilt or other name brands should work fine for occasional/emergency use. Cost is dictated by power output in watts (1,000 watts = 1 kW), features, and brand (most generic generators use either Briggs & Stratton or Kohler gasoline engines).

Sizing your Generator

For an NCC you may only want a portable generator to power some flood lights, recharge batteries, and maybe run a radio. You could get by with a 1 - 2 kW portable generator, which typically cost \$300 - \$700.

For your home, it all depends on how many items (lights, gas furnace fan, refrigerator, radio, TV, etc.) you need to power, and how much you want to spend. Add up the wattage of the items you wish to power, multiply by 1.5 or so, and that should give you an idea of the size you need. Generally, 5 - 10 kW's is sufficient for home emergency/backup use. These typically cost \$600 - \$2000.

Most portable generators are gasoline powered, and the larger they are the more gasoline they consume. You'll want to store enough gasoline to last 2 or 3 days of intermittent use, plus you can always siphon some from a car gas tank (one reason to always keep your car's tank topped up).

Large home power system generators (typically 12 kW and bigger) can feature automatic starting and switching, and can be run off natural gas--which is convenient unless the gas line ruptures in an earthquake. They can also run on gasoline or propane. They are expensive. For the Bay Area these may be

overkill, but that depends on your needs (i.e. to power a household air conditioning unit) and budget.

Getting the Power to the Appliances

There are 2 typical ways to get the power from your generator to the items you want to run. The simplest and cheapest is to use heavy-duty extension cords. This would be ideal for an NCC, as you could relocate the generator to where it's needed. For home use you can run temporary extension cords from the generator outside to the appliances inside that you want to operate, such as plug-in lamps, refrigerator, radio, TV, etc.). This works fine for an emergency or the few times a year when power goes out. Make sure that you use heavy duty extension cords that are rated for the wattage they will be drawing from the generator.

A more elegant way to power your appliances is to wire the generator in to your home electric panel. This should only be done by a qualified electrician! You'll need to purchase a "transfer switch", which isolates the generator power from the power line power (so you don't back-feed the power grid and put PG&E workers at risk). A transfer switch typically allows 6, 8 or 10 household circuits to be switched over to the generator power. So, you could have it wired (by the electrician) into the circuit for your kitchen and living and/or bedroom, your refrigerator, your gas furnace fan, etc. You start the generator, flip the transfer switches, and you now have power for lights, wall outlets, etc. Figure \$500 to \$1500 for an electrician to wire in a transfer switch, plus \$300 for the switch itself.

Check that your Appliances are Generator Safe

One thing to keep in mind about emergency generators is that typically the power they produce is not as "clean" as that from PG&E. Power line electricity from PG&E is well regulated to 60Hz (60 cycles per second), with the voltage typically between 115 and 125 volts. Some gasoline powered electric generators can't regulate their power output quite so well, and may provide 105 - 135 volts at ~57 - 63Hz, depending on load and quality of the generator.

Lights are usually fine with this, and most devices with internal power supplies (radios, TVs, computers, etc.) should be ok. However, sensitive devices like timers and possibly some appliances with electronic controllers may not operate properly, or could even potentially be damaged. It is best to verify with the manufacturer beforehand that the device will operate safely under generator power. Check in the owner's manual or call customer assistance to ask--better safe than sorry before plugging in that expensive refrigerator or plasma display!

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