

When unpredictable weather or unexpected disaster brings power outages, portable generators are often a key element in preparedness plans. While a generator can be an economical and important resource, it can also pose a number of hazards.

South Dakota State Precision Agriculture Machinery Research Coordinator, Jeff Vander Schaaf, says operating a generator safely begins at the point of purchase.

“Before you can select the appropriate generator you have to determine what your power needs are,” Vander Schaaf says. “Some households use a generator to keep their freezer running if the power goes out. Others might want to be able to use some household appliances during an outage. Still others may want to bring power to the whole house.”

Generators that provide higher levels of power will cost significantly more than something that runs a few household appliances. It’s also important to understand what generator specifications are important, whether a “quiet” generator is important and if a solar generator might be a viable alternative to traditional generator models.

Prior to a generator purchase, important questions include: how often is power outage an issue? How long is it usually out? How much wattage is necessary and how will the generator connect to the home/building where power is needed? How heavy is the generator?

When it’s needed, the generator will have to be moved into place. For that reason, it’s key to know beforehand if the generator’s weight will pose a problem.

Higher wattage generators will provide more power and be more expensive. Estimating the need

for power and expressing that in terms of wattage may require an electrician.

“Different appliances draw different amounts of power,” Vander Schaaf says. “Electricians are familiar with wattage and how to determine the amount of power appliances draw. Once that total wattage is determined, it can be used to select the appropriate generator.”

Often, electricians install a transfer switch that connects to the household power. The generator may be plugged into the switch or connected in some way so power provided by the generator is transferred to the house.

While it’s operating, a generator may be placed in a driveway or garage. Because generators typically run on gas, the danger of carbon monoxide poisoning is high if the generator is operated in an enclosed area.

“If a generator is operated inside a garage, it’s possible that carbon monoxide will invade the house even if doors and windows are closed,” Vander Schaaf says.

Once a generator has been purchased, a regular maintenance plan will help ensure that it’s ready when it’s needed. The maintenance checklist should include checking on the quantity and quality of fuel available for running the generator. In adverse weather or disaster situations obtaining added fuel may be unfeasible.

“The fuel used to power the generator is something one may want to keep in mind when purchasing a generator,” Vander Schaaf says. “Generators use air filters so you want to make sure the filter is clean and intact. Generators are often stored in an area where mice might get into them and the filter would be the kind of material mice chew on.”

Batteries often supply the power to start a generator. When it's time to use the generator, a dead battery could be a serious issue. Trickle chargers can help maintain battery power but a periodic load test on the battery is still needed to assure it will start when needed. Engine fluid levels – such as oil and coolant – should also be checked on a regular basis.

Check generator air vents or louvers to make sure they're free of dirt or debris and operate properly during generator use. Hoses, gaskets and gauges should be visually inspected to ensure they're fully operational.

Additional safety practices related to generator use include selection of a power cord that exceeds the total expected electricity load to prevent excessive heat buildup and damage to the power cord. Keep the cord out of the way to avoid anyone tripping or stumbling over it. The cord should have three prongs and no cuts or holes in the insulation covering. An overloaded power cord also poses a fire threat.

Completing a practice run to verify that the generator operates as expected will help avoid any unpleasant surprise when the generator is needed.

“During a practice run you'll find whether or not the auto start works and, if you have a transfer switch, if the power is transferred to the building,” Vander Schaaf says. “You'll also know that the battery is in good condition and how the engine is running.”

Unusual engine noises or knocking are cause for concern. If that happens, the generator should be turned off and inspected by a professional. Any safety devices featured on the generator should not be tampered with. Only qualified service persons should repair the generator and the total electrical load on the generator should never exceed the manufacturer's rating.

Generators should not be operated inside or near windows, vents or air intakes that could allow carbon monoxide to enter a building. While it's operating, maintain plenty of air flow space around the generator. A generator can be operated under an open canopy if necessary. It's important to keep the generator dry because short circuits may occur in wet conditions, which can cause the generator to start on fire.

Fuel should only be stored in an approved storage container or holding tank and never stored indoors. When the generator is running, the fuel supply should be kept a safe distance away to avoid starting a fire. To refuel the generator, it must be turned off. A fully charge fire extinguisher should be located close to where the generator is operating.

Because generators can become hot when they're running, keep any flammable items away from the generator and avoid touching the generator without protective gear.

Plugging the generator into a wall outlet can cause a power "back feed," which could put the homeowner and others at serious risk.

"Back feeding could kill a lineman who's down the road trying to restore your power," Vander Schaaf says. "Like most tools, generators come with an owner's manual that provides important safety information. In planning to use your generator, make sure it's properly prepared and complete maintenance well before you need to use it. That will help ensure that things go smoothly when you need to use it."