



Elements

By Kevin Pegg

When the power goes out, there is more to consider than just lighting a candle. Plan in advance with a backup power system that matches your budget and needs.



Power Outages

Don't get caught in the dark.

You have just prepared a lovely dinner and have plans for a quiet evening at the cabin, when suddenly everything goes dark and silent. The power is out. What you do next will depend on how prepared you are.

Situation number one: You have anticipated and planned for this. You decided in advance that you are the only one who can ultimately guarantee electrical supply and took matters into your own hands. You researched the options available and invested in a backup power system that matches your needs and budget. The backup power supply kicks in and things start to power back up again. Dinner is enjoyed and you have a relaxing evening as planned.

Situation number two: Blindly, you fumble and stumble to a drawer where hopefully there's a flashlight. A stubbed toe and bruised forehead later, you find it. It gives you two minutes of light and then dies. Maybe you should have replaced those batteries last month. You find your way to a phone, but there's no dial tone because cordless phones need power. You dig in the closet for a corded phone. After dialling the power company, they ask you to visit their website for status updates and give you an estimated wait time of

two hours and 17 minutes to speak with an agent. Hello? The power is out. You just wanted to know what is happening and when the power will be back on. The hours drag on and you wonder how the basement is doing with no sump pump. It's only after flushing the toilet a few times that you realize you have no more water. That's because your pump needs power, too. You decide to abandon the cottage to go visit your neighbour and see if they are having any luck or know what is going on.

Which situation do you want to be in? Think about what the inconvenience of a power outage is worth to you and prepare appropriately. Make a list of the appliances you want to keep on hand and for how long. Look to past events, like last winter when there were many homes without power for a week. And remember, rural areas will often have longer outages than urban centres. So what are your options?



Portable Power Packs, such as Xantrex Xpower systems, are great for protecting

against short-term outages. These are portable self-contained power systems that you can charge from a wall plug or your vehicle's lighter plug. Small units, such as the Power Pack 400, are good for very small loads, such as efficient lights or charging cell phones. They offer a relatively short running time due to the fairly small battery pack meant to keep the weight of the unit manageable. Larger units, such as the Xpower 1500, can power larger loads, such as a refrigerator or power tools, for a short period of time. There are several options, with integrated radios and lights, making these an ideal emergency power system.

Battery/Inverter Subsystems

function like a large UPS (uninterruptible power supply) and are available in many different sizes. There are two measures to be concerned about: inverter size (load) and battery capacity. A larger inverter will allow the system to run heavier loads. A 2.5 kW system is capable of running loads as large as 2.5 kW. Battery capacity, typically in kWh (kilowatt hours) or Ah (amp hours) affects how long a load can operate. For reference, 1 kW for five hours = 5 kWh

I would suggest a 2.5 kW inverter with a 10 kWh battery backup system. This keeps the servers, a couple computers, the Internet, phone systems and a few lights operational for two to three hours. This system kicks in automatically when power fails, keeping servers running and phone calls uninterrupted during the switchover. This system costs around \$5,000 to purchase today.

Generators are often the best solution for backup power. The elegance of an auto-start generator cannot be overestimated. It kicks in automatically and runs what you need to for as long as you have fuel. (For an in-depth article on generators, read page 20 of the Nov/Dec 2007 issue of Cottage.)

Generators are available in myriad sizes and fuel types. A small generator would be 2 to 5 kW range. These portable units can run most large 120V appliances one at a time. With a 3 kW unit, you could keep some lights on and switch between running a fridge and running a water pump. A medium-sized generator, around 6 to 15 kW will be capable of running more appliances concurrently. For home standby, 12 kW is a very common size. It has enough power to run larger appliances, such as washing machines, ovens, furnaces and power tools. This size of unit will allow you to continue your life fairly normally in the event of an outage. Large generators, from 15 kW to thousands of kW, are suited to larger loads, such as commercial operations, hospitals and restaurants. For example, to run a corner store like 7-11, you would need a generator around 100 kW because of their energy-intensive operations, such as refrigerators, coffee machines and cooking facilities.

A Transfer Switch is the only legal method of interconnecting a stationary generator to your cottage. These units are designed to only be connected to one source at a time — either grid power (normal) or generator (backup) — to prevent the possibility of backfeeding to the grid. Backfeeding can lead to equipment failure or the death of workers. Never do something silly like reverse-feed a dryer plug or hook a generator directly to the panel because it costs lives every year and is just not worth the risk. An automatic transfer switch is the best option because it will monitor the power grid and automatically start the generator when the power goes out (and shut it off when the power returns). Manual transfer switches require you to start the generator and then throw a large switch to move from one

source to another. A sub-panel is required if you only want to power some circuits. If the generator is large enough, typically over 12 kW, you can omit a sub-panel and power all circuits. However, it usually depends on whether you have electric heat or not.

Thinking ahead is the key. A power failure can happen at any time for a variety of reasons, including an accident, weather or equipment failure. If your cottage is in British Columbia, BC Hydro has a useful section on their website (www.bchydro.com/outages) that will let you know the status of the power grid. The site also offers detailed preparedness lists for residential and business customers. 🗣️

PREPARATION KIT

Here is a quick list of items you should have on hand. Be sure to store these items in easy-to-find locations.

- Flashlight – Consider LED flashlights that will last a very long time on batteries.



- Rechargeable Batteries and Battery Charger – Solar or car-powered chargers are available.
- Radio – Not only is it a good way of finding out why the power is out, but may be a good source for current updates.
- First Aid Kit – Include any personal medications.
- Drinking Water – You should have enough for two litres of water for each person for several days.
- Corded Telephone – Cordless phones need electricity.
- Ready-To-Eat Non-Perishable Foods – Energy bars and cereal are easy to store.
- Warm Clothing and Blankets – Make sure there are more than enough for everyone in case the temperature drastically drops.
- Cards and Games – Mental stimulation will keep occupants entertained until the power returns.



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