

How do you live without electricity

By Anita Evangelista

It's going to happen. Sooner or later, the power will go off, and you won't know when (or if) it will come back on. This doesn't have to be the work of evil-doers, either. It could be a sudden ice storm that brings down the power lines. It could result from other severe weather such as a tornado or hurricane, or from a disruption caused by faulty power company equipment, or even something as simple as a tree branch falling on your own personal segment of the grid. The effect is the same: everything electrical in your home stops working.

For most modern Americans, the loss of power means the complete loss of normalcy. Their lifestyle is so dependent upon the grid's constancy that they do not know how to function without it. How do you cook a meal if your gas stove has an electric ignition? How do your children find their way to the bathroom at night if the light switches don't work? How do you keep warm if your wood heat is moved through ducts by an electric fan? What do you do with a freezer full of expensive meat? How do you find out what is happening in your area with the TV and radio silent? What will you drink if your water comes from a system dependent on electrical pumps?

These are questions that both the Red Cross and Federal Emergency

Management Agency are asking people to seriously consider. Both of these agencies have suggested that preparations for three days without power are prudent commonsense actions that all Americans should now undertake.

We'll look at these issues in the broad context of living without access to the grid, whether you've chosen to separate from it or whether the choice is made for you by outside forces. What you can do now to mitigate your difficulties if the power goes off in the future, and what you can do then to help keep your situation under control, will be the focus of this article.

Remember, too, that an important principle in all preparations is that you maintain as much "normalcy" in your lifestyle as possible. For example, if television is part of your relaxation and unwinding process, don't assume you can easily do without it. The closer you can keep your daily routines to "the norm" for your family, the more easily you can deal with power outages.

There are five primary areas that are easily disrupted if the power goes off. Each of these is critical to daily survival, as well, so when making preparations for emergencies keep these in mind. In order of importance, they are: **light, water, cooking, heating/cooling, and communication.**

Light

While living on our Ozark farm without the grid, we spent some time rising with the sun and going to bed when the sun set. This would probably have been a pretty healthy way to live, if everyone else in the world did the same thing. Our children's bathroom needs didn't stop when the sun went down, our neighbors figured that nighttime visits weren't out of the ordinary, and those midnight raids on the pantry for crackers and peanut butter turned into fumble-fests. Sometimes the barking of our livestock guardian dogs meant strange predators were too close for comfort, somewhere in the countryside darkness. Light is the most important item on our Big Five list because without light we are not able to efficiently carry on the other activities of daily living.

The most simple and familiar form of emergency lighting is a **flashlight**. Do you have one that you could find in the dark, right now? If so, congratulations. You are among a very small percentage of Americans. Better yet if you have one for each member of your family, with fresh batteries, plus three extra sets of batteries for each flashlight. That should be your minimum "safe" number. Store your flashlight where you can quickly reach it in the dark night—under the mattress of your bed, for example. Each child old enough to walk should

also have his or her own flashlight, and be taught how to use it.

Flashlights range in price from the 79 cent cheapie to the fancy multi-function \$80 special. Consider a small 2-AA battery flashlight with a halogen bulb. These cost about \$4-5 each, give an excellent clear white light, and are easily portable in a pocket or purse. Additionally, when we discuss communications later in the article, the most common battery used in these devices is also the AA, so your life will be simplified if you stick primarily to one type of battery and don't have to buy various odd sizes for different needs.

Batteries wear out rapidly if your flashlights are used continuously: figure two changes per week of regular use. Alkaline batteries last longer, give a more powerful light, but cost more than regular batteries. Most rechargeable batteries are suitable for flashlights, but should be recharged when the light begins to dim a little. Don't let them get completely drained. This means you would need several sets of rechargables for each flashlight (some would be recharging while you use the others).

Recharging can be done by means of a charger plugged into your car's cigarette lighter outlet. These DC-powered rechargers can be found at auto supply stores and at Radio Shack for about \$30 or less. Solar rechargers work slower but produce the same results for about \$30.

Candles are available, slightly used, at garage sales and thrift stores (5 cents to 10 cents each or less), and some outlet stores like Big Lots have new candles for 25 cents. We have a cardboard box weighing 35 pounds that is filled with various sizes and shapes of candles. This would be about a year's supply for my family. We've acquired them gradually, every time we found them inexpensively. They never go bad! Candles are easy to use and familiar. Most of us can adjust to using candles easily. The

light is soft and wavering. You'll need at least three candles if you hope to read by the light. If you have small children or indoor pets, care must be taken where you place them. Metal candle holders that hang on walls are probably the safest. Remember to place a heat proof plate underneath the holder to catch drippings. Save your wax drippings, too, to make more candles later.

Oil (kerosene) lamps produce a steadier light than candles. Department store oil lamps cost about \$10 each and come in attractive styles. Lamp oil is about \$3 per liter. A typical lamp will burn one to two cups of oil per night, so you would use about two liters each week per lamp. The light from these lamps is not quite adequate to read by unless it is placed very close, and the light does waver a little. A single lamp can provide enough light in a room so that you don't bump into furniture, but two or three may be needed to provide good functional light. As with candles, if you have children, these lamps need to be placed securely and out of reach. The smell of burning oil (kerosene) can get heavy in a closed room so keep ventilation open. Keep an extra set of wicks (\$2) and chimneys (\$3) in case of breakage.

The Cadillac of oil lamps is the **Aladdin Lamp**. These run from \$60 up to several hundred each. The light given off is as good as a 60-watt bulb, clear, and unwavering. You can read or do needlepoint by the light of one lamp. These burn the same oil or kerosene as typical lamps, but because they burn hotter, there is much less odor. Position these lamps so that they cannot accidentally be overturned, and so that the intense heat coming from the chimney won't ignite something. Purchase an additional "mantle" (the light-giving portion of the lamp - \$3), and chimney (\$15), as backups.

Solar powered lamps (\$80-\$120) are typically small fluorescents, and can be run off of battery systems. It may take more than one day of bright sunlight to recharge these lamps, so you may need several—one to use, while others are recharging. The light is white and clear, good for area-lighting, and rather difficult to read by. Have extra fluorescent bulbs on hand, too.

Don't forget to store matches!

Water

If you live in a town or city, the loss of power to homes and businesses probably will not immediately affect your water pressure, but it could affect the purification process or allow reverse seepage of contaminants into the lines. If, instead, your water comes from an electrically-powered home water pump, your water stops flowing the moment the power does. Either way, with the loss of power comes the loss of water (or, at least, clean water). Water that is free of bacteria and contaminants is so crucial to our survival that it should be a special concern in your preparations.

The easiest way to guarantee quality water is to store it right now. The important question is: how much? Both Red Cross and FEMA suggest a minimum of one gallon per day per person. This is an absolute minimum, and covers only your real drinking and cooking needs; bathing is out of the question.

The typical American currently uses around 70 gallons a day, taking a nice long hot shower, flushing the toilet several times, washing a load of laundry, letting the water run while brushing teeth, and for cooking and drinking. In a short-term emergency situation, only drinking and cooking water is crucial, but if that short-term incident drags out to weeks or months, daily consumption would rise to include bathing and clothes washing. And this presumes that the family has

prepared a sanitary “outhouse,” so flushing isn’t needed. In that case, 5-10 gallons per day per person would be a more reasonable amount, with a weekly communal bath becoming the routine.

One to three-gallon jugs, direct from the supermarket, run about 60 cents to \$2; these store easily under cabinets and counters. A few tucked into the freezer will help keep things cold if the power goes off. You can also store water inexpensively in large, covered plastic trash cans; they hold 36 to 55 gallons each. Refresh the water every two weeks, so it will be ready in case the power goes off. Kiddie swimming pools—a 12-foot wide, 36-inch deep pool holds 2500 gallons and costs about \$250—also



Cooking bread outdoors in a Dutch Oven

make excellent above-ground holding tanks. Buy a pool cover, as well, to keep bugs out.

Farm supply stores often sell “water tanks” made of heavy grade plastic. These can be partially buried underground to keep water cooler and less susceptible to mold and bacteria. These run about \$1 per gallon of holding capacity, so a 350-gallon tank new will cost \$350. Plan to filter and purify the water before use.

Collecting water can be done by hand with 5-gallon plastic buckets if you live near a river or stream (it *must* be filtered and purified before use). You can also divert rainwater off your roof, through the rain gutters and downspouts into plastic trash-cans. If you live in the Midwest, Northwest, or East Coast, rainfall is adequate to make this your primary backup water source. West Coast, high desert, and mountain areas, though, won’t have sufficient rainfall to make this a reliable source.

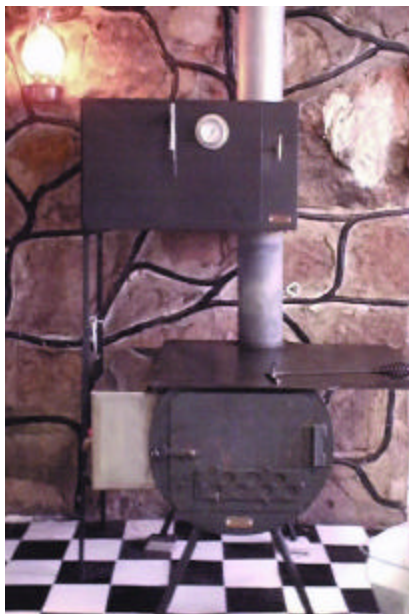
A drilled well with an electric pump can be retrofitted with a plastic hand-pump for about \$400 - \$600. These systems sit side-by-side with your electric pump down the same well-shaft, and can be put to use any time the power is off. Typical delivery is

about 2 gallons per minute, and pumping strength varies from 11 to 20 pounds—a good but not exhausting workout.

Water can be purified inexpensively. Fifteen drops of bleach (plain unscented) per gallon of water costs less than 1 penny, and ¼ cup of hydrogen peroxide (3%) per gallon will also destroy bacteria. Twenty minutes of a hard, rolling boil will, too. Bleach is effective against both cholera and typhoid and has kept American water supplies safe for decades. The chlorine taste can be easily removed with a charcoal filter system (such as Brita Pitcher or Pur brands for home use, about \$30).

British Berkefeld water filters, along with various other brands, are more expensive (\$150-\$250), but can filter and purify water indefinitely. Both eliminate bacteria, contaminants, and off-flavors. We’ve used a “Big Berkey” for four or five years, and it is a very reliable gravity-fed system. When shopping for filters, if they only offer “better taste” they won’t protect you from bacterial contaminants.

Noah Water System’s travel companion will work great in case of a power outage, or your water supply



A “shepherd” or “camp” stove offered by Cabela’s catalog. It has a detachable shelf on the right, detachable five-gallon hot water tank on the left, and an oven sitting above the stove body. The whole thing breaks down and is portable. It cooks very nicely, too. Costs about \$500 for all components, excluding stove pipes, and it can be bought piecemeal. The light in the upper left-hand photo is a lit oil lamp, placed to give light when using the stove.

becomes undrinkable. The Trekker is a portable water purification unit. With the Trekker you can get water from any river, lake, or pond. It's small enough to carry like a briefcase.

Cooking

A person can survive indefinitely opening cold cans of beans for meals, but it wouldn't be a very satisfying existence. In times of crisis, a hot meal goes a long way toward soothing the day's troubles. The simplest way to heat a meal is the Boy Scout method: a couple of bricks or rocks set around a small outdoor fire, with the bean can propped over the flames. It's low cost, and it works. However, the cook doesn't have much control over the outcome.

Outdoor cooking of all kinds, including **grilling** and **barbecuing**, all work during emergency situations, provided you have the charcoal or wood (and matches!) needed to get the heat going. These are familiar methods, too, so family members don't have to make a huge leap to accept these foods. It's difficult to cook much more than meats and a few firm vegetables over open heat like this, though. Also, never use these devices in a confined space, as they emit carbon monoxide.

"Campfire" cooking can lend itself to some baking, if you also have a cast iron Dutch Oven—a large, heavy, cast iron covered pot. Place a well-kneaded pound of bread dough into a heavily-greased or oiled Dutch Oven and put the cover in position. Make a hole or pot-sized well in the ash near the fire, and line this with glowing coals. Put about an inch of ash over the coals, and place the Dutch Oven into this. Now, pile about an inch of hot ash around the oven and cover with glowing coals, then another layer of ash to keep the heat in. Uncover and check your bread in about 35 minutes, it should be done.

Propane and **butane camp stoves** are so much like ordinary home

stoves that there is no difference in the cooking results. Portable RV 2-burner propane stoves are often available used—mine cost \$5 at a garage sale—and can even do pressure canning because the heat is consistent and reliable. A typical 18-gallon propane cylinder, the kind used for barbecues, costs around \$30 new, and a propane fillup is about \$7. This will last for nearly a month of daily use. You'll also need a feeder hose and pressure regulator for the stove, which can be prepared by your propane dealer for \$20 or so.

Butane stoves are also portable and run off of a cylinder of the same kind of butane that is used in cigarette lighters. These stoves are \$80-90 new, and cylinders are \$5 and last for 8 hours of cooking.

General camp stoves (around \$65 at department stores) operate on "stove fuel" (basically, propane in a small 1-pound cylinder - \$3). A cylinder lasts for around 8 hours of cooking. You can also find camp stoves that will cook off of unleaded gasoline, and there are some that are "multi-fuel," using either kerosene or gasoline—handy in case of a shortage of one fuel or the other. Use outdoors or on a covered porch to prevent carbon monoxide buildup in your home.

Solar cooking is another option, if you have plenty of unobstructed sunlight and someone who is willing to adjust the cooker to face the sun every half hour or so. A **solar oven** need be no more fancy than a set of nested cardboard boxes painted flat black on the inside with tempura colors, a sheet of window glass, and some aluminum foil glued to cardboard panels. Total cost for this, if you can scrounge leftover glass and cardboard, is about \$1.

Place your food in a covered lightweight pan inside the box, prop it so the entire interior is exposed to the sunlight (about a 45-degree angle), cover with the sheet of glass (and tape the glass so it won't slide), then

prop the aluminum foil panels so that they reflect more sunlight down into the box. Move the box every 30 minutes so it maintains an even temperature. It will get hot fast, easily up to 325 degrees, and hold the heat as long as it faces the sun. Remember to use potholders when removing your foods! Our first solar oven had a black plastic trash bag as a heat-absorbing inner surface; it worked superbly until the plastic actually melted.

Keeping foods cool if the power goes out can be as simple as looking for shade, even under a tree. Some Ozarkers have partially buried old broken freezers in the shade of backyard trees, storing grains and winter vegetables inside. During the winter, your parked car will stay at the same temperature as the outside air—below freezing on those cold nights—so you can store frozen goods there safely. During the daylight hours, the car interior will heat up, though, if it's in the sun. Park it in the shade of the house, or cover the windows and roof with a blanket to keep the interior cool.

Kerosene refrigerator/freezers are alternative appliances that will continue to function with the power off because they are "powered" by kerosene. Their cooling and freezing capacity is exactly the same as a regular refrigerator, and they come in the same colors. Typically, they are a little smaller than conventional 'fridges and cost up to \$1500, but they'll last for decades with care.

Portable battery-powered refrigerators that keep your foods 40-degrees cooler than outside temperatures are available at most department store sporting-goods sections (\$90). These run off of both DC and AC power, so they can be plugged into your car battery through the cigarette lighter outlet or into a solar power system.

What about that freezer full of expensive meat if the power goes off? First step is to cover the freezer with

blankets to help retain the cold. Then, find dry ice (if everyone else in your town hasn't already bought out the supply). Blanket coverings will keep a full freezer frozen for two days, and the addition of dry ice will prolong that to three or four days.

If power stays off, it's time to eat and time to can the meat remaining. Canning low-acid foods like meat calls for a pressure canner (\$90), canning jars (\$6 for 12), a source of consistent heat (like a propane RV stove), and some skill. In considering your time requirements, it took me two days of steady canning to put a 230-pound pig into jars. Each quart jar holds 3 pounds of meat.

Heating and cooling

It's a funny thing that even though we know winter is coming, we put off cutting our wood until after the first really cold night has chilled the house below comfort levels. But with the instability in the world today, it is sensible, and reasonable, to prepare well in advance of season changes. Putting in supplies a year ahead of time is a traditional farm practice, and it gives a cushion of safety against uncertain conditions.

Woodstove heating is more common, and comfortable to use, than it was two decades ago. New wood heaters run from \$100 to several thousands, depending on materials, craftsmanship, and beauty. Better

stoves hold heat longer and may have interior baffles that let you use less wood to produce more heat. Even so, the most basic metal-drum-turned-stove also works to heat a room or a house.

Heating a 3-bedroom home that is moderately insulated will use about 8-12 cords of wood throughout the winter. The size of a cord (sometimes called a "rick" or a "rank") is not standardized from region to region, but typically will be about 8' x 8' x 2', roughly a pickup truck bed loaded even with the top of the sides. Prices will vary between \$65 per cord to \$150, depending on the region and type of wood. Hardwoods, such as oak and walnut, and fruitwoods like apple and pear, burn better and longer than softwoods like poplar. Don't use resinous woods, such as the pines, cedars, and spruces for the main heating—only as firestarters—because they burn too hot and fast and generate creosote. Better home insulation and better quality hardwoods will decrease the amount of wood you need to use.

If you plan to secure and cut your own firewood, be willing to acquire a good-quality chainsaw—any that cost below \$200 will only give you grief. Keep an extra chain on hand. Use safety precautions, too: wear ear and eye protectors, heavy gloves, and don't chainsaw alone. Cutting your own wood will decrease your heating costs significantly, but increase your labor. It typically takes us a full week of constant work to put up a winter's worth of wood.

Woodstoves require heat-proof surfaces surrounding them, an insulated chimney pipe (about \$90 per 3-foot section), and some building skills in order to install. Installation costs can equal or surpass the cost of the stove itself. Chimneys need to be thoroughly cleaned of the black crusty

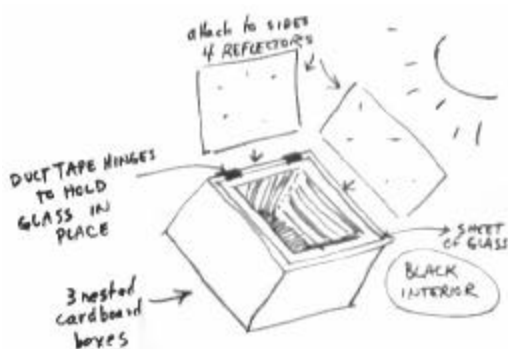
buildup, creosote, at least twice each year (and more often if you use the stove continuously).

Propane heaters that don't need venting to outdoors are a relatively new product. A plain one (\$200) can be mounted on the wall in the home's main room, or more fancy models that look like built-in fireplaces complete with fake logs (\$450) are available. You will need a propane tank, regulator, and appropriate copper lines, but these will all be installed by your propane company for a small charge. Propane has varied widely in cost from year to year, but typically runs around \$0.95 to \$1.30 per gallon.

Kerosene heaters (\$120) are free-standing units that burn kerosene in a way that is something like a lamp—it uses a wick system and flames to provide heat. These are best used in areas that can be easily ventilated, because of the potential for buildup of carbon monoxide. Kerosene has a strong odor, as well. Kerosene costs about \$1 per gallon or less (in quantity).

Solar heat can be "grabbed" anytime the light from the sun hits your house. Even in the dead of winter, the south-facing walls will feel noticeably warmer than the shaded north-facing ones. You can "store" the sun's heat in any surface. Ceramic floor tiles, for instance, are excellent at retaining heat. So will a flat-black painted covered plastic trash can filled with water. If these surfaces are exposed to sunlight, say, indoors next to a south-facing window, they will absorb heat during the day. At night, with the window curtains closed, the surface will release heat slowly and steadily into the house.

One of the most efficient ways to heat is something else we have forgotten in the past 50 years—close off rooms that are not being used. If doors aren't available, you can hang curtains in doorways (or even tack up a blanket, in a pinch), and keep your



A solar oven design made with cardboard boxes, aluminum foil, and a piece of window glass. Interior of the box is flat black paint.

heat restricted to the room you are actually in. In an emergency situation, you can curtain up a room and set up a tent-like “den” for the family to snuggle in under blankets. Body heat alone will keep the den’s interior comfortable.

Cooling a residence during a hot summer requires just as much thought and advance planning as winter heating does. Battery and solar-powered fans help keep air moving, windows can be shaded by fast-growing vines and pole beans, and—planning way ahead—fast-growing trees like poplars can be planted on the house’s south side to shade the yard.

In areas where wind blows routinely in the summer, you can soak a sheet, ring it out, and hang it in front of a breezy window. The air passing through the window is cooled as it moves against the wet sheet, and helps to cool the house. Remember that heat rises, so make it easy for too-hot air to escape from the attic and upper floors by opening windows and vents.

Communications

In a time of distress, keeping in contact with family and knowing about local and national situations is important to maintaining both continuity and confidence. In general, telephone systems are on a different system than the electrical power grid, but they can be disrupted if there are earth movements or as the result of terrorist activities.

During the Loma Prieta earthquake in 1989, we kept informed about the damages by watching a 4-inch black and white TV set (bought used for \$25) that was plugged into our car battery through the cigarette lighter. At night, we heard reports from the BBC via a 4-AA battery powered shortwave radio (\$70 from Radio Shack). I consider these two devices—shortwave and TV—the required minimum communication/information devices during a crisis,

especially if the phone system is down.

Satellite internet hookups, using a battery-powered laptop, could be an excellent communication tool, both for accessing news and for staying in touch with friends and colleagues by email.

Citizens Band (CB) radios are excellent tools, as well. These portable devices can be carried with you into the field and used to stay in contact with neighbors and family when you are away from the house. Basic models run \$60—you’ll need at least two—and ones with greater ranges and features are more costly. They’ll run on 6 to 8 (or more) AA batteries.

“Family Radios” are FM-band devices that have a short range, about ¼ mile (\$60 for a pair). These are handy for keeping family in contact during outings, when traveling in a caravan, or when one member needs to go out to the barn during a storm. They run on 2 AA batteries.

Keeping things normal

Even though circumstances may change in the world, we can choose how we wish to react. We can live in a state of helpless anxiety—or control what we can. We can control our responses, in part, by maintaining as much normalcy in our lives as possible.

If your family relaxes in the evenings with a video, plan to continue doing that. Acquire a battery-powered TV/VCR combination, and make sure you have enough power sources to keep that going for at least two weeks. (If things get dicey, you can wean off the system in two weeks.) A cassette player or CD player with external speakers can provide relaxation and entertainment, and they run off of AA batteries as well.

Children have difficulty adjusting to sudden changes in their environment, so if you expect them to play board games if the power goes out, they

should be comfortable with board games now. Keep routines consistent, arising at the usual time in the morning and going to bed as you have in the past. Prepare familiar meals with foods everyone enjoys. Have “fun foods” and goodies on hand. Remember to reach out to your neighbors and older folks who live nearby, and provide extras to help them, as well.

Use the knowledge you’ve gained, and your experience with non-electric living, to make your neighborhood a more secure and adaptable place.

Resources

Aladdin Lamps: Lehman’s carries an excellent selection, plus many non-electric items.

Lehman’s, P.O. Box 41, 4779 Kidron Rd., Kidron, OH 44636
www.lehmans.com, 330-857-1330

British Berkefeld water filters:

Noah Water Systems, Inc., 46373 Galway Dr., Novi, MI 48374
www.noahwater.com, 877-356-6624
New Millennium Concepts, LTD., P.O. Box 201411, Arlington, TX 76006

www.bigberkey.com, 888-803-4438

Hand pumps: A websearch can find many manufacturers and sellers. Two are:

Kansas Wind Power, 13569 214th Rd., Holton, KS 66436
www.kansaswindpower.net
785-364-4407

Ready Made Resources, 239 Cagle Rd., Tellico Plains, TN 37385
www.readymaderesources.com
800-627-3809

(Anita Evangelista is the author of *Living Without Electricity and Liking It*, and several other useful books, all available from *Backwoods Home Magazine*.) Δ