



Stakeholder Toolkit

Shelter Sustainably This Winter in Case of Power Outages

As a part of our yearly series in sustainable emergency preparedness, we are taking a look at two of the most important necessities of life in this toolkit after the needs for food and water have been satisfied: power and shelter.

We know it's important to be prepared for emergencies through the first 72-hours, but what about the post 72-hour timeframe? With the growing frequency and severity of emergencies, coupled with the interdependence of all of us living on the "grid," it is more important than ever before to communally foster a culture of preparedness and self-reliance. This toolkit will give stakeholders vital information on cost-effective and environmentally friendly ways to generate power for their home as well as alternate ways to accomplish tasks without power. Additionally, this toolkit will advise stakeholders of what to look for in a shelter location as well as a few wilderness sheltering methods.

This toolkit marks a growing focus on sustainability in emergency preparedness at large. We want people to be mindful of their impact on their world around them, deepen their understanding of power and shelter principles and motivating them to action with DIY know-how. Through this initiative, we also seek to encourage people to develop resources that can be used and pooled together in times of need. This January, we'll focus on a few key areas to further your post 72-hour mark in emergency preparedness planning. These areas include long-term power outage scenarios, power generation, wilderness sheltering, and other alternate locations for riding out an emergency.

FEMA Region III points of contact

Area of Responsibility	Name & Email Link	Phone Number
Public Affairs	William Powell	215-931-5684
Congressional Affairs	Corey Rigby	215-931-5715
Intergovernmental Affairs	Stephanie Pyle	215-931-5654
Private Sector	Stephanie Pyle	215-931-5654
Volunteer Agency Liaison	Michelle Breeland	215-931-5584
Community Preparedness	Amanda Hancher	215-931-5716
Disability Integration	PJ Mattiacci	267-270-5804



Talking Points

- Power outages can occur at any time of the year and it may take from a few hours to multiple weeks for electricity to be restored to residential and commercial areas.
- Make sure you have alternative charging methods for your phone or any device that requires power. This can mean solar, battery, wind, or any combination of power generation methods.
- Think of ways to have redundancy for important documents and money transferring.
- Find other ways to accomplish basic tasks without power, such as washing clothes, bathing, cooking and heating/AC.
- Taking appropriate shelter is critical in times of disaster. Sheltering is appropriate when conditions require that you seek protection in your home, place of employment or other location when disaster strikes. Sheltering outside the hazard area could include staying at an alternate location for emergencies, staying with friends and relatives, seeking commercial lodging, creating ad-hoc shelter, or staying in a mass care facility operated by disaster relief groups.
- To effectively shelter, you must first consider the hazard and then choose a place in your home or other building that is safe for that hazard. For example, for a tornado, a room should be selected that is in a basement or an interior room on the lowest level away from corners, windows, doors and outside walls. The safest locations to seek shelter vary by hazard. [Be Informed](#) about the sheltering suggestions for each hazard. There may be situations, depending on your circumstances and the nature of the disaster, when it's simply best to stay where you are and avoid any uncertainty outside by "sheltering in place".
- The length of time you are required to shelter may be short, such as during a tornado warning, or long, such as during a winter storm or a pandemic. It is important that you stay in shelter until local authorities say it is safe to leave. Additionally, you should take turns listening to radio broadcasts and maintain a 24-hour safety watch. During extended periods of sheltering, you will need to manage water and food supplies to ensure you and your family have the required supplies and quantities. Read more about [Managing Water](#) and [Managing Food](#).



Key Messages – Power

Before a Power Outage

- Have an emergency charging option for your phone and other mobile devices. Smartphones have become a vital tool to receive emergency [alerts and warnings](#), so it's important to make sure you can keep them powered up in an emergency. Prior to severe weather, make sure that all of your electronic devices are fully charged. If the power goes out, preserve battery power by minimizing device use. Keep a back-up power source on hand to recharge your phone so that you can stay connected even during an extended power outage. Keep a portable phone charger in your vehicle at all times, and consider purchasing a back-up power supply to keep in your vehicle as well.
- Consider setting up an emergency solar and/or wind powered power generation system to power appliances and store in batteries. If you are considering purchasing a generator for your home, consult an electrician or engineer before purchasing and installing. Only use generators away from your home and NEVER run a generator inside a home or garage, or connect it to your home's electrical system.
 - **Battery-stored backup power** - Allows you to continue operating lights, refrigerators and other appliances, fans, and communications during a power outage. These systems can connect to renewable sources of energy, like solar panels and small-scale wind generators, to help the batteries stay charged during an emergency. You can also recharge many of these battery systems with diesel generators. The length of time you will be able to draw electricity from your batteries will depend on the size of your battery bank. Emergency mobile battery backup power systems can power cell phones and lights for a relatively short period of time (for example, 700–1,500 watt hours). Pre-wired solar-powered battery backup systems offer more power output for longer periods of time (example, 5,000–10,000 watt hours).
 - **Solar power** - Solar power can provide a portion of daily primary power as well as reliable backup power during an emergency. Solar panels, or solar modules, are typically installed on the roofs of homes or work facilities. These solar panels are made up of photovoltaic cells, which convert sunlight into direct current power, which is then converted by an inverter into alternating current power, or standard electrical current used in your home or office. Battery systems can recharge using solar power. As the solar panels generate energy during the day, any excess energy not used by the home or office can be stored for use at night, on rainy days, or during power outages.
 - **Wind power**—A small-scale wind electric system (such as residential or institutional) can help homeowners, small business owners, and public facilities generate their own energy for onsite use. A small wind turbine produces electricity from wind when moving air causes the turbine to rotate. Most small wind turbines look like a miniaturized version of the large, utility-scale, three-bladed turbines, but other models can vary widely in appearance. Wind electric



systems are less widely used by the public than solar-powered systems because many municipalities do not include small wind systems in local zoning codes. This often makes permitting and installing the systems difficult and costly.

- **Fuel cells** - Fuel cells are similar to batteries and can power cars, trucks, and buses, as well as portable devices such as cell phones and laptop computers. Fuel cell systems can also provide backup power to buildings and facilities. Today, fuel cells are often fueled with natural gas. They are relatively expensive. In 2005, the most widely deployed fuel cells cost about \$4,500 per kW; by contrast, a diesel generator costs \$800 to \$1,500 per kW.
- Store important documents in a secure, password-protected jump drive or in the cloud and have paper copies. Back-up your computer to protect photos and other personally important electronic documents. Scan old photos to protect them from loss.
- Keep your contacts updated and synced across all of your channels, including phone, email and social media. This will make it easy to reach out to the right people quickly to get information and supply updates. Consider creating a group listserv of your top contacts.
- Build or restock your [emergency preparedness kit](#), including a flashlight, batteries, cash, and first aid supplies.
- Know where the manual release lever of electric garage door opener is located and how to operate it.
- Freeze water-filled reusable containers to help keep food cold during a temporary power outage.
- Keep your car's gas tank full-gas stations rely on electricity to power their pumps. If you use your car to re-charge devices, do NOT keep the car running in a garage, partially enclosed space, or close to a home, this can lead to carbon monoxide poisoning.
- Learn about the emergency plans that have been established in your area by visiting your state's or local website so you can locate the closest cooling and warming shelters.
- If you rely on anything that is battery-operated or power dependent like a medical device, determine a back-up plan and consider investing in redundant power systems like back-up solar generators and batteries. For more planning information tips visit: [Seniors](#) and [Individuals with Disabilities and Others with Access and Functional Needs](#)

During a Power Outage: Safety Tips

- Only use flashlights for emergency lighting, candles can cause fires.
- Keep refrigerator and freezer doors closed. Most food requiring refrigeration can be kept safely in a closed refrigerator for several hours. An unopened refrigerator will



keep food cold for about 4 hours. A full freezer will keep the temperature for about 48 hours. For more information about food safety visit our [food](#) page.

- Take steps to remain cool if it is hot outside. In intense heat when the power may be off for a long time, consider going to a movie theater, shopping mall or “cooling shelter” that may be open in your community. If you remain at home, move to the lowest level of your home, since cool air falls. Wear lightweight, light-colored clothing. Drink plenty of water, even if you do not feel thirsty.
- Put on layers of warm clothing if it is cold outside. Never burn charcoal for heating or cooking indoors. Never use your oven as a source of heat. If the power may be out for a prolonged period, plan to go to another location (the home of a relative or friend, or a public facility) that has heat to keep warm.
- Turn off or disconnect appliances and other equipment in case of a momentary power “surge” that can damage computers and other devices. Consider adding surge protectors.

After a Power Outage

- Throw away any food that has been exposed to temperatures 40° F (4° C) for 2 hours or more or that has an unusual odor, color or texture. When in doubt, throw it out!
- If food in the freezer is colder than 40° F and has ice crystals on it, you can refreeze it.
- Contact your doctor if you’re concerned about medications having spoiled.
- Restock your emergency kit with fresh batteries, canned foods and other supplies

Sheltering

- Taking appropriate shelter is critical in times of disaster. Sheltering is appropriate when conditions require that you seek protection in your home, place of employment or other location when disaster strikes. Sheltering outside the hazard area could include staying with friends and relatives, seeking commercial lodging or staying in a mass care facility operated by disaster relief groups.
- To effectively shelter, you must first consider the hazard and then choose a place in your home or other building that is safe for that hazard. For example, for a tornado, a room should be selected that is in a basement or an interior room on the lowest level away from corners, windows, doors and outside walls. The safest locations to seek shelter vary by hazard. [Be Informed](#) about the sheltering suggestions for each hazard. There may be situations, depending on your circumstances and the nature of the disaster, when it's simply best to stay where you are and avoid any uncertainty outside by “sheltering in place”.
- If you are caught outside or in the wilderness and need to take shelter, make a sign around you that can alert search and rescue to your location, preferably visible by air.



The three best ways to create an ad-hoc wilderness shelter is tarp shelter, wickiup, and a leaf lean-to hut.

- The length of time you are required to shelter may be short, such as during a tornado warning, or long, such as during a winter storm or a pandemic. It is important that you stay in shelter until local authorities say it is safe to leave. Additionally, you should take turns listening to radio broadcasts and maintain a 24-hour safety watch. During extended periods of sheltering, you will need to manage water and food supplies to ensure you and your family have the required supplies and quantities. Read more about [Managing Water](#) and [Managing Food](#).

Mass Care Shelter

- Even though mass care shelters often provide water, food, medicine and basic sanitary facilities, you should plan to take your disaster supplies kit with you so you will have the supplies you require. Mass care sheltering can involve living with many people in a confined space, which can be difficult and unpleasant. To avoid conflicts in the stressful situation, it is important to cooperate with shelter managers and others assisting them. Keep in mind that alcoholic beverages and weapons are forbidden in emergency shelters and smoking is restricted. Search for open shelters by texting **SHELTER** and a **Zip Code** to **43362 (4FEMA)**. **Ex: Shelter 01234** (standard rates apply) Learn more by visiting: DisasterAssistance.gov

Guidelines for Staying Put (Sheltering In Place)

- Whether you are at home, work or elsewhere, there may be situations when it's simply best to stay where you are and avoid any uncertainty outside.
- There may be circumstances when staying put and creating a barrier between yourself and potentially contaminated air outside, a process known as "sealing the room," is a matter of survival. Use common sense and available information to assess the situation and determine if there is immediate danger. If you see large amounts of debris in the air, or if local authorities say the air is badly contaminated, you may want to take this kind of action.

The process used to seal the room is considered a temporary protective measure to create a barrier between you and potentially contaminated air outside. It is a type of sheltering in place that requires preplanning.

- Bring your family and pets inside.
- Lock doors, close windows, air vents and fireplace dampers.
- Turn off fans, air conditioning and forced air heating systems.
- Take your emergency supply kit unless you have reason to believe it has been contaminated.
- Go into an interior room with few windows, if possible.
- Seal all windows, doors and air vents with 2-4 mil. thick plastic sheeting and duct tape. Consider measuring and cutting the sheeting in advance to save time.
- Cut the plastic sheeting several inches wider than the openings and label each sheet.
- Duct tape plastic at corners first and then tape down all edges.



- Be prepared to improvise and use what you have on hand to seal gaps so that you create a barrier between yourself and any contamination.
- Local authorities may not immediately be able to provide information on what is happening and what you should do. However, you should watch TV, listen to the radio or check the Internet often for official news and instructions as they become available.

Sample Article: Sustainable Emergency Preparedness

Having enough supplies to sustain yourself and your family during an emergency for 72-hours is a must, but what happens when your need to sustain yourself and your loved ones goes beyond the 72-hour mark? What if disasters strike back to back and you lose power for extended periods of time or have to shelter elsewhere?

As disasters become more and more severe it's time to begin thinking about the post 72-hour period. The decisions we make months in advance can aid in this process. Using strategies like conserving power and using alternate generation methods can help supplement your emergency power supply. Finding other ways to do tasks that do not involve electricity is also really helpful and quite easy. After a disaster, electric utilities and government officials will first work to restore power to critical infrastructure like power plants and transmission lines, water treatment facilities, and telecommunications networks, and also to hospitals, critical care facilities, and emergency response agencies. It may take several days or even weeks to restore power to individual homeowners, but here's what you can do to help prepare and recover power more quickly:

- **Charge mobile devices** - If you have power, charge your cell phones, laptops, and other mobile devices so they'll have the maximum amount of battery power stored in the event of a power outage. These devices will help you communicate with your power company, and they'll help you stay up to date on restoration efforts, weather forecasts, and other important information. [Learn more](#)
- **Prevent overloaded circuits** - If your power goes out, switch off all the lights and appliances that had been on to prevent overloaded circuits when power is restored. If you expect a power outage, turn off and unplug all unnecessary appliances.
- **Communicate with your power company** - Report downed power lines and outages, and report whether your neighbors have also lost power. Have your utility account number available, if possible. Check for service restoration status updates using a computer or mobile device. [Learn more](#)
- **Stay clear of crews working** - For safety reasons, crews have to stop what they're doing when bystanders come too close to them. By staying clear and allowing crews to work, they can more quickly restore your power, and you'll remain safe.
- **Safely use portable generators** - Portable generators made for household use can provide temporary power to a small number of selected appliances or lights, but they can also be hazardous. Read the manufacturer's instructions and take proper precautions. [Learn more](#)
- **Certify your electrical systems** - If your house sustains flood or wind damage to electric equipment, including outlets, meters, fuse or breaker boxes, lights, or other electrical



fixtures, a licensed electrician must certify that your systems can be safely energized.
[Learn more](#)

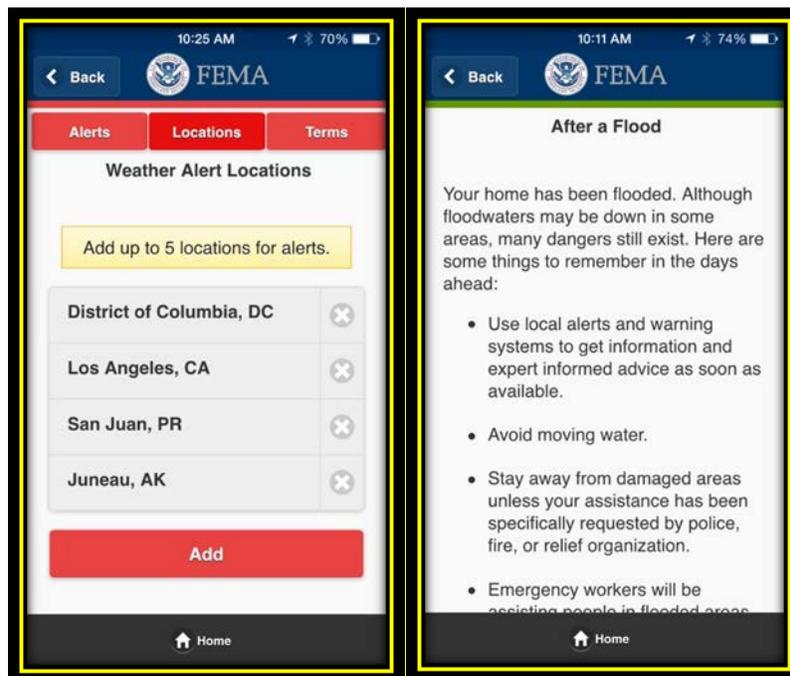
Web Resources

We recommend using social media tools as a way to promote sustainable practices in emergency preparation this winter. You can promote through your own channels, or by promoting messages posted by FEMA.

We have included some sample messages below that you can post on your own social media accounts to engage your friends/followers. More information and ideas on how to take action and be an example can be found on FEMA's official [Facebook](#) or [Twitter](#) accounts, Ready's official [Facebook](#) or [Twitter](#) accounts, or FEMA Region III's [Twitter](#) account.

FEMA App *(smartphone app for mobile devices)*

The FEMA App contains disaster safety tips, interactive lists for storing your emergency kit, emergency meeting location information, and other disaster-specific information. The app is free to download through your smart phone provider's app store on [Android](#), [Apple](#), and [Blackberry](#) devices.



Social Media

- FEMA Region III
 - [Twitter](#)
- FEMA HQ
 - [Facebook](#)



- [Twitter](#)
- Ready
 - [Facebook](#)
 - [Twitter](#)
- America's PrepareAthon!
 - [Twitter](#)

Social Media Messaging

The following messaging can be used to promote this month's theme. Please feel free to customize the following messaging to fit your audience's needs. We would love to see everyone posting to Google+, Facebook, Twitter, Instagram, Snapchat, Pinterest and LinkedIn. Use the following messages or create your own to share.

- Always have a backup! #WhenTheLightsGoOut have several batteries for your critical devices handy, bonus if they are solar powered! #SusPrep #Sustainability
- #DidYouKnow #Solar power can provide a portion of daily primary power as well as reliable backup power during an emergency? #SusPrep
- Make a #resolution to prepare for emergencies and leave a low carbon footprint. Include reusable supplies in your kit with minimal packaging. #SusPrep #In2018
- Bacteria in food thrives in temps 40-140 °F. #FightBac and keep perishables cold. #susprep
- #afterapoweroutage Partial thawing and refreezing may affect the quality of some food, but the food will be safe to eat.
- Battery-stored backups can connect to #renewable solar panels and small wind generators to help the batteries stay charged during an emergency. #SusPrep #ProTip #preparedness
- Candle warmers, chafing dishes, fondue pots, fireplaces have been used for #emergencycooking. How will you cook/eat during a winter storm?
- HINT: Charcoal grills and camp stoves are outdoor only!
- Store important docs in a secure, password-protected jump drive or in the cloud and have paper copies. #WhenTheLightsGoOut
- Back-up your computer to protect photos and other personally important electronic documents. Scan old photos to protect them from loss. #WhenTheLightsGoOut
- #gimmeshelter what makes a good emergency shelter location? HINT: It depends on the hazard! Find out more at [Ready.gov](#) #susprep
- If you are lost in the wilderness, here is a #bushcrafting tip: the 3 best ways to ad-hoc shelter is with a tarp, making a wickiup, or making a lean-to hut. #SusPrep



Additional Links

Links and Resources

- [Environmental Protection Agency -Sustainability](#)
 - [Foodsafety.gov](#)
 - [United States Department of Agriculture – Disaster Resource Center](#)
 - [How To Build Survival Shelters from Outdoor Life Magazine](#)
 - [Videos – Foodsafety.org](#)
 - [Department of Energy](#) (link)
 - [Individuals with Disabilities and Others with Access and Functional Needs](#) (link)
 - [Winter Weather & Extreme Cold](#) (link)
 - [Centers for Disease Control](#) (link)
 - [Food Safety](#) (link)
 - [Generator Safety](#) (link)
-