FUEL

Why store fuel?

It is a cold winter day. A winter storm has knocked out the power and officials say it may be days before it is restored. You are prepared: you have flashlights, lanterns, stoves and even a heater, but alas you have no power sources to fire them up! Kind of like being up a creek without a paddle isn't it? There are many different choices in batteries, fuels and even solar. It requires some education to understand possible options, how to safely use them, and how to store them appropriately. I cannot stress enough the importance of using wisdom in your use and storage of fuels! Place the safety of your loved ones at the very top of your list. Be wise (don't do stupid things)! Never store any flammable or combustible fuel in any building that you can't afford to have burn down!

How Much to Store? *Well, the Prophets have been very clear, that if possible, to have a year supply of fuel. (to me this means where it is legal to have it and where you have the room-if you have a yard, you have the room). Don't feel like you have to go out and get it all at once (if you can GREAT!), if not just begin it is important that you are doing everything you can do to fulfill this commandment. Start with a week or two and build from there.*

Can you really store enough fuel to last a week, month, or even a year?
Can it be done safely and cost effectively? Absolutely!

How to Store Liquid Fuels:

Store your fuel in a small shed. Not in garage and NOT in your house.
Keep your fuel storage as far away from your house as possible.
If possible, keep your shed in a shady area.
Make sure you lock the shed to keep children away.
Store a fire extinguisher nearby but not in the shed.

ALCOHOL (ever wondered the differences in them, I sure did)
Denatured Alcohol (grain alcohol w/ toxins not drinkable) - is inexpensive and available in the paint section of hardware stores. Good choice for alcohol stoves such as Stove-in-a-Can and backpacking stoves. Burns hotter and less smelly than rubbing alcohol.
Pure Ethanol (potable grain alcohol) - is expensive and available in liquor stores and is sold under the brand names of Everclear and Graves Grain Alcohol. Burns really well in an alcohol stove.
Rubbing Alcohol (isopropyl alcohol) - is 70% isopropanol and 30% water. It has all the problems associated with burning pure isopropanol (burns yellow, sooty flames, indicating that it is not combusting completely) with the added inconvenience of having 30% of its volume being noncombustible water. It will work in an emergency, but is not a first choice.

CANDLES: ¾" diameter x 4" burns about 2:20 hours
7/8" diameter x 4" burns about 5 hours.

2” x 9” burns about 75 hours
Store candles in a cool area. Store at least 3 candles per day

CANNED HEAT: Stores easily and can be used indoors. A 7-ounce can burns about 1-1/2 hours. Good only for warming, not boiling. Store in cool place.

COOKING OIL: Emergency candles can be made from oil. Take a piece of string, lay one end in cooking oil and allow the other end to hang over the edge of jar. Light the dry end. Use 7-8 stings for more light. These are very smoky and should be used only when nothing else is available.

FLASHLIGHTS: 2-battery flashlight with new batteries will work for @ 6 hours. Store in a cool area. Don’t store batteries in flashlights. Store extra batteries and bulbs. Some headlamps last for up to 200 hours on 3-AAA batteries. Crank flashlight last about 30 minutes on 1 min. cranking. Okay light. Shake flashlights not recommended because they are so dim when lit.

BATTERIES: AA most versatile: Adapters available that turn AA into a C or D cell.
Alkaline batteries are best stored in an airtight container in a cool location. They have a shelf life of three to five years. If stored correctly they will last much longer than the expiration date printed on the package. Don’t work well when cold. Buy cheap in bulk at Costco.
CR2032 Coin Cell Lithium Batteries: In headlamp or cap light, work for 120+ hours, very cheap (20 for $2.94 x 3=60 batters=3600 hrs for $13).
Lithium batteries: They can last 2 to 8 times longer than a standard alkaline battery and will work in colder temperatures when other battery chemistries will give no power at all. They will store about ten years. Sam’s Club carries the e2Lithium’s.

Rechargeable Batteries: You can use plug-in or solar charger. A good practice is to charge your cells, then let them trickle charge over night. The pull them off the charger and set them aside with a note telling you when they were last charged. In 90 days at room temperature they will have lost around half of their charge, so you can charge them back up again. NiCds need to charged 5+ full cycles before using and should be stored discharged. NiMH cells should be stored with a charge. NiMH cells like to be treated gently. When you're done with your device, recharge the cells. The more shallow the cycle the better. Full cycles will wear on them the most. Keep NiMH cells topped off and they'll last the longest. Occasionally you may need to perform a deep cycle to restore some performance if the cell appears to be waning. Eneloops is a good brand and carried at Costco and Wal-Mart.

Charger: Recharge lithium and NiMH batteries. Some use electricity to recharge others use or can convert sun into energy. It takes 8 hrs of sun to charge AA batteries. Never charge batteries if below freezing. If you really need a charged cell, warm it up in your pocket (preferably the charger too).

CHARCOAL: Outdoor use only. Charcoal burns hotter and cleaner than wood. It is the least expensive fuel per BTU that you can buy and safe to store Use good quality like Kingsford for

easier lighting and better burn time. Stores indefinitely if kept dry. Remember to store newspapers, canned heat, or lighter fluid to start the charcoal. For applebox OR Dutch oven: 1 hr day =24-#15 lb bags charcoal.

GASOLINE: Only outdoor use. For use with generators, uses a lot of fuel. Can also be used in some lanterns and stoves. Stores 1 year in tightly sealed container, 5-10 years with stabilizers added once a year. Keep in cool place. Only fill containers 95% full to allow for expansion in the heat. Cap tightly. Limits on amounts to store.

Generators: Portable generators can provide comfort, safety and security during power outages and emergencies. Decide on your NEEDS and purchase the smallest generator that would fit those needs. The smaller the generator, the less fuel it requires. Depending on the generator, it can run off of diesel, propane kerosene or gas (½-3 gal. per hr). A generator can be useful in a charging batteries or using appliances, including a small refrigerator for several hours each day. Generators, are useful in short-term emergencies, but because of the amount of fuel they use, are not practical for long-term usage. They are also very loud, can only be used outside, and will draw attention to the fact that you have power when others do not. If you are planning on one big enough to power all or part of your house, you will need special wiring to be done by an electrician. You could get a 5500 watts, 13 HP that would run most of your house for $500.00. The problem with $500 generators is that they are not designed for long term use. Usually their target is 500 HOURS before they are basically run out. Moving to $900 for generator one can get a LONG TERM generator and it can last up to 5000 hours.
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KEROSENE: (use battery-powered CO detectors when using kerosene in the house or tent). Kerosene is one of the cheapest, most efficient fuels to store. It has been used for heating, lighting and heating for hundreds of years. Only store high-quality clear, 1K kerosene. It has a long shelf life, but you can add an additive like PRI-D diesel treatment to last longer. It is also not as explosive as gasoline or Coleman fuel. Store in blue plastic container (universal symbol for Kerosene) or one that is clearly marked and NEVER store it in a container that once held a different fuel, such as gasoline. If stored in non-lined metal containers it will eventually leak. Store outside/shed, only in shade. It has a strange odor when burned and can be used for lighting, heating and cooking.

KLEAN HEAT: Similar to kerosene, but odorless and less smoke. Can be ordered online or at Lowe's or Home Depot in the paint department. Stores indefinitely. Store outside or in garage. About $36 for 5 gallons, also 1 gal.

LAMP OIL: Petroleum based. Odorless/smoke free. For hurricane type lamps. Stores indefinitely. Lamp oil should be ½" below top of neck and not less that 2" below while using. Wick should not be visible above the dome while burning. If it's too high it will cause smoke. 10 hours per ounce burn time or 640 hrs/128 days for ½ gal, 2 gal=1 year per lamp. Store extra wicks and lamps if possible. (Wal-Mart)

NEWSPAPER LOGS: Four logs burn approximately 1 hour and produce heat comparable to the same amount of wood on pound-per-pound basis. To Make: Roll 8 pieces of newspaper tightly around a dowel, one at a time, and adding the next in before you reach the end. Tie off ends with twine, remove dowel. Will store 20 years, keep dry.

PROPANE: Outdoor use only unless appliance has ODS (oxygen depletion sensor). Stores indefinitely. Store outdoors in shade in upright position. Propane containers must be recertified every 10 years. Small cylinder will burn about 2 ½ hours) a 5 gallon one for 12-14 hours (half that time in the cold. Can be used for lanterns, stoves, and heaters. Usual legal limit 5 – 5 gallon tanks. Small bottles $3+ each.

SOLAR: Solar energy simply put is this:
Rays from the sun are collected by a solar panel; this power goes into a charge controller and then is stored in a battery. In order to use this DC power you need an inverter which converts the power in the battery into AC power; with this done you can simply plug your small appliance into the inverter and it will work. The more solar panels and batteries you have: the faster it charges; the more power you will be able to use and the longer it will last.

WHITE GAS (Coleman Fuel): NEVER use indoors! An un-opened container of Coleman fuel stored in a dry area with no rapid extreme changes in temperature will remain viable for 5-7 years. An opened container stored in the same area will remain viable for up to 2 years although it is at its best if used within a year. Lantern: 38 gal=5 hrs a day,
Cooking Stove: 91 gal=4 hrs 2 burner stove per day.

WOOD: In some areas wood is plentiful and can be obtained for fuel. Works best if dried for at least 6 months before burning. It stores many years. Hardwood burns longer. Will need approximately 2-6 cords for winter warmth/cooking. When buying wood make sure it is clean, dry and free from termites and other insects. Store outdoors; preferably covered and re-stack every five years to prevent build-up of debris that can cause spontaneous combustion. It takes 16 lbs of wood to produce the same amount of heat as one gallon of heating oil. In cold places, you might need 10-14 cords.

Fire Starters:
I mention these because it really won't do you much good to have a short term or year supply of fuel, it you don't have anything to start them with.

Matches: waterproof a great idea, but at the very least store them in water/humid proof containers such as: #10 cans, buckets or Mylar bags.

Butane lighters: Get a good one with extra fuel.

Flint & Steel or Blast Match: Fire starter that is operable with one hand and never fails to light in the wind, rain, or snow. It generates a stream of sparks three times the heat of a standard match and easily will light any material (wood, paper, bark, cloth, or man-made fire starting

tinders) that a match will ignite. You can accurately aim the sparks to ignite a roaring fire in any weather conditions.

Charcoal Chimney: A chimney starter is a good way to start your coals. It is a metal cylinder with a grate near the bottom and has a handle. Unlit charcoal is placed on top and a flammable material (i.e. newspaper) underneath the grate. The charcoal at the bottom lights first and the "chimney effect" lights the rest. Another method is to place the chimney over canned heat or chafing fuel. It is a little less messy than newspaper.

From Debbie Kent's Presentation "Living Amongst the Rubble: Tools & Fuels and Fun"
www.peaceofpreparedness.com