

# Considering Remote Energy for Your Cabin or Camp

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When people think of their personal energy usage, they usually consider three main needs: heating or cooling of their permanent residence, electricity for lights or appliances, and fuel for their car.

Yet in Alaska, many residents spend a significant amount of time in remote locations for recreation, subsistence activities at fish camp or during trapping and hunting seasons, or seasonal work such as mining. Granted, when in remote places some Alaskans will purposely do without large energy users such as hot water heaters and furnaces. However, there are many energy options and appliances that have become affordable in the last couple of decades that can make remote living similar to home living (beyond providing mere 110-volt electrical capabilities and space heat).

## Thinking through energy sources and costs

Hauling ready-to-use propane cylinders, gas and liquid fuels into the backcountry also takes energy. This is also true with collecting local driftwood for burning or bucking up and splitting logs you've felled near your cabin. To operate appliances off

grid there are fuel costs (and effort) beyond what we pay at the pump when topping off fuel tanks. Think about the last time you went out to the hunting cabin or to summer fish camp — can you calculate the full cost/effort of getting the fuel to your cabin or camp? How many hours per week did you spend hauling the fuel? How many gallons and what kind of containers did you use? How much time/work did it take to transfer the fuel to another tank once you arrived? Was there any time required to clean up spills? What was the wear and tear on your vehicle? What were the trip-related risks and other costs you incurred to use fuel at your camp or cabin?

So, before investing in generators, battery banks, a new stove or other appliances for your remote cabin, think about how to utilize, or possibly consolidate, your current sources of energy so that any changes you make will cost less than what you are paying today while maintaining or increasing the quality of life at camp. Try to take an inventory of all the appliances you now have. You may realize ways to reduce the need for bringing in diesel or gas by becoming more energy efficient, for example, insulating the cabin better, installing a vapor barrier, swapping out incandescent light bulbs for LEDs, etc.

Also, investigate affordable renewable energy sources for power generation at your site. The initial outlay of money for a renewable energy system can be expensive, and many times the new system will not seem cost-effective because it might take years for the energy savings to cover your equipment costs. Most market energy incentives tend to be for primary residences rather than camp or cabin applications. Small-scale renewable solutions for remote camps, however, are becoming more competitive as prices come down, performance goes up and newer “micro” technologies are shown to work. In

### Energy at the off-grid cabin or camp may be used for the following:

- cooking/baking
- hot water
- laundry
- sewage/sanitation
- refrigeration/freezing
- space heating
- car/truck
- boat
- four-wheeler
- snowmachine
- interior lighting
- CB radio/cell phone
- home electronics
- bathing/washing
- food processing/drying fish
- cutting/gathering wood
- hauling in/transferring/pumping diesel, gas
- tool/implement washing

addition, while people are learning and experimenting with cheaper renewable energy technologies, gas and diesel prices have been rising during the last several years, which increases the cost advantage of investing in systems that get their energy from the wind, sun or nearby water.

### Thinking through your need for energy

As you are thinking about which type of technology you want to invest in, you will need to figure how much energy you use and then assess the energy requirements for each technology at your particular site. In other words, look at your current wants and consider your future usage to estimate your future demand for fuel; then look at the quality and extent of nearby resources. Now rank your options and repeat the process every couple of years. To understand how you use energy, list the items that currently use energy at your camp and then estimate how many hours per day each is used.

Date	Appliance	kW Rating	×	Hours	=	kW Used
8/1	CB Radio	.375 kW (375 watts)		10		3.75 kW
8/1	Buddy Heater	1.5 kW (1500 watts)		8		12 kW
8/2	Light	.100 kW (100 watts)		24 (continuously)		2.4 kW

In many camps, appliances are run off a gas or diesel generator. When the electric motor in an appliance starts up, it often causes a surge that can tax the generator’s inverter. Thus, when figuring out your usage, you should include start-up energy as well as continuous load, then try to size (and use) appliances and other energy users accordingly. Remember, costs may increase as systems get larger.

### Exercise: Plan Your System

1. Take an inventory of your camp or cabin and note everything that uses energy, such as lamps, tools, implements, small appliances, etc.
2. Determine how much energy these items use.
3. Look for ways to make these items more energy-efficient, (e.g., replace incandescent bulbs with LEDs or add insulation) or upgrade them.

Over time, technology will improve, and falling costs and more options for off-grid energy will mean more options for making your camp more efficient. Spending less time gathering wood and making fewer trips to town to resupply gas or diesel may be additional benefits of your new, energy-efficient system.

### Thinking about your site

Of course, when you begin planning, you will need to figure out what the nearby terrain is like. For instance, ask yourself if there are any hot springs close to your camp or a deep creek pool you can put a small turbine into? Are there clear places without vegetation where you can set up a solar panel to face the south? Or is there a windy area where you can erect a wind turbine? Being aware of what characteristics are present at your site will help you plan — use your own observations or ask a neighbor who has already tried some sort of renewable component.

By considering your current fuel sources, the appliances you now use, efficiency changes you can make and the characteristics of your site, you can make your camp or cabin more comfortable — and possibly save money.

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