

AUXILIARY STATION POWER TIPS

Basically there are two choices for Auxiliary Power for our Radio Stations. Either Generator or Battery with two options, short term (12 hr or less) or extended for more than 12 hrs. There are as many different opinions of which is best, easiest, cheapest, most portable, long lasting, convenient, allowed by situational restraints, quiet hours, radio noise etc so choosing one or the other is entirely up to the operator. None of these are inexpensive and do require maintenance.

The FIRST STEP in making any decision is:

HOW MUCH POWER DO YOU NEED TO OPERATE AND FOR HOW LONG.

Plan for the worst where you will be “100% key down” for your entire station in PEAK and CONTINUOUS use 24/7 so you will have the necessary power when needed and not damage your equipment. Also suggested is to add 30% to the continuous power needed. An inventory of your station is required. Here are some basic parameters to use in doing this:

Equipment	Power needed	Number used	Power used
HF Radio	150 watts	_____	_____
Laptop computer	10 watts	_____	_____
Desk top computer (Tower & Monitor)	300 watts	_____	_____
Desk Lamp	50 watts	_____	_____
Printer	100 watts	_____	_____
TNC	50 watts	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
TOTAL =			_____

An easy way to convert from Watts to Amps is with the factor of 5.
 100 Watts = 20 Amps or 20 Amps = 100 Watts

GENERATOR OPTIONS

Modes of operation may be Standby, where the generator is permanently mounted and wired to your house circuits, or Portable, which is a versatile generator capable of being moved to a remote location. Standby generators will have 5,000 to 25,000 watts costing \$1,500 to \$15,000 plus you will need a Transfer Switch that senses an interruption in service and seamlessly switches from Grid to Generator, installed by a licensed technician. Portable generators produce between 1,000 to 8,000 watts. It is recommended that we use Diesel vs Gasoline fuel with a Fuel Stabilizer added. Diesel is safer and longer lasting to store.

Use it outside due to fumes and noise

Use a Spark Arrester Exhaust muffler for fire safety

Have a cover of some kind to keep it out of the weather

Know how long it will operate on a tank of fuel.

Plan appropriate safety methods to refill including alt power while the generator is being refueled.

Use proper extension cords/power bars/grounding for safety.

Cost = \$_____ per Watt. Needed = \$_____

Cords & power bars Needed = \$_____ **TOTAL = \$_____**

BATTERY OPTIONS

DO NOT USE Car Batteries! They are designed for short bursts of Cold Cranking power and repeated major or full power drains will result in the battery failing. They also produce an explosive, noxious vapor when recharging.

FOR BATTERY ONLY or BATTERY/CHARGERING SYSTEM OPERATIONS

Appropriate choices of batteries include: DEEP CYCLE, GELL OR FLOATING CELL batteries.

Deep Cycle are quick to recharge and the least expensive. Gel and Floating cell (AGN) are slow to recharge but do not spill, hold a charge longer, can be drained to 50% discharge and will last 1,000 charging cycles but not kept in a closed environment.

Some of these choices are totally sealed and may be tipped over without damage. These may be recharged with a commercial "Trickle Charger" run from a power grid or generator.

These are available for \$35 to \$200 depending on the bells and whistles you want. **DO NOT** use a MARINE battery (MCA) which are mostly the same as an automotive battery. Consider adding a power Inverter which changes AC to DC.

FOR OTHER ENERGY SOURCE OPTIONS

There is a long list of ideas on Alternate modes to produce power for our stations. Solar, Wind, Water, Bicycle, Treadmill, etc, etc are all possible. However they all require a storage battery placed in line to our stations for a constant power level being maintained. Here in the Pacific NW we have a limited amount of Solar Power, Wind is a fickle friend, Water needs some real engineering to use, and MAN power (Bike/Treadmill/Hand crank/etc) become a tiring process. None are practical for short term portable operations but do have a place for permanent base stations. You can build the dam and water wheel operation or establish a working Wind Mill Tower or install a Solar Collector Panel, but we need to plan for an operation that will only start to produce working amounts of storage power (at 1600 RPM a generator will produce 6 amps for storage) or a bright sunny day for a solar panel array.

Costs:

MODE	COST	NEEDED
110 AH deep cell battery	= \$100 (\$1 per AH)	\$ _____
Trickle charger	= \$ 35 to \$200	\$ _____
Solar	= \$4 to \$5 per watt	\$ _____
Others	= ????	\$ _____
TOTAL COST		\$ _____

Many Hams use a West Mtn Radio Power Gate trickle charger (\$140)

ROUND FIGURES FOR A BARE BONES PRACTICAL BASE STATION SYSTEM

Designed for 2 HF Radios, VHF Radio, TNC, Desk top computer & printer, 2 desk lamps, trickle charger and a soldering iron for repairs in an extended operation) which would require 1,000 watts (@100% ops). Powered with a 1500 Watt Generator, 110AH battery for generator off times (refueling or quiet hour) with a trickle charger (@min power use), a 100 ft power cable and 2 power strips plus a 12v-110v inverter.

TOTAL COST: Home Depot/NAPA Auto Parts for a back up 1500 Watt diesel generator with 110 AH battery, a trickle charger and an DC-AC inverter, 100 ft power cable, 2 power strips working. This would leave some extra power for other needs.

GENERATOR	\$ 250	
BATTERY	\$ 100	
TRICKLE CHARGER	\$ 35	
POWER CORDS,,STRIPS,,INVERTER	\$ 140	TOTAL = 525