Residential water wheel generator

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The Harris system is an efficient, durable battery-charging pelton turbine. It is designed to produce usable household power from springs and creeks that are too small to sustain the same level of useful power from a conventional A.C. generating system. Because D.C. power can be stored, the system is collecting power 24 hours a day, a little at a time, to be used as needed.

Multiple nozzle arrangement allows much more water to impact the runner, resulting in greater output at any head, and usable power at a much lower head. All turbines include an output-optimizing circuit allowing maximum efficience at any flow rate. Multi-nozzle systems include a manifold kit and ball valves for each nozzle.

The pelton type runner is a lost wax cast of silicon bronze. The wheel is 70 to 90% efficient, depending on nozzle size and head. The bucket shape allows high efficiency for nozzles and provids a flow range of over 100 to 1. The wheel has a hydraulic diameter of just over 4.0 inches and each wheelis individually balanced.

The basic system is suitable where battery power can be used directly. Cabins using 12-volt lights, portable radios, televisions, and recreational vehicle type D.C. appliances are easily adapted to the basic system.

This configuration is suitable where higher output is needed and 110-volt, 60-cycle A.C. power is required to operate conventional appliances. Both configurations are compatible with other D.C. charging systems of 12, 24,48 volts, including photovoltaic cells, wind charging systems and generator operated battery chargers.

Consider harnessing microhydro systems, getting flowing water and sustainable home electricity. Read on to find important points to consider when looking for home hydroelectric power kits.

A hydroelectric system converts the force from flowing water into electricity. You take the kinetic energy of water flowing downhill from a stream or river and direct it onto a wheel in a turbine that converts the rotational energy to electricity. The amount of power produced depends on the volume of water flowing onto the turbine and the vertical distance it falls through the system. Equipment costs range from about $1,000 for the smallest, to $20,000 for a system large enough to power several modern homes.

If you’re lucky enough to have an abundance of flowing water, you may be tempted to envision projects that are larger than what is normally required.avis stresses that you should plan to produce only the power you need, not the maximum amount possible. If you don’t have an obvious microhydro location — but you still have access to running water — you still may be able to set up a system.

In its simplest form, the energy potential of flowing water depends on its flow rate (usually measured in gallons per minute) multiplied by the pressure behind that flow (related to the overall distance of water drop,

called “head” in the business).avis recommends a multistep approach to assess your microhydro potential before buying any equipment. Accurate site assessment is key because it identifies the total energy potential that’s available, and it all begins with a measurement of water-volume flow rates.

“Most microhydro systems use between 2 and 1,000 gallons of water per minute,” Davis says. “If you have a spring or very small creek, the amount of available water may be the factor that limits your power output.”

One of the ways to find the total amount of available water, Davis says, is to use the “container method.” Find a spot where the potential stream’s water enters a culvert and time how long it takes to fill up a container of a known size. The stream’s flow in gallons per minute equals the size of the container in gallons divided by the time it takes to fill in seconds, times 60. For example, if a 5-gallon bucket fills up in 10 seconds, the stream flows at 30 gallons per minute (gpm).

Next, you need information on the pressure behind that flow, which relates to the amount of vertical drop the water undergoes as it travels through your site. Pressure measurement combines with flow rate to determine the raw energy potential of a location. In turn, this defines the universe of choices for the hardware necessary to produce the electricity you need at wall sockets, light fixtures and appliances. Flow rate multiplied by pressure equals power.

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