Company unveils small personal-sized hydroelectricity generator

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(Phys.org)—Japanese company Ibasei has unveiled a new idea in hydroelectricity generation; a turbine that can be placed in virtually any fast moving stream or river to generate small amounts of electricity for immediate use or as a charging station. Called the Cappa, it resembles an engine on a jet aircraft and can be easily placed into a location in just minutes.

The idea behind the Cappa is that not all hydroelectric systems need to be huge, and they don't have to plug a river or be situated at an optimal location either. Instead, any spot where the river narrows causing swift movement of the water can be used. The Cappa is put in place by fashioning a couple of spans of some sort across the river or stream to form bridges. The turbine is then lowered into the water and held in place by the frame resting on the span. Once in the water, the Cappa goes to work without any further ado. For water running at 2 m/s the turbine will generate about 250 W of electricity. Placing five of them in a stream could conceivably produce up to a 1 kW (allowing for control losses). To increase the efficiency of the turbine, engineers have tailored a diffuser that causes water flowing over the blades to move faster.

Spokespeople for the Cappa say the generator has been developed for a variety of purposes, from use as in-place generators at outdoor parks to emergency backup systems, particularly in the event of a flood. They also see it as an alternative to gas powered generators that people use when the electricity goes out. A single Cappa isn't capable of running a whole house of course, but it would be good enough to keep the lights on; and if it were used in conjunction with a battery storage system, perhaps in tandem with other renewable resources, a homeowner who happens to have a stream running through their yard might find it helps reduce utility bills.

One stumbling block the company might face is hesitation by consumers due to the high price of the Cappa, which reps say is about the same as a compact automobile. They add that they expect to be ready to begin selling the generators sometime next year.