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DRINKING WATER: Wars, natural disasters provide tests for solar treatment technologies *(Friday, March 26, 2010)*

Dina Fine Maron, E&E reporter

A company whose technology taps sunlight to purify drinking water for communities besieged by wars and natural disasters is looking to widen the market for its treatment systems.

WorldWater and Solar Technologies Inc., based in Princeton, N.J., is vying for a contract to cleanse water for U.S. troops in Iraq and Afghanistan and looking ahead to a time when U.S. water utilities would trade chemicals for solar-treatment technologies.

Quentin Kelly, the company's founder and president, said the main obstacle to adapting his solar-treatment system for utilities is imagination. But that, he said, is changing.

"I think people haven't started asking the questions until now," Kelly said in a recent interview. "I have seen a sea change in attitudes toward solar-powered projects for water just in the last three or four years."

WorldWater's treatment system, he said, is chemical-free, can be set up in 30 minutes by two untrained people and can produce up to 30,000 gallons of drinking water a day. The company charges $112,000 to $133,000 for a system.

Known as MobileMax Pure, the system got its real-world test in 2005 when the company sent a version of the device to help people devastated by Hurricane Katrina in Waveland, Miss. The company says its device was the only water source for the southern half of the Gulf Coast town of about 6,600.

Now, the company has broadened its scope and developed units that can process salt water, brackish water or freshwater. In total, it has almost 60 units in the field -- 37 in Iraq, eight in Afghanistan, eight in Darfur, two in Ethiopia and four in Haiti. It also tested a unit at a Super Bowl party thrown by sports agent Leigh Steinberg in South Florida last month.

And Kelly said the company may, by late this year or next, have technology that could be used by municipal water suppliers.

"It could be used now for small utilities," Kelly said, "especially when linked together -- five systems would supply 150,000 purified gallons per day."

The appeal of the 3.3-kilowatt folding solar array-fueled system, Kelly said, is that it is self-contained and has a battery embankment that would allow it to work day or night. The battery, he added, would allow it to operate in the dark for four full days.

Earlier this month the company was among two dozen companies showcasing renewable-energy and energy-efficiency technologies for the Defense Department at the Marine Corps Base Quantico in Virginia.

The companies participated in an multiweek exercise that simulated a remote base with no infrastructure available. Gen. James Conway, commandant of the Marine Corps, pushed for such a venture to evaluate off-the-shelf technologies that might be helpful to troops in Afghanistan or Iraq.

Interest in the water-treatment device and word of mouth publicity also prompted invitations this month to demonstrate the product at the Army's Fort Bragg, N.C., and Fort Lee, N.J., and the Navy's Little Creek Amphibious Base, Va., the company said.

And Navy Secretary Ray Mabus spoke of the Quantico exercise this week at a Navy energy and climate symposium at Johns Hopkins University's Applied Physics Laboratory, mentioning the solar-powered water technology as something with particular promise for Afghanistan.

"The Corps has already deployed some solar-powered water purification systems across the country, and they are deploying cleaner, safer water, and it's a start," he said. He added more renewable energy options will be "pushed forward to our marines on the ground in Afghanistan" as the technologies "prove reliable."

Currently, the Marine Corps has distributed four of the eight water-treatment units purchased from WorldWater to villages in Afghanistan, according to Capt. Brian Block, a spokesman for the Marine Corps. Block said the service has not purchased such units from any of the company's competitors and that there are no solar-powered water systems in use by troops.

Utilities

Though WorldWater is focusing on its military and humanitarian work, its executives are hoping to get a shot at utility work eventually.

The company worked with one of the country's largest utilities, United Water Resources, in a partnership with the city of Rahway, N.J., to place one of WorldWater's units in Haiti to aid earthquake victims.

United Water spokesman Rich Henning said the company plans to study the system's

performance in Haiti with an eye to future uses. "I think when you look at water purification technology you are looking for something that is tried and true," Henning said.

He added, "We're still really in that history-gathering stage ... but what we know so far looks very promising."

But few utilities appear ready to explore solar technology.

John Mann, who spearheads analysis for the American Water Works Association's annual "State of the Industry" report, says he has not detected quantifiable interest in the technology. But he cautions that the survey is not all-encompassing and aims to track the issues of most importance to North American water-treatment professionals.

"We do know," Mann said, "it's not as important as the other issues higher up [in] the list as shown in the survey."

'Very intriguing'

WorldWater's Kelly estimates that in recent years, eight to 10 companies have put solar-powered water purification systems on the market, although he maintains his was the first large-scale company to launch such a device. The company also says its device can purify more water by volume than its competitors.

Mark Snyder Electric, a California-based company that put a solar-treatment system on the market last year, said it has been fielding calls from state officials in Texas, Louisiana and California inquiring about its technology's application for emergency purposes -- such as for a backup when treatment works are disabled by hurricanes.

Russell Hamilton, executive director of the Texas Water Utilities Association, said while he has not heard people talking about looking into the technology, he can see why there would be interest.

"Right now, the big initiative for the coastal region is having a backup generator to run plants and run wastewater treatment systems and those types of things," Hamilton said.

But as for replacing existing water-purifying systems, the biggest obstacle in the state would be approval by the Texas Commission on Environmental Quality, he said. A chemical-free system, he said, is a nonstarter in Texas.

"Texas requires a chlorine residual," Hamilton said. "You don't really know what is happening in the distribution system out in the pipes. ... Bacteria could be growing in pipes, and the water would pick that up, so it could be subject to contamination."

But chlorine could be added to water after solar purification, he said.

"Having a backup or alternative system that ran off of solar would be very intriguing to all of the providers," Hamilton said. "But it will boil down to cost as well."

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