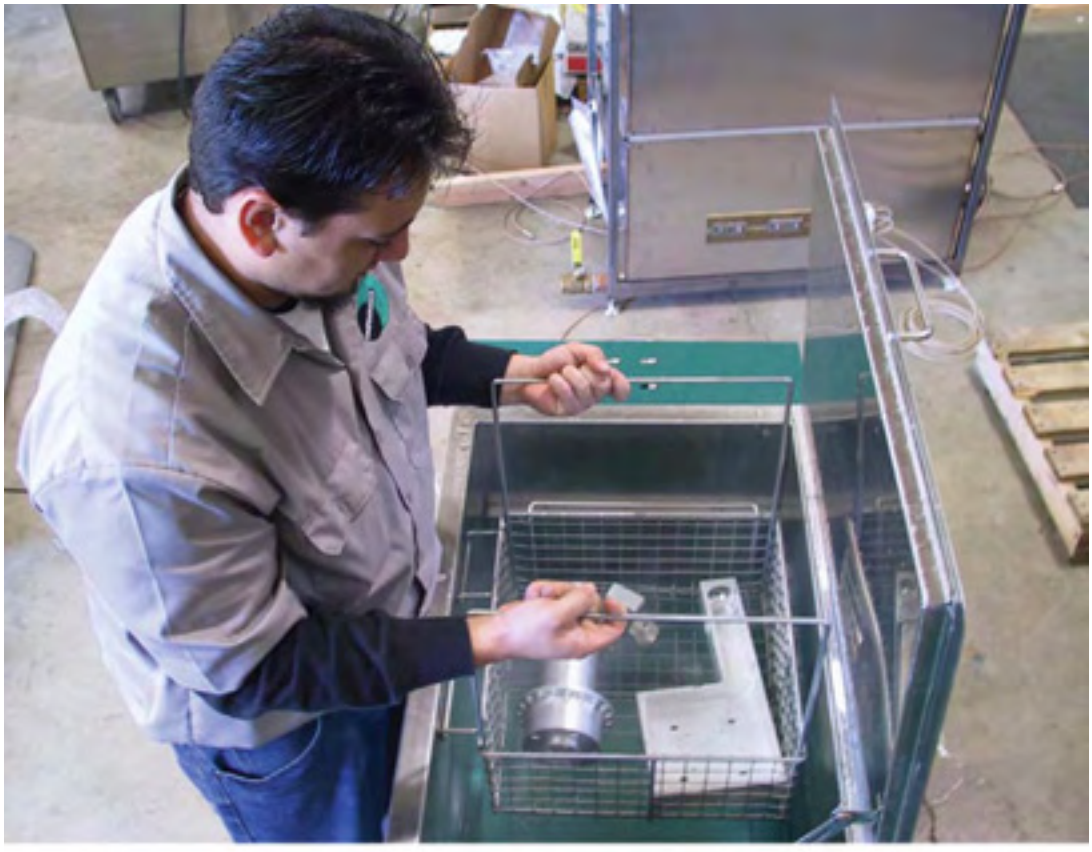
POWER AND UTILITY COMPANIES: GO ULTRASONIC TO STAY UP AND RUNNING

By Bruce Boyers



The tanks utilize specialized environmentally friendly but effective cleaning solutions, heat, water, and ultrasonic sound waves for cleaning.

Worldwide, power grids are more fragile than ever. In many areas, unexpected outages happen often enough that they are taken for granted, and whole industries have sprung up to assure continuous power in emergencies. It's not an enviable position: power as well as other utilities such as gas and water, responsible to entire populations, must remain operational.

Many such utilities utilize hydro and gas-powered turbines, composed of hundreds of small parts. Often, the reliability of those small parts can mean the difference between operational and non-operational. So that these parts remain reliable, utility companies plan periodic turbine shutdowns so that they can be disassembled and inspected, and parts can either be thoroughly cleaned or, where needed, replaced. Many utility companies are turning to Omegasonics ultrasonic tanks to get those parts quickly and thoroughly cleaned.

Traditionally, parts cleaning has been laborious and costly. "The last time we performed an outage on one of our gas turbines, we rented a commercial parts cleaning agitation type machine," says Kim Townsend, maintenance foreman for Farmington Electric, provider of electrical power to Farmington, New Mexico and the surrounding county of San Juan. "We would wash the parts for 12 to 14 hours, then take them out, and then have to hand-clean them. I actually had 4 guys tied up for probably a week of 8-hour days, with lots of little brushes, sitting around this table and scrubbing and scrubbing and scrubbing." The reason for the extra hand-cleaning was that the rental machine had not done the job. The turbine contains a thousand bolts and several hundred turbine blades, so it was a very involved process.

Townsend points out that a cause of cleaning ineffectiveness is weak solvents. "Going back a ways, there were solutions that worked a little better, but they were extremely caustic," he says. "You definitely wanted to wear gloves. Over time, the cleaning agents that you're allowed to use have gotten progressively weaker because of the disposal issues with them. The last solution we used essentially didn't work at all."

Jerry Pulver, plant manager for a Minnesota Methane power plant located in Southern California, has had similar problems. "We had a hard time cleaning our Solar turbine fuel nozzles," he says. The unit has 12 fuel nozzles, and each nozzle costs approximately $8,000, so proper cleaning and maintenance is vital. "We were soaking them in a heated solvent for a 24 to 48-hour period, and even then they weren't really that clean. They would still plug up and give us a poor flame pattern."

Such problems can mean poor turbine performance. "We would get a lot of false starts when we tried starting the turbine — the unit wouldn't start up," Pulver says. Inspection finally revealed

the reason. "We did a borescope down the fuel flow passages in several of the fuel nozzles and saw that our method wasn't cleaning that well. There was still a bunch of debris in there, and when you started up the turbine, the debris would come off and block the inside of the nozzle."

The only solution was to pull the nozzles out and clean them again — and in some cases resort to desperate solutions such as knocking the nozzles against wooden platforms in an effort to loosen the debris. "It was quite a pain," Pulver says.

Of course, such performance could certainly affect utility customers as well.

Fortunately, both Townsend and Pulver have discovered a solution to their parts cleaning problems in the form of Omegasonics ultrasonic cleaning tanks. The tanks utilize specialized environmentally-friendly but effective cleaning solutions, heat, water, and ultrasonic sound waves for cleaning. Users have not only found the method to be more cost-effective in terms of labor and time, they've also found it to do a more effective job of cleaning, due to cavitations within the liquid reaching areas unable to be cleaned by human hands or other devices.

Kim Townsend has found the tank to be a considerable blessing. "Using this method, we were able to get all of the parts cleaned up in a matter of 4 days, and I only devoted 1 guy to it," he says. "This was instead of 4 men working a week of 8-hour days." He also reports that the result was considerably better than with the older method. "The parts were actually much cleaner coming out of the ultrasonic cleaner than they were even after we had hand-cleaned them."

Townsend says the ultrasonic cleaning tank was a very cost-effective investment, and will have paid for itself within 2 planned outages without question.

Omegasonics personnel went to Minnesota Methane and performed a demo to get the correct soap, temperature, and cleaning parameters. The results speak for themselves.

Jerry Pulver found that instead of the ineffective 24- to 48-hour soaking he had to give his nozzles, he can now have them thoroughly clean within a couple hours. "It paid for itself on our first use," he says. There are also no more operational problems—the turbine starts right up.

For power and utility companies, reliable provision of service is the number one priority. Smooth equipment operation is a vital ingredient for that reliability. Ultrasonic parts cleaning cost-effectively provides peace-of-mind that the many components that make up intricate equipment such as turbines will be clean and will function properly.

Bruce Boyers is a freelance writer based in Glendale, California.

Industry Announcement

St. Thomas Holding Inc., wholly owned by the City of St. Thomas, and the owner and operator of St. Thomas Energy Services Inc. (STESI), has entered into an agreement to purchase the shares of two companies near the Town of Tillsonburg: Tiltran Services and Lizco Sales. This is the first transaction of its size in Ontario involving a municipally-owned utility company purchasing a competitive, privately-owned services company.

Tiltran specializes in the engineering, construction and maintenance of high voltage electrical power, wind and solar systems. Lizco has the largest, privately-owned transformer inventory in Canada.

Together, the companies will have the ability to gain access to broader markets and larger projects, find ways to secure new revenue streams and be aggressive in pursuing new business opportunities. The transaction will be completed on January 2, 2008.

St. Thomas Energy Services Inc. along with their new partners Tiltran and Lizco will continue to provide excellence in service to their customers in Ontario, Canada and North America.

For more information, please contact Brian Hollywood, President and CEO, St. Thomas Energy Services Inc. at 519.631.4211 ext. 238, www.stesi.com or Pat Carroll, President, Tiltran Services at 519.842.6458 ext. 225, www.tiltran.com.

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