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How Do Utilities Save Energy? With "UVC for HVAC[®]"!

A big challenge facing service technicians is how to help building owners reduce energy consumption to combat outages and spiraling power costs. A multi-patented, HVAC-style UVC technology from Steril-Aire, Inc. offers a proven solution while simultaneously addressing another "hot" maintenance topic: how to destroy one of the largest, most prevalent sources of mold. Two major utilities offer dual proof of UVC's effectiveness:

American Electric Power (AEP), Dallas: "When we purchased Steril-Aire UVC Emitters(tm) in 1998, we weren't looking for energy savings; our motivation was indoor air quality (IAQ)," says David Lewis, building services technician. AEP installed germicidal UVC lights in the air handlers to eradicate microbial growth on a preventive basis.

"Thanks to the lights, we eliminated our four-times-a-year coil, drain pan, and plenum cleaning programs. In fact, we haven't had to go near the coils in several years," Lewis says. "What we didn't anticipate was the significant drop in pressure across the coil as the lights cleaned to 'like new,' and the resulting net-cooling capacity increase that led to lower fan rpm. This translates into a big reduction in power consumption." Over a monitored two-plus-year period, Lewis estimates annual energy savings at nearly \$139,000 (see table).

Furthermore, AEP has cut back gradually from

American Electric Power (Dallas) UVC Savings Summary

MONTH	1997/1998	KWH 1999/2000	DIFFERENCE	% SAVINGS	\$ SAVINGS
June	1,447,239	1,338,601	108,638		\$5,769
July	1,481,012	1,527,043	- 46,031	-	-\$2,444
August	1,413,466	1,338,601	74,865		\$3,978
September	1,514,785	1,307,194	207,591		\$11,024
October	1,413,466	1,244,380	169,086	12.0	\$8,978
November	1,548,558	1,244,380	304,178	19.6	\$16,153
December	1,582,331	1,038,825	543,506	34.3	\$28,862
January	1,548,558	1,260,084	288,474	18.6	\$15,319
February	1,379,693	1,121,047	258,646	18.7	\$13,735
March	1,278,774	997,714	281,060	22.0	\$14,925
April	1,345,920	1,162,158	183,762	13.7	\$9,758
May	1,425,513	1,163,548	261,965	18.4	\$12,909
Total kWh difference			2,635,740	15.2	\$138,964

Top row: Mold and bacteria samples from an AEP air handling system. Bottom row: The same samples, after just 19 hours' exposure to UVC.



four 300-ton chillers to only two, even though they now supply chilled water to

a neighboring building and a new build-out totaling 25,000 sq.ft. Furthermore, these cutbacks have occurred during some of the hottest summers on record. "As a result, we're 100% sold on UVC," Lewis says.

AEP/Public Service Company of Oklahoma (PSO): PSO, an AEP subsidiary in Tulsa, installed UVC Emitters nearly six years ago. At the time, they had a persistent mold/IAQ problem that UVC successfully conquered. Facility supervisor Tom McKain, like Lewis, notes significant energy and maintenance benefits. Like Dallas, Tulsa has experienced record-breaking heat in recent summers, yet the facility has still cut back from two chillers to one.

McKain reports going more than four years without cleaning coils, drain pans, and plenums. "In 2000, we finally went into the system for general preventive maintenance and inspection purposes such as checking and balancing, wiping down surfaces, tightening connections, etc.," he says. "After all that time, there was no evidence of mold or organic buildup. The Steril-Aire UVC lights have performed beyond our expectations in all regards."

AEP estimates it saved nearly \$139,000 in annual energy costs over two+ years.