

FTMSA partners with Carnegie Mellon University and University of Pittsburgh in research project for the U.S. Department of Energy, July-August 2008

FTMSA opened its doors to help support a U.S. Department of Energy (DOE) research project being conducted jointly by Carnegie Mellon University and the University of Pittsburgh on the potential for using treated municipal wastewater for cooling needs in coal-fired power plants. Professors David Dzombak of Carnegie Mellon and Radisav Vidic of the University of Pittsburgh and their students are conducting the study for DOE.

The shortage of freshwater for cooling has become a serious obstacle for the development of thermoelectric power plants in areas of the U.S. with limited availability of freshwater for withdrawal. This includes many areas of the eastern U.S. in addition to areas in the western U.S. DOE has estimated the total thermoelectric generation capacity will increase by 22% in the next 25 years, increasing the already substantial needs for cooling water significantly. Competition for limited freshwater will force the power industry to explore alternative water sources. Treated municipal wastewater is an abundant and widely accessible alternative water source. If the quality of treated municipal wastewater can be economically managed for use in cooling systems to prevent chemical and biological fouling of the system, power plants will pay for access to the water.

The Carnegie Mellon-University of Pittsburgh research project is evaluating regulatory and permitting issues, pretreatment requirements, and cooling water quality management approaches needed for use of treated municipal wastewater in power plant cooling systems. The project involves laboratory studies as well as field studies with small-scale cooling units under different operating conditions.

In July-August 2008, FTMSA hosted 6 weeks of field studies with three small-scale cooling towers being operated with plant effluent. The test systems are shown in the picture below.



More information about the project is available at:

<http://www.energy.pitt.edu/research/environmental-solutions/wastewater.php>