

## **Cool Idea: Using Ice to Chill Buildings in NYC**

In a city like New York where the brunt of emissions derives from buildings, anything that helps reduce energy consumption, especially during the summer when air conditioning is at its peak usage, can go a long way toward easing some pressure off its overworked power grids. Several companies seem to have found an ideal solution to the city's grid problems and their own AC-related energy woes: using an innovative ice-cooling system that relies on blocks of ice to pump cold air through buildings.

The Off-Peak Cooling (OPC) system, devised by CALMAC, a company that specializes in the manufacturing of thermal energy storage and ice rink equipment, not only lowers energy use but it also cuts down on pollution by drastically reducing the emissions typically generated by normal AC systems. "It is worth it to do in New York City. If you take the time to look, you can find innovative ways to be energy efficient, be environmental and sustainable," said William Beck, the head of critical engineering systems for Credit Suisse, which has incorporated this system into many of its offices.

The ice is made at night by freezing water in large, non-corrodible tanks to minimize the use of electricity. The following morning, the resulting cool air that arises from the ice is piped throughout the buildings in a way similar to traditional air conditioning. The cycle thus repeats every day.

If necessary, the ice-cooling system can even be combined with typical AC systems to ease energy demands during peak hours. The best part? Its main components, ice blocks, don't break. As Todd Coulard of Trane Energy Services explains: "The concept is the same, but when you make something mechanical, it can break, but a big block of ice four floors below grade level isn't going to do anything but melt."

"I've been doing green since before it was cool. The idea of not only saving money for large companies, but doing something that benefits the environment is win-win. It's doing the right thing," he said. Indeed, according to Credit Suisse's engineers, the system has already helped the company save millions in energy bills by lowering its peak energy use by 900 kilowatts and overall annual electric usage by 2.15 million kilowatt-hours. Morgan Stanley, which also uses the system in some of its offices, has achieved more modest results, but impressive nonetheless: 740 less kilowatts at peak energy use and 900,000 less kilowatt hours in overall annual electric usage.

While this technology won't work for every company (the initial costs are significant and the tanks need a lot of space to be installed), it will offer tremendous benefits, both financial and environmental, to those that are able to take advantage of it.

### **Off-Peak Cooling Systems from CalMac**

CALMAC can provide both full- and partial- load Off-Peak Cooling systems. The essential element for either full- or partial- storage configurations are CALMAC's ICEBANK® thermal- energy storage tanks, either Model A or Model C. Each CALMAC system is modular, and each tank is made of polyethylene and well insulated. Each tank contains a spiral-wound, polyethylene-tube heat exchanger surrounded with water. ICEBANK tanks are available in a variety of sizes ranging from 45 to over 500 ton-hours.