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Off-peak Ice Storage, Trane Chiller Reduce Electricity Use at Morgan Stanley

Diversified financial services company Morgan Stanley recently installed the New York Metropolitan area's largest ice storage based air-conditioning system at its headquarters in Purchase, NY.

The installation brought the company a \$300,000 assistance check from the New York State Energy Research and Development Authority (NYSERDA), to help offset the cost of the system. NYSERDA offers financial and technical assistance to help companies identify and install projects which reduce energy costs and improve the reliability of New York State's electrical grid.

Morgan Stanley formed a partnership with NYSERDA, Trane, and CALMAC, and together, the three groups developed a solution to tackle the company's energy needs through the use of an ice storage system.

Morgan Stanley engaged the Energy Services group of Trane's New York/New Jersey offices to develop an energy-saving solution. Trane, with technical and financial analysis support from ECM, proposed a thermal storage solution that would shift the site's electrical load from day to night. Electricity is more plentiful, less expensive and is generated more efficiently during the night or off-peak hours.

"Aging equipment and the need for additional cooling capacity and site resiliency motivated us to investigate environmentally responsible solutions," says James P. McAleer, vice president of facilities for Morgan Stanley.

The ice storage system, provided by Trane, makes ice at night during off-peak hours to provide cooling the next day during on-peak hours. The system is expected to lower the facility's peak energy usage by 740 kW, reduce overall electric usage by 900,000 kWh and reduce site overall fuel consumption by 15,000 MMBtu, while improving the resiliency of the site.

The system includes a new 1400-ton Trane Earthwise CenTraVac chiller, which operates at .576 kW/ton in day mode and .733 kW/ton in ice-making mode. The ice made by this chiller is stored in 48 CALMAC IceBank tanks with a total storage capacity of 8400 ton-hours. The system has the flexibility to run on chiller only, ice only or combined operation. There is also an emergency mode that can provide comfort cooling while making ice in the evening.

The system includes a crossover plate and frame heat exchanger, which added redundancy to the existing data cooling loop and extended the free cooling season for the facility.

Additional information about the Morgan Stanley Off-Peak Cooling installation is available at www.nyserda.com, www.trane.com, or www.calmac.com.

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