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Innovative Ice Storage System Cuts Energy Use (6/28)

June 28, 2006

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Morgan Stanley, New York, one of the world's largest diversified financial services companies was recognized by State and County officials at its Purchase facility for installing the New Metropolitan area's largest ice storage based air-conditioning system, which delivers dramatic energy savings.

Peter R. Smith, President and CEO of the New York State Energy Research and Development Authority, said the authority offers financial and technical assistance initiatives to help with identifying and installing projects which address the energy efficiency needs of our partners in a way that improves the environment and lessens our dependence on foreign oil. Morgan Stanley took the initiative to form a partnership with NYSERDA, Trane, and CALMAC and developed an innovative solution to tackle the company's energy needs through the use of an ice storage system.

NYSERDA presented Morgan Stanley with a ceremonial incentive check in the amount of \$300,000. NYSERDA provides technical and financial assistance to businesses that reduce energy costs and improve the reliability of the state's electrical grid, especially in the New York metropolitan area where peak load demand reductions have a strong impact.

Morgan Stanley engaged the Energy Services group of Trane's New York/New Jersey office 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 night to day. Electricity is more plentiful, less expensive and is generated more efficiently during off-peak hours.

Aging equipment and the need for additional cooling capacity and site resiliency motivated the company to investigate environmentally responsible solutions, said James P. McAleer, vice president of Energy Services for Morgan Stanley. In addition to being recognized by NYSERDA and Westchester County, the Purchase site will be a beta for similar projects at Morgan Stanley facilities across the globe.

Westchester County Executive Andy Spano said: "My administration is committed to supporting innovative ways to address the County's energy needs to reduce dependence on foreign

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protect the environment. The installation of a thermal storage system by Morgan Stanley large corporate office building in Purchase helps us accomplish these important goals. I am very pleased Morgan Stanley is in Westchester and I commend them for investing in this important project. I want to thank the New York State Energy Research and Development Authority, Trane and Calmac Manufacturing Corporation for their help in making this possible in Westchester. I'm sure the success of this project will encourage others to receive the significant environmental benefits and cost savings offered by this type of technology. Some time ago a similar type of thermal storage system was installed in the County's own Michaelian Office Building and it has saved energy and money for us and our taxpayers.'

The ice storage system, provided by Trane, makes ice at night during off-peak hours to pre-cool the next day during on-peak hours. The system is expected to lower the facility's energy usage by 740 kW, reduce overall electric usage by 900,000 kWh and reduce site 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 1.0 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 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.

In addition to the energy savings created by this system, the environmental benefits are equivalent to Morgan Stanley planting 1.5 million acres of trees to absorb the carbon monoxide caused by the electrical usage from one year of usage or removing 271 cars from Westchester County roads. Thermal storage systems have been recognized for improving the reliability of the electric grid by permanently shifting peak cooling loads from on-peak to off-peak.



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