

Thermal Storage Saves Energy Costs, Reduces Greenhouse Emissions

11 Madison Avenue comprises 2.25 million square feet of office space, of which 1.5 million is leased by Credit Suisse First Boston (CSFB), a leading global investment banking and financial services firm.

Challenge

With growing peak electrical demand, and rising costs, CSFB was faced with installing additional emergency generator capacity to assure continued operation in the event of a utility company electric service interruption. CSFB sought to implement a cost-effective solution that also adhered to internal environmental goals and policies.

Solution

The easy solution would have been to simply install another generator. However, William Beck, CSFB director of global engineering, sought out the right solution. Beck assembled a team that recommended installing a thermal storage system that in addition to taking care of the air conditioning load, would reduce electric consumption and shift most of that consumption to off-peak hours. New chillers for the HVAC system are not only more efficient, but inherently more reliable,



11 Madison Avenue, New York City

Building Specifications

Building Type

2.2 Million square feet office building

Project Team

- Credit Suisse First Boston
- Trane – HVAC system design expertise, project management, chillers, chiller plant management automation system
- Calmac Manufacturing Corporation – Thermal storage tanks
- ECM Energy Management Services
- New York State Energy Research and Development Authority



This thermal storage system shifts nearly 1 megawatt of electric consumption, reducing annual operating expenses by nearly \$1 million—for a project payback of only 3.2 years.

satisfying another of CSFB's goals.

Results

The thermal storage system works by using two new 800-ton Trane chillers to make ice at night during off-peak hours when electric rates are lower. The ice is stored in 64 tanks from Calmac Manufacturing Corporation. This shifts nearly 1 Megawatt of electric consumption, reducing annual operating expenses by nearly \$1 million. And because the new chillers are much more efficient, energy consumption is reduced by 2.2 million kWh per year, resulting in a project payback of only 3.2 years. In addition, off-peak power used to make ice is generated by more efficient and cleaner natural gas power plants—rather than older and dirtier

oil-fired plants—providing a distinct environmental advantage. System operation is optimized using a Tracer Summit™ chiller plant management system. All installation work was completed without disrupting the continuing operations of CSFB or other 11 Madison Avenue tenants.

Another example of how Trane's world-renowned expertise met a difficult challenge with the right solution. From integrated comfort systems to systems management and climate controls, Trane ensures that your building environment is right so you can run your business better.

For more on Trane's solution, visit us at www.trane.com

Systems Installed



- Two 800-ton Trane centrifugal chillers
- 64 Calmac ice storage tanks
- Trane Tracer Summit™ chiller plant control system
- Plate-and-frame heat exchangers

About 11 Madison Avenue

Featuring art deco styling, 11 Madison was constructed in 1932. It was originally designed to reach 100 stories, but the Great Depression limited construction to its current 30 stories. CSFB operates in more than 33 countries on five continents. 11 Madison Avenue in New York City is one of its global business hubs. In addition to CSFB, 11 Madison Avenue is home to several fine restaurants.

One of two 800-ton Trane chillers installed at 11 Madison Avenue as part of a thermal storage system.



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