Arctic Glacier is a manufacturer and distributor of premium quality ice products. Their ice-making facility in Mamaroneck, NY produces packaged ice year round for distribution in the New York region. A significant amount of refrigeration is necessary to freeze, package and store the ice. Arctic Glacier utilizes a large ammonia refrigeration system which includes 6 compressors, 8 ice makers, 8 evaporators in 2 freezers, and 1 evaporative condenser.

**Challenge**
A significant amount of energy is consumed annually by Arctic Glacier’s refrigeration equipment. Optimization of the refrigeration process would reduce energy usage. As a result, New York State Pollution Prevention Institute (NYSP2I) evaluated the overall refrigeration system to identify potential no/low cost energy conservation measures (ECMs) which would reduce energy consumption.

**Solution**
NYSP2I gathered relevant data including energy use, seasonal and operating temperatures, discharge and suction pressures of the compressors, condenser efficiency and capacity, and power consumption. Using this data, NYSP2I performed an energy analysis and calculated optimal operating conditions to determine appropriate ECMs.

**Results**
Arctic Glacier’s refrigeration system was deemed to be modernized and already relatively energy efficient; however, some low cost ECMs could still be identified:

1. Optimize fan controls on the evaporator
2. Optimize defrost cycles
3. Install variable speed/two-speed fan controls on the condenser
4. Optimize floating head pressure
5. Isolate the hot and cold sides of the engine room to reduce heat transfer to the ice makers
6. Insulate the ice bins

These measures could save an estimated $32,000 a year while being relatively simple to integrate.