

DIRECT ASSISTANCE PROGRAM



CASE STUDY

NYSP2I Identifies Energy Savings in Industrial Ice-Making for Arctic Glacier

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

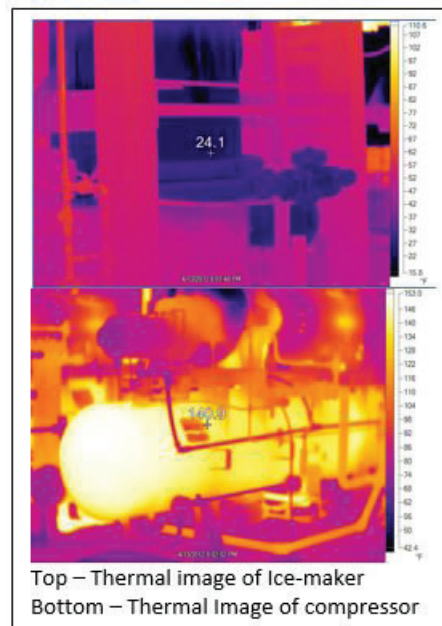
NYSP2I gathered relevant data including energy use, seasonal and operating temperatures, discharge and suction pressures of the compressors, condenser efficiency and capacity, and power consumption. Using this data, NYSP2I performed an energy analysis and calculated optimal operating conditions to determine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



CHALLENGE

- Evaluate Arctic Glacier's overall refrigeration system to identify potential reduced cost energy conservation measures (ECMs) which would reduce energy consumption

SOLUTION

- NYSP2I performed an energy analysis and calculated optimal operating conditions to determine appropriate ECMs

RESULTS

- NYSP2I team identified multiple low-cost ECMs with an estimated savings up to \$32,000 a year

NYSP2I PARTNERS



New York Manufacturing Extension Partnership

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For more information please contact us:

111 Lomb Memorial Drive, Bldg. 78
Rochester, NY 14623

Tel: 585-475-2512
Web: nysp2i.rit.edu
E-mail: nysp2i@rit.edu

