

DIRECT ASSISTANCE PROGRAM



CASE STUDY

NYSP2I Assists with Identifying Energy Savings in Industrial Refrigeration

Dudley Poultry is a wholesale meats distributor located in Middlesex, NY. The company offers fresh, custom cut, frozen, and pre-cooked chicken as well as beef, pork, and turkey. Working with meats requires a large volume of refrigerated space.

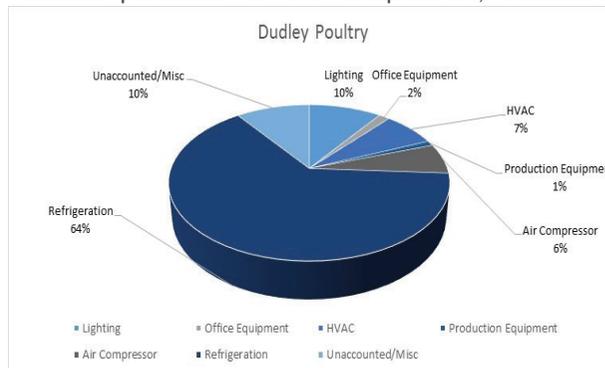
Dudley Poultry uses a 4,000 pound ammonia refrigeration system which accounts for approximately 64% of their energy consumption. A previous compressor evaluation project with Dudley Poultry determined that replacement of their aging refrigeration compressors would not significantly reduce their energy cost, but other opportunities exist to reduce energy use

Challenge

During a previous assessment, New York State Pollution Prevention Institute (NYSP2I) observed that the temperatures and pressures in the condenser lines were not optimal for the process, indicating that the equipment might not have been working as efficiently as possible. As a result, NYSP2I evaluated the overall refrigeration system to identify potential reduced 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. NYSP2I performed an energy analysis and calculated optimal operating conditions to determine appropriate ECMs. NYSP2I also performed an energy dis-aggregation to determine Dudley's energy distribution.



Results

NYSP2I team identified multiple low-cost ECMs with potential to save up to \$11,361 a year:

Low Cost ECMs	Capital ECMs
Check calibration of gauges	Install a variable/2-speed motor on condenser fans
Reduce discharge pressure via control strategies, condenser efficiency, and purging non-condensables	Install a monitoring and control system such as floating head pressure control
Thermal expansion valve repair	Increase condenser capacity
Increase suction pressure	Install auto-purge system
Cleaning and maintenance of the condenser	Upgrade compressors for reduced maintenance
Cycle evaporator fans	Replace end of life motors with premium efficiency motors
Optimize evaporator defrost cycles	

CHALLENGE

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SOLUTION

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RESULTS

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NYSP2I PARTNERS



New York Manufacturing Extension Partnership

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