

CASE STUDY: DAIRY FACILITY ENERGY PROJECT DEVELOPMENT

SYSTEM TYPE: Compressed Air, Lighting, Process, Steam, and Water

PROJECT FINANCIALS

- Total Turnkey Installed Cost: \$ 466,824
- Annual Energy Cost Savings: \$ 231,889
- Simple Energy Funded Capital Payback: 2.0 years
- Average Project IRR: 48%
- CO2 Equivalent Reduction: 2,405 tCO₂e (Natl. Avg. Emission Rate)

DAIRY Facility Implements Five (5) Energy Savings Opportunities—Saves \$231,889 Annually. Project IRR 48%. Simple Payback 2 Years

Facility Description

Production Areas

- Administrative Offices
- Refrigerated Warehouse
- Dry Goods Warehousing

Products produced include:

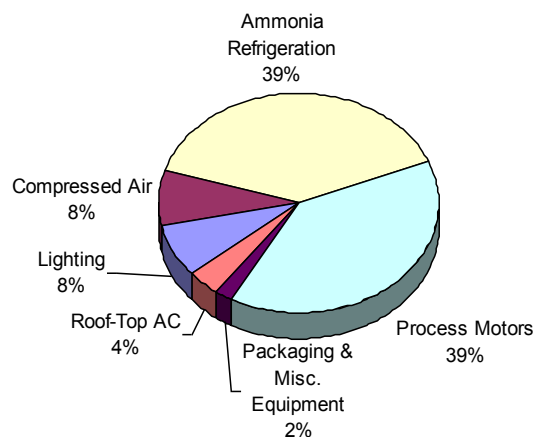
- Sour Cream
- HTST Pasteurized Milk
- Cottage Cheese



Facility Energy Use

An energy balance was performed to evaluate how energy cost was distributed throughout the facility. This is a sound engineering practice and was used as a reality check to ensure that the predicted savings are not unrealistic given how much energy was consumed by the system in the present “baseline” condition. The pie chart to the right shows the results of the facility energy balance. The energy balance analysis also helped focus the investigation to those areas that had the best potential to significantly impact the bottom line.

Electric Consumption By Category



Summary of Energy Savings Opportunities

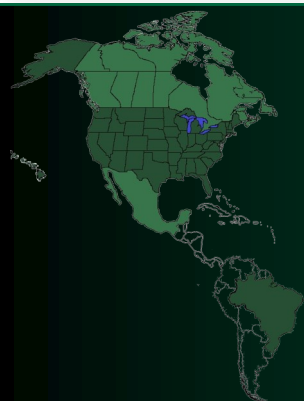
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|-----------------------------------|--|
| Ammonia/Sweet Water System | <ul style="list-style-type: none"> • Replaced 30-year old Ice Builder • Centralized VFD Pumping • Installed SS Falling Film HX |
| Compressed Air | <ul style="list-style-type: none"> • Enhanced Storage • Pressure Regulation • Leak Remediation • Compressor Sequencing |
| Lighting Systems | <ul style="list-style-type: none"> • ShatterShield T-8 Lamps • Electronic Ballasts • Compact Fluorescent Lamps • Pulse Start Metal Halide • Occupancy Sensors |
| Process Improvements | <ul style="list-style-type: none"> • Installed Improved Homogenization Valve • Replaced HTST Heat Exchangers |
| Steam System | <ul style="list-style-type: none"> • Boiler Sequencing Optimization • Repair/Replace Failed Traps • Blow-Down Heat Recovery • Redesigned Condensate Receiver |

Financial Data

| | |
|---------------------------------|---|
| Investment | \$ 466,824 |
| Annual Energy Savings | \$ 231,889 |
| CO2 Equivalent Reduction | 2,405 tCO2e (Nat'l. Avg. Emission Rate) |
| Project IRR | 48% |
| Payback Period | 2.0 Years |



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Corporate Office: Kansas City, KS | Web: www.sol-dyn.com | Email: info@sol-dyn.com