

# ENERGY PROJECT DEVELOPMENT CASE STUDY DAIRY FACILITY

## Financials

- ◆ Annual Energy Cost Savings: \$231,889
- ◆ Average Project IRR: 48%
- ◆ Total Turnkey Installed Cost: \$466,824
- ◆ Simple Payback: 2.0 years

## Description of Facility

### Production Areas

- ◆ Administrative Offices
- ◆ Refrigerated Warehouse
- ◆ Dry Goods Warehousing

### Products produced included:

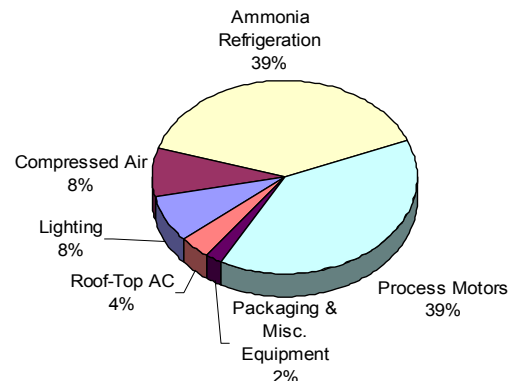
- ◆ Sour Cream
- ◆ HTST Pasteurized Milk
- ◆ Cottage Cheese
- ◆ Coffee Creamers
- ◆ Yogurt
- ◆ UHT Extended Shelf Products



## Facility Energy Use

An energy balance was performed to evaluate how energy cost was distributed throughout the facility. This is 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 Implemented Energy Savings Opportunities

<i>Compressed Air</i>	<i>Ammonia/Sweet Water System</i>	<i>Steam System</i>	<i>Process Improvements</i>	<i>Lighting Systems</i>
<i>Enhanced Storage</i>	<i>Replaced 30 yr old Ice Builder</i>	<i>Boiler Sequencing Optimization</i>	<i>Installed Improved Homogenization Valve</i>	<i>ShatterShield T-8 Lamps, Electronic Ballasts</i>
<i>Pressure Regulation</i>	<i>Centralized VFD Pumping</i>	<i>Repair/Replace Failed Traps</i>	<i>Replaced HTST Heat Exchangers</i>	<i>Compact Fluorescent Lamps</i>
<i>Leak Remediation</i>		<i>Blow-down Heat Recovery</i>		<i>Pulse Start Metal Halide</i>
<i>Compressor Sequencing</i>	<i>Installed S.S. Falling Film HX</i>	<i>Redesigned Condensate Receiver</i>		<i>Occupancy Sensors</i>



## Company Overview

Solution Dynamics is focused on providing our clients with high value services to assist them with the evaluation, development, and implementation of utility related cost reduction strategies and measures. These strategies include taking into account issues such as energy cost savings, sustainability, Green House Gas (GHG) impacts/carbon footprint, and reliability. Solution Dynamics looks at facilities as a whole to evaluate both demand side and supply side strategies and solutions. The principals of the company bring over 60 years of experience in the energy industry to our clients. This depth of experience allows Solution Dynamics to operate efficiently and effectively to derive value.

Solution Dynamics works closely with our clients to look at all aspects of their energy related costs. This includes; how production processes utilize energy and other utilities, the operation and maintenance costs, which fuel is being utilized, what utility rate structures are being used, is there equipment in need of replacement, what opportunities are there for low cost and capital based improvements, and what are financial and environmental benefits. Solution Dynamics develops and implements cost reduction strategies and measures that are specifically tailored to meet the individual needs of each facility. Energy supply opportunities provide reduced costs, while demand side opportunities include both technology and operational improvements to reduce energy use and cost. This also translates into benefits that go beyond simple energy cost reduction that include newer equipment, increased reliability, improved process control, reduction in GHG impacts and the potential generation of carbon credits.

Solution Dynamics has several established programs and as a company we take on the risk of successful performance to achieve results. Solution Dynamics has unique, high value, programs that have been developed to meet our client's requirements. These programs combine the ability to identify and implement both Low Cost High Value operational types of savings along with more traditional capital based savings. We also have supply side programs that guarantee performance to eliminate the risk of our clients.

## Services Provided

Solution Dynamics specializes in the development and delivery of utility and energy consuming equipment related cost reduction opportunities and can deliver them in an efficient manner. Services provided by Solution Dynamics include:

1. Identification of high value cost reduction opportunities
2. Evaluation & development of energy strategies
3. Utility rate analysis
4. Project scope development
5. Project financing assistance
6. Detailed cost and savings analysis for professional quantification of project value
7. Development of measurement and verification plans
8. Project development for Construction
9. Turnkey project management, implementation, and commissioning of cost savings opportunities

## Results

Solution Dynamics has a very strong and sustained track record of being able to successfully develop and implement cost reduction opportunities for our clients. We excel in identifying opportunities, many of them high value, which other companies typically miss. When reasonable economic criteria are utilized energy cost reductions that range between 5% to 25% of a facilities energy cost.

## Energy Systems Experience

Solution Dynamics is experienced in a wide range of commercial and industrial facilities and energy consuming systems. Typical systems include: Boiler & Steam systems, Chilled water systems, Cooling towers, Compressed air, Lighting, HVAC for plants and offices, Building automation controls, Ammonia refrigeration systems, Variable speed drives, Efficient motors, Co-generation & Combined Heat & Power Systems, Heat recovery, Metering systems, Measurement and Verification protocol, and other types of energy, water, wastewater, industrial gasses and related utility systems.