Strategic Energy Management

A family business focused on sustainability and stewardship in our company and community.
Watson Products

• A high quality supplier of products and services geared towards enhancing human health and nutrition around the world
• A leader in developing quality products and ingredient systems for the food and supplement industries
• Expert in microencapsulation, agglomeration, micronizing and spray dryer
• Pioneers in the development and manufacture of soluble and ingestible films
• Bakery Division has been supplying quality ingredients to baking industry since 1939
What this Is all About

People

Energy

Recycling
Outline

• PRIME
  Process Reengineering for Increased Manufacturing Efficiency

• EUA
  Energy Usage Assessment

• BSC
  Business Sustainability Challenge
Event Opportunity Statement:
- To keep the equipment and the facility fully operational as much of the time as possible

Scope:
- To set up a system that is easy to use, highly visual and minimizes wasted time
- To develop a procedure for maintaining all maintenance records of each equipment
- To eliminate all unnecessary paperwork

Goals:
- Establish SOPs to achieve long term organizational goals
- To develop a procedure that would communicate upcoming PM schedule
- 25% reduction of time to perform a maintenance activity
PRIME Event Team

Jose Deida, Mike Rutledge, Nancy Traver, Ken Bakulski, Tom Denatale, Warren Bierwirth
Team in Action

A 5-S Established in Maintenance Shop

A Bin System for Bearings, Screws, Pistons, etc.
Team in Action

New Communications Hub for Shift Meetings

Maintenance Personnel Skill Matrix
Projected PRIME Results

- **Fluid Beds**
  700 hours of additional production time @ $200/HR Revenue Generating Opportunity = $140,000 potential growth

- **Sifter & Mills**
  800 hours of additional production time @ $200/HR Revenue Generating Opportunity = $160,000 potential growth

Total Potential = $300,000

UI Incentive: $6,667

50% Reduction
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Energy Usage Assessment Event
September 2015

Jack Traver, Mike Preston, Ashvin Patel, Ken Bakulski, Masood Ahmad, Minren Xu, Anthony Brown, Brian Marlarkey,
Analyzing Energy Usage

<table>
<thead>
<tr>
<th>Usage</th>
<th>KWH</th>
<th>% of Total</th>
<th>$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compressed Air - Equip</td>
<td>1,004,135</td>
<td>24%</td>
<td>$161,462</td>
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<tr>
<td>Compressed Air - Air Leaks</td>
<td>251,034</td>
<td>6%</td>
<td>$40,356</td>
</tr>
<tr>
<td>AHUs</td>
<td>1,122,253</td>
<td>27%</td>
<td>$171,859</td>
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<tr>
<td>Process Motors</td>
<td>807,515</td>
<td>20%</td>
<td>$147,125</td>
</tr>
<tr>
<td>HVAC</td>
<td>324,430</td>
<td>8%</td>
<td>$78,131</td>
</tr>
<tr>
<td>IT</td>
<td>151,861</td>
<td>4%</td>
<td>$22,018</td>
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<tr>
<td>Plant Lighting</td>
<td>129,960</td>
<td>3%</td>
<td>$19,022</td>
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<tr>
<td>Transformers</td>
<td>103,328</td>
<td>2%</td>
<td>$14,546</td>
</tr>
<tr>
<td>Office Lighting</td>
<td>30,160</td>
<td>1%</td>
<td>$4,708</td>
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<tr>
<td>Other</td>
<td>200,000</td>
<td>5%</td>
<td>$37,010</td>
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<tr>
<td><strong>Total</strong></td>
<td>4,126,826</td>
<td>100%</td>
<td>$700,333</td>
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</table>
Air Compressor

- **350 HP Air Compressor:**
  - Cost = $660,306
  - UI Incentive = $226,776
  - Annual KWh Savings = 907,102
  - ROI Years = 2.99

- **6” Air Compressor Piping:**
  - Cost = 85,000
  - UI Incentive = 27,285
  - Annual KWh Savings = 90,949
  - ROI Years = 3.97
Process Motors

- Replacement of energy inefficient motors
  
  Cost= $93,665  
  UI Incentive= $2,546  
  Annual KWh Savings= 10,182  
  ROI Years= 55.93
Dust Collectors

- Replacement of energy inefficient dust collectors
Rooftop Air Conditioning Units

- Replacement of energy inefficient air conditioners
Steam Traps Fixing
LED Lights & New Roof in Orange Warehouse

• Replacement of Light Bulbs with LED
  Cost= $48,103
  UI Incentive= $19,241
  Annual KWh Savings= 64,583
  ROI Years= 2.79
Energy Usage and Production Comparison

- **Project Summary:**
  - Monthly KWh savings = 80,806
  - Monthly savings amount = $12,121
  - Monthly pounds produced increment = 24,440
  - Total project cost = 1,063,835
  - Total UI incentive = $420,297

*Average monthly KWh consumption of each household in CT = 731*

<table>
<thead>
<tr>
<th>Parameter</th>
<th>August 2016</th>
<th>August 2017</th>
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<tbody>
<tr>
<td>Total Energy Usage (kWh)</td>
<td>487,934</td>
<td>407,128</td>
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<tr>
<td>Total Pounds Produced</td>
<td>2,124,335</td>
<td>2,148,775</td>
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<tr>
<td>On-Peak - Total Energy (kWh)</td>
<td>133,502</td>
<td>114,938</td>
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<tr>
<td>On-Peak - Maximum Demand (kW)</td>
<td>907.3</td>
<td>759.1</td>
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<tr>
<td>Off-Peak - Total Energy (kWh)</td>
<td>228,391</td>
<td>186,626</td>
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<tr>
<td>Off-Peak - Maximum Demand (kW)</td>
<td>894.5</td>
<td>675.1</td>
</tr>
<tr>
<td>Load Factor</td>
<td>71.28%</td>
<td>72.09%</td>
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</table>
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**Lean & Green Sustainability**

- **Educated, Engaged and Empowered Employee**
  - Continuous Process Improvement
  - Customer Focused Culture
  - Improved employee morale and commitment
  - Reducing energy and material costs has a significant impact on business performance
  - Training and Knowledge Transfer
  - Sustainable Business Practices

- **Watson Approach**

- **The “Do Nothing” Case**

- **Traditional Audit Approach**

- **Sustainable Savings**

- **Years**

- **Savings**
Q & A