Engineered Savings Program (ESP)

Enhanced Opportunities for Energy Conservation Through Plant and System Assessments

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Sebesta Blomberg is a single source provider of services ranging from project evaluation through solution definition, design, construction, commissioning, start-up, training, and operation and maintenance.

We function as an extension of 3M’s staff bringing experience, knowledge and passion to each opportunity. We take great pride in being a business partner with 3M.
Engineered Savings Program

- An integrated program that includes energy cost reduction, value-added capital expenditures, process improvements

- An opportunity assessment process that stresses define, measure, analyze, improve and control

- Performed by independent professional that is familiar with 3M processes and procedures

- Program can be plant-wide in scope or targeted for specific utility, system or process
Plant-Wide Opportunity Assessment
Open Season on Identifying Improvements

Phase 1
Opportunity Assessment

Phase 2
Schematic Design

Phase 3
Detailed Design

Develop Shopping List –
Order of Magnitude $

Prioritize Opportunities for Further Investigation

Definition, Documentation,
Costs and Benefits

Fund Selected Projects

Project Delivery, Startup and
Commissioning, Verification

Engineered Savings
Projects Completed
Targeted System Opportunity Assessment
Service Provider is Challenged to Provide
a Targeted Project Solution that is Fundable

Phase 1
Schematic Design

Problem Definition – Design Intent,
Data Analysis, Operational Impact

Scope of Work and
Project Cost/Benefit
Package for Funding

Phase 2
Detailed Design

Project Delivery, Startup and
Commissioning, Verification

Targeted Engineered
Savings Project
Completed
Keys to Success:

• Commitment of plant and consultant resources
• Hands-on plant walk-through and interviews with appropriate staff
• “Shopping list” of valid potential projects for plant-wide assessments
• Solutions with costs, benefits and plant impact for targeted assessments
• Accurate project definition
• Secure funding for priority work
Challenges:

• 3M staff is very energy conscious and have harvested the “low hanging fruit”
• Don’t mess with the process culture
• Strict requirements for project execution
• Many levels of input, approval and review
• Short payback requirements
Northridge Chilled Water Targeted Assessment

• Challenge given to Sebesta Blomberg – develop a project that can be funded through energy savings that will also address chilled water system shortfalls

• Document how system is currently operated, develop energy usage profiles, establish verifiable cost reduction strategies, identify operational improvements, define project implementation plan.
Northridge Background

- Pharmaceutical plant w/critical utility
- Constant speed primary pumps, 50% 3-way control valves, 2 chillers
- Plant automation (chiller staging, tower and pump control) not performing – operator initiated
- System was never commissioned
- Chilled water - 26% of total plant electric usage
- Chilled water pumps - 23% of total chilled water system electric usage
- Site temperature difference (DT) was 3° - 5°
Northridge Modifications

- Installed VFD On Primary Chilled Water Pump
- Installed Site Instrumentation Required To Operate Variable Flow Primary Pumping
- Installed Metering To Control Chillers And Flows
- Converted 3-way Valves To 2-way Operation
- Revised Control Sequences To Provide Reliable Automation
- Lowered Tower Water Temperature Setpoints
- Commissioned System
Northridge Outcome

- Reduced CHW system electrical consumption by 25% - overall plant energy by 6.3%
- System energy usage reduced from 0.88 kw/ton to 0.67 kw/ton (delivered to user)
- Reduced chilled water pumping energy by 71%
- Site DT doubled to 8º (in progress)
- Successfully implemented control sequences using detailed verification test procedures
- Met performance and financial goals
Teaming Relationship with 3M and Sebesta Blomberg for Engineered Savings Program Provides

- A method of initiating energy cost reduction projects as well as process improvements
- Plant-wide or targeted assessments
- A partner that successfully interfaces plant staff with corporate staff and contractors/vendors
- A process that 3M controls
- An independent resource that has a solution goal instead of a sales goal - build a long term relationship based on value
Results-Based

Plant-Wide
Or Targeted

Energy Cost Reduction

Operational Improvements

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