Supporting Manufacturing Leadership Through Sustainability

E3: Economy, Energy, and Environment Engagement Outcomes

John Anderson - CMTC
CMTC is Committed to Improving the Competitiveness of So. Cal Manufacturers

- Non-profit consulting organization
- Serves over 700 manufacturers per year
- All projects surveyed by a third party
- Provides consulting services since 1994
MEP in California
E3 Participation Process for Manufacturer

• Agrees to scope of work
• Contributes cost share for the customized E3 project
• Makes necessary time commitment and contribution to E3 assessment activities
• Collects and reports appropriate E3 metrics
• Benefits from:
  - sustained cost savings
  - increased competitiveness
  - greater employee satisfaction
  - reduced environmental impact
Client: Lekos Dye and Finishing

P2 Partners:
- EPA Region 9
- West Basin Municipal Water District
- Pacific Northwest Pollution Prevention Resource Center (PPRC)

Additional Resources:
- Health and Safety Consultant

CMTC Delivery:
- Lean Assessment
- Energy Assessment
- Environmental Review
Background

- Lekos is a textile dye and finishing company – family owned; $10M/year
- 75 employees in a 60,000 sq ft building in Carson, CA.
- Fabric finishing has been on the decline in California due to environmental concerns and related regulations and costs
- High levels of chemical and dye create environmental challenges
- Pressure to reduce water consumption and wastewater discharge
- Utility and water expense alone are at $2.4M/yr = 25% of costs
- Chemicals and dyes account for another 20%. Labor is 30%
Economy Benefits

- Improve on-time delivery and reduce floor space required for material storage
- Tools – ‘5S’ to organize plant; analysis of order patterns to reduce number of dye machine cleanings due to revised scheduling
- Costs – minimal; mostly employee training.
- Savings – primarily increase in capacity with no additional equipment requirements

Additional: Reduce A/R Aging = $200K cash flow
Energy Benefits

Recommendation: Upgrade dye tank water pump and mixing motors with variable-frequency drives (VFD)

- Savings - energy: Reduce electricity peak demand by 97KW; consumption by 708kWh/yr
- Capital cost (est): $144,000
- Incentives available: $66,000
- Savings, energy costs: $100,000/yr
- Payback Period: One year, with incentives

Additional: Solar, Boilers/Co-gen, Lighting upgrades
Environmental Benefits

**Recommendation:** Upgrade 8 Dye Machines; Reclaim dye water

- **Savings – water:** Reclaim = 42M gal/yr; Dye machines = 32M gal/yr; Total = 74M gal/yr = 51% reduction
- **Capital cost (est):** $2,000,000 total
- **Incentives available:** $250,000 from MWD
- **Savings – costs:** $300,000/yr water + $60,000/yr sewer
- **Payback Period:** 5 years with incentive offsets

Additional: new boilers/recovery will reduce steam losses
Safety/OSHA Benefits

Recommendations:

- Institute on-site safety committee to review plans
- Improve OSHA-required written safety plans, inspection records and record-keeping procedures
- Improve Personal Protective Equipment (PPE) available to employees and training on use; plus hazard recognition
- Improve machine guarding Lockout/Tagout (LO/TO)

Benefit: Increase safety and avoid non-compliance
Client: Pocino Foods

P2 Partners:
- EPA Region 9
- Pacific Northwest Pollution Prevention Resource Center (PPRC)

Additional Resources:
- Health and Safety Consultant

CMTC Delivery:
- Financial Review
- Lean Assessment
- Energy Assessment
Background

- Pocino Foods makes specialty meat products, family owned; $47M/yr
- Manufacturing plant established in 1970
- 190 employees in a 85,000 sq ft building in Industry, CA
- Plant incorporates the best and safest environmental controls
- Management is very progressive but E3 assessment proved to be useful in identifying additional areas where improvements can be beneficial to their operations
Economy Benefits

- Improve on-time delivery and reduce floor space required for material storage
- Tools – ‘5S’ to organize plant; analysis of order patterns to reduce number of dye machine cleanings due to revised scheduling
- Costs – minimal; mostly employee training
- Savings – primarily increase in capacity with no additional equipment requirements

Additional: reduce avg A/R Aging from 24 days to 21 days = $295K cash
Energy Benefits

Recommendation: Boiler Improvements

- Savings: $26,735 energy cost (33,419 therms)
- Capital Cost to Implement: $67,000
- Gas Co. Incentive: $33,419 ($1/therm saved)
- Annual cost savings: $27,000
- Payback Period: 1 Year

Additional: New boilers, Solar, co-generation, refrigeration retrocommissioning, lighting upgrades
Environmental Benefits

Recommendation: Reduce water usage and discharge

- Changes to washing techniques for pepperoni and sausage – use hot water rather than cold water which congeals the fat; hot water is available through a heat exchanger with no additional heating required
- Repairs to wash-cycle plumbing – leaks at many joints
- Reduce consumption from 9,000 gal/cycle to 1,000 gal/cycle (total of 4M gal/yr saved)
- Capital cost (est): $2,000 total + minor training
- Savings: $20,000/yr (water + sewer)
- Payback Period: 1 month

Additional: clarifier to reduce lipids discharged to sewer
Safety/OSHA Benefits

Recommendations:

- Hazard communication training for employees
- Improve placement of hazard warning signs
- Provide documentation for periodic inspections
- Update site mapping for emergency evacuations
- Identify and mark unsafe confined spaces
- Implement a contractor safety program

Benefit: Improve OSHA-related documentation to avoid non-compliance