TILLAMOOK CHEESE SUSTAINABILITY EVALUATION

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Agenda

- Tillamook County Creamery Association
- Sustainability Evaluation
- Waste Analysis
- Energy and Water Assessment
- Rebate and Incentives
- Example Efficiency Measures
- Results
- Summary
- Q&A
Tillamook Country Creamery Assoc.

- Founded in 1909 in Tillamook, Oregon
- Owned by 110 dairy farm families
- Product is marketed and sold nationally
- Tillamook Cheese Factory – originally built in 1949 is largest tourist attraction on Oregon Coast with over 1 Million annual visitors
- Second plant built in Boardman, Oregon 2001-2002 supplied by contract dairies
Motivations for Assessment

- External review of current practices – “fresh set of eyes”
- Identify opportunities to reduce costs & leverage incentives
- Develop comprehensive strategy
- Kick-start corporate sustainability report effort
- Increase awareness of sustainability with upper management and owners
Sustainable Operations Assessment

- Focused on Cheese Plants in Tillamook and Boardman Oregon
- Portland State University Community Environmental Services performed waste and transportation audits
- Ecova (formerly Ecos) performed Energy and Water Audits
- Examined both equipment and practices and procedures
- Dairies and product distribution were not included
Solid Waste Audit

- TCCA produces approximately 50 lbs of landfill bound waste per vat produced
- Organics made up 78% of Boardman landfill bound waste
- Organics made up 38% of Tillamook landfill bound waste

Sample of Landfill Bound Waste by Sorting Category
Energy and Water Assessment

Goals:

- Three goals of this assessment
  - Identify existing process and equipment users of energy and water
  - Estimate annual consumption of major processes and equipment
  - Identify process changes, technologies or measures that might result in improved efficiency or cost reduction
Energy and Water Assessment

Process:

- Three-step process
  - Gather information about existing conditions at both sites
    - Historical utility and energy consumption data
    - Site plans
    - Equipment lists
  - Visit each site
    - “Walkthrough” audits were conducted
  - Follow up with questions during analysis and report development
Boardman Energy Use

- Energy Sources
  - Electricity
  - Steam (from utility co-gen plant)
  - Natural Gas
- Production and Energy Use
  - Electricity and Steam
- Seasonal Energy Use
  - Natural Gas

![Graph showing energy use over time](image_url)
Boardman Water Use

- Water costs
  - Potable
  - Wastewater
  - Sewer
  - Pretreatment

- Water uses
  - Domestic and process loads
  - Clean in place (CIP) process
  - Cheese making process
Tillamook Energy Use

- **Energy Sources**
  - Electricity
  - Diesel
- **Production and Energy Use**
- **Operational Changes**
  - Switched from diesel to electric boiler in mid-2009
- **Electricity Energy Intensity**
  - ~3 times greater than Boardman per Vat
- **Production Cost**
  - ~4 times the production cost of Boardman per Vat
Tillamook Water Use

- Water use at TC
  - Cheese
  - Whey
  - WWTP
  - North Compressor Room
  - South Compressor Room
  - Retail
  - Boiler Room

- Total water costs
  - Usage has increased slightly
  - Cost has decreased
Rebates and Incentives

- **BPA Energy Smart Industrial (ESI) Program**
  - Incentive Programs and Pilot Programs
    - Custom Projects
      - $0.25/kWh up to 70% of project cost
    - Energy Project Manager (EPM)
      - **Potential incentive for CRP is $100,000**
      - **Potential incentive for TC is $270,000**
  - Track & Tune (T&T)
  - High Performance Energy Manager (HPEM)
  - Northwest Lighting Trade Ally Network (TAN)
  - Green Motors Initiative

- **Business Energy Tax Credit (BETC)**
  - Option 1: Credit taken directly by TCCA
    - Up to 35% of project costs (before utility incentives) over a five year period
  - Option 2: “Pass-through” to a third party
    - Up to 25.5% of project costs (30.5% for smaller projects)
Example Energy Measures

- **EEM 1: Lighting**
  - Estimated simple payback: Immediate

- **EEM 2: Refrigeration**
  - Estimated simple payback: 2.2 years

- **EEM 3: Compressed Air System**
  - Estimated simple payback: Immediate
Example Energy Measures

- EEM 4: Heated Regenerative Dryers
  - Estimated simple payback: Immediate

- EEM 5: Waste Water Treatment Blower Replacement
  - Estimated simple payback: 2.8 years

- EEM 6: Heat Recovery
  - Estimated simple payback: 2.4 years

- EEM 7: Motor Efficiency
  - Estimated simple payback: Immediate

- EEM 8: Boilers
  - Estimated simple payback: 0.6 years
Water Efficiency Measures

- **WEM 1: Low-Flow Applications**
  - Estimated cost savings: $1,285
  - Estimated simple payback: 2.9 years

- **WEM 2: Toilet Flush Sensors**
  - Estimated cost savings: $85
  - Estimated simple payback: 1.8 years

- **WEM 3: Cooling Towers**
  - Estimated cost savings: $7,430
  - Estimated simple payback: 0.9 years

- **WEM 4: Process Water Metering and Optimization**
Results

- Implemented Process Improvement Teams focused on operational efficiency with performance goals and benchmarks

- Developing recycling and waste reduction programs for identified waste streams

- Reducing packaging – ingredient plastic buckets, product cardboard and plastic packaging

- Very little progress on facility equipment or process optimization – staff focused on capital expansion projects
Summary

• Assessment identified major waste streams and energy consumption drivers

• Business value of stewardship closely aligned with ideas of sustainability and efficiency

• High financial return projects are difficult to implement without executive management focus

• Successful programs start with a plan!
Thank you!

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