

Wausau Paper DOE Energy Assessments

Tim Hasbargen

Engineering and Utility Manager

May 14, 2008

Presentation Goals

- Purpose of Assessment
- Preparation for Assessment
- Participation and Execution of Assessment
- Evaluation of Results
- Principles

Purpose of Assessment

- Save Money in our Energy Utilization
- Evaluate and Establish a Baseline
- Target Opportunities by identifying and establishment of payback
- Rank the Opportunities
- Discover principles where further opportunities lie

Paper Machine Energy Assessments

- Dick Reese: October 16-18, 2007
 - PM Scorecard Development
 - Press Improvement
 - Dryer Performance Improvements
 - Vacuum System Improvements
 - Refining Improvements
 - Pocket Vent Temperatures
 - Support Contacts

Pumping Energy Assessments

- Steve Bolles: October 25-27, 2007
 - 8 Pumping Systems Reviewed
 - Design Selection Identified Opportunity for Immediate savings with Impeller trim followed by a less expensive “standard” VFD at less installed cost. Mag Drive vs. VFD.
 - Established cost of operation of 3 Pulpers with strategies for each. VFD Application
 - Two systems were found to have insufficient savings.
 - One system was operating completely outside of its design. Field problem was then identified and corrected within one day.
 - Side Note: Two pulping systems resulted in a different approach than VFD, with greater savings, at less cost.
 - Pump System Theory and use of software

Preparation for Assessment

- Identify “Top Potential” Targets
 - High Horsepower
 - High Turn Down
 - Obvious Waste to Sewer or to Atmosphere
- Gather Mill Energy Data.
- Understand the Cost of Various Energies
 - Steam
 - Electric
 - Compressed Air
 - Water: Treatment and Heat
 - Condensate
- Machine Efficiencies
- Pump Curves and Flow Sheets/P&ID’s

Execution of Assessment

- Invest in success. Prepare for success. Staff for success. Plan for success.
- Spend time to make sure the right people, with the right information are available, and assure sufficient time is spent.
- Expect to dedicate the better part of the week.
- Plan the Kickoff. Set the Closing Session
- Prepare the parties for the next day event.

Results

- Identified Energy Communication Opportunity
- Identified VFD Opportunities and Impeller Sizing Opportunities
- Identified Condensate Recovery Opportunities.
- Identified Air Economization Opportunities
- Identified Refining Optimization Opportunities.
- Found Dryer Drainage Venting Issue and Significant Water Overflow. Get into the mill and into the process

Principles Learned

- List your highest horsepower, and begin to optimize
 - Refiners
 - Pulpers: Agitators-Pumps
 - Pumps
- Identify the high turndown pumping or drive applications.
- Identify Control Valves which operate consistently at the low end. Cavitation! Listen to the song of the process.
- Learn the “Faces of Waste”.
- Ask Why?.

Principles Learned

- Communicate with the language of money. Cost per day-week-month-year
 - Everyone understands
 - Establishes priority
 - Foundation to request resources
- Spend time with your process
 - Need to touch-smell-feel-hear-see
 - Understand the range of operation. Seldom a single point.
- Be willing to change and learn from anyone.
- Expand your team to break down traditional walls between groups. You must be on the same team.