

# Energy Efficiency at Weyerhaeuser Company

Doug Woodward  
Weyerhaeuser Company  
Electrical Efficiency Engineer  
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# Organizational Structure

- Energy Management Group (EMG)
  - 5 Regional Energy Managers in North America
    - Utility Contracts for Electricity and Natural Gas
    - Legislative and Regulatory issues pertaining to energy
  - Natural Gas Supply Manager
  - Energy Information Manager
  - Energy Efficiency Manager
    - Responsibility for Electrical and Natural Gas Efficiency
    - Manage Resources for Assessments and Implementation Plans
      - Internal Resources from Weyerhaeuser R & D, MIT, WES
      - External Resources
        - DOE
        - Regional and State Organizations and Incentive Programs
        - Vendors and Consultants

# EMG Roles

- Provide low cost, reliable supply of energy (electricity and natural gas)
- Advocate and influence outcomes on Legislative and Regulatory Issues
- Work with sites to maximize value from power generation
- Promote energy efficiency and provide resources for identification and implementation of energy efficiency measures

# Energy Efficiency Manager Roles

- Develop the Energy Efficiency Approach for Weyerhaeuser Company
- Resource identification
- Single Point of Contact for Regional Energy Managers for Efficiency
- Key contact for Local and State agencies and Utilities for incentives and tax credits
- Currently working with Weyerhaeuser Business VP's to develop a Business Case for Energy Efficiency

# Systems Approach

- The “Structured Systems Approach” utilizes a systems methodology to achieve and sustain electrical energy efficiency
- The approach is applied to a site’s key electrical load technologies
- The approach focuses on identifying, developing and implementing *Opportunity Systems*

# Opportunity Systems

- An *Opportunity System* is defined as an inter-dependent group of equipment and flow paths within a load technology that performs work by electricity such that it can be bounded as one measurable load
  - The measurable load can then be base-lined, analyzed, optimized and managed as any other manufacturing raw material or cost component
- The approach incorporates each load technology's individualized support elements such as expertise, best practices, incentives etc.

# Load Technologies

- Distribution
- Lighting
- HVAC
- Compressed Air
- Fan
- Hydraulic
- Pumping
- Refining
- Process Specific

# Opportunity Systems Discovery

- Survey site key load technologies
- Identify and define Opportunity Systems
- Identify potential efficiency measures (order of magnitude benefits and costs)
- Identify available incentives and tax credits
- Review identified Opportunity Systems
- Prioritize Opportunity Systems

# Opportunity System Analysis

- Identify system owner(s) at mill or plant
- Validate baseline with measurements
- Scope alternative optimization measures (estimate benefits and costs)
- Develop recommended management measures
- Capture all Financial Benefits

# Opportunity System Delivery Plan

- **Optimization measures (Achieve Results)**
  - Perform feasibility analysis on alternatives and recommend most cost effective measures
  - Develop incentives and tax credits documents
  - Assemble approval documents
- **Management measures (Sustain Results)**
  - Develop training schedule for systems owners
  - Tailor operations and maintenance awareness program to site's needs
  - Develop efficiency monitoring and tracking process
- **Integrate optimization and management measures into implementation schedule**

# Typical Efficiency Measures

- Load optimization measures
  - Equipment and process retrofits
  - Automation and control improvements
  - Advisory tools
- Load management measures
  - System ownership and education
  - Operating and maintenance best practices
  - Ongoing monitoring and tracking

# Key Support Elements

- Provide best practices education programs for systems (process) owners, operators and maintenance
- Contract only with efficiency specialists who utilize the systems methodologies and tools
- Incorporate efficiency standards in equipment selection and application
- Capture available utility incentives and tax credits

# Training and Education

- Improving the skills of the identified System Owner
  - Compressed Air System Owner example
    - System Owner to attend CAC Level 1 and 2
    - Help support the System Owner as the Champion and “go to person” for compressed air issues within the plant site or mill
    - Work with System Owner as focal point during implementation of efficiency projects

# Training and Education

- Improving the knowledge of the “real end user” of compressed air
  - Newly developed 1 ½ to 2 hour long “Production Floor Training”
  - The plan is to have all production floor and maintenance people attend this session
  - The goal is also to have the System Owner participate in and eventually become the site trainer for the “Production Floor Training”

# Compressed Air Challenge

- We have been strong supporters of the CAC because of the focus on the “Systems Approach” in their training
- Recent invitation to be a member of the CAC as a member of the Project Development Committee (PDC) representing End Users
  - This has provided an opportunity to influence future projects of the CAC that can benefit Weyerhaeuser Company
    - Proposed Production Floor Training
    - Proposed Measurements Training

# CAC Industrial End Users Group

- The 2 CAC PDC End User Representatives have been authorized to start an “Industrial End Users Group”
- We are currently seeking about 6 individuals from industry to participate
  - Identified benefits of participating in this Users Group
    - Opportunity to influence CAC for their companies benefit
    - Early availability of current and future training sessions
    - Access to new training offerings such as the proposed “Production Floor Training” that is being developed
    - Opportunity to associate with compressed air industry experts