

Support for Continuous Energy Improvement Programs

The Industrial Efficiency Alliance works in close collaboration with local energy organizations, your utility and the BPA to enhance the competitive position of the Northwest pulp and paper industry through energy efficiency. Utilities and the BPA provide training, resources and funding opportunities to industrial customers interested in Continuous Energy Improvement Programs.

Our funding for energy management resources and tools comes from the Northwest Efficiency Alliance, supporting utilities and the BPA, through the Industrial Efficiency Alliance, to you – a participating pulp and paper mill.

When should you declare victory – the fourth question?

Every mill has some form of the “morning meeting,” during which key staff members gather to review performance and plan future actions. During this meeting, three questions are always asked:

- Did we have any accidents?
- Did we spill anything?
- How much product did we make?

Energy management becomes a core business value when the manager poses the fourth question:

“How much energy did we use?”

About the Industrial Efficiency Alliance

The Industrial Efficiency Alliance helps Northwest industry gain a competitive advantage via the adoption of energy efficient business practices. The organization provides expert support, resources and services to give companies the tools and training to make energy efficiency a core business value. In exchange, participants are asked to commit to a Continuous Energy Improvement Program, which has the potential to increase production capacity, improve equipment reliability and reduce operating costs and energy use by 5% to 20%.

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Mike Roberts, director of pulp and paper for the Industrial Efficiency Alliance, has more than 40 years experience in the Northwest pulp and paper industry. He has held significant positions in operations, engineering, research and environmental management. Prior to joining the Industrial Efficiency Alliance, he was the facilities business line manager for URS Corporation and vice president of engineering for Industra, where he led the U.S. engineering operations, providing strategic consulting, process optimization and detail design services on behalf of clients. In addition, as manager of paper and coatings research, Roberts directed the activities for several research engineers, providing mill technical support and performing applied research. He was responsible for mill operations in the market pulp business and was director of environmental affairs for a major pulp and paper manufacturer.

How Continuous Energy Improvement Increases Profitability and Reliability for the Pulp and Paper Industry

Industrial Efficiency Alliance

Leadership for better energy use.

Why You Should Care About Energy Management

Pulp and Paper’s 2005 mill manager survey points to the rising costs of energy as the most pervasive problem facing North American mill managers today. Paying attention to energy productivity is one of the most important things mill staff can do to help their mills remain viable, and here are the reasons why:

- More than 15% of the total U.S. manufacturing energy use is in pulp and paper. That means that the current and potential future cost to the pulp and paper industry is staggering – especially with the promise of rising energy prices.
- Approximately 30% of industrial energy use in the Northwest is in 29 pulp and paper facilities.
- Electricity alone can account for 10% - 30% of a pulp and paper facility’s variable operating cost.

But...there is good news. Energy consumption is the single most controllable cost variable available to pulp and paper facilities today. That means that you can manage against increased energy costs effectively, efficiently and with measurable results.

Remember, you are in an industry with narrow margins and every dollar you save can mean more to your company than \$20 in sales.

A Resource You Can Use

The Industrial Efficiency Alliance was created in 2005 to help Northwest pulp and paper mills gain a competitive advantage by adopting energy efficient business practices. We **enhance business performance** through **continuous energy improvement**, which results in **bottom line benefits**.

Participating pulp and paper facilities can experience greater energy cost savings and increased reliability. This is extremely important when you consider that greater than 40% of the industry’s energy expenses cover electricity costs. Added benefits of improved energy efficiency include:

- Increased effective capacity
- Reduced maintenance cost
- Lower environmental impact

continued

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Three Key Resources

The Industrial Efficiency Alliance provides three key resources to help pulp and paper mills achieve bottom line results through a Continuous Energy Improvement Program:

- 1. Management support of comprehensive energy planning** – including benchmarking of energy management, development of actionable energy policies and making employees aware of the critical requirement for energy efficiency.
- 2. Industry and technical expert support of system assessments and optimization** – including pump, compressed air and motor/drive systems.
- 3. Solutions-based training** – including a comprehensive suite of regional training opportunities addressing training needs from the shop floor to the corner office.

The Process for Participation

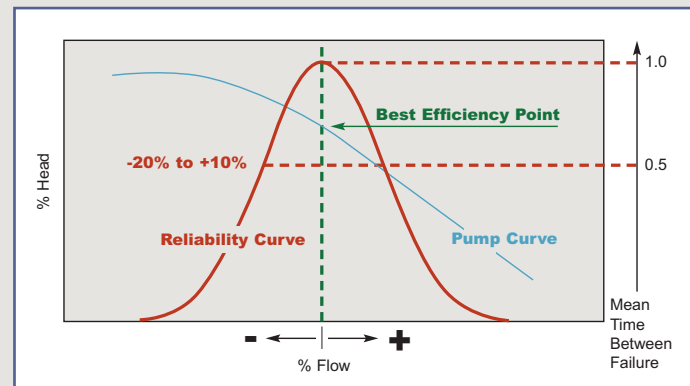
The Industrial Efficiency Alliance has developed a straightforward, simple process for participation that begins with an awareness of energy issues, then matches Industrial Efficiency Alliance resources to a facility's need and ends with a process to determine progress.

- 1 Awareness of energy**
- 2 Assessment of energy management practices**
- 3 Plan for continuous energy management**
- 4 Commitment to continuous energy improvement**
- 5 Execution of Continuous Energy Improvement Program**
- 6 Measurement of energy management practices**



Efficiency Means Reliability

Energy efficiency is as much about improving an industrial system's reliability as it is about reducing energy costs. Why? Because greater efficiency reduces wear and tear from heat and vibration – lengthening the lifespan of equipment and reducing down time for maintenance and repairs. A Continuous Energy Improvement Program is one of the best ways to avoid "lost" energy that otherwise might create system inefficiency and destroy equipment.



Continuous Energy Improvement

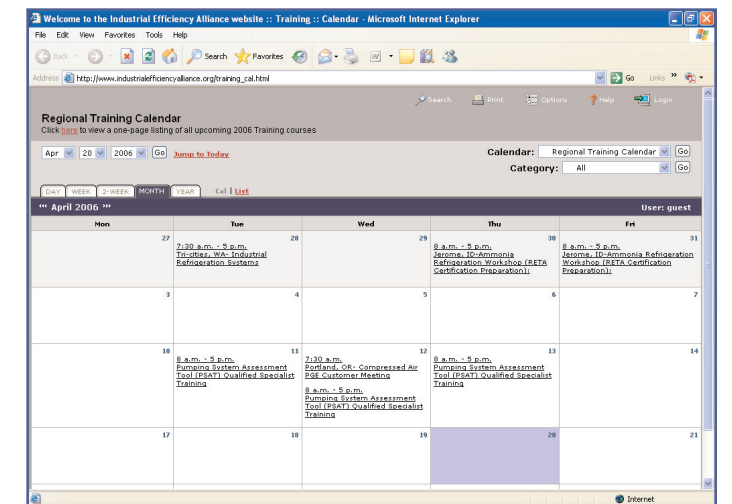
Continuous Energy Improvement simply means that mills will manage energy as a core business value in the same way that they make safety, environmental compliance and production a part of every activity and business decision.

The Industrial Efficiency Alliance has developed a Continuous Energy Improvement Program that is designed especially for pulp and paper facilities. At the core of the program are training and education opportunities for all staff (operations, maintenance and management). The Industrial Efficiency Alliance believes training is essential to understanding how operations and maintenance can affect the overall efficiency of industrial systems. Training raises the awareness of the need for better energy productivity and establishes the foundation for planning and measurement.

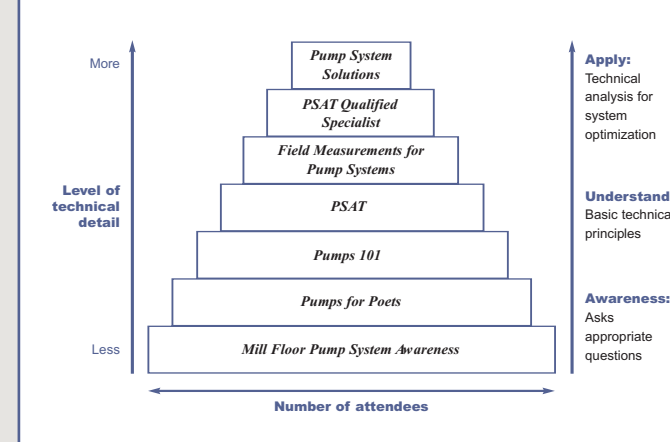
Full participation in a Continuous Energy Improvement Program includes:

- Assigning energy "Champions" at the mill and system levels
- Performing comprehensive system assessments and audits, including understanding and utilizing life-cycle cost analysis
- Establishing Key Performance Indicators (KPIs)
- Providing system training
- Understanding your vendor's and service provider's qualifications and deciding to work with firms that embrace continuous energy improvement life-cycle cost values

The Industrial Efficiency Alliance, with help from supporting utilities, the Bonneville Power Administration (BPA) and the U.S. Department of Energy, provides a number of training courses to meet the specific needs of system Champions, operators and engineers who work in pulp and paper. A continuously updated training schedule for courses involving pumps, compressed air and motor systems is available on the training page located at www.industrialefficiencyalliance.org/training.html.



Pump Systems Training Pyramid



Paying Attention to Pump Systems

The Industrial Efficiency Alliance has developed a series of seminars for personnel who work with pumps. The seminars are designed for operators, maintenance staff, engineers, management and purchasing agents with an aim to increase the understanding of pump, compressed air and motor systems. It is extremely important that mill managers and personnel understand the energy cost implications of these systems and the value of considering life-cycle cost and system reliability when making purchasing decisions.