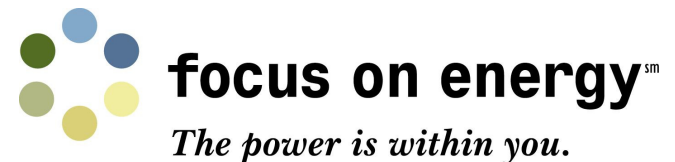


# Focus on Energy Update

**John Nicol**

**Industrial Program Manager**

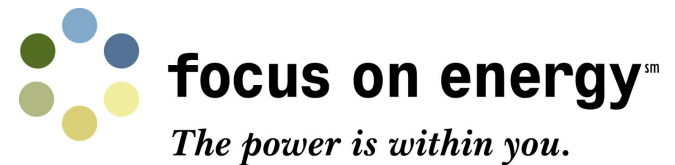
**February 22<sup>nd</sup>, 2007**



# Purpose for Focus Program

**Energy efficiency benefits  
Wisconsin's economy**

***\$6 billion dollars go out of state every year  
to pay for coal (electricity) and gas***



# Purpose for Focus Program

**Energy efficiency directly benefits participating customers and companies**

***Company energy management programs can save 10% to 30% with project paybacks under 2 years***



# Purpose for Focus Program

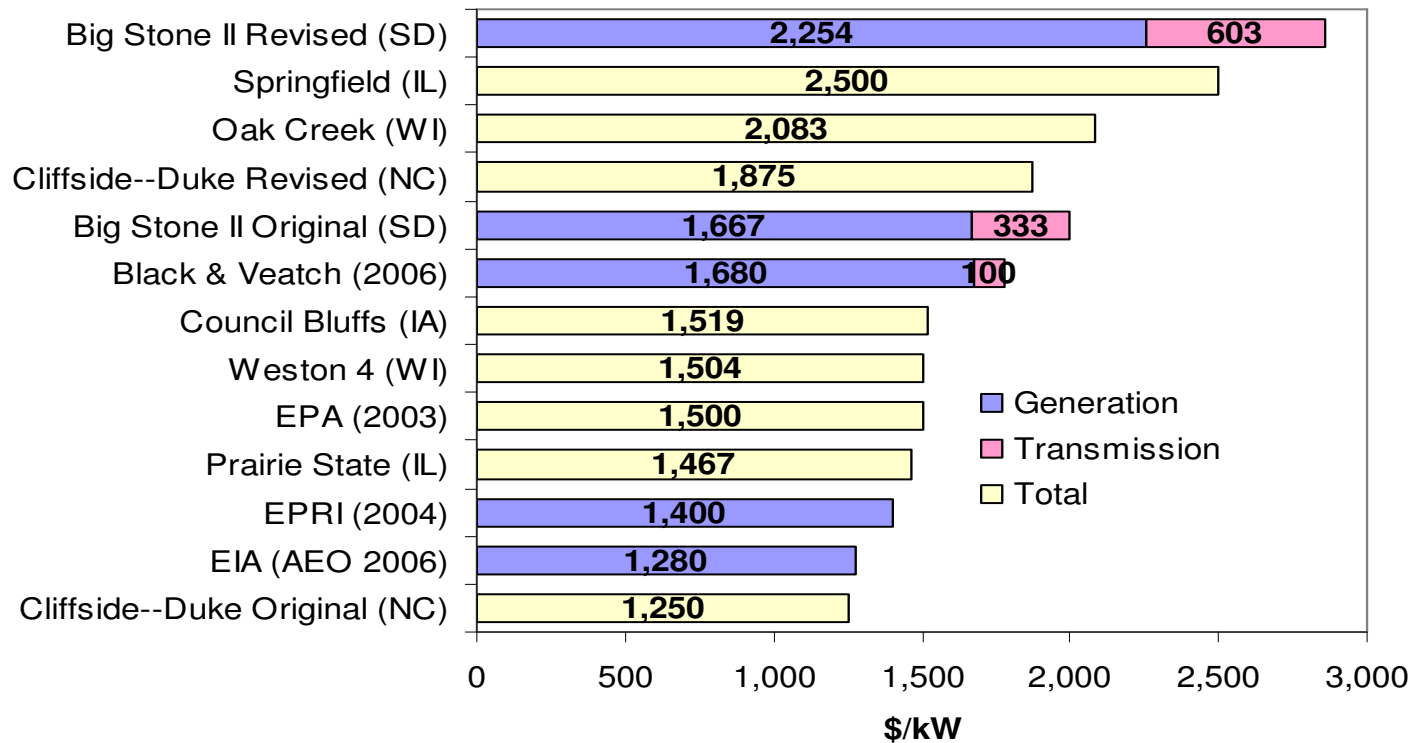
Energy efficiency benefits everyone by keeping electric and gas rates lower in the future

- *Cost of typical **new coal power** plant*  
*> \$1,800/kW*
- ***Energy efficiency** programs have been able to save kW at low cost*  
*< \$400/kW*

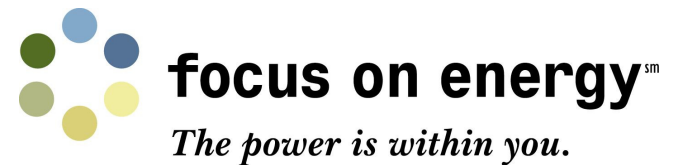


# Cost of New Coal Power Plants

New pulverized coal capital costs

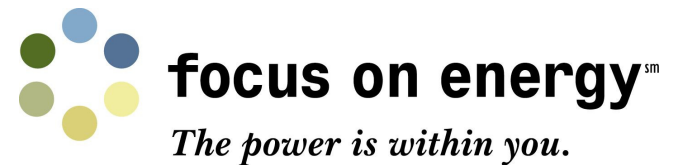


Source: American Council for Energy Efficient Economy (ACEEE)



# Focus Mission

**To help implement energy efficiency projects that otherwise would not get completed.**



# Industrial Programs

- ***New Construction Incentives***
- ***Prescriptive/Direct Incentives***
- ***Custom Incentives***
- ***RFP Program***
- ***Technical Support***
- ***Information & Education***

# Custom Project Incentives

- Incentives designed to implement energy efficiency projects that otherwise would not get completed or would not get done as soon
- Incentives of up to \$0.02 per kWh and \$40 per kW on first year savings
- Up to \$0.30 per therm on first year savings
- No incentive for project with less than 2 year payback
- Cap of \$100,000 per project



# Feasibility Study Incentives

- Grant is designed to assist customer in quantifying potential savings opportunities
- Direct incentives available for compressed air studies
- Metering projects may qualify
- Up to 50% of project cost, maximum of \$7,500
- Will consider larger grants for larger studies



# Technical Support

- **Technical Services Support**

  - To identify and quantify energy efficiency projects

  - To develop an energy management plan or team

  - To find suppliers for equipment or services

- **Targeted Energy Intensive Industries**

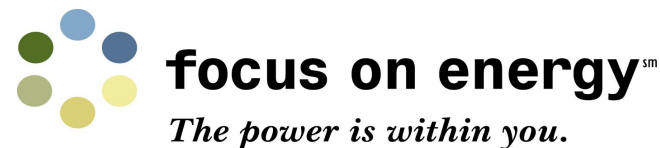
  - Pulp and Paper, Food Processing, Metalcasting & Plastics

- **Practical Energy Management<sup>©</sup> Tool**

  - Facility profile tools

  - Best Practices savings estimation tools

  - Energy Management program tools



# Best Practice Training

- Compressed Air Systems
- Refrigeration
- Ventilation
- Steam Systems
- Lighting
- Practical Energy Management
- Building Operator Certification

[www.focusonenergy.com](http://www.focusonenergy.com)



# Best Practice Information

**BEST PRACTICES**

## Steam Systems



Steam is one of the principal forms of energy used in industrial processes. Worldwide, approximately 35 percent of the total energy used in industrial production is in the form of steam. In Wisconsin, steam boilers annually consume an estimated 600 million therms of natural gas valued at \$400 million per year at the current fuel price of \$0.60/therm. A typical industrial facility can save as much as 20 percent of its fuel cost through implementation of the steam system best practices presented here.

- 1) MAINTAIN STEAM TRAPS**  
Develop and implement a Steam Trap Management Program that incorporates the following activities:
  - Personal training - on entire boiler systems, not just for steam traps
  - Identify and inventory steam traps
  - Write Inspection and Testing Procedure (ITP) for written standards and reporting tool. Manufacturing steam traps waste steam and result in higher boiler fuel consumption. Potential savings for this practice range from five percent to ten percent of boiler fuel use. The traps waste steam and result in higher boiler fuel use. The traps waste steam and result in higher boiler fuel use. The traps waste steam and result in higher boiler fuel use.
- 2) REDUCE SYSTEM LEAKS**  
Repair leaks in steam piping, condensate return lines and fittings. Leaks cause both higher fuel use and increased make-up water consumption. The energy savings potential, especially in high-pressure systems, increases proportionally with steam loss. Implementing a proactive steam leak management program can reduce a facility's energy usage by one percent.
- 3) ADD INSULATION TO REDUCE HEAT LOSS**  
Add new insulation where original insulation is damaged, whose the original insulation was removed as part of an asbestos abatement program and not replaced, and to new piping and valves. Steam and condensate system piping, equipment and tanks. Loss of insulation increases fuel use, resulting in higher boiler fuel consumption. As a general rule, proper insulation on hot surfaces will reduce heat loss by 90 percent. Insulation is inexpensive and simple to install within one year.
- 4) TUNE UP BOILERS EVERY THREE TO SIX MONTHS**  
Perform regular boiler tune-ups. A boiler tune-up includes reducing excess air, cleaning boiler tubes and recalibrating boiler controls. The proper combustion air-to-fuel ratio directly affects combustion efficiency. Inadequate air causes unburned combustibles that, in turn, smoke and carbon deposits on boiler tubes, which reduce heat transfer efficiency. Generally, boiler efficiency will increase by one percent for each 15 percent reduction in excess air. Implementing a routine boiler maintenance program can reduce your facility's energy use by two percent and quickly pay for itself.

Incentives are available for Steam System Best Practices. Contact Focus on Energy for more information at 800.752.7077

**focus on energy**  
The power is within you.

**BUSINESS PROGRAMS**

## MERCURY Marine Saves Energy by Improving Compressed Air Performance

CASE STUDY

To learn more about Focus on Energy call 800.752.7077 or visit [www.focusenergy.com](http://www.focusenergy.com)

**M**ercury Marine, the world's leading manufacturer of marine propulsion located in Wisconsin, broke new ground with the installation of its innovative central compressed air system - perhaps the most energy efficient one in the country. It not only evaluated its current compressed air system but also assessed and compared its current decentralized system and then carefully cost-effectively.

The new system includes five 300 horsepower (hp) IR two-stage rotary compressors for base load, two 200 hp IR Nirasuta VFD compressors for trim load and a 30,000 gallon storage tank. The system was installed in the summer of 2004 and is operating as expected.

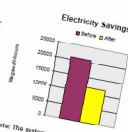
The system eliminates 1,057 cubic feet per minute (CFM) in non-use air loss (WAL). Compressed air system performance rose from 2.5 CFM per kilowatt (kW) to its current average of 5.5 CFM per kW, a substantial gain in efficiency. The system saved 1,075 kW of demand and 9.2 million kilowatt-hours (MWh) of electricity annually, a savings, heat recovery from the new system lets Mercury Marine avoid 135,000 therms of natural gas for space heating each year.

The controlled pressure adequately and reliably meets workforce demand, permits hp supply to follow actual demand and no longer wastes energy for unused compressed air.

**PROJECT SUMMARY**

Project Cost	\$1,200,000
Energy Savings	\$64,000
Focus Incentive	\$60,000
Payback Period	2.9 years
Total Payback	2.9 years

**Electricity Savings**  
\$/hr



Note: The system also saves 135,000 therms per year.

**THE OPPORTUNITY**  
Mercury Marine's system was similar to many other large industrial systems composed of remote compressors served via system. There was little or no control response and significant system leaks caused inadequate capacity during peak demand and pressure fluctuations. A system reserves, distribution leaks and no systematic way to identify and correct leaks and inappropriate uses.

**THE SOLUTION**  
The new system serves Mercury Marine's needs, together and saves over \$540,000 in annual energy costs. Plant-wide, compressed air pressure is now controlled at +/-0.2 pounds per square inch (psi) of demand pressure.

Left to right: Marc Dufour, President/General Manager, Mercury Marine; Robert Drell, IR, Jerry Latta, Plant Engineering/Facilities, Mercury Marine; Jim Funn, IR; Brent Buehler, IR; Bill Corbick, IR.

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The power is within you.

# Pulp and Paper Energy Best Practice Guidebook

- Developed by Focus on Energy Pulp and Paper Cluster Team
- Completed May of 2005
- Available from TAPPI or Focus on Energy
- Benchmarking section
- Best Practice Energy Studies
- 57 Best Practices

# Governor's 2007 Pulp and Paper Energy Efficiency Award

- Governor Jim Doyle established the award in 2005
- Recognizes the Wisconsin mill that best demonstrates an outstanding energy efficiency project.
- Experts from Wisconsin's pulp and paper industry review nominations and select the winner.
- Award presented at the Wisconsin Paper Council annual meeting in Appleton, May 31, 2007.
- Send email to [benglish@cleantechpartners.org](mailto:benglish@cleantechpartners.org) for application materials.



# Coming Soon - RFP for Stalled Projects

- RFP for projects with a 1.5 to 2 year payback
- Proposal specifies the level of grant needed
- Description of why grant is needed to make project go forward
- Bonus points for innovative and multi-measure projects
- Send email to [nicolj@saic.com](mailto:nicolj@saic.com) for application materials

# Repulping Rotor Incentives

- \$20 per Horsepower Incentive
- Not available for under machine applications
- 20 to 30% energy savings with a payback of about one year
- Send email to [nicolj@saic.com](mailto:nicolj@saic.com) for application materials

# Coming Soon - VFD on Pumps and Fans Incentives

- \$30 per Horsepower Incentive
- Typical savings can be 20 to 30% energy savings with a payback one to three years
- Send email to [nicolj@saic.com](mailto:nicolj@saic.com) for application materials

# Special Study Incentive For Pumps in Pulp and Paper

- Incentive is the lower of
  - \$5 per horsepower of pumps studied
  - \$10,000
  - **100% of study costs**
- Study to cover top pumps and include energy savings estimates and costs for VFD or other efficiency projects
- Offer good to first 10 to apply through June 30<sup>th</sup>, 2007
- Send email to [nicolj@saic.com](mailto:nicolj@saic.com) for application materials



**focus on energy**<sup>sm</sup>

*The power is within you.*

# Contacts – Focus on Energy

## Industrial Technical Support and Incentives

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Industrial Sector Manager

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**800-762-7077**

[www.focusonenergy.com](http://www.focusonenergy.com)