

Wisconsin's Focus on Energy

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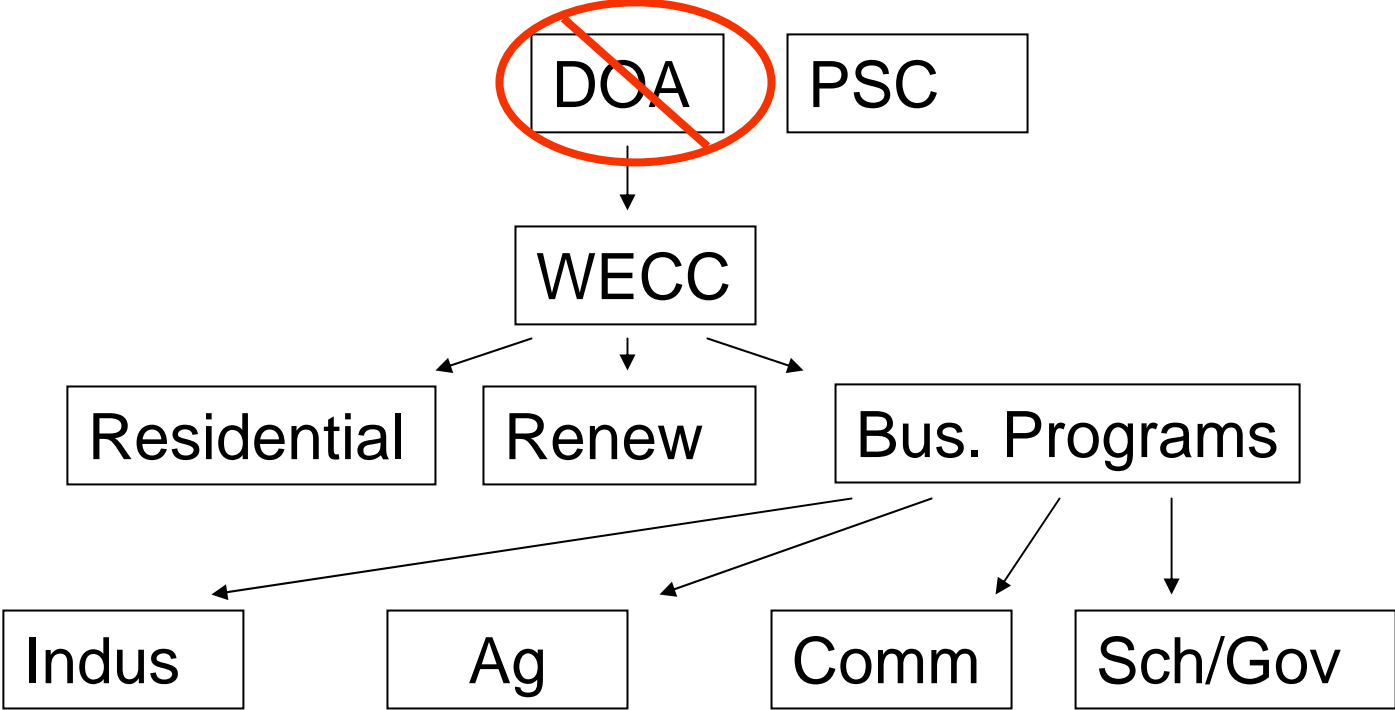
Industrial Program Manager

SAIC

Focus Background and History

- DSM program run by the state
- Statewide since July 2001
- Budget has progressively gone up and state commitment has increased
- Present annual budget is \$85 million
- Industrial budget is \$13 million

Focus on Energy Structure



Focus Mission

Accelerate the rate of energy efficiency improvement in Wisconsin by supporting energy efficiency projects that otherwise would not get completed.

How does it work?

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

NEW Prescriptive Incentives for VFDs on Pumps and Fans

- \$50 per Horsepower Incentive
- No more than 30% of total project cost covered by incentive
- Must have at least 2000 hours of use per year
- Additional \$10 per horsepower if metering for one week before and after installation.

NEW Custom Project Incentives

- Incentives designed to implement energy efficiency projects that otherwise would not get completed
- Currently incentives of up to \$0.06 per kWh and \$200 per kW on first year savings
- Up to \$0.60 per therm on first year savings
- No incentive for project with less than 1.5 year payback or over a 4 year payback
- **Up to 30% of project cost paid for**
- Cap of \$250,000 per project and \$500,000 per company per year



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Feasibility Study Incentives

- Feasibility Study grants are designed to assist customer in quantifying potential savings opportunities
- Prescriptive 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[©] Tool**

 - Establish and Enhance Energy Management Teams

 - Best Practices savings estimation tools

 - Energy Management program tools

Best Practice Training

- Compressed Air Systems
- Refrigeration
- Ventilation
- Steam Systems
- Lighting
- Practical Energy Management
- Pumping Systems

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 25 percent of the total energy used in industrial production is in the form of steam. In Wisconsin, steam boilers annually consume an estimated 800 million barrels of natural gas valued at \$480 million per year at the current fuel price of \$0.60/barrel. A typical Wisconsin 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
- Identify and testing procedure (SOP)
- Trap inspection and testing – included in the shop
- Trap conversion processes – included in the shop
- Trap database and recording tool. Make existing steam trap database and record in higher boiler fuel consumption. Potential savings for this practice
- Trap waste steam and rework in boiler fuel use. The trap waste steam and rework in boiler fuel use. The steam payback for a steam trap maintenance program is often one year or less.

2) REDUCE SYSTEM LEAKS
Repair leaks in steam piping, condensate return lines and fittings. Leaks cause both higher fuel use and increased makeup water consumption. The energy savings potential is especially in high-pressure systems. Proactive steam trap 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, remove the original insulation and re-insulate, and to new pipe and valves. Often, the original integrity of insulation deteriorates over time and condensate increases build-up, resulting in higher boiler fuel consumption. As a general rule, proper insulation on hot surfaces will reduce heat loss by 80 percent. Insulation is inexpensive and simple paybacks are within one year.

4) TUNE UP BOILERS EVERY THREE TO SIX MONTHS
Perform regular boiler tune-ups. A boiler tune-up includes performing excess air, cleaning boiler tubes and recalibrating boiler controls. The proper combustion air-to-fuel ratio directly affects combustion efficiency. Inadequate air supply yields unburned combustibles (flue, soot, smoke and carbon monoxide) while excess air causes heat loss from increased flue gas flow – lowering the boiler's fuel-to-steam efficiency. Generally, boiler efficiency will increase by one percent for each 10 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 800.752.7377

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BUSINESS PROGRAMS MERCURY Marine Saves Energy by Improving Compressed Air Performance CASE STUDY

To learn more about Focus on Energy's™ case study, visit www.focusonenergy.com

Mercury 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 saved significant energy and dollar savings, Mercury Marine also evaluated its current decentralized system and then carefully preserved, installed and commissioned its new centralized cost-effective system.

The new system includes five 300 horsepower (HP) IR two-stage rotary compressors for base load, two 200 hp IR Airmax 370 compressors for peak 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 (leaks). Compressed air system performance rose from 3.5 CFM per kilowatt (kW) to its current average of 5.5 CFM per kW, a significant gain in efficiency. The system saved 1,075 kW of demand and 9.2 million kilowatt-hours (kWh) of electricity annually, avoid 135,000 pounds of carbon dioxide gas for space heating each year.

The central pressure adequately and reliably meets workflow demand, permits hp supply to follow actual demand and no longer wastes energy at unused compressed air.

PROJECT SUMMARY

Project Cost	\$1,200,000
Energy Savings	\$241,000
Peak Reduction	\$40,000
Energy Payback	3.3 years
Total Payback	5.6 years

Electricity Savings
\$/MWh @ 10¢/kWh



Note: The system also saves 135,000 pounds of carbon dioxide gas per year.

THE OPPORTUNITY
Mercury Marine's system was similar to many other large industrial systems composed of remote compressor serving fan systems. There was little or no control between compressors, insufficient system leaks caused inadequate capacity during peak demand and pressure fluctuations. A system requiring numerous, slow response, distribution valves and no systematic way to identify and correct leaks and inappropriate uses.

THE SOLUTION
The new system serves Mercury Marine's needs altogether – and saves over \$240,000 in annual energy costs. Plant-wide, compressed air pressure is maintained at +/-0.2 pounds per square inch (psi) of demand pressure.

Left to right: Men Dulon, President/General Manager; Matt Larson, Vice President/Manager; Mercury Marine; Robert Powell, Plant Engineer; Facilities, Mercury Marine; Jim Farn, Sr. Board Member; Jim Carlson, Sr.

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Best Practice Guidebooks

- Developed by Cluster Team industry experts
- Management Best Practices
- Technical Best Practices
- Energy Guidebooks for:
 - Paper
 - Metalcasting
 - Plastics
 - Dairy/Food Processing
 - Water/Waste water

Program Economic Benefits

- Reduces the money leaving the state of Wisconsin (\$6 Billion per year)
- Improves economic strength of Wisconsin manufacturers
- Reduces the rate of increase of utility costs



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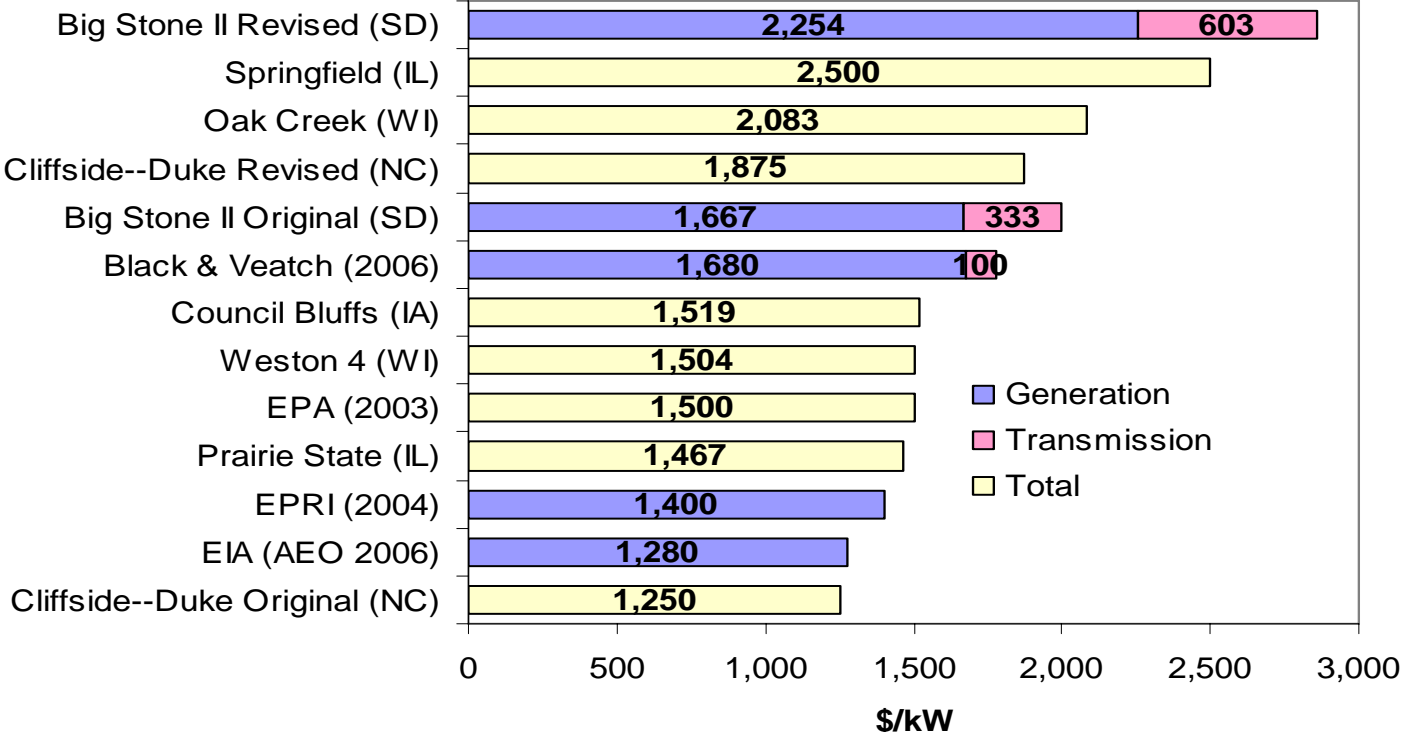
Benefits of the Focus Program

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

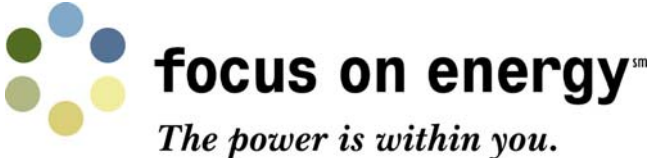
- *Cost of typical **new coal power** plant*
> \$2,500/kW
- ***Energy efficiency** programs have been able to save kW at low cost*
< \$400/kW

Cost of New Coal Power Plants

New pulverized coal capital costs



Source: American Council for Energy Efficient Economy (ACEEE)



Is it cost effective?

- Evaluation
 - Gross to Net in FY08
- Net results to date of entire program
 - \$225 million spent on Focus over last 6 years
 - 2001-2006 load that would otherwise exist!
 - 730,000,000 kWh
 - 207 MW (**\$517 Million in power plant savings**)
 - 33,000,000 therms
 - **Over \$750 Million lifetime customer savings**



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Barriers to Industrial Efficiency

- **Limited capital**
- **Limited staff time (ID and Implement)**
- **Lack of knowledge on projects**
- **Limited commitment by upper management**
- **Energy a low % of total costs (2 to 5%)**



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Industrial Program Issues

- **Large energy use and potential savings**
- **Most companies do not invest in paybacks above 2 years**
- **Many projects still not done under 2 years – limited capital**
- **Program impact not well linked to lower rates**



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Industrial Program Potential Approaches

- **Provide Incentives - Buydown payback**
 - Project buydown 20%, 30%, 50% or 100%?
- **Provide loans**
 - Low interest or prime?
 - Guaranteed or full loans?
- **Provide technical support**
 - Field staff, trainings, literature, websites, vendors?
- **Provide management support**
 - Energy Teams and management plans?
 - On-site person to assist projects – ID & implementation?



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