



Ohio / DOE

Industrial Technology Program

Great Lakes Pollution Prevention Roundtable

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Energy Industries of Ohio

September 23, 2004



Energy Industries of Ohio

- ✦ Incorporated June, 2000
- ✦ 501c.3 Private, Non-Profit Organization
- ✦ Promote Collaboration between Energy Producers and User Industries
 - ✦ Facilitate Research and Development
 - ✦ Project Technical Management
 - ✦ Project Financial Management
- ✦ Funded through Specific Project Grants



Ohio IOF Program

- ☀ 3 Year Old Program

- ☀ Industry Sectors Addressed

- Federal

- Agriculture (Biomass), Aluminum, Chemicals, Forest Products, Glass, Metal Casting, Mining, Petroleum, Steel

- Ohio

- Biomass (Agriculture, Forest Products, Food Preparation), Aluminum, Polymers, Glass, Metal Casting, Mining, Steel



Ohio IOF Program

☀ Energy Efficiency, Alternative Energy, Productivity, Waste Reduction

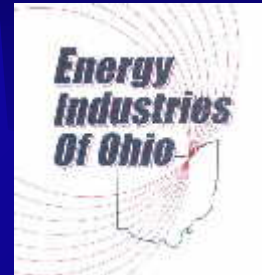
- ☀ Outreach – Present DOE / ODOD Programs to Industry
- ☀ Industry Sector Strategy Development
- ☀ Training – DOE Best Practices
- ☀ Project Team and Proposal Development

☀ Work through and with:

- ☀ State Agencies
- ☀ Universities, Research Organizations
- ☀ Industry Associations
- ☀ Companies

Energy
Industries
Of Ohio

Ohio IOF Program Partners



September 23, 2004



Contact Information

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Ohio IOF Program

- ✦ Sector Specific Activities
- ✦ Grants Program
 - ✦ Sector Specific
 - ✦ Crosscutting Technologies
 - ✦ Supporting Industries
- ✦ Best Practices



Sector Specific Activities

- ✦ Roadmap Reviews
- ✦ Critical Issues Conference
 - ✦ October 8, 2003
 - ✦ 80 Participants
 - ✦ Identified 11 Common Issues
 - ✦ Follow-on Activities
 - Communication
 - Program Identification
 - Proposed New Programs



Critical Issues Conference

- ★ OEE provided Conference Results to Governor Taft and Senator Voinovich in preparation for the Manufacturing Conference in November
- ★ 6 “Common Issues “ Identified
 - Environmental Permitting
 - CAAA Issues (Title V, NSR, MACT)
 - Land Use Issues
 - Workforce Development
 - DEG
 - Recycling



Critical Issues Conference

★ Legislative Issues

- ★ Tort Reform
- ★ Business Tax Reform
- ★ Health Care Costs
- ★ Workman's Compensation Issues
- ★ Hospitalization Insurance
- ★ Free Trade – Dumping, Job Losses



Sector Specific Activities

✦ Workforce Training

- ✦ Recently announced Grant (DOE)
- ✦ Training New and Existing Employees in:
 - Steel
 - Metal Casting
 - Forging
- ✦ Goal: Development of Curriculum for 1-2 year training programs



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Selected Project Activities

- ✦ CBRC
- ✦ EAF/BOF Hoods and Roofs
- ✦ ALFA Foam
- ✦ Materials for Molten Metal Processing



CBRC Project

- ✦ Fly Ash as Sand Replacement
- ✦ Reduced Landfill Use
- ✦ Worker Safety
- ✦ Good Results
- ✦ Follow-on w/ GM Defiance Pending





ALFA Foam Project

✦ **Objective:** Demonstrate use of syntactic foams to reinforce frames in light trucks, SUVs

✦ **Drivers:**

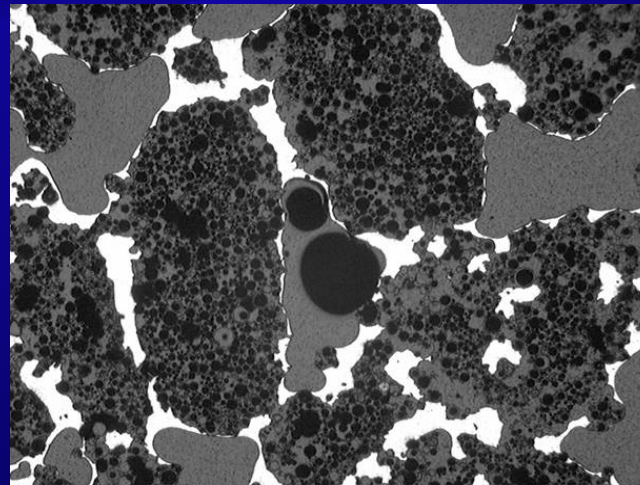
- ✦ Federal CAFÉ Standards
- ✦ Vehicle weight determines engine size, breaking distance, fuel economy, collision characteristics, etc.

✦ **Anticipated Results:**

- ✦ Equal or better performance at lower weight
- ✦ Improved crash worthiness
- ✦ Improved NVH characteristics
- ✦ Implementation without warping



ALFA Foam Project





BOF/EAF Hood and Roof Program

- ★ DOE funded effort - \$1.0 million + \$861k match
- ★ To analyze and study Hood - Roof as systems
- ★ Review Alloys, Coatings and Weld Overlays





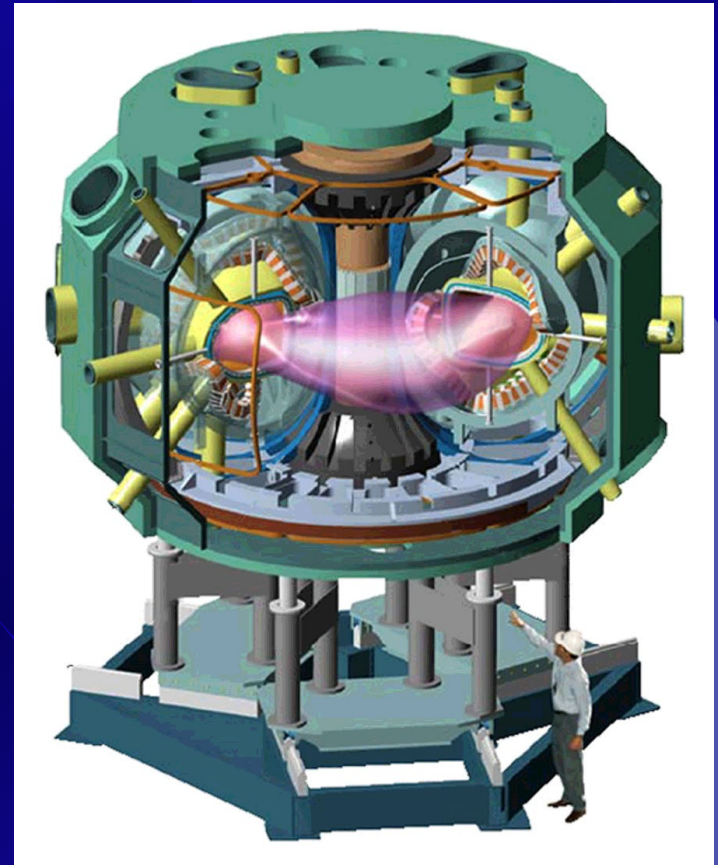
BOF/EAF Hood and Roof Project

- ★ Survey of Existing Hood/Roof Systems
- ★ Identification of Alternatives
 - Aluminum Bronze Evaluations
- ★ Continuing Activities
 - Modeling of System – Corrosion, Fluid Flow
 - Aluminum Bronze Test Installation



Advanced Stellerator Princeton Plasma Physics Laboratory

- ★ **Funding:** ~\$550,000
Prototype Casting
- ★ **Objective:** Produce Containment Shell Castings for next generation fusion reactor
- ★ **Potential Follow-on**





Metal Casting Project

- ✦ West Virginia University Project Lead
 - Develop improved materials for molten metal applications
 - Materials for containment as well as in-tank applications
 - Looking to identify new ceramic and ceramic composite materials
 - Goal: 10 x Improvement in Service Life



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Best Practices

- ✦ Ohio's Envinta 1 to 5 Program
- ✦ Best Practices Tools and Training
- ✦ Technology Showcase
- ✦ Plant Wide Assessments
- ✦ UD Industrial Assessment Center



Ohio-Based Assistance

★ Envinta 1 to 5 Energy Assessments

- Identifies Organizational Attitudes and Program/Policy Support
- Benchmarked against Database of companies operating in the same industry
- Recommends Follow-on Steps

★ Energy Assistance Grants

- Up to \$15,000 (2 x \$7,500) to match company investments in EE



Ohio-Based Assistance

- ✦ Ohio Air Quality Development Authority
 - ✦ Provides low-cost loans for industrial projects that reduce air pollution
 - ✦ Project capital equipment exempt from taxes for the life of the loan
 - ✦ Projects from \$250,000 to \$10,000,000+
- ✦ Originally focused on treatment / control
- ✦ Mission expanded to P² Approaches.



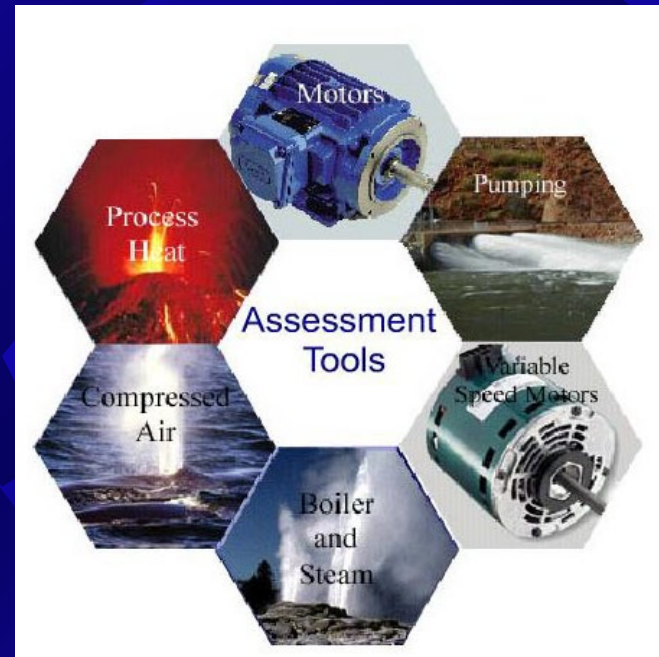
DOE Best Practices Training and Tools

Program Partners

- US Department of Energy
- Ohio Office of Energy Efficiency
- Cleveland State University
- Energy Industries of Ohio
- Ohio Society of Professional Engineers
- Glass Manufacturers Industry Council
- American Ceramics Society
- CAMP Inc.
- Dominion East Ohio Gas
- TechSolve
- Ohio Environmental Education Fund

Nearly 200 professionals have been trained in:

- Compressed Air
- Boiler and Steam
- Process Heating
- Motors and Piping Systems





Technology Showcase

- ★ Highlights results of energy efficiency and technology development in DOE ITP sectors
- ★ Ohio Showcase
 - Scheduled for Sept. 27-29, 2005 in Cleveland
 - Will include Steel, Metal Casting, Glass, Polymers, Forging Sectors
 - R&D Presentations
 - Assessment Presentations and Results
 - Plant Tours
 - Best Practices Training
 - Process Heating
 - Air Compressor Systems



Plant Wide Assessments

- ✦ Competitive Grants through DOE
 - ✦ Up to \$100,000 in DOE Funds
 - Matched by Company (generally In-Kind)
- ✦ Comprehensive Evaluation of a Facility



Plant Wide Assessments

☀ Assessments in Ohio

- ☀ Commonwealth Aluminum
- ☀ Corning (E)
- ☀ Amcast (K)
- ☀ Caraustar Industries
- ☀ Appleton Paper (K)
- ☀ Ford – Cleveland Casting Plant (K)
- ☀ Sawbrook Steel (bC)
- ☀ SIFCO
- ☀ Cargill (K)



Industrial Assessment Centers

- ★ University-based DOE program
- ★ Targeted toward small and medium sized companies (500 employees.; \$75 M Sales)
- ★ Identifies cost reduction opportunities via energy efficiency, waste reduction, productivity improvement
- ★ Conducts 25 assessments per year