

# Advanced Materials for 21<sup>st</sup> Century Steel Making

January 23, 2008

Cleveland, OH

# Special Recognition

- **Mr. Richard Manasek**
  - **Founder AmeriFab, Developer of AmeriBronze**
- **Dora Pruce, Director, Senator Voinovich's Office**
  - **Greg Riemer, Dist. Director, Cong. Betty Sutton**
  - **Mark Ballard, Dep. Dist Director, Cong. Betty Sutton**
- **Barbara Ewing, Econ Dev. Dir., Cong. Tim Ryan**
- **Jennifer Ruggles, Lt. Governor Lee Fisher's Office**
- **Virginia Haynes, Lorain Cnty Comm. Blair's Office**
- **U.S. Department of Energy**
- **Ohio Energy Office**
- **Ohio Air Quality Authority/Ohio Coal Development Office**

# Advanced Materials for 21<sup>st</sup> Century Steel Making

## AGENDA

9:30 am	to	9:45 am	Welcome, Special Recognition, Agenda
9:45 am	to	9:55 am	AIST – Working for our Future
9:55 am	to	10:05 am	BOF Project History
10:05 am	to	10:30 am	DOE Technologies at REP
10:30 am	to	11:00 am	AmeriBronze <sup>®</sup> for Steel Processing
11:00 am	to	11:30 am	DOE ITP - Meeting the Challenge
11:30 am	to	11:55 am	Ohio Energy Office - Ohio's Energy Plan

Noon to 12:45 pm Lunch

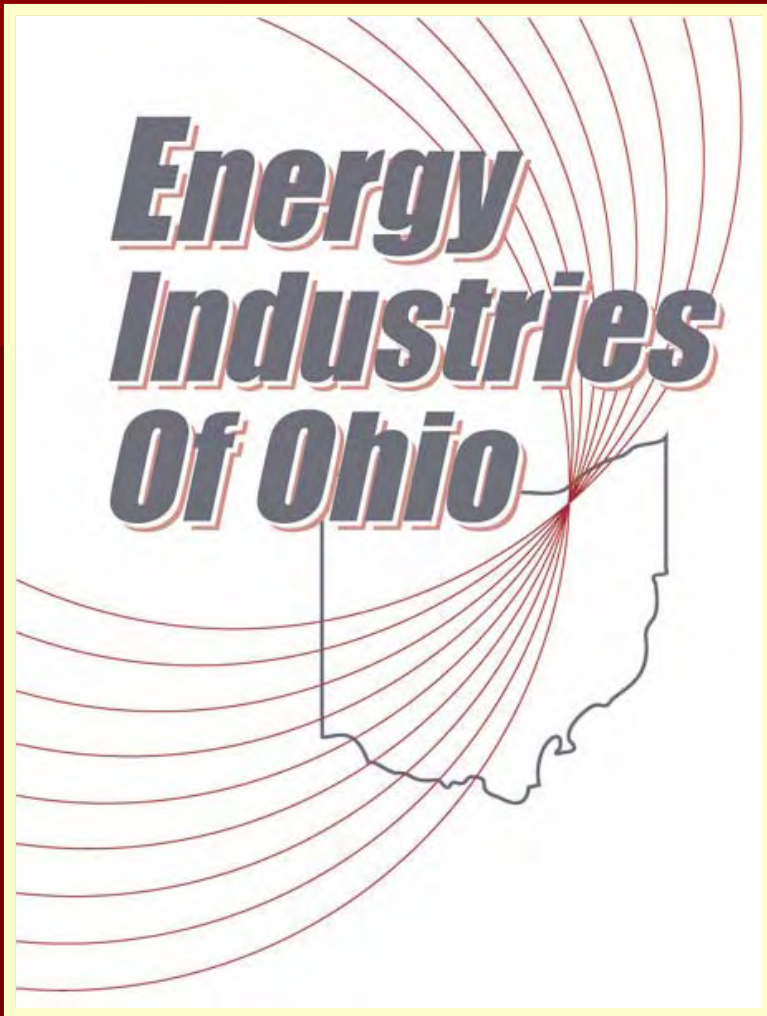
## Afternoon Logistics

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1:00 pm	to	1:30 pm	Travel to REP Lorain Plant
1:30 pm			Tour at REP-Lorain Non-Steel Attendees

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1:30 pm	to	2:30 pm	DOE SEN Presentation to AIST Members
2:45 pm	to	3:00 pm	Travel to REP Lorain Plant
3:00 pm			AIST Tour at REP-Lorain



6100 Oak Tree Boulevard  
Park Center Plaza Suite 200  
Independence, OH 44131  
216-643-2952

- Non Profit 501(c) 3 Corp
- Facilitate Technology Development
  - Ohio's Power Generation
  - Energy Intensive Industries
- Foster Public-Private Collaborations
  - State/Federal
  - University
  - National Laboratory
  - Industry

[www.energyinohio.org](http://www.energyinohio.org)



# BOF/EAF STEEL PROGRAM



U.S. Department of Energy  
**Energy Efficiency and Renewable Energy**

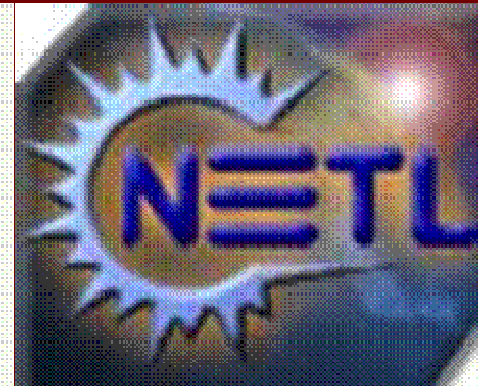
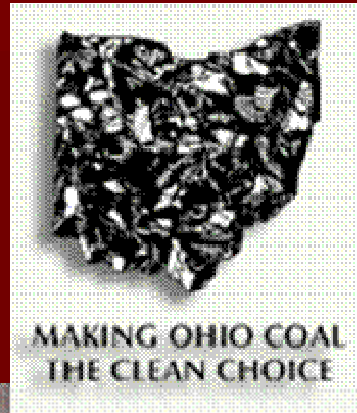
- 2006 Governor's Award
- Synergy with High Temperature Power Generation Projects



*Aluminum Bronze Skirt*

# UltraSuperCritical Advanced Materials for Coal Fired Power Generation

- New Materials needed to achieve 1400°F and 5,000PSI
- Will increase efficiency from ~37% to ~ 50%
- Reduce Emissions
- Success Story for Leveraging
  - ~\$4+ Mil Ohio Coal Development Office
  - ~\$5+ Mil Team Members
  - ~\$8 Mil Oak Ridge National Laboratory
  - ~\$20 Mil U.S. DOE
- Consortium of All U.S. Boiler and Turbine Mfgs and EPRI



ALSTOM

EPRI

FOSTER WHEELER



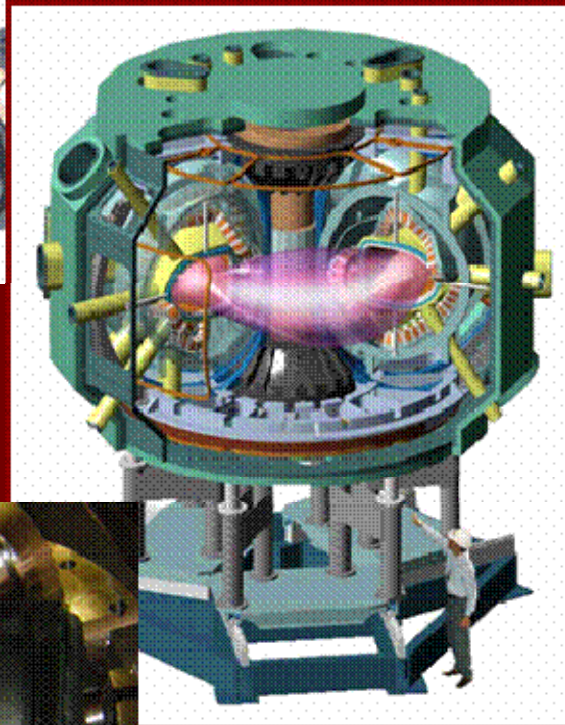
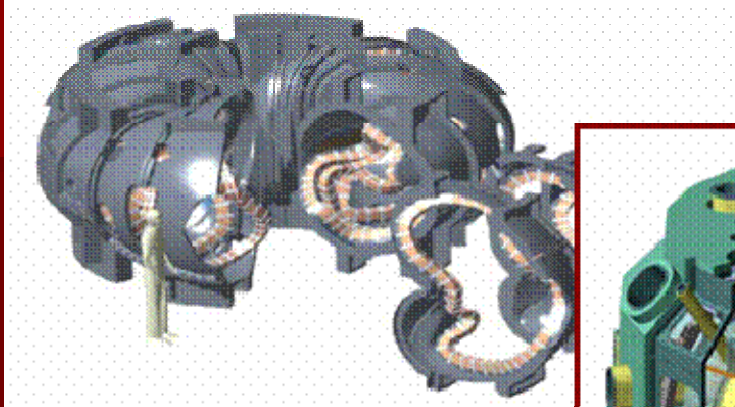
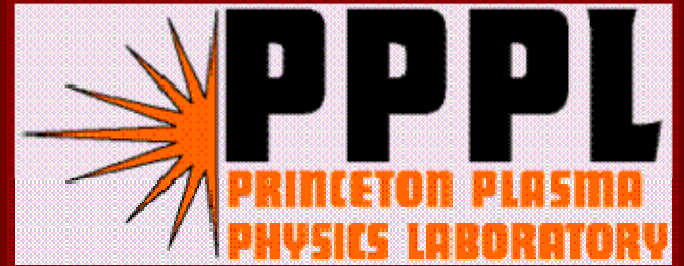
SIEMENS  
Westinghouse



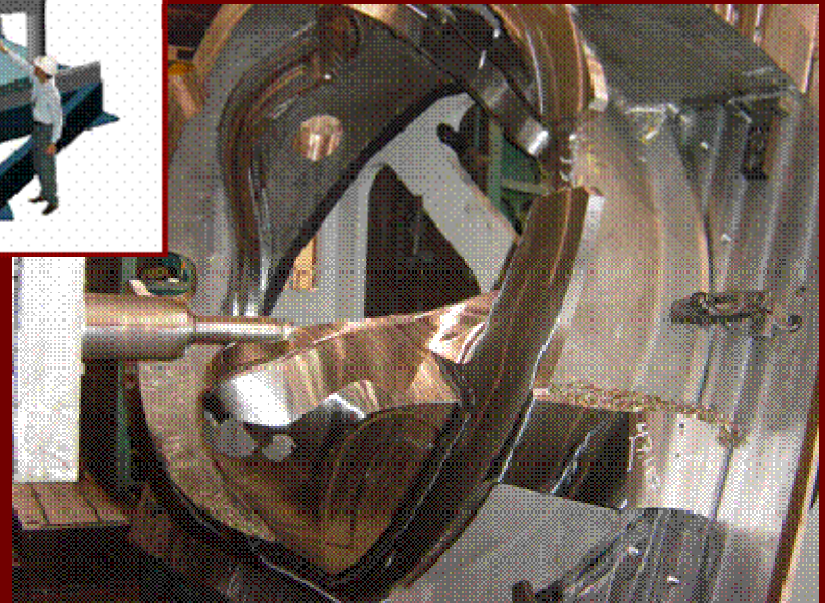
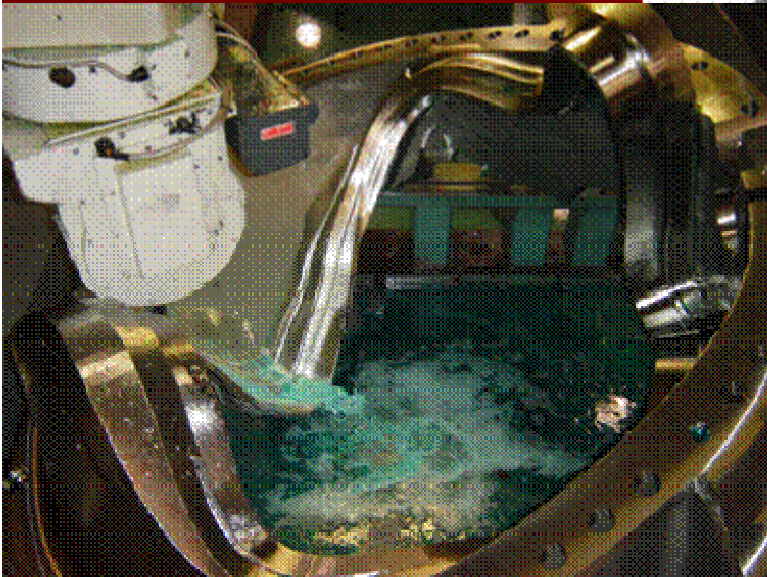
BabcockPower



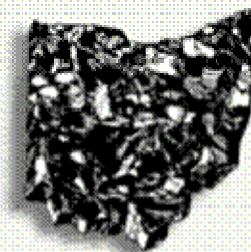
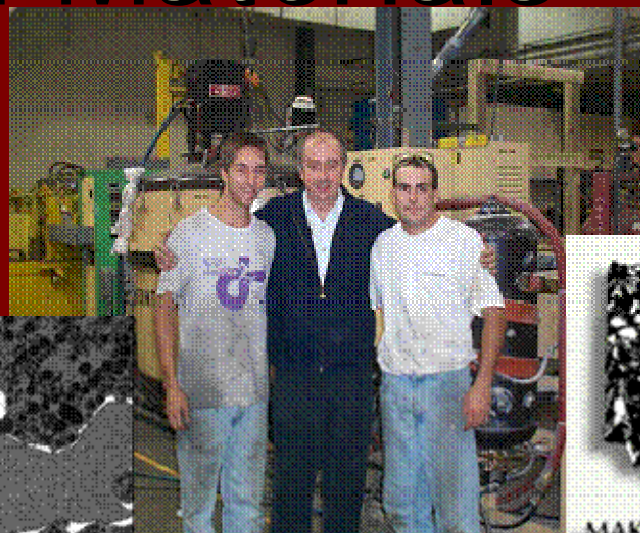
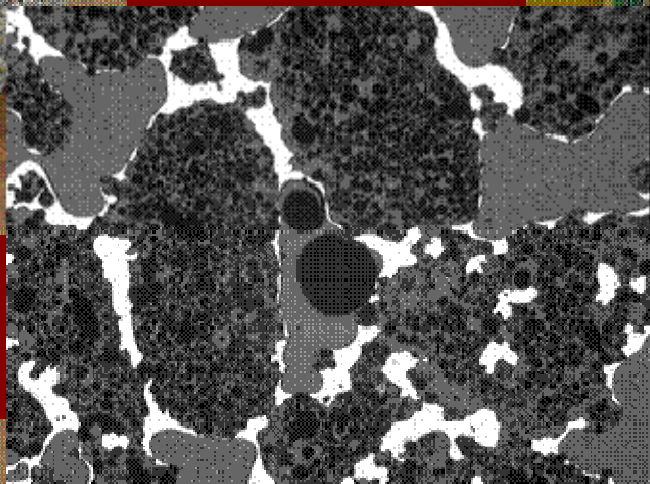
# National Compact Stellerator Program



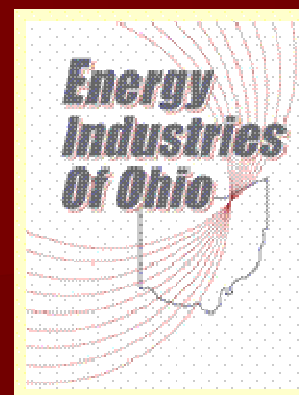
- Ohio has unique Materials expertise
- EIO Managed Prototype & Production
- Fusion Reactor will support ITER



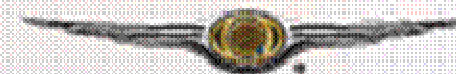
# OCDO-ALFA Project Metallic Foam Materials



MAKING OHIO COAL  
THE CLEAN CHOICE



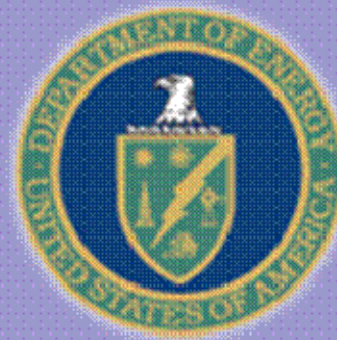
CHRYSLER



ENERGY  
INDUSTRIES  
OF OHIO

OHIO COAL  
DEVELOPMENT  
OFFICE

# First Responder Training Program

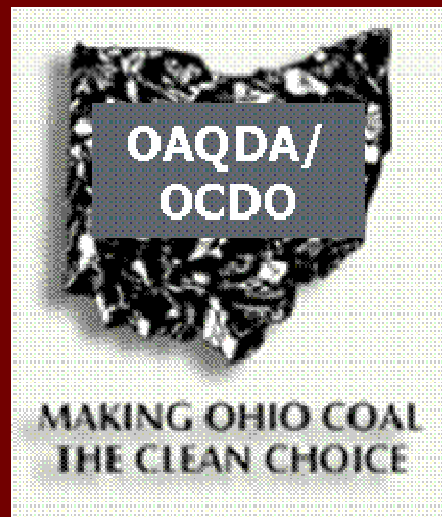
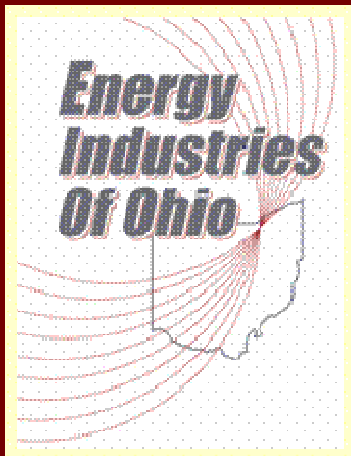
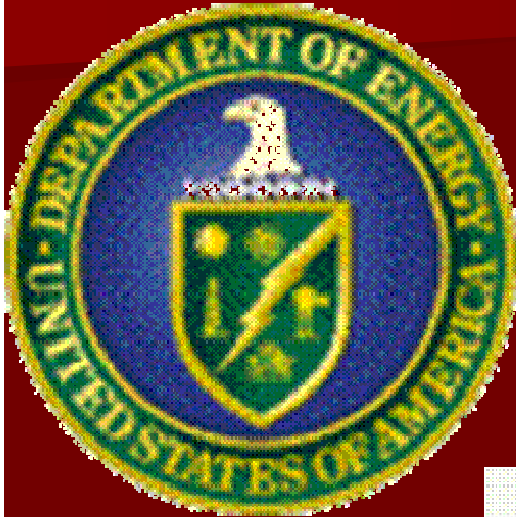


Homeland  
Security

- Know Community's EP
- Annual Inspections
- Quick Start capability
- Quick Connect Procedures
- Volunteer Assistants



# Industrial Gasification: A "Success Story" for Public/Private Partnerships



- PUCO
- OEE
- General Electric
- Gas Technology Institute
- Ohio Coal Association
- Glass Manufacturers Industrial Council
- Ohio Cast Metals Association
- Ohio Steel Council



# Melt Center of Excellence

# Magnesium Casting Center



- New Program
- Dove Tail Ohio & Federal Programs
- AFS/DOE USCar Program
- Ohio 3<sup>rd</sup> Frontier w/CWRU
- Industrial and Automotive Benefits



# National & International Energy Technology Projects

- MOU w/ Poland
  - Foundry Research Institute
  - Motor Transport Institute
  - Air Quality Institute
- U.S./India CA Group
- National Coal Council
- Coal Utilization Research Council
- DOE/FSR Scientist Program (Ukraine)

