

**6100 Oak Tree Boulevard
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Independence, OH 44131
216-643-2952**

- Non Profit 501(c) 3 Corp**

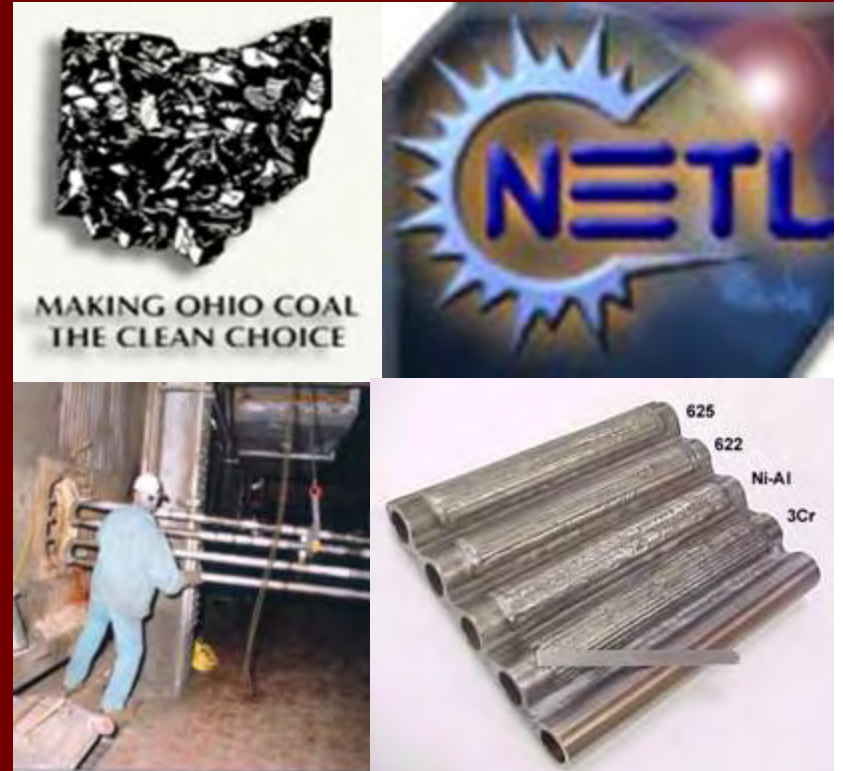
- Facilitate Technology Development**
 - **Ohio's Power Generation**
 - **Energy Intensive Industries**

- Foster Public-Private Collaborations**
 - **State/Federal**
 - **University**
 - **National Laboratory**
 - **Industry**

www.energyinohio.org

UltraSuperCritical Advanced Materials for Coal Fired Power Generation

- New Materials to achieve 1400°F, 5,000PSI in Power Generation
- Efficiency increase from ~37% to ~ 50%
- 35% less CO₂, Hg, SO₂, per kWh
- Success Story for Leveraging
 - ~\$2+ Mil Ohio Coal Development Office
 - ~\$2+ Mil Team Members
 - ~\$5 Mil ORNL
- Consortium of All U.S. Boiler and Turbine Mfgs and EPRI



ALSTOM

EPRI

FOSTER WHEELER



BabcockPower





STEEL PROGRA M



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

- Analyze, Study Materials for BOF & EAF Furnaces
- Review Alloys, Coatings and Weld Overlays
- Old Material – Replaced @ 20 mo after ~ 70 repairs
- New Material – 36 mo, ~ 6500 heats, 3 repairs



2006 Ohio Governor's Award
for Energy Efficiency

ADVANCED MATERIALS FOR 21ST CENTURY STEELMAKING

When: January 23, 2008

Where: Presentations

Holiday Inn Westlake, OH

Plant Tour

Republic Engineered Products
Lorain, OH

What:

New AmeriBronze[®] alloy for water cooled equipment used in steelmaking furnaces.

Improves Energy Efficiency, Productivity and Environmental Performance

Over 6500 heats, 3 maintenance repairs !!!

Demonstrated by Energy Industries of Ohio via a Department of Energy Grant with cost share provided by Republic Engineered Products and AmeriFab, Inc.

Winner of 2006 Governor's Award for Energy Efficiency

Benefits Demonstrated at Republic:

5 times the life of traditional equipment
Energy Savings: ~15 billion BTU /yr/furnace
Productivity Improvement ~ \$12 million/yr
Environmental Benefits- Reduced CO;
Particulate Emissions.

Program

Morning: Presentations on Technology and Associated Steelmaking Applications (EAF, BOF, LMF, Vacuum Degassing, etc)
Lunch (Luncheon Speaker)
Afternoon: Tour of Installation at Republic Engineered Products, Lorain Works
(Transportation Provided)



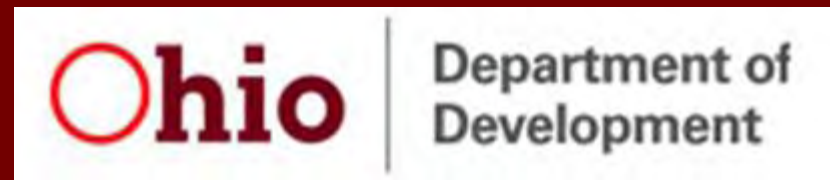
Invited Audience:

Association for Iron and Steel
Technology Committees
Oxygen Steelmaking
Maintenance and Reliability
Electric Steelmaking
Ohio Steel Council
Ohio and National Steel Makers
Federal, State, Local Elected
Officials
US Department of Energy
Ohio Department of Development
Ohio Energy Office
Television and Print Media

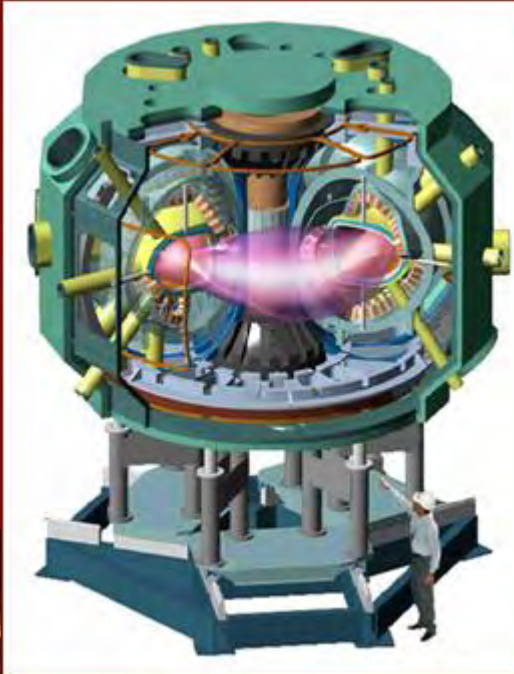
For More Information E-mail:
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DOE Industrial Technology Program

- Manage Ohio's IOF Program
- Best Practices Training
 - Over 300 Persons Attending
- PHAST Qualified Specialist on Staff
- Outreach to Large Energy Consuming Sectors



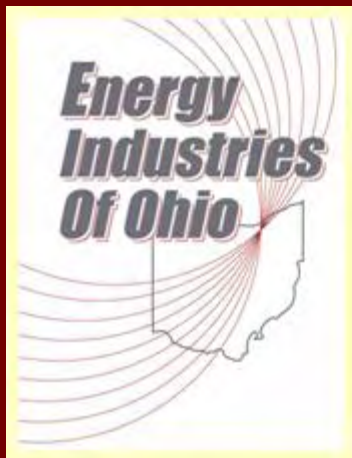
National Compact Stellerator Program



- Ohio has Unique Materials Expertise
- EIO Managed Prototype Project
- Production Contract 18, 5000lb Castings
- Project Completed Successfully



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

FASAND Project

Foundry-Ash Sand

U.S. National Energy Technology Lab

- Sand Replacement
- Improved Surface Finish
- Reduces Landfill
- Working with
 - FRI & MTI
 - U.S. Auto Companies
 - State of Ohio



INSTYTUT ODLEWNICTWA

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30-418 Kraków

KENT STATE
UNIVERSITY

Instytut Transportu Samochodowego



Center for Melting Efficiency and Thermal Technologies Magnesium Casting Center

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



First Responder Training Program

- Annual Inspections
- Quick Start Capability
- Quick Connect Procedures
- Volunteer Assistants



National & International Energy Technology Projects

- MOU w/ Poland
- U.S./India CA Group
- National Coal Council
- Coal Utilization Research Council
- DOE/FSR Scientist Program (Ukraine)



Current Priority Activities

**Presented October, 23, 2007
ASERTTI Annual Meeting
Bolton Landing, NY**

**ENERGY RESOURCES CENTER
UNIVERSITY OF ILLINOIS AT CHICAGO**

Illinois Statewide Utility Energy Efficiency and Demand Reduction Program

- **New Illinois legislation requires Illinois regulated to file and adopt energy efficiency and demand reduction plans by November 15, 2007 for Illinois Commerce Commission review and approval.**
- **The Utility plans must target energy efficiency savings of 0.2% of energy delivered in 2008 and escalating to 2% by 2015.**
- **The plans must also reduce electric demand .1% per year beginning June 1, 2008, and continuing to reduce demand by that amount for a period of 10 years**
- **Currently Commonwealth Edison and Ameren utilities are holding stakeholder meetings for preliminary discussions about their plans.**

Illinois Statewide Utility Energy Efficiency and Demand Reduction Program (part 2)

- Early estimates based on targeted savings indicate an investment of up to \$45 to 60 million annually to meet the goals.
- By law the State of Illinois Energy Office will control and expend 25% of the total investment.
- ERC is actively involved in the Stakeholder meetings.
- ERC also is a partner with the Illinois State Energy Office in securing a \$350,000 grant from USDOE to be used for program design and planning and monitoring the State's efforts.

Expansion of ERC's managed Combined Heat and Power Regional Application Center

- **USDOE has awarded ERC additional funding to continue and expand our efforts with the Midwest Combined Heat and Power Application Center.**
- **All Center activities will continue for another 18 months.**
 - Expanded activities will include:**
 - **Commercial Data Centers**
 - **Waste Heat Recovery in Small / Medium size Industrial Manufacturing Plants:**
 - **Technical Study: Assessing the Carbon Footprint and Cost Implications of Distiller's Grain Fueled CHP Systems at Ethanol Plants**

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State Energy Procurement Program Expansion

- For the last five years ERC has managed natural gas procurement for the State of Illinois.
- Starting in July, ERC also began managing of the electricity procurement for most State facilities.
- The State contract also allows for local government entities to join the program.
- Currently the program manages procurement and monitors 4,000 accounts for the State with over \$50 million in annual expenditures.

Ongoing Energy Resources Center Projects

- ERC continues to operate a highly rated USDOE Industrial Assessment Center.
- The Air-Cleaning Lab (ACTLab) and our related collaborative work with the National Center for Energy Management and Building Technologies (NCEMBT) is ongoing.
- ERC is working with several other Colleges and Departments within the University utilizing a planning grant from the Sloan Foundation for a Sloan Air Cleaning Industry Center at the University of Illinois at Chicago.
- A new Energy Masters Program is slated to begin with initial student enrollment in January 2008.