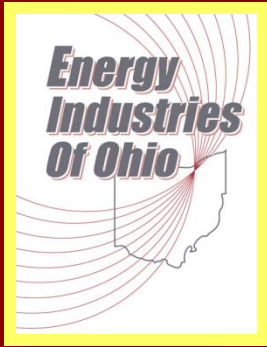


Ohio Center for Industrial Energy Efficiency

14TH Annual Ohio Energy
Management Conference

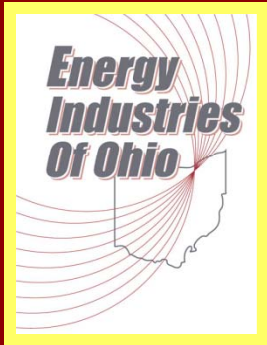
Lawrence C. Boyd Jr.
Manager, Core Programs

Columbus, OH
Feb 24, 2010

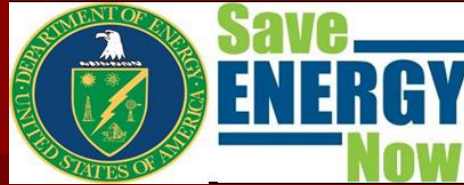


Energy Industries of Ohio

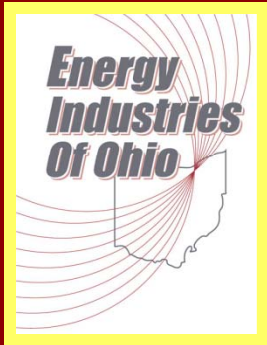
- ⇒ Non-profit 501(c).3 Corporation
- ⇒ Facilitate Technology Development
 - ⇒ Ohio's Power Generating Industries
 - ⇒ Ohio's Energy Intensive Industries
- ⇒ Foster Public-Private Collaborations
 - ⇒ State/Federal
 - ⇒ University
 - ⇒ National Laboratory
 - ⇒ Industry
- ⇒ ~ \$ 5.0 million / year Project Billings



DOE Industrial Technology Program



- ⇒ Manage Ohio's IOF Program since 2001
- ⇒ Focus on Large Energy Consuming Sectors
- ⇒ Best Practices Training (22 sessions)
 - ⇒ Over 500 Persons Attending
- ⇒ Qualified Specialist / Energy Expert on Staff
 - ⇒ Process Heating Focus
 - ⇒ Performed 6 PHAST Assessments last year
- ⇒ Successful R&D Program
 - ⇒ Patent on Aluminum Foams
 - ⇒ 2006 Governor's Award for Excellence in Energy



Ohio Center for Industrial Energy Efficiency

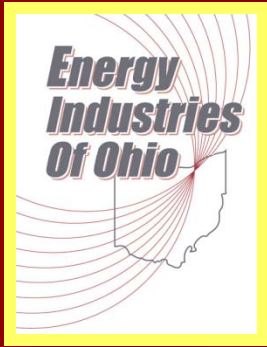
⇒ **New 42 Month Program**

⇒ **Cooperative Effort between:**

- ⇒ Energy Industries of Ohio (Program Manager)
- ⇒ Ohio Energy Office
- ⇒ US DOE
- ⇒ Investor-owned Electric Utilities (FE, AEP, Duke, DP&L)
- ⇒ Natural Gas Utilities

⇒ **Other Participants**

- ⇒ Case Western Reserve Univ., Univ. of Dayton
- ⇒ Qualified Specialists / Energy Experts across Ohio
- ⇒ For-profit Technology Providers

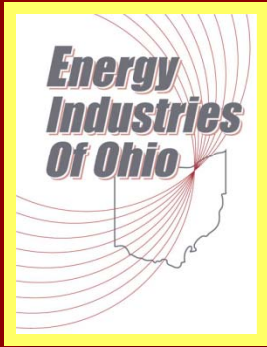


Ohio Center for Industrial Energy Efficiency

⇒ Program Objectives

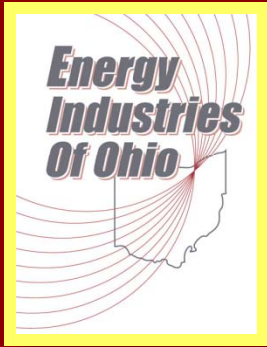
- ⇒ Integrate US DOE, Ohio and Utility Programs
- ⇒ Efficiently Deliver of DOE Programs at the State level

⇒ FOCUS ON IMPLEMENTATION



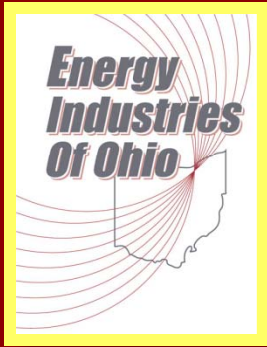
Ohio Center for Industrial Energy Efficiency

- ⇒ Five Components
 - ⇒ Marketing and Outreach
 - ⇒ Training
 - ⇒ Assessments and Implementation
 - ⇒ Technology Demonstration
 - ⇒ Commercialization



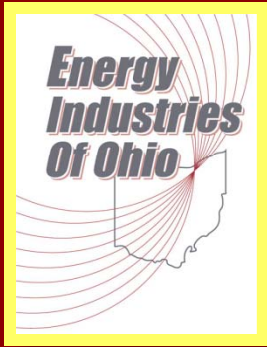
OCIEE Training Program

- ⇒ Deliver DOE Best Practices Training for:
 - ⇒ Process Heating
 - ⇒ Air Compressor Systems
 - ⇒ Steam Systems
 - ⇒ Utility Partners Provide Marketing/Delivery Support
- ⇒ Goal – Sustainable Delivery
 - ⇒ Control Delivery Costs
- ⇒ Develop Cadre of Ohio-based Instructors



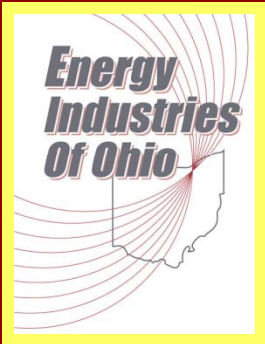
OCIEE Assessment/Implementation Program

- ⇒ Three-part Process
 - ⇒ Envinta One-2-Five Management Evaluation
 - ⇒ Management Plan and Technical Assessment
 - ⇒ Implementation Incentives



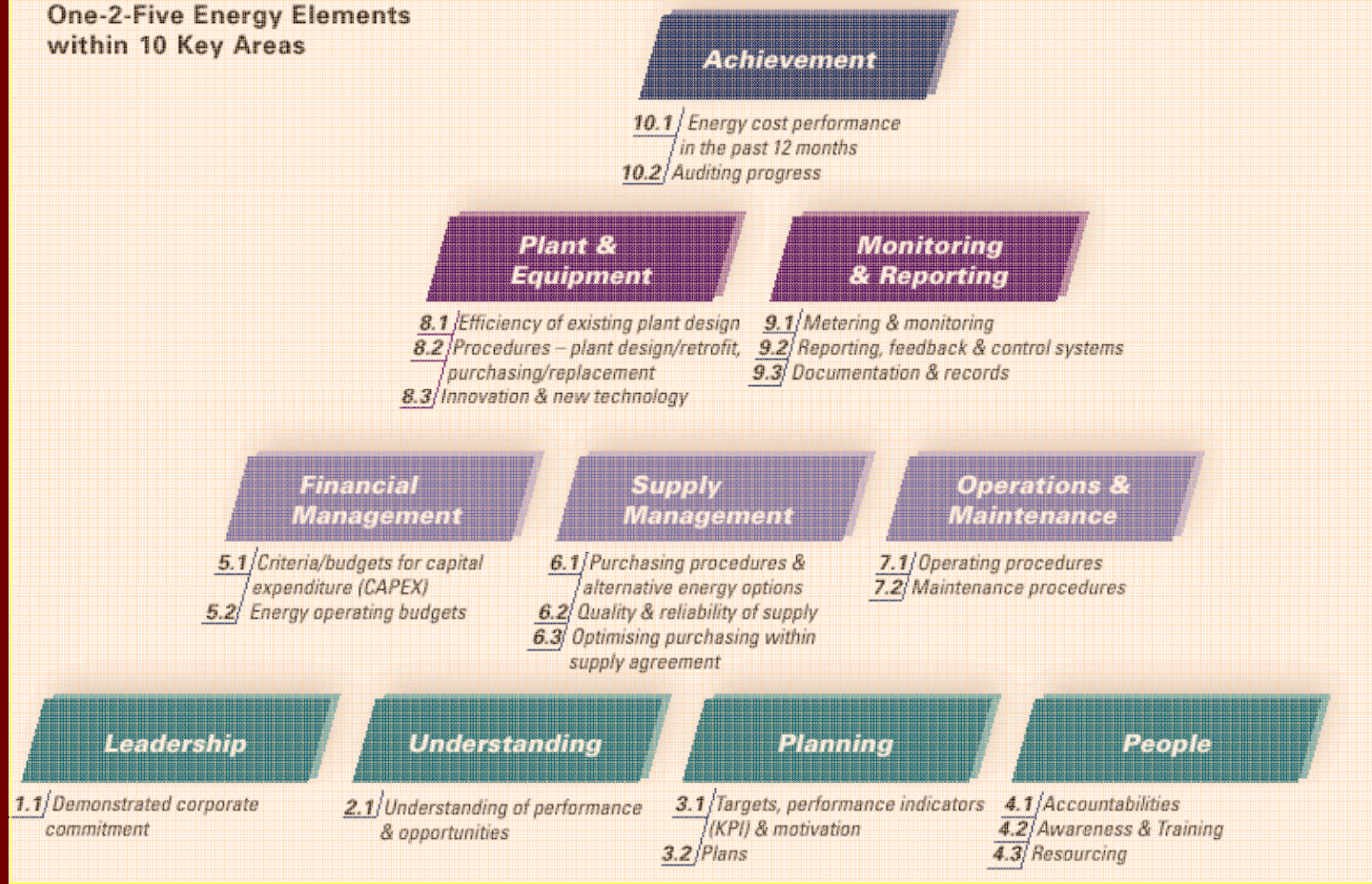
Envinta One-2-Five Management Evaluation

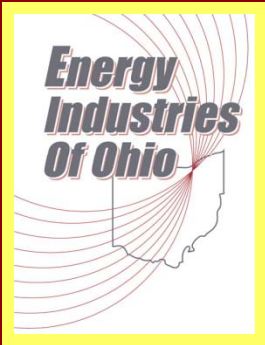
- ⇒ Free-of-charge to the Company
 - ⇒ Ohio Energy Office pays License Fee
- ⇒ Computer-based Evaluation
 - ⇒ Practices and Procedures for Energy Efficiency
 - ⇒ Approach similar to ISO-9000
- ⇒ Outcomes
 - ⇒ Overall Score (1 to 5 scale)
 - ⇒ Benchmarking by Industry Sector
 - ⇒ Top 5 Critical Elements for Implementation



One-2-Five Assessment Structure

One-2-Five Energy Elements within 10 Key Areas

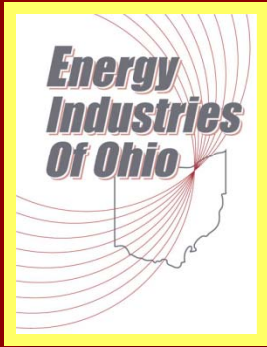




2007 Survey of Program Participants

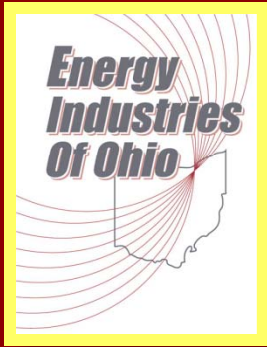
8. Since participating in the initial management diagnostic, how has your approach to energy management changed? (check all that apply)

No change	10.5%	(2)
Defined goals and metrics	57.9%	(11)
Established energy team	21.1%	(4)
Gained executive sponsorship	42.1%	(8)
Assigned accountabilities to end users	10.5%	(2)
Set capital budget for energy projects	31.6%	(6)
Implemented energy projects	68.4%	(13)
Achieved energy savings	63.2%	(12)
Other: continued energy focus	5.3%	(1)
Other: increased awareness	5.3%	(1)
Other: No significant change in the energy management. Exec management is more aware of activities.	5.3%	(1)



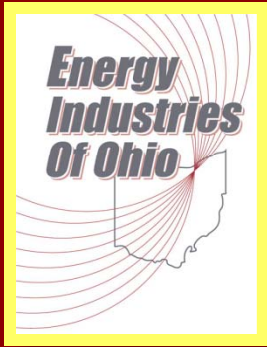
Management Plan / Technical Assessment

- ⇒ Based on Proposal from Energy Consultant
- ⇒ Management Plan for Critical Elements
- ⇒ Technical Assessment of Plantwide Opportunities
 - ⇒ Merge DOE Energy Savings Assessment into Plantwide assessment



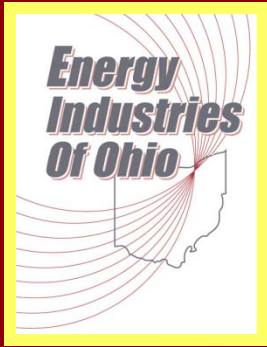
Implementation Incentives

- ⇒ Upon Completion of Phase I and II
- ⇒ Cost Shared Implementation Projects
 - ⇒ New Program
 - ⇒ 50% of Project Cost; \$250,000 maximum
 - ⇒ Cost Share applies to any one or more projects up to the maximum amount for a period of 2 years



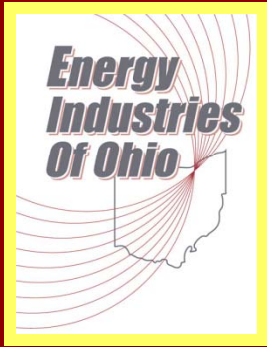
Technology Demonstration

- ⇒ Identify Companies with New Energy Saving Technologies
- ⇒ Organize a Public Event to Demonstrate the Technology to Others in the Industry



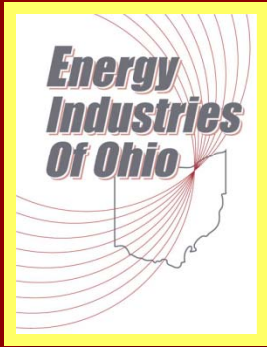
Commercialization

- ⇒ Development of Ohio's Advanced Energy Supplier Base
 - ⇒ Clean Coal and Nuclear Power Systems
 - ⇒ Supplier Availability for Coal/Nuclear Overlaps
 - ⇒ Current Supply Base – Limited, Mostly Foreign
 - ⇒ Castings, Forgings, and Extrusions are THE "pinch points" in Supply
- ⇒ 2 Prong Strategy for MCF Clusters



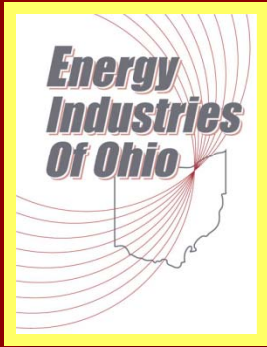
Commercialization

- ⇒ Form clusters of Ohio Melt, Casting and Forging (MCF) firms for specific Safety Critical Nuclear and CCS components
- ⇒ Not General Consortia -- Formal Joint Ventures for specific MCF components



Commercialization

- ⇒ Provide a specific high nickel turbine component for the near term A-USC com-test using an Ohio MCF Cluster
- ⇒ Provides Ohio MCF head start working with new alloys
- ⇒ Demo opportunity for a dual use product



Contact Information

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- ⇒ anthony.sutor@development.ohio.gov