



# Green Manufacturing Initiative

Western Michigan University  
Manufacturing Research Center  
Dr. John Patten, Director

WESTERN MICHIGAN UNIVERSITY

College of Engineering and Applied Sciences  
Manufacturing Research Center

# Green Team

- Faculty, Staff and Students
- Colleges of Engineering,
- Arts and Sciences
- Business, and
- Environmental
  - Research and
  - Studies



# WMU Green Team

Chuck Ide  
Harold Glasser  
Mike Barcelona  
Sime Curkovic  
Carla Koretsky  
Dave Middleton  
Bade Shrestha  
Pete Parker  
Andrew Kline  
Dan Flemming



# Green Manufacturing History at WMU

- Concept proposed in 2003  
(idea for such an activity dates back to 1999)
- Manufacturers contacted to ascertain their interest and support for a proposed effort
- Proposals submitted to NSF for funding  
(Industry/University Cooperative Research Center)
- Green continues to stimulate interest and support



# Green History Continues

- Proposals submitted internally within WMU
- Efforts culminate in support from Rep. Upton (and Sen. Stabenow and Levin)
- U.S. Dept. of Energy-funding, \$972,000 (2010)
- Green Manufacturing Industrial Consortium organized and formed (2010)
- Green manufacturing projects being developed and research conducted at WMU



# Green Manufacturing Initiative Today

- Preview meeting in Battle Creek, March 31
- Kick off Event in Kalamazoo, May 5-6, 2010



# Green Manf. at WMU

- Designs
- Materials
- Processes
- Facilities
- Use (energy and environmental impact)
- Reuse, recycle, disposal



# Green Manufacturing at WMU

Environmental (benign)

+

Energy (conscious)

+

Economical (viable)



# Current Projects

- Chrome Plating (process improvements and alternative technologies)
- Recycling, Rebuild, Reuse of products
- Alternative energy (wind and solar) charging of electric fork lift trucks

# Proposed Projects

- Lignin use as base material (substitute) for molded components
- Pelletized bio waste-fuel source for combine heat and power (CHP) system
- Bio-digester (power producing) based upon agricultural and food waste
- Air seals and Door closures (design and operation) for ovens, exterior building, etc.
- Solar thermal heating (hot water) for wash operations (paint)



# 2010 Activities

- Recruit Consortium Members (ongoing)
- Identify projects of interest to consortium
- Match university resources to work on projects
- Conduct research
- Host a meeting (fall) to review project status
- Continue to identify and apply for external funding and grants

# Future 2010-2015

Collaborative Research Centers typically have a five (5) year life cycle (or longer)

- Develop a five year plan
  - Potential members
  - Budget and funding stream
  - Personnel and resources
  - Projects: large (long term), medium (mid term) and small (short term)
- Apply for additional grants and funding (NSF)



# 2015 and beyond

- Program review in 2015
- Ascertain any new directions or activities
- Develop five year plan and funding model
- Identify long term (major) projects and goals
- Continue to recruit industry and university participation
- Explore collaborations with external constituents, e.g., other universities.



# Contact Information

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