Green Manufacturing Initiative

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