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ACS WEBINARS™
**Department of Commerce Sustainable
Manufacturing Initiative – Government Resources
that Support Sustainable Manufacturing**



Speaker: Morgan Barr
Department of Commerce



Moderator: Robert Peoples
ACS Green Chemistry Institute®

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**Sustainable Manufacturing
Initiative (SMI) and
Public-Private Dialogue**
U.S. Department of Commerce

INTERNATIONAL
TRADE
ADMINISTRATION

Morgan Barr
Manufacturing and Services
July 29, 2010

Presentation Outline

1. Sustainable Manufacturing and Green Chemistry
2. Why We Have this Initiative
3. Current Projects
4. Recent and Upcoming Work
5. Company Examples
6. Selected Programs and Resources

Manufacturing and Services (MAS)

- One of the four sections of the International Trade Administration
- Primary liaison with U.S. industry with a goal of enhancing U.S. competitiveness
- Offices organized by industry sector
- Federal Government's chief advocate for the manufacturing and services sectors across policy areas (regulations, trade, etc.)

Sustainable Manufacturing and Green Chemistry

Our Definition of Sustainable Manufacturing:

The creation of manufactured products that use processes that minimize negative environmental impacts, conserve energy and natural resources, are safe for employees, communities, and consumers and are economically sound.

Principles of green chemistry are compatible with sustainable manufacturing

- Prevent rather than treat
- Material efficiency
- Non-hazardous/non-toxic
- Energy efficiency
- Renewable materials
- Design for End-of-life

Green chemistry is necessary for other sustainable manufacturing innovations

- Nylon 6
- UV Coatings

Can be critical to competitive advantage

Industry and Sustainability

Sustainability is a key competitiveness issue for U.S. manufacturers.

Industry Needs

- **Material and Natural Resource Costs and Supply Pressures**
- **Proliferation and uncertainty of Environment/Health Regulations both domestically and internationally**
- **Customer Demands – “greener” products, more data (OEMs, government, retail, consumer)**
- **Access to Capital**

Industry Demands

- **Centralizing and delivering information on USG programs/resources**
- **Enhancing awareness and education on sustainability and its benefits**

1) Creation of an Interagency Working Group on Sustainable Manufacturing

- Department of Commerce (DOC)
 - International Trade Administration (ITA)
 - National Institute for Standards and Technology (NIST)
 - Economic Development Administration (EDA)
- Environmental Protection Agency (EPA)
- Department of Energy (DOE)
- Department of Labor (DOL)
- U.S. Department of Agriculture (USDA)
- Council on Environmental Quality (CEQ)
- Department of the Treasury
- Department of State
- Department of Justice (DOJ)
- Department of Defense (DOD)
- Office of Management and Budget (OMB)
- Department of Education
- Small Business Administration (SBA)
- Department of Veterans Affairs (VA)
- Federal Trade Commission (FTC)
- National Aeronautics and Space Administration (NASA)

Project #2: Sustainable Business Clearinghouse

- Need for central portal of programs/resources across government agencies
- Searchable based on issue, industry, and type of information
- More than 800 sites in database. Has been expanded to include state resources.
- Online now @ www.manufacturing.gov/sustainability



Project #3: Sustainable Manufacturing American Regional Tours - “SMARTs”

- **Goal:** To raise awareness of the benefits of sustainable manufacturing and other business practices
- Entails Commerce-led tours of facilities of national and local sustainability leaders
- Closes the “familiarity gap” – show companies what “going green” entails
- Connects businesses with federal, state and local resources



SMARTs 2008-2010

Over 200 companies have attended one of these tours; co-host with other federal agencies or local partners and focus on specific issues (i.e. supply chains, industry sectors, jobs, etc).

- **St. Louis, MO**
- **Grand Rapids, MI**
- **Rochester, NY**
- **Seattle, WA**
- **Columbus, OH**
- **Atlanta, GA**
- **Beltsville, MD**



4) Metrics for Sustainable Manufacturing

- Need for an internationally accepted, simplified set of metrics that companies of any size can use to measure their progress and compare themselves to others

ORGANISATION
FOR ECONOMIC
CO-OPERATION
AND DEVELOPMENT



- Will provide guidance for using the results to set sustainability priorities

$$\text{Energy Intensity (C2)} = \frac{\text{energy consumed in creation of inputs [i]} + \text{energy directly consumed [c]}}{\text{IPPP value added [k]}}$$

- Phase 1 complete; Phase 2 in progress with goal of producing a “toolkit” in 2010

$$\text{Recycled content of material inputs (B1)} = \frac{\text{total weight of recycled material [b]}}{\text{total weight of material inputs [a]} \times 100}$$

- Strong support from U.S. industry; essential OECD maintains momentum to complete this on time

$$\text{Renewable Proportion of Energy Consumed (B2)} = \frac{\text{Renewable energy consumed [d]}}{\text{energy directly consumed [c]} \times 100}$$

Other Recent and Upcoming Work

- 2009 Sustainability and U.S. Competitiveness Summit
- Green Finance Roundtable
- Sustainable Manufacturing 101 training
- Expansion of the Sustainable Business Clearinghouse
- SMART – Energy Efficiency in the Forest Products Sector
- Industry Specific SMARTs
- Forum on Industrial Water Use
- Sectoral analysis and reports
- Chemicals in Manufacturing
- Assisting with Implementation of EO 13514
- Legislative and Regulatory Analysis
- Green skills analysis



Sustainable Manufacturing and Green Chemistry Examples

Shaw Floors

- Won 2003 Presidential Green Chemistry Award for EcoWorx carpet tile- less toxic, easier to recycle
- Carpet take back programs
- Other examples of sustainable practices: waste to energy, water recycling, continuous dyeing, dye bath reuse, used cooking oil for conversion to biodiesel to power boilers.

3M

- Pollution Prevention Pays program
- elimination of more than 3 billion pounds of pollution and saved company nearly \$1.4 billion
- Use of Lean Six Sigma
- replaced the solvent-based paper treatment process used to manufacture packaging, medical, and masking tapes with a new, water-based process – eliminated 45 tons of solvent emissions, no need for pollution prevention equipment.

Terra Nitrogen Company, L.P.

- Received a U.S. Department of Energy (DOE) Save Energy Now assessment
- Upgrades to plant's steam system.
- Aggregate annual energy and cost savings are approximately 497,000 MMBtu and more than \$3.5 million. With project costs of around \$3.1 million.

Selected Programs of Interest

- National Institute of Standards and Technology (NIST)
 - Manufacturing Extension Partnership – <http://www.nist.gov/mep/>
- Department of Energy, Industrial Technologies Program
 - Chemicals Industries of the Future - <http://www1.eere.energy.gov/industry/chemicals/>
 - Save Energy Now - <http://www1.eere.energy.gov/industry/saveenergynow/index.html>
 - State Incentives and Resource Database - http://www1.eere.energy.gov/industry/states/state_activities/incentive_search.aspx
- Environmental Protection Agency
 - Green Chemistry Program - <http://www.epa.gov/gcc/index.html>
 - Lean and Chemicals Toolkit - <http://www.epa.gov/lean/leanenvironment.htm>
 - Design for the Environment (DfE) - <http://www.epa.gov/df/>
 - Pollution Prevention - <http://www.epa.gov/p2/>
- USDA
 - Biopreferred Program - <http://www.biopreferred.gov/>
- (EPA/DOC) Green Suppliers Network <http://www.greensuppliers.gov>

Conclusion

- Service-focused, demand-driven initiative
- Assist U.S. companies by providing resources
- My contact information: Morgan.Barr@trade.gov
202-482-3704
- Our e-mail: sustainability@trade.gov
- Our Website: www.manufacturing.gov/sustainability



Q&A SESSION

Department of Commerce Sustainable Manufacturing Initiative – Government Resources that Support Sustainable Manufacturing



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