Amplifying and Leveraging the Imperative of Green Chemistry

David Widawsky, Director (acting)
Economics, Exposure, and Technology Division
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EPA and Green Chemistry: expanding the field

• Leveraging EPA’s green chemistry assets in R&D and partnering at the regional, state, and local level

• Leveraging EPA’s green chemistry assets with other federal agencies

• Leveraging state, local, and private initiatives
“To promote the research, development, and implementation of innovative chemical technologies that reduce or eliminate the use or generation of hazardous substances from chemical manufacture and use.”
Green Chemistry Objectives

• **Scope**
  – Chemical product design and development
    • Design of new or redesign of existing chemical products with low hazard & environmental impact
  – Chemical product manufacture & processing
    • Minimize hazardous chemicals and other materials use, minimize waste generation, minimize energy and water use, maximize yield
  – Chemical supply chains
EPA’s Green Chemistry Assets

• Office of Chemical Safety and Pollution Prevention
  – Green Chemistry Awards: 700+ innovations, 80+ awardees
  – Design for the Environment
    • Alternatives Assessment
    • Safer Product Labeling Program: 500+ industry partners
  – Energy, Economy, Environment (E3)
  – Green Suppliers’ Network – Suppliers’ Partnership

• Other Program Offices
  – Office of Research and Development (ORD)
  – Other Program Offices

• Regions
Additional EPA Initiatives

• SBIR
• Environmental Exports
• Partnership Programs – e.g., AgStar
• Technology Innovation Roadmap
• Challenges
Green Chemistry at EPA: Across the RD&D Continuum

Research/Proof of Concept  Development  Demonstration  Verification  Commercialization/Diffusion, Utilization

EPA & Partners  EPA & Partners  EPA & Partners  EPA & Partners  EPA & Partners

Basic R&D Grants  Small Business Innovation Research  Technology verification and validation  Commercial scale grants/loans  Export programs, trade promotion, trade financing
Integrating Green Chemistry into Economic Development Mandates

- Dept. of Commerce
  - Economic Development Administration
  - International Trade Administration
    - EETAC, Int’l Buyers’ Program, Select USA, Goldkey Program
- Dept. of Energy
  - Renewable Energy and Energy Efficiency: Biomass
- USDA
  - Rural Development: loan programs
- U.S. Export/Import Bank
  - Environmental Exports Program
Green Chemistry: Sources of Value Propositions

Improving Economic and Environmental Performance

- Cost Savings (materials & energy)
  - energy savings
  - water savings
  - pollution prevention (hazardous waste handling)

- New Products (sources of revenue)
  - sustainable/sustainability products
  - new performance characteristics

- Managing/transforming waste
  - liability -> asset

Office of Pollution Prevention and Toxics
Leveraging Demand for Green Chemistry

• Leveraging demand
  – Public procurement
  – Supply chain

• Need to innovate at the speed of business
  – Value/supply chain orientation
  – Reclaiming/rebooting American chemical industry
    • Bottom line: competitive cost structures
    • Top line: competitive product innovation
Examples and Opportunities for Amplification and Leverage
Supporting Manufacturing Leadership Through Sustainability

E3: Economy, Energy, and Environment

www.e3.gov
NIST Manufacturing Extension Partnership

- Support for sustainable manufacturing
- Support for production of sustainable products
- Provided service to more than 300,000 manufacturers…
Regional Innovation Clusters

Economic Development Administration (EDA) – Dept. of Commerce

www.eda.gov/challenges/i6/
Mission
To increase financing of U.S. renewable energy and environmental exports in order to support the goals outlined below and create and sustain U.S. jobs.

Goals
- Help U.S. companies in the renewable energy and environmental technology sectors sustain and create jobs
- Strengthen the global competitiveness of U.S. renewable energy and environmental companies
- Support U.S. government renewable energy goals
- Enable emerging markets to develop their economies in environmentally responsible ways by facilitating access to U.S. renewable and environmental technology

www.exim.gov/products/policies/environment
State and Local Opportunities

• State- and Local-Level Initiatives
  – CA, WA, MI, MN, MA,…
  – Cross-walking with economic development (including regional clusters; building into CEDS)
  – MEPs
  – SBDCs
  – Technology Transfer and Entrepreneurship
Vision

The Suppliers Partnership for the Environment (SP) is an association of automobile original equipment manufacturers (OEMs) and their suppliers working in collaboration with the US Environmental Protection Agency (EPA) and other governmental entities to identify and implement creative projects and programs that will advance environmental sustainability while providing economic value to the automotive supply chain through strategic action and engagement.

http://www.supplierspartnership.org
Capitalizing Green Chemistry

• Capital Formation
  – Sovereign investment funds
  – Institutional investors and impact investing
    • Public, private
  – Private equity
  – Leveraged asset conversion
    • Brownfields, waste to energy/products
Thank you!!

widawsky.david@epa.gov

- www.epa.gov/greenchemistry
- www.epa.gov/DfE
- www.epa.gov/oppt/greenengineering