

Small Business Innovation Research Phase I Kick-Off Meeting

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The Changing Face of Environmental Protection

- Significant environmental progress has been made in achieving cleaner air, cleaner water, and better waste prevention and management.
- Much of this progress is attributable to the development and use of innovative technologies to address priority environmental problems.
- Today, EPA, the states, local governments, and public and private organizations are thinking much more holistically about how to achieve “sustainability.”
 - Maintaining or improving our current levels of environmental protection while simultaneously strengthening U.S. global competitiveness
 - Striving for ever higher levels of environmental performance



Technology for Environmental Protection

- We need improved environmental technologies in all areas (media, sectors) that are more effective and less costly than our older methods.
- There is a pressing need to develop innovative technologies to address the complex environmental challenges that confront us.
 - Adaptation to global climate change
 - Applications and implications of nanomaterials
- Our Nation needs affordable, effective technologies that can solve the present and emerging challenges that are impacting our health and the world in which we live.
 - Arsenic removal in Bangladesh, India drinking water



Importance of Technology to EPA

- EPA's Strategic Plan
 - Clean and fuel efficient automotive technology
 - Nanotechnology for innovative water treatment methods
 - Alternative mercury control technologies
 - Distributed sensor networks for compliance monitoring
- Administrator's Action Plan
 - Clean energy resources (e.g., technologies to better develop, consume, and conserve energy)
 - Improved water distribution (e.g., treatment technologies for drinking water contaminants)
 - Homeland Security
- Regional Priorities and Measures
 - Waste-to-Energy
 - Lead Paint
 - Concentrated Animal Feeding Operations (CAFOs)
 - Diesel Emissions
 - Mining/Land Revitalization



Importance of Small Businesses to Innovation

- 55% of R&D scientists and engineers are employed by small and mid-sized companies
- Over 50% of technological innovations are developed by small companies
- Patent productivity is 13:1 (per employee) in smaller firms compared to larger ones
- 55,000 patents have resulted thus far from the SBIR Program



EPA's SBIR Program

- Since its inception, EPA's SBIR Program has provided approximately \$100 million through more than 700 awards to small businesses.
- These awards enable small businesses to translate their innovative ideas into commercial products that address environmental problems.
- This year, EPA is awarding over \$2.5 million in contracts to 36 small businesses.



Technology Areas Supported by SBIR Phase I in 2007

- Improving the Great Lakes
- Control of Air Pollution
- Monitoring and Remote Sensing
- Green Buildings
- Mining and Mine Waste Management
- Agriculture and Rural Communities
- Animal Feeding Operations
- Drinking Water Treatment
- Pollution Indicators for Beaches
- Water and Wastewater Management
- Manufacturing Innovations
- Nanomaterials
- Engine and Vehicle Emissions
- Homeland Security



Water Quality Monitoring

- Pathogen detection technologies to help the Agency meet its statutory requirements under the BEACHES Act
- Detection of mercury in source waters
- Detection of hormonal activity in wastewater from animal feeding operations
- Detection of toxins from harmful algal blooms
- Detection of radionuclides in water for Homeland Security applications



Biofuels

- Small-scale ethanol drying
- Improved biodiesel production efficiency (conversion of glycerol)
- Biodiesel production using vegetable oil and meat-rendering wastes
- Liquid hydrocarbon fuels from plant and animal byproducts
- Synthetic gasoline from biomass



Homeland Security - Building Decontamination

- Decontamination solution for biological and chemical threats
- Chlorine dioxide monitors for decontamination operations
- Field test kits for rapid detection of hazardous contaminants



Success Stories

- Ultralow NOx Burner for Boilers and Process Heaters
- Mercury Sorbents and Carbon Black Derived from Waste Tires
- Enhanced Plasma Sterilization Filtration System: Improving Indoor Air Quality
- Rapid Progestin-Based Endocrine Disruption Screening Assay
- Hand-Held Lead Paint Analyzer
- A Novel Liquid and Gas Pipeline Leak Detection System
- Portable Field Decontamination Unit