

EPA's SBIR Program

April Richards, Deputy Director

11th Biennial Hawaii SBIR/STTR Conference



EPA/SBIR Mission

- EPA: Protect human health and the environment
- EPA SBIR: Develop and commercialize innovative technologies to solve priority environmental problems



EPA SBIR Program Overview

- Annual Competitive Solicitations
- Cross-agency involvement in solicitation planning, topic development, and review
- Award about \$5 million dollars annually
- Two-stage proposal review
 - External peer review
 - Internal relevancy review by EPA staff

EPA SBIR Awards

- **Phase I**

- Proof of Concept
- \$70,000 (raising to \$80,000 with 2010 solicitation)
- 6 months

- **Phase II**

- Develop Phase I technology with focus on commercialization
- Base \$225,000 (raising to \$300,000 with 2010 solicitation)
 - Commercialization Option (\$70,000)
 - Verification Testing Option (\$50,000)
- 2 years

Description of Options

- Commercialization Option
 - Encourages commercialization through partial match of 3rd party investment of \$100,000 or more
 - EPA provides up to \$70,000
- Verification Option
 - Supports EPA verification of SBIR “near commercial-ready” technologies
 - EPA provides up to \$50,000

EPA SBIR Solicitation Topics - 2009

- Green Building
- Innovation in Manufacturing
- Nanotechnology
- Greenhouse Gases
- Drinking Water and Water Monitoring
- Water Infrastructure
- Monitoring and Control of Air Pollution
- Biofuels and Vehicle Emission Reduction
- Waste Management and Monitoring
- Homeland Security

Topics: Green Building

- Building Materials and Site Management
 - Minimize Lifecycle Impacts of Materials
 - Brownfield Remediation
 - Greener Construction Practices
- Energy and Indoor Environmental Quality
 - Minimize Energy Use
 - Monitor Building Performance
 - Indoor Air Cleaners
- Water Use and Management
 - Reduce/Treat Stormwater
 - Green Roofs
 - Water Conservation

Topics: Innovation in Manufacturing

- Environmentally Benign Techniques
 - Production Process Changes to Improve Efficiency and Minimize Pollution
 - New Feedstocks, Solvents, Chemical Systems

Topics: Nanotechnology

- Nanoelectronics
 - Multi-pollutant monitors and sensors
 - MicroElectroMechanical (MEMs) Systems
- Nanomaterials
 - Groundwater Remediation
 - Nanoporous Filters
 - Green Coatings
- Monitors which are capable of distinguishing engineered from natural nanoparticles

Topics: Greenhouse Gases

- CO₂ Source Measurement
- Reduce CO₂ Capture Technology By-Products
- Reduce Impacts of CO₂ Sequestration
- Reduce Emissions from Use of Renewables
- Reduce non-CO₂ GHGs

Topics: Drinking Water and Water Monitoring

- Small System Treatment Processes
- Monitoring & Detection
 - Multiple Pathogens
 - Neurotoxins

Topics: Water Infrastructure

- Urban Water and Sewage Systems
- Leak Detection/Failure Forecasting
- Cleaning, Repair and Construction
- Reduced Energy Requirements
- New Materials and Relining Methods
- See www.epa.gov/waterinfrastructure

Topics: Monitoring and Control of Air Pollution

- Multiple Pollutant Reduction
 - Biorefineries, Pulp & Paper, Cement
- Retrofits for Sectors with Many Small Sources
 - Industrial Boilers, Auto Body & Paint Shops, Restaurants
- Air Pollution Monitoring
 - Stationary Source Instruments for PM
 - Multi-pollutant sensors

Topics: Biofuels & Vehicle Emissions Reduction

- Biofuels
 - Improved Efficiency of Biofuels Production
 - New Tank Coatings and Storage Additives
 - Waste (Wood, Grass, MSW, Cellulosic Waste, WWTP biosolids) to Biofuels
- Diesel Retrofits for Construction Vehicles & Trucks

Topics: Waste Management & Monitoring

- Clean-up of Contaminated Sediments
- Waste-to-Energy Systems
 - Gasification Systems
 - Anaerobic Digestion
- Hazardous Waste Monitoring

Topics: Homeland Security

- Decontamination
 - Biological, Radiological and Chemical Systems
- Detection and Microbial Viability
 - Early Warning Field Test Kits
 - Rapid, Cost-effective Assays
- Water Security
 - Monitors for Chemical, Radiological and Biological Contaminants for Water and Wastewater
 - Early Warning Smart Systems

Collaboration with NSF's SBIR Program

Collaboration with NSF on Environmental Technologies

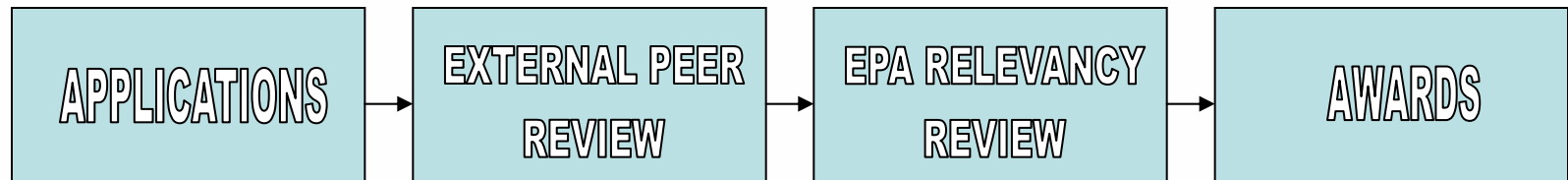
- NSF Phase I Solicitation
 - Now Open
 - Closes December 3, 2009
- Almost All EPA Topics Covered by NSF
- Environmental Technology Topics Mostly in NSF Topic BC, Biotech and Chemical Technologies
- Differences
 - Proposal requirements vary
 - Award amounts are larger
 - Commercialization Phase IIB Funding Supplement
- Read the Solicitation Carefully

EPA-NSF 2010 Timeline

- Phase I Solicitation Open
 - March to June 2010 (NSF)
 - March 15 to May 1, 2010 (EPA)
- Phase I Awards
 - December 2010 (NSF)
 - March 2011 (EPA)
- Apply to Both NSF and EPA
 - With NSF Award, Withdraw EPA Proposal
 - No NSF Award, EPA Award Still Possible

EPA SBIR Proposal Review

EPA Proposal Evaluation and Selection



EPA External Peer Review

- Ratings:
 - Excellent, Very Good, Good, Fair, Poor
- Five Criteria:
 - Scientific/Technical Quality and Soundness
 - Uniqueness and Originality
 - Cost Effectiveness and Environmental Benefit
 - Qualifications of Team
 - Commercialization Potential

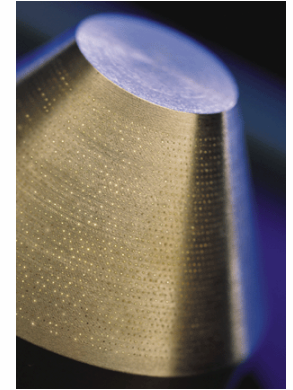
EPA Internal Relevancy Review

- Review only proposals rated “Excellent” and “Very Good”
- Evaluate Proposals on the following Criteria:
 - EPA Needs and Program Priorities
 - Significant Environmental Benefits
 - Broad Application and Impact

Submitting a Successful Proposal

- Read Solicitation Carefully
- Address agency priority needs – Understand the Problem
- Put together an Effective Team
- Develop a Quality Proposal Which
 - addresses evaluation criteria
 - quantifies environmental benefits
 - demonstrates innovation
 - addresses cost
 - shows potential for commercialization
 - has a strong technical abstract
 - has a realistic work plan
 - includes letters of support

EPA SBIR Success Stories



Creare, Inc.

Low-Cost Machining Without Cutting Fluids

- Developed a prevention-oriented process which eliminates the environmental and occupational health problems posed by cutting fluids
- Approach enables a several fold increase in tool life and a doubling (or more) of processing speed
- Received Phase III funding from the Navy for machining titanium for the DOD joint fighter program
- Licensed their technology to MAG Industrial Automation Systems for the automobile industry

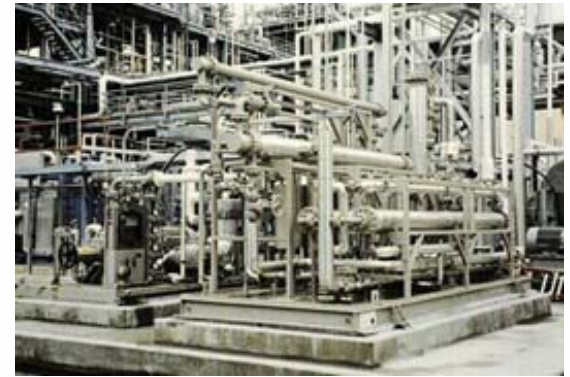


Physical Sciences, Inc.

Remote Natural Gas Leak Detector (RMLD)

- PSI developed the RMLD, which extends the range of remote detection of natural gas leaks in pipelines.
- The RMLD can identify natural gas leaks from a distance of up to 30 feet from a moving vehicle.
- More than 500 RMLD units are in use worldwide, representing more than \$7 million in gross sales revenue and saving gas companies millions of dollars annually in operating and maintenance expenses.
- Germany, one of the most stringent countries in Europe with respect to leak surveying, included the RMLD as an example in its Regulatory Practice guidelines.

Membrane Technology and Research, Inc.



Recovery and Recycling of Valuable Feedstock From Plant Reactor Purge Gas

- MTR developed a membrane separation system to improve process economics and reduce air pollution by recovering and recycling feedstock from the purge stream of industrial reactors.
- The annual revenue generated by using the membrane system to recover feedstock is between \$200,000 and \$400,000 annually for a typical ethylene oxide plant.
- MTR systems are in use worldwide to recover ethylene from the argon purge stream in ethylene oxide and vinyl acetate plants, with an ethylene recovery capacity of 3,700 tons per year (8.1 million lbs/yr).

For More Information...

- EPA SBIR website: www.epa.gov/ncer/sbir
 - 2009 Phase I Solicitation (now closed)
 - Searchable database of all funded projects
 - SBIR Success Stories
- Contacts
 - Jim Gallup, Program Manager gallup.james@epa.gov
 - April Richards, Deputy Director richards.april@epa.gov