



ACS Webinar: Finding & Securing SBIR Funding from EPA

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National Center for Environmental Research

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Federal SBIR Program



Federal SBIR Program

- Set-aside program for small businesses to engage in federal R&D Goal is to stimulate technological innovation
- Focus is on commercializing technologies

- SBIR Budget = 2.5 % of federal extramural R&D budget
- Currently \$ 2.3 Billion/Year across the federal government

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11 Federal Agencies have SBIR Programs

- Department of Defense (DOD)
- Department of Health & Human Services (HHS)
- National Aeronautics & Space Admin (NASA)
- Department of Energy (DOE)
- National Science Foundation (NSF)

- Department of Homeland Security (DHS)
- Department of Agriculture (USDA)
- Department of Commerce (DOC)
- **Environmental Protection Agency (EPA)**
- Department of Transportation (DOT)
- Department of Education (ED)

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Why Small Business Matters

- Leading source of employment growth, generating 60-80% of net new jobs over the past decade
- Produce fourteen times more patents than large firm counterparts
- Employ nearly 40% of the United States science and engineering work force
- More willing to take on risks of a new venture

Source: *An Assessment of the SBIR Program*, National Research Council, 2008

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EPA's SBIR Program

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EPA/SBIR Mission

- EPA: Protect human health and the environment
- EPA SBIR: Develop and commercialize innovative environmental technologies to solve priority environmental problems identified by EPA regions, program offices and laboratories



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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

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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

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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

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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

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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

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Topics: Innovation in Manufacturing

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

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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

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Topics: Biofuels & Vehicle Emissions Reduction

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

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

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SBIR Awards at NSF

- NSF Budget: \$175+ Million in 2009
- Phase I
 - Proof of Concept
 - \$150,000 over 6 Months
 - Phase IB Supplement (Extra \$50,000)
- Phase II
 - Technology Commercialization
 - \$500,000 over 2 years
 - Phase IIB Supplement (Extra \$500,000)

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EPA-NSF Technology Needs Crosswalk

EPA Topics	Corresponding NSF Topics
Green Building	NSF Topics CT4
Innovation in Manufacturing	NSF Topics M2, N2
Nanotechnology	NSF Topics N1, N2
Greenhouse Gases	NSF Topics CT1
Drinking Water and Wastewater	NSF Topics BT1, BT3, BT5
Water Infrastructure	NSF Topics IC4, AM4
Air Pollution	NSF Topics BT3, CT3, CT5
Vehicle Emissions and Biofuels	NSF Topics BT6, CT1
Waste Management	NSF Topics BT7, CT4, AM4
Homeland Security	NSF Topics BT3, BT5
Monitoring and Remote Sensing	NSF Topics BT1, BT3, BT5

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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

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NSF SBIR Program

- <http://www.nsf.gov/eng/iip/sbir/>
- Phase I solicitation now open

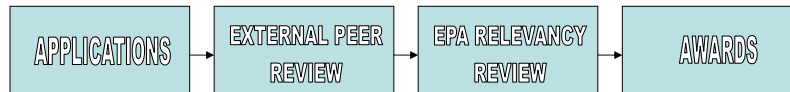
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EPA SBIR Proposal Review

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EPA Proposal Evaluation and Selection



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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

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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

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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

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EPA SBIR Success Stories

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Recent Phase I & Phase II Awards in GC&E

- **2009 Phase II Awards**

- A New Innovative Low-Cost Manufacturing Process to Produce Titanium, MER Corporation
- Process-Intensified Low-Cost Biodiesel Using Meat Rendering, Greases and Food Waste

- **2009 Phase I Awards**

- Testing the Viability of Agricultural byproducts as a Replacement for Mineral Particles in A Novel, Low Embodied Energy, Construction Material
- Enabling Commercialization of a Lead-Free Coating Manufacturing Process
- Electricity Generation from Anaerobic Wastewater Treatment in Microbial Fuel Cells (MFCs)
- Second-Generation Isobutanol Producing Biocatalyst

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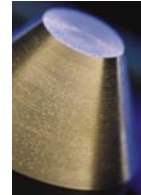


Light Curable Coatings, Inc.

Isocyanate-Free Solvent-Free Hybrid Resin

- Developing a prototype environmentally friendly, isocyanate-free, solvent-free, ultraviolet (UV) curable hybrid resin system
- Properties are suitable for commercial industrial applications, such as automobile refinishing, floor coatings, and aircraft coatings.
- The proprietary hybrid resin system has significant advantages over conventional UV systems, including drying of overspray and drying of paint in shadow areas.
- This hybrid technology is more efficient and less costly for end-users while significantly reducing exposure of workers and communities to isocyanates, volatile organic compounds, and hazardous air pollutant materials.

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Creare, Inc.

Low-Cost Machining Without Cutting Fluids

- Cutting fluids, used in machining processes to decrease temperature, are environmentally unfriendly, costly, and potentially toxic.
- Creare's Cutting Tool-Cooling System (CUTS), which eliminates the use of cutting fluids by indirectly cooling the cutting tool, is a prevention-oriented solution to 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
- CUTS has potential markets in environmentally conscious machining, and is critically important in the machining of advanced materials such as titanium and ceramic matrix composites.

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Membrane Technology and Research, Inc.



Recovery and Recycling of Valuable Feedstock From Plant Reactor Purge Gas

- The purge stream from industrial reactors represents an important resource recovery and pollution reduction opportunity.
- MTR developed a membrane separation system to improve process economics and reduce air pollution by recovering and recycling feedstock from the purge stream.
- 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.
- Five 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).

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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 (202) 343-9703
 - April Richards, Deputy Program Manager (202) 343-9836
 - James Gentry, Program Specialist (202) 343-9798

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Presidential Green Chemistry Challenge Awards

- High level recognition for outstanding green chemistry technologies.
- Self-nomination
- Deadline December 31
- Information available from www.epa.gov/greenchemistry or greenchemistry@epa.gov

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Presidential Green Chemistry Challenge Awards

- Scope of Challenge:
 - Source reduction in the use or generation of hazardous substances (“pollution prevention”)
 - Significant chemistry component
 - Significant milestone in the last 5 years
 - Discovery, publication, patent application or award, pilot plant, commercial launch, etc.
 - Significant research or development component in US

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Thank you for joining us.
We hope to see you at future events.



October 22, 2009:

ACS Small & Medium Business Webinar Series presents

“What you need to know about Chemistry and the Economy! Secrets to finding hidden opportunities”

A half-hour presentation followed by Q&A with speaker Paul Hodges, Chairman of International eChem, and author of the well-regarded ICIS ‘Chemicals and the Economy’ blog.

To register: <https://www2.gotomeeting.com/register/122358019>



ACS Green Chemistry Institute®

Green chemistry is the design of chemical products and processes that reduce or eliminate the use and/or generation of hazardous substances.

Our Mission:

To catalyze and enable the implementation of green chemistry and green engineering principles into all aspects of the global chemical enterprise.

www.acs.org/greenchemistry

