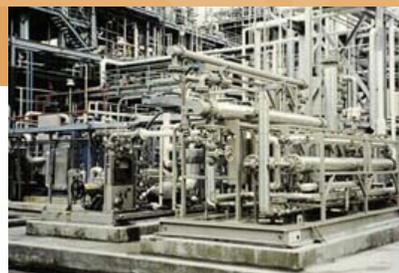




Small Business Innovation Research (SBIR) Program Phase I Kick-Off Meeting

April Richards



Presentation Outline

- Overview of Federal SBIR Program
- EPA SBIR Program
- Phase I Awards
- Phase II
 - Phase II Proposal Submission
 - Options
 - Proposal Review Process
- EPA SBIR Success Stories
- Other EPA Technology Resources



Overview of Federal SBIR Program

Federal SBIR Program

- Set-aside program for small businesses to engage in federal R&D
- Promote commercialization
- SBIR Budget = 2.5 % of Federal Extramural R&D Budget
- Over \$ 2.2 Billion in 2006

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)



EPA SBIR Program

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, laboratories and states





EPA SBIR Budget

- FY03 - \$6.8 million
- FY04 - \$6.6 million
- FY05 - \$6.2 million
- FY06 - \$6.5 million
- FY07 - \$6.0 million

EPA SBIR Awards

- Phase I
 - Proof of Concept
 - \$70,000
 - 6 months
- Phase II
 - Develop Phase I technology with focus on commercialization
 - Base \$225,000
 - Commercialization Option (\$70,000)
 - Verification Testing Option (\$50,000)
 - 2 years



Phase I Awards

Phase I Monthly Reports & Billing

- Project officer reviews technical report then approves invoice
 - Need copy of report and invoice
 - Prefer email
- Contract Specialist needs hardcopy report and invoice
- Financial Management Center (FMC) enters invoice into system
 - Need copy of invoice only
- EPA Technical Specialists need email copy of report
- Billing: Monthly increments with 15% holdback
- Read your contract

Phase I Contacts

- For programmatic or technical questions, contact your Project Officer (PO)
 - James Gentry or April Richards
- For Billing Questions, contact your Alternate PO
 - Marian Huber
- For contractual questions, contact your Contract Specialist
 - Marsha Johnson (919-541-0952)



Phase II Proposal

Phase II Description

- Develop & Commercialize Phase I Technology
- Base Award is \$225,000
- 2 years
- Funding Options (Required)
 - Commercialization Option (\$70,000)
 - Verification Option (\$50,000)

2007 Phase II Schedule

- Phase II Solicitation Open – 7/31/07
- Phase I Contract Ends – 8/31/07
- Phase II Proposals Due – 10/18/07
- Phase II Contracts Awarded – 3/31/08
- Options Documentation Due – 11/30/09
- Phase II Ends – 3/31/10



Phase II Solicitation - Sections

- I. Program Description
 - II. Definitions
 - III. Proposal Preparation Requirements
 - IV. Method of Selection & Evaluation Criteria
 - V. Considerations
 - VI. Submission of Proposals
 - VII. Submission of Forms and Certifications
- Appendices

Phase II Solicitation - Appendices

1. Proposal Cover Sheet
2. Project Summary
3. SBIR Proposal Summary Budget
- 3A. SBIR Commercialization Option Budget
- 3B. SBIR Verification Option Budget
4. Documentation for Commercialization Option
5. Documentation for Verification Option
6. Representation & Certifications
7. Quality Assurance Surveillance Plan



Phase II Proposal Submission

Phase II Proposal Requirements

- Proposal Cover Sheet
- Project Summary
- Phase II Proposal
- Attachments
 1. Phase I Final Report
 2. Commercialization Plan
 3. Phase II QA Summary
 4. Proposed Phase II Budget
 5. Representations & Certifications

Attachment 1 – Phase I Final Report

- Demonstrates tasks were completed as specified in Phase I proposal
 - OR explains why tasks were changed
- Is key peer review criteria

Attachment 2 - Commercialization Plan

- Description of SBIR Project
- Commercial Applications
- Competitive Advantages
- Production Plan
- Marketing Plan
- Financing Plan
- Phase II Funding Commitments
- Phase III Follow-on Funding Commitments

Attachment 3 – Phase II Quality Assurance (QA) Summary

- Describe expected key elements of Ph II QA Plan
 - (1 paragraph to 1 page)
- Detailed QA plan is required in the first monthly report

Phase II Proposal

- Problem Description
- Phase I SUMMARY
- Phase II Work Plan
- Related Research
- Key Personnel
- Consultants
- Commercialization Plan SUMMARY
- Commercialization Option Proposal (w/ budget)
- Verification Option Proposal (w/ budget)
- Similar Proposals
- Duplicate Proposals
- Prior Phase II Awards

Options

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

Commercialization Option Proposal

- Include in Phase II Proposal
- Describe expanded R&D activity, work plan, schedule
- Describe 3rd party investment including:
 - activities to be conducted
 - form of investment
 - amount of commitment
- Commitment letter encouraged but not required
- Commercialization Option Proposal – 3 to 6 pages
- Commercialization Option Budget – 1 page (use form)

Commercialization Option Documentation

- Documentation due by 11/30/09
- Provide receipts for 3rd party investment of \$100,000 or more
- EPA will exercise option adding \$70,000

Commercialization Option Investors

- 3rd party Investors include:
 - Venture capital firm
 - Individual “angel” investor
 - Another company under partnership, licensing or joint venture
- NOT
 - Family member
 - Federal government contract
 - Self-financing
 - In-kind

Verification Option Proposal

- Include in Phase II Proposal
- Technical Proposal Describing
 - Expected verification program
 - Possible verification factors
 - Verification activities and schedule
- May Contact “Best-Fit” EPA Testing Center
- Verification Option Proposal - 2 to 5 pages
- Verification Option Budget – 1 page (use form)

EPA Verification Programs

- Develop testing protocols and verify the performance of innovative technologies that have the potential to improve protection of human health and the environment
- Created to accelerate the entrance of new environmental technologies into the domestic and international marketplace
- www.epa.gov/etv
- www.epa.gov/nhsrc (Click on Technology)



Environmental Technology Verification (ETV) Centers (www.epa.gov/etv)

- Advanced Monitoring Systems
- Air Pollution Control Technology
- Drinking Water Systems
- Greenhouse Gas Technology
- Water Quality Protection
- Pollution Prevention



Homeland Security Technology Testing and Evaluation Program (TTEP) (www.epa.gov/nhsrc)

- Water Security
- Safe Buildings

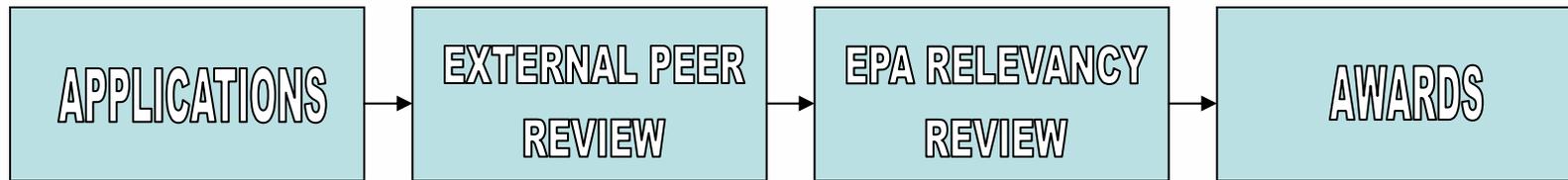
Documentation for Verification Option

- Option documentation due no later than 11/30/09
 - Company must be accepted into ETV or TTEP and send signed Commitment Letter
- EPA will subsidize up to \$50,000 of cost of verification



Proposal Review Process

Proposal Evaluation and Selection



External Peer Review

- Ratings:
 - Highly Recommended, Recommended and Not Recommended
- Five Criteria (equally weighted):
 - Results of Phase I
 - Technical & Commercial Quality and Soundness
 - Qualifications of Team
 - Commercialization Potential
 - Commercialization Record

Internal Programmatic Relevancy Review

- Review only proposals rated “Highly Recommended” and “Recommended”
- Three Criteria:
 - EPA Needs and Program Priorities
 - Significant Environmental Benefits
 - Broad Application and Impact

Successful Proposals – Phase II

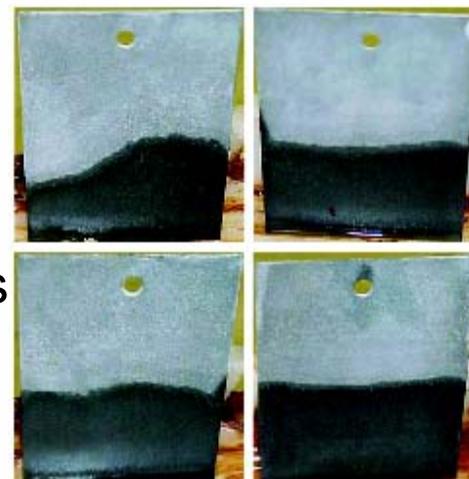
- Carefully Read Solicitation
- Address agency priority needs – Understand the Problem
- Put together an Effective Team
- Develop a Quality Proposal
 - Address evaluation criteria
 - Quantify environmental benefits
 - Demonstrate innovation
 - Have a strong technical abstract
 - Have a realistic work plan
 - Address cost
 - Show potential for commercialization
 - Include letters of support



EPA SBIR Success Stories

Lynntech, Inc.

- Environmental Issue: Lack of chemically effective, environmentally friendly alternatives to oxidizing agents that are harmful to public health and the environment
- Solution: A new electrochemical method for the production of high purity potassium ferrate
 - Can replace any existing oxidizing agents
 - Meets DOD standards
- Benefits
 - Eliminates hazardous waste and related fees
 - Nontoxic, benign, and safe to handle
- Success
 - Collaboration with leading aerospace contractor and major metal finishing supplier



Fort Environmental Laboratories

- Environmental Issue: Endocrine-disrupting chemicals (EDCs) in the environment can be harmful to humans and animals, yet are expensive and time-consuming to test for.
- Solution: Fort has developed model systems for rapid evaluation of endocrine-disrupting chemicals
- Benefits
 - The models can screen compounds with widespread endocrine activity
 - Ideal for high-throughput testing
 - Rapid and cost-effective
- Success
 - Fort is the only commercial laboratory in the US to specialize in the toxicological study of amphibians and reptilian species



Membrane Technology and Research, Inc.

- Environmental Issue: 450 million lb/year of hydrocarbon feedstocks are lost in the United States during oxygen-oxidation processes.
- Solution: MTR developed VaporSep Membrane Technology, a membrane separation system to recover feedstock.
- Benefits:
 - Recovers valuable feedstocks and solvents from plants worldwide
 - Eliminates VOC and chemical emissions
 - Typical plant saves \$1 million annually
 - Payback periods of 1 year or less
- Success
 - Sold to more than 100 plants
 - Customers include ExxonMobil, DuPont, BP, Samsung, 3M, Eastman, Formosa Plastics



Edenspace Systems Corporation

- Environmental Issue: Weathered lumber leaches arsenic into soil and water, with no cost-effective method to collect and dispose of it.
- Solution: Edenspace developed an arsenic phytoremediation technology, edenfern™, in which ferns accumulate arsenic in their fronds at concentrated levels.
- Benefits
 - Facilitates efficient removal & disposal of arsenic, preserves topsoil
 - Reuse of arsenic in industry means reduced production of arsenic
- Success
 - Projected US Market of \$162-\$194 million 4 years after introduction
 - Sales of edenfern™ totaled \$22,000 in the initial year of sales



TDA Research, Inc.

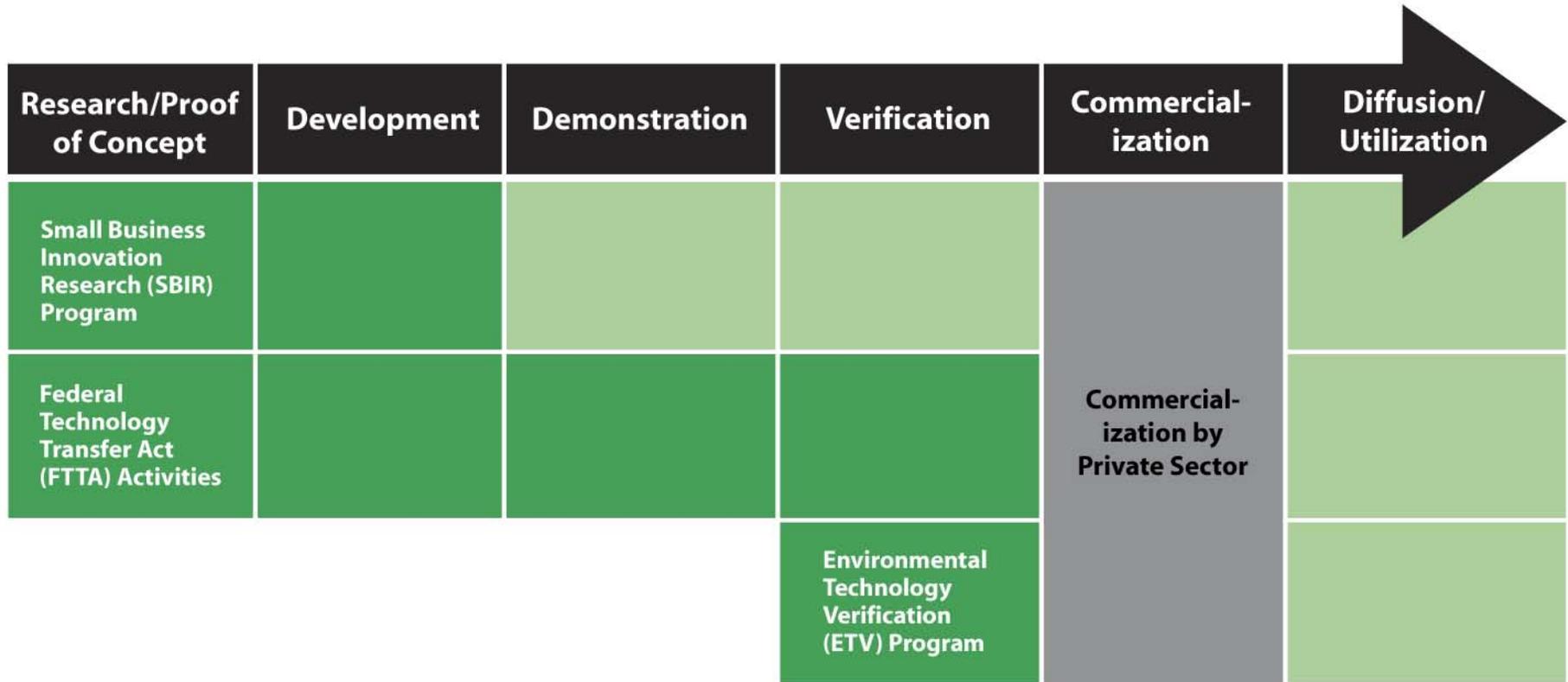
- Environmental Issue: Toxic plasticizers, used to make plastics softer and more flexible, can leach out of the plastic, into the environment.
- Solution: TDA developed nanoparticle-anchored plasticizers
- Benefits
 - Softens plastics without brittleness
 - Significantly decreases loss of plasticizer
- Success
 - The nanoparticles are designed to be inexpensive and attractive to the commodity polymer materials market
 - TDA is collaborating with several other commercial partners and extending this technology to other plastics





Other EPA Technology Resources

EPA's Environmental Technology Development Continuum



Note: Lighter shades of color indicate a minor or secondary emphasis for the listed program.



EPA Federal Technology Transfer Act (FTTA) Program

- **What is the EPA FTTA Program?**
 - Established to promote collaboration between private and federal research
 - EPA offers exceptional opportunities to develop and commercialize new technologies
- **Can a small business partner with EPA?**
 - Yes! EPA provides partnering opportunities to industry, universities, non-profits and state and local entities
 - The majority of partners are small- to medium-size businesses
 - FTTA Act of 1986 provides a preference for working on Cooperative Research and Development Agreements (CRADAs) with small businesses; EPA facilitates the transfer of new technologies to the marketplace while protecting IP rights of all parties
- **Benefits to You**
 - Collaboration with world class EPA scientists involved in leading-edge research addressing multiple research area topics
 - Access to EPA's scientific knowledgebase and laboratories to develop and commercialize shared innovations
 - Development of Technologies which may be patented and licensed

Environmental Technology Verification (ETV) Program

- ▣ Provides performance information for commercial-ready technology critical for EPA, other Federal agencies, state/local agencies, and purchasers of innovative new technology
- ▣ Verify: To establish or prove the truth of the performance of a technology under specific, predetermined criteria or protocols and quality assurance
- ▣ 381 verifications, 88 protocols completed since 1995
- ▣ Collaborations and vendor cost-sharing leverage ETV, generating over 50% of total funds
- ▣ Over 500 stakeholders active in advisory groups and technical panels
- ▣ Web site use and international interest at more than 3.0 million web hits/year and growing
- ▣ New case studies booklets document and project program outcomes

Environmental Technology Opportunities Portal (ETOP)

- www.epa.gov/etop
- “One-stop-shop” for EPA’s Technology Programs



The screenshot shows a web browser window displaying the EPA's Environmental Technology Opportunities Portal (ETOP) for technology developers. The browser address bar shows <http://www.epa.gov/etop/developer/index.html>. The page header includes the EPA logo and the text "U.S. Environmental Protection Agency Environmental Technology Opportunities Portal". A navigation menu on the left lists various sections such as "ETOP Home", "About ETOP", "Current Funding Opportunities", "Environmental Technology Resources", "Where You Live", "EPA Environmental Technology Programs", "For Technology Developers:", "Financial Support Programs", "Demonstration & Verification", "Marketing", "Information, Partnerships, & Advocacy". The main content area is titled "For Technology Developers" and features a navigation bar with links for "EPA Programs", "For Technology Developers", and "Technology Users". Below this, a paragraph describes the programs offered, and a diagram illustrates a four-step process: 1. Finding Financial Support/Development Funding, 2. Demonstration and Verification Assistance, 3. Marketing, and 4. Information, Partnership and Advocacy Programs. The diagram uses icons of a microscope, a laptop, and a handshake to represent these steps.

For More Information...

- NCER SBIR website: www.epa.gov/ncer/sbir
 - Project search
- SBIR Success Stories Document

