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Good morning, Mr. Chairman and Members of the Committee. I am honored to appear before you today to discuss the U.S. Environmental Protection Agency's activities to support development and implementation of innovative environmental technologies, many of which emphasize support for small businesses. The U.S. Environmental Protection Agency (EPA) welcomes the interest of the Committee in this vital area. We believe innovative technologies lead to more cost-effective environmental protection and growth in jobs and the economy. More broadly, innovative technology can play an important role in moving to a model of environmental protection built on the principles of sustainable development, allowing us to achieve economic growth and improved quality of life while protecting the environment.

EPA strongly encourages actions of the private sector to improve environmental protection. Creating or employing technologies to reduce pollution at its source, increasing recycling and recovery, finding less costly ways to treat or remediate pollutants are all ways being developed to lessen impacts on the environment. These technologies reduce the cost of complying with regulations and make environmentally-friendly voluntary efforts possible. These same activities are also creating new jobs and a growing economy. We salute the small businesses, such as Green Gazelles, who are leaders in this area. EPA will continue to support efforts by the private sector, especially small businesses, to implement technology innovations for environmental protection. I will describe today EPA programs, such as the Small Business Innovation Research (SBIR) program.

Background

EPA Administrator Michael Leavitt identified technology as one of the cornerstones of moving to a "better way" of achieving environmental protection. Innovative technologies typically offer more effective and lower cost solutions to environmental problems and, in some cases, offer answers to otherwise intractable problems. New technologies are needed to improve all aspects of environmental management, including monitoring, prevention, homeland security, treatment and remediation. EPA's programs address each of these areas.

The development of environmental technologies is primarily the role of the private sector. EPA's programs are designed to support private development by addressing specific barriers that discourage or hold back the development and adoption of these technologies, particularly those barriers faced by small businesses.

In the FY 2003 House Appropriations Conference Report 108-10, page 1438, Congress directed the Environmental Protection Agency (EPA) to "*develop a 'one-stop shop' office to coordinate similar programs which foster private and public sector development of new, cost-effective environmental technologies*." In October 2003, EPA submitted a report to Congress that outlined its plans to address this charge, including the development of a new one-stop-shop web portal, the Environmental Technology Opportunities Portal (ETOP), and the establishment of an Environmental Technology Council to coordinate Agency technology programs. I will describe these efforts later in this testimony.

EPA Research programs to Support Technology Development and Application

EPA has a number of primary programs that provide support to the public and private sector for the development of new, cost-effective technologies. These technology development programs are managed and coordinated through EPA's Office of Research and Development (ORD). ORD's technology support programs are complementary, and provide a continuum of support from early stage research to late stage commercialization. Table 1 provides a tabular overview of these programs.

Small Business Innovation Research (SBIR). While small businesses have historically accounted for over half of the innovation in the U.S., they often have difficulty getting equity capital for technology development. This is a particularly acute problem with regard to environmental technologies, where regulatory changes can quickly change market opportunities and discourage private capital providers. The SBIR program starts with early stage (proof-of-concept) research and continues through a second phase of funding to produce a commercial prototype.

The SBIR program is mandated by Congress under the Small Business Reauthorization Act of 2000. The SBIR program's technology priorities are identified by EPA's program and regional offices, and include technologies related to clean air and water, hazardous and solid waste, pollution prevention, remediation, monitoring and homeland security. The selection of SBIR recipients includes a rigorous review to ensure that the projects meet EPA's needs and program priorities, are technically sound, have significant environmental benefits, and have broad application and impact.

As an example of the SBIR approach on areas of priority, our recent 2004 SBIR solicitation EPA is focusing a significant portion of the program on pollution prevention and hazardous waste minimization. Working with EPA's program and regional offices, the Agency is soliciting highly relevant proposals to address pressing environmental challenges. These solicitations specifically request green chemistry and engineering innovations for alternatives to high priority

chemicals and environmental challenges, ranging from inherently benign flame-retardants to lead and mercury alternatives to green building design. These newly solicited projects will become part of a legacy of pollution prevention technology developed under SBIR.

Numerous SBIR-funded technologies have been successfully commercialized and are making significant contributions to cost-effective environmental protection. A number of examples of SBIR success stories are available at http://es.epa.gov/ncer/sbir/success/. Many of these companies embody the characteristics ascribed to Green Gazelles. A company supported by EPA's SBIR program that is currently listed as a Green Gazelle is T J Technologies, which has developed a technology to break down perchlorate in drinking water. Other successful SBIR companies from the list of success stories include: EnerTECH Environmental, Inc. which developed and commercialized an innovative process that converts municipal sewage sludge, solid waste and other organic wastes to a high energy, clean burning fuel; and, NITON, LLC which commercialized a hand-held instrument to detect lead in paint, now the industry standard with thousands in use worldwide.

Environmental Technology Verification (ETV). For years, technology developers have been stymied in their efforts to sell new, innovative technologies because potential buyers are often unwilling to take the risk that the technology will not perform as claimed by the developer. EPA's ETV program verifies performance data of commercial-ready technologies in an effort to encourage their use. While EPA provides no funding to developers, EPA provides roughly 70 percent of total ETV program costs, primarily through cooperative agreements that provide financial support for third-party test centers. EPA's substantial involvement with these centers includes quality assurance oversight of the testing, reporting results, and assistance with outreach. Many of the companies for which verifications have been completed are small businesses. To better integrate the SBIR and ETV programs, and to help defray the cost of verification for small businesses, EPA now offers an option to SBIR Phase II recipients to receive an additional $25,000 to be used toward their cost of technology performance verification through the ETV program.

Superfund Innovative Technology Evaluation (SITE). SITE encourages the development and application of innovative technologies to clean-ups at Superfund sites. SITE focuses on commercial-ready technologies and provides for field testing at actual contaminated sites. The testing and documentation of the technologies is similar to that done in the ETV program (which defers to SITE for remediation technologies). Technology developers are not given funding directly and must bring their equipment to the site for testing. EPA conducts the testing and documents the results. As reported in the SITE report to Congress of FY 2001, estimated total cost savings of clean-ups from the program are $2.6 billion.

National Environmental Technology Competition (NETC). The NETC is a program designed to competitively seek the best commercially developed new technologies to cost-effectively address certain high-priority National environmental problems. EPA

seeks to identify the best-developed technologies and to support their broad application in solving problems. The support for "first users" through longer-term field demonstrations has been widely recognized in assuring that technologies are broadly accepted. It is often an important step that extends beyond the ETV performance verification and is appropriate for critical needs such as cost-effective removal of arsenic in drinking water. Using NETC and other resources EPA has supported 12 demonstrations of arsenic removal technologies for small drinking water systems. Another 16-20 demonstrations are planned.

STAR research grants. Research funding under the Science to Achieve Results (STAR) program addresses the need for research to provide a foundation on which others in the public (particularly the private sector) can build. Only universities and non-profit organizations are eligible, but research results are widely publicized and broadly available. Many small technology development companies are started by or employ former academics who patented technologies developed as part of their research. EPA's technology research under STAR has focused particularly on environmentally benign engineering and nanotechnology.

Cooperative Research and Development Agreements (CRADAs). EPA makes available its unique research facilities and expertise through CRADAs. CRADAs can serve many purposes, but usually are intended to transfer intellectual property or to cooperate in final development or testing to make a technology commercially available. In some cases these are technologies that EPA developed in its laboratories that are being licensed to a private company. In others, a private company uses EPA's expertise or facilities to complete final testing or development of their technology. This opportunity is particularly attractive to small and medium sized businesses, which comprise the majority of EPA's CRADA partners to date.

Other Relevant EPA Technology Programs

Examples of additional environmental technology activities or programs that benefit small businesses are described briefly below. Additional information is available through the technology web portal at www.epa.gov/etop.

Environmental Technology Opportunities Portal (ETOP). In December 2003 EPA established a one-stop-shop web portal that is designed to assist small businesses and others to find information and support for technology development and application. The portal is designed with separate information "tracks" for technology developers and technology users. These tracks lead to information such as financial support opportunities, demonstration and verification programs, and partnering opportunities, including links to programs in other agencies and links to non-government information sources. This rich one-stop information resource expands the information readily available to developers and users, and is intended to promote better and more cost-effective protection of human health and the environment through use of this information.

Center for Environmental Industry and Technology (CEIT). The mission of EPA Region 1's CEIT is to be a window to resources, people, and programs for the environmental technology industry in New England and to promote the acceptance of innovative technologies to solve the most significant environmental problems in New England. Through a web site and other information tools, including an on-line network called Technology Connection, the program has successfully matched private technologies with technology needs in the region, leading to practical solutions to environmental problems. Small businesses have been frequent CEIT customers.

Green Chemistry Challenge. The Office of Prevention, Pesticides and Toxic Substances (OPPTS) conducts an award competition in partnership with the American Chemical Society to recognize development of innovative chemicals and processes that reduce or eliminate hazardous substances. A small business category is included in the competition.

Design for the Environment. OPPTS has a partnership program which involves working with individual industry sectors to compare and improve the performance and human health and environmental risks and costs of existing and alternative products, processes, and practices. Many sectors are dominated by small businesses such as auto refinishing, printing, and garment care.

Future Efforts

EPA plans to continue strategically focusing the above programs to ensure that they meet clearly defined objectives and produce measurable benefits. In addition, EPA is planning two new efforts that will better focus environmental technologies on the most significant environmental problems, and identify potential new ways of stimulating progress in development and application of these technologies.

Environmental Technology Council. EPA is establishing an Agency-wide council, to include state and other federal agencies, to coordinate and focus technology efforts on high priority environmental problems. In addition to targeting problems where technologies are needed for cost-effective solutions, the council will establish a broad network of public and private sector technology users and providers to speed progress.

National Advisory Council on Environmental Policy and Technology (NACEPT). EPA is establishing an Environmental Technology Subcommittee of the NACEPT, a formal Federal Advisory Committee Act (FACA) advisory committee to the Agency. This Subcommittee of external experts will both recommend any ways of improving EPA's existing technology support programs and identify any new efforts that may be needed to support private sector efforts in this area.

Conclusion

EPA believes that innovative technologies are central to achieving better, cheaper and faster environmental protection. The role of small business is vital in developing and applying these technologies, creating new jobs and enhancing U.S. competitiveness. EPA applauds the "Green Gazelles" and other companies who have demonstrated success in this area. EPA will continue to improve its programs to enhance the potential of these companies to succeed.

Table 1

EPA's Office of Research and Development Technology Development Support Programs

Program	Type of Assistance	Development Stage	Eligible Entities	Responsible ORD Organization
SBIR	Financial Support - Contracts	Proof of Concept to Commercial Prototype	Small Businesses	NCER
ETV	Verification Centers and Test Protocols[1]	Commercial-Ready	Public or Private Organizations	NRMRL[3]
SITE	Field performance tests[1]	Commercial-Ready	Public or Private Organizations remediation only	NRMRL
NETC	Demonstrations[1]	Commercialization	Public or Private Organizations	NCER and NRMRL
STAR	Financial Support – Grants	Research	Universities and Not-for-Profits	NCER[2]
CRADA	In-Kind	Various	Public or Private Organizations	Office of Science Policy

[1] Indirect support of performance testing. No direct funding to the entity.
[2] National Center for Environmental Research
[3] National Risk Management Research Laboratory