

**U.S. HOUSE OF REPRESENTATIVES  
SUBCOMMITTEE ON TECHNOLOGY AND INNOVATION  
COMMITTEE ON SCIENCE AND TECHNOLOGY**

**HEARING CHARTER**

*The Role of the SBIR and STTR Programs in Stimulating Innovation at Small High-Tech Businesses*

**Thursday, April 23, 2009**

**1:00 p.m. – 3:00 p.m.**

**2318 Rayburn House Office Building**

**I. Purpose**

On Thursday 24 April, the Subcommittee on Technology and Innovation of the Committee on Science and Technology will hold a hearing to examine the role of the Small Business Innovation Research (SBIR) and the Small Business Technology Transfer (STTR) Programs in supporting innovation at small high-tech firms and how, in turn, this promotes the economic welfare of the Nation.

**II. Witnesses**

**Dr. Robert Berdahl** is the President of the Association of American Universities.

**Mr. Jim Greenwood** is the President and CEO of Biotechnology Industry Organization (BIO).

**Dr. Sally Rockey** is the Acting NIH Deputy Director for Extramural Research at the National Institutes of Health (NIH).

**Mr. Jere Glover** is the Attorney and Executive Director at the Small Business Technology Council.

**III. Hearing Issues**

- How could the SBIR and STTR effectiveness be improved in promoting innovation in today's global R&D enterprise?
- Are the current SBIR (2.5%) and STTR (0.3%) set asides appropriate?
- How effective are the SBIR and STTR programs at stimulating innovation at small high-tech firms?
- What is the role and importance of small high-tech firms to the US innovation cycle and to foster economic growth?

- Should small high-tech businesses with venture capital investment be allowed to participate in the SBIR and STTR programs?

#### **IV. Background**

##### *SBIR*

Congress has demonstrated an ongoing interest in the small business sector. Addressing issues related to economic growth and competitiveness, special consideration has been given to small, high tech firms for several reasons, including the fact that data indicates such companies tend to be highly innovative, play a significant role in technological advancement, and contribute to a high standard of living in the United States. Such was the rationale behind legislation creating the SBIR program, reflecting an effort to increase that portion of the federal research and development (R&D) budget provided to small enterprises for work associated with the mission responsibilities of government departments and agencies. Believing that small companies were underrepresented in government R&D activities, P.L. 97-219 established agency SBIR programs to guarantee this sector a portion of the government's research and development budget to compensate for what was viewed as a federal contracting preference for large corporations.

Current law requires that every federal department with an extramural R&D budget of \$100 million or more establish and operate a SBIR program. Generally, a set percentage of that agency's extramural research and development budget -- currently set at 2.5% -- is to be used to support mission-related work in small companies. To be eligible to compete in the program, a company must be independently owned and operated; not dominant in the field of research proposed; for profit; the employer of 500 or fewer people; the primary employer of the principal investigator; and at least 51% owned by one or more U.S. citizens or lawfully admitted permanent resident aliens.<sup>1</sup> Subsidiaries of SBIR-eligible companies are also eligible to participate as long as the parent company meets all SBIR requirements.

Agency SBIR efforts involve a three-phase activity. In the first phase, awards up to \$100,000 (for six months) are provided to evaluate a concept's scientific or technical merit and feasibility. The project must be of interest to, and coincide with, the mission of the supporting organization. Projects that demonstrate potential after the initial endeavor may compete for Phase II awards of up to \$750,000 (lasting one to two years) to perform the principal R&D. Phase III funding, directed at the commercialization of the product or process, is expected to be generated in the private sector. Federal dollars, but not SBIR funds, may be used if the government perceives that the final technology or technique will meet public needs. P.L. 102-564 directed agencies to weigh commercial potential as an additional factor in evaluating SBIR proposals.

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<sup>1</sup> The House passed H.R. 5819 altered the previous eligibility requirements to permit majority venture capital ownership of small firms in the SBIR and STTR programs.

As of FY2008, 11 departments administer SBIR programs, including the Departments of Agriculture, Commerce, Defense (DOD), Education, Energy, Health and Human Services (HHS), Homeland Security, and Transportation; the Environmental Protection Agency; the National Aeronautics and Space Administration (NASA); and the National Science Foundation (NSF). Each agency's SBIR activity reflects that organization's management style. Individual departments select R&D interests, administer program operations, and control financial support. Funding may be disbursed in the form of contracts, grants, or cooperative agreements. Separate agency solicitations are issued at established times.

The SBA created broad policy and guidelines under which individual departments operate SBIR programs. The agency monitors and reports to Congress on the conduct of the separate departmental activities.

### *STTR*

A pilot effort to encourage commercialization of university and federal laboratory R&D by small companies was created by P.L. 102-564 and reauthorized several times through FY2009. The STTR program provides funding for research proposals that are developed and executed cooperatively between a small firm and a scientist in a research organization and fall under the mission requirements of the federal funding agency. Up to \$100,000 in Phase I financing is available for one year; Phase II awards of up to \$750,000 may be made for two years. Currently funded by a set-aside of 0.3% of the extramural R&D budget of departments that spend over \$1 billion per year on this effort, the Departments of Energy, Defense, and Health and Human Services, NASA, and NSF participate in the STTR program.

The SBIR program has been extended several times and was scheduled to terminate on September 30, 2008. In the 110th Congress, several bills were introduced to reauthorize and alter the SBIR initiative. H.R. 5819 passed the House on April 23, 2008, and S. 3362 was reported from the Committee on Small Business and Entrepreneurship on August 22, 2008. Although no specific legislation reauthorized the program, the Small Business Administration determined that P.L. 110-235 temporarily extended the SBIR activity through March 20, 2009. P.L. 111-10 provides another extension of the program through July 31, 2009.

### **110<sup>th</sup> Congressional Hearings**

Hearings were held in the 110<sup>th</sup> Congress on April 26, 2007 and June 26, 2007 (Serial Nos. 110-23 and 110-43, respectively).

The first hearing<sup>2</sup> focused on several important issues for the future of the SBIR and STTR programs, including: the degree to which the current programs are meeting their objectives; the adequacy of the award levels; strategies to maximize small businesses

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<sup>2</sup> The following is taken from the *Summary of Activities of the Committee on Science and Technology U.S. House of Representatives for the One Hundred and Tenth Congress*, 4.6(c)

participation and increase participation by women and minority owned small businesses; the programs' effectiveness in promoting product commercialization; covering administrative costs; and the appropriate role for venture capital-backed small businesses.

Chairman Wu opened the hearing by discussing the benefits of the SBIR/STTR programs, such as the stimulation of high-tech innovation and strengthening U.S. competitiveness. He then invited witnesses to address topics such as the size of the awards, broadening the participation of small business, creating funding within the program for administrative costs, and determining the extent of participation by venture capitalists. Both Chairman Wu and Ranking Member Gingrey emphasized the role that these programs have in moving ideas from the laboratory to the marketplace, particularly innovative work on healthcare issues such as diabetes and Alzheimer's research.

Mr. Held, the director of the Force Development and Technology at the RAND Arroyo Center at RAND Cooperation, stated that the DOD SBIR program could benefit from changes that would make the program more effective in generating technology and products that are utilized by the Armed Forces. He suggested that more flexibility in the solicitation and funding process would enhance the program. He called for increases in the minimum awards for Phase I and Phase II and advised a set-aside for administrative expenses.

Mr. Baron, the executive director of the Coalition for Evidence-Based program Policy at the Council for Excellence in Government, opened with examples of SBIR successes in the computer and biomedical fields and said that the program had led to multiple scientific breakthroughs and commercial successes. He cited GAO and DOD data that suggests that the projects which fail to meet commercial success are often in firms lacking entrepreneurial capabilities, and recommended that SBIR consider methods to build up entrepreneurial skills. In response to a question by Chairman Wu regarding using a portion of funding for administrative costs, Mr. Baron as well as Mr. Schmidt and Mr. Held, cautioned that an administrative set-aside could draw funds away from program goals and create disincentives for good management.

Mr. Schmidt, the founder and chairman of Cleveland Medical Devices and Orbital Research Inc., expressed concern that the U.S. was falling behind in the creation of technological products and jobs. He described some benefits of SBIR and STTR such as helping universities to strengthen commercialization and job creation at small high-tech firms. He cautioned against proposals that would give SBIR funds to large companies or blur its research focus and recommended a gradual doubling of the programs.

Dr. McGarrity, the executive vice president of Scientific and Clinical Affairs at VIRxSYS Corporation, explained that biotechnology research takes a lot of time and a large initial expenditure. He criticized the SBA decision to exclude some venture capital (VC) backed businesses from SBIR and stated that his firm had to abandon promising research in cystic fibrosis and laid off employees as a result of the ruling. He stated that his company is willing to compete with VC backed companies for SBIR funds on the basis of scientific and technical merit, and believes that science suffers from the

exclusion of firms that have a commercialization track-record. In response to a question by Mr. Wu about the impact of the SBA ruling, Dr. McGarrity argued that the SBA rule led to ineligibility of businesses based not on the number of employees of their own business, but on the number of employees in their VC backing firms.

Mr. Ignati, the president and CEO of Synapse Biomedical Inc., recommended that the minimum award for Phase I and Phase II be increased from their 1992 amounts and that the agencies administering the SBIR program be granted more flexibility making administrative decisions. He also recommended that companies be allowed to apply for Phase II grants without having first received a Phase I grant. He then expressed his concern that the SBIR program is not able to increase participation of innovative high-tech firms as a result of the SBA ruling excluding VC backed firms. He recommended that all VC backed firms be allowed to participate in SBIR.

The second hearing<sup>3</sup> focused on the following issues: program trends; outreach to encourage new applicants and reaching out to a diverse pool of applicants; program data and tracking; and the role of procurement in enabling commercialization. Chairman Wu opened the hearing by discussing the large growth of the SBIR and STTR programs, which are now the largest Government programs supporting research and development at small companies. He emphasized the programs' duties to promote efficiency in operations and maximum public benefit. In Ranking Member Phil Gingrey's opening statement, he explained that every department and agency with an R&D budget exceeding \$100 million must provide 2.5% of this budget for research at small companies, resulting in more than \$2 billion in funds across the agencies. The goal of these programs, he said, is to stimulate competitiveness and innovation. He was optimistic about past achievements of the programs and the prospect of future success.

Mr. Caccuitto, the SBIR and STTR Program Coordinator at the Office of Small Business Programs and the DOD, said that the SBIR and STTR programs at the DOD are crucial in seeding innovation for defense technologies. Each "constituent" military department and defense agency has its own program, with centralized oversight and decentralized management, with the total DOD SBIR/STTR budget across all military departments at over \$1.26 billion. DOD funds about 1 in 7 SBIR Phase I proposals and 1 in 5 STTR proposals.

Ms. Goodnight, the SBIR and STTR Program Coordinator at the Office of Extramural Research of NIH at HHS, emphasized that program flexibility is the key to fulfilling SBIR and STTR goals at NIH. She noted that the programs have not grown at the rate of other NIH programs due to firms losing eligibility, going out of business, or perceived lack of participation incentives. She discussed NIH's development of Performance Outcome Data Systems for data tracking that help to monitor achievements of awardees. In response to a question by Ranking Member Gingrey about the effect of the 2003 SBA ruling on venture capital-backed companies' participation in the program, Ms. Goodnight stated that the nature of biotechnology research requires venture capital to fund expensive

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<sup>3</sup> The following is taken from the *Summary of Activities of the Committee on Science and Technology U.S. House of Representatives for the One Hundred and Tenth Congress*, 4.6(e)

trials. She described some cases where important research was halted as a result of the ruling.

Mr. James, the SBIR and STTR Program Manager and Acting Director at the Small Business Research Division at the DOE, said that, like at the DOD, the Department of Energy has a balance of centralized and decentralized management for their SBIR and STTR programs. He explained that the Department hosts state-sponsored events to reach out to small businesses. These small businesses have excellent science skills but lack business skills; thus, DOE provides these professionals with assistance in designing business plans. He stated that in the past 24 years the DOE has invested almost \$1.5 billion, 60% of the companies have had sales of more than \$1.6 billion.

Mr. Comstock, the director of the Innovative Partnership Program Office at NASA, noted that the SBIR and STTR programs were recently moved from NASA's four mission directorates to an agency-wide mission support office that reports to the Administrator's Office in response to the Innovative Partnerships Program of 2005. This more integrated approach helps to illuminate technology gaps and future technologies which will be infused into NASA, helping to reach mission goals. He cited phase three authority to enter into sole source contracts as a benefit for NASA's programs. He stressed that NASA's outreach efforts have been successful in providing a fresh applicant pool. In response to a question by Chairman Wu on whether the agencies have adequate funding for administration, Mr. Comstock, as well as Mr. James and Ms. Goodnight, stated that administrative funding is not adequate to allow the optimal level of commercialization assistance.

Mr. Narayanan, the director of the Division of Industrial Innovation and Partnerships in the Directorate for Engineering and NSF, stated that SBIR plays a critical role in moving discovery to innovation at NSF. He explained that in addition to the SBIR/STTR grants, NSF has pioneered a Phase II supplement for funding, providing greater incentive for third-parties to invest in the awardees' projects. He stated that follow up of 400 NSF SBIR grantees has shown a significant impact; however, limited funds prevent program managers from providing hands-on mentoring.

### **Summary of the SBIR/STTR Reauthorization Act (H.R. 5819)**

H.R. 5819, the SBIR/STTR Reauthorization Act, a bill that would have reauthorized and made several significant changes to the SBIR and STTR programs, passed the House on April 23, 2008. Among these changes were:<sup>4</sup>

- The termination date for the SBIR program was extended from September 30, 2008 to September 30, 2010, while the STTR activity was reauthorized through September 30, 2010 rather than the current sunset date of September 30, 2009.

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<sup>4</sup> The following points were all taken from the CRS Report *The Small Business Innovation Research Program: Reauthorization Efforts*, April 29, 2008

- The bill increases the level of awards made under the SBIR and STTR programs from \$100,000 to \$300,000 for Phase I awards and from \$750,000 to \$2,200,000 for Phase II awards.
- A recipient of a Phase I grant from one federal agency would be permitted to apply for a Phase II award from another agency to pursue the original work. A small business would be allowed to switch between the SBIR and STTR programs. In addition, a small company would have been allowed to apply for a Phase II award without first obtaining and successfully completing a Phase I grant as currently required. The bill also would have permitted sequential Phase II awards for a project.
- For the SBIR and STTR programs, H.R. 5819 would have allowed majority venture capital ownership in a small business if not more than 50% of the firm is owned by one venture capital company and the employees of the venture capital company are not a majority of the small firm's board of directors. If the venture capital company is controlled by a business with more than 500 employees, the small business would have been eligible if not more than two large venture capital companies have ownership interest in the small firm, these large venture capital companies do not collectively own more than 20% of the small business, and the venture capital companies "do not collaborate with each other to exercise more control over the small business concern than they could otherwise exercise individually."
- The bill would have directed agencies to focus on certain research areas for "special consideration" including energy-related work, R&D in the area of rare diseases, transportation-related topics, and nanotechnology.
- The bill would have mandated that each agency that administers \$50,000,000 or more in SBIR grants establish a SBIR Advisory Board comprised of agency employees, private sector representatives, veteran small business owners, and others deemed appropriate. The Advisory Board was to make recommendations to the agency on programmatic topics including, among other things, mechanisms to encourage a broad range of applicants and commercialization efforts. An annual report was to be required.
- The bill would have reauthorized and made changes to the Federal and State Technology Partnership (FAST) program, which provides grants to organizations to provide outreach designed to encourage increased participation in the SBIR program.