

**U.S. HOUSE OF REPRESENTATIVES
COMMITTEE ON SCIENCE, SPACE, AND TECHNOLOGY
SUBCOMMITTEE ON RESEARCH**

HEARING CHARTER

STEM Education: Industry and Philanthropic Initiatives

Wednesday, March 13, 2013

10:00 a.m. – 11:30 a.m.

2318 Rayburn House Office Building

Purpose

On Wednesday, March 13, 2013, the Subcommittee on Research will hold a hearing on industry and non-profit philanthropic science, technology, engineering and mathematics (STEM) education initiatives. With an eye to COMPETES Act reauthorization of the National Science Foundation (NSF) and STEM education programs across federal research agencies, this hearing will review industry and philanthropic STEM education initiatives to ensure there is no duplication of efforts and proper leveraging with federal, industry, and philanthropic STEM education initiatives.

Witnesses

- **Ms. Shelly Esque**, President, Intel Foundation, Vice President, Legal and Corporate Affairs, and Director, Corporate Affairs Group, Intel Corporation
- **Dr. Bob Smith**, Vice President and Chief Technology Officer, Engineering and Technology, Honeywell Aerospace
- **Dr. Vince Bertram**, President and Chief Executive Officer, Project Lead the Way
- **Ms. Andrea Ingram**, Vice President of Education and Guest Services, Museum of Science and Industry

Overview

The Administration's fiscal year 2013 (FY13) budget request proposed nearly \$3 billion across the federal government for STEM education, a 2.6 percent increase over FY12, including \$775 million for National Institutes of Health awards to prepare individuals for careers in the biomedical, behavioral, and social sciences; \$80 million for training an additional 100,000 effective STEM teachers over the next 10 years through the Department of Education (ED); and \$176 million for minority programs at ED, NSF, and NASA.

Federal STEM Education Funding By Agency (taken from FY13 Budget Request)
(dollars in millions)

Agency	FY11 Actual	FY12 Estimate	FY13 Request	FY13 Request versus FY12 Estimate	
				\$	%
Department of Agriculture	91	88	91	3	3.5
Department of Commerce	58	55	44	(11)	-20.0
Department of Defense	153	164	153	(11)	-6.7
Department of Homeland Security	2	2	6	4	200.0
Department of Education	561	517	628	111	2.1
Department of Energy	49	48	37	(11)	-22.9
Environmental Protection Agency	20	26	20	(6)	-23.1
Department of Health and Human Services	560	560	554	(6)	-1.1
Department of Interior	1	1	1	-	-
NASA	157	149	117	(32)	-21.5
Nuclear Regulatory Commission	10	16	5	(11)	-68.7
National Science Foundation	1148	1154	1193	39	3.4
Department of Transportation	100	98	101	3	3.1
Totals:	2910	2877	2951	74	2.6

Shading indicates agencies within the Science, Space, and Technology Committee's jurisdiction

Pursuant to Sec. 101 of the *America COMPETES Reauthorization Act of 2010*, the National Science and Technology Council Committee on STEM Education submitted its first annual report, including an inventory of federal STEM education activities, in conjunction with the FY13 budget request. A 5-year strategic plan is expected with the Administration's FY14 budget request.

The annual report identified \$967 million or 28 percent of all federal STEM education funding as being spent on activities that target the specific workforce needs of the science mission agencies. The remaining 72 percent of funding is spent on broader STEM education efforts primarily at NSF (47 percent) and ED (40 percent). Of the 252 federally-funded STEM activities identified in the report, none were found to have the same objectives, target audiences, products, or STEM fields of focus. The report acknowledges that "this conclusion should not be interpreted to mean there are no opportunities for improving the alignment, deployment, and efficiency of federal STEM education investments."¹

STEM and the Workforce

Many stakeholders maintain that improving STEM education throughout the nation is necessary for preserving our capacity for innovation and discovery and for ensuring U.S. economic strength and competitiveness in the international marketplace of the 21st century. According to the National Science Board Science and Engineering Indicators 2012, "the S&E workforce has for decades grown faster than the total workforce... The number of workers in

¹ *Coordinating Federal Science, Technology, Engineering, and Mathematics (STEM) Education Investments: Progress Report*. February 2012. Committee on STEM Education, National Science and Technology Council, p. 10.

S&E occupations grew from about 182,000 in 1950 to 5.4 million in 2009.² As demand for skilled STEM workers continues to grow the U.S. will work to produce the workers required to fill those employment needs. The looming retirements of the baby-boomer generation and current unemployment rates have exacerbated a U.S. workforce in flux for many generations.

According to a 2007 report from the U.S. Department of Labor, “[i]ndustries and firms dependent upon a strong science and math workforce pipeline have launched a variety of programs that target K-12 students and undergraduate and graduate students in STEM fields.”³ Finding ways to improve STEM education activities beyond the scope of the federal government, including best practices, is key to the future technical and economic competitiveness of our nation.

In order to bolster their own workforce pipeline, many industry sectors and non-profit organizations are working in a variety of ways. Involvement in K-12 initiatives and support for undergraduate and graduate work fall within the broad scope of those STEM initiatives. Partnerships with education providers, STEM focused competitions, and other opportunities have become important pieces of private sector efforts to strengthen the STEM workforce. Industry and philanthropic organizations may offer financial or technical support for students, professional development opportunities for teachers, and technology for classrooms as a way to encourage interest in and support for STEM education. Understanding the work these organizations are undertaking in the STEM fields will inform the federal government’s role.

Questions for the Witnesses

The witnesses were asked to touch on the following issues in their testimony:

- How critical is an educated and skilled STEM workforce to the success of business and industry as a whole? What role can industry and non-profit philanthropic organizations play in making STEM careers more attractive and accessible for students?
- What STEM education activities are industries, philanthropic and non-profit organizations investing in? How are the results of those initiatives measured? Are partnerships between other organizations and K-12 schools taking place to further STEM education?
- What inspired your organization to undertake STEM education initiatives? What goals do your organizations hope to achieve by promoting STEM education? How can other organizations mirror similar programs? How do these programs benefit your organizations and the communities they serve?
- How can we avoid a disconnect between the jobs we want to keep in the U.S. and our workforce’s ability to perform those jobs? How are you working with the colleges, universities and training programs to avoid that disconnect and support your workforce?

² National Science Board. 2012. *Science and Engineering Indicators 2012*. Arlington, VA: National Science Foundation (NSB 12-01). P. 3-8.

³ http://www.doleta.gov/Youth_services/pdf/STEM_Report_4%2007.pdf, p. 6