

Oral Testimony
to be presented by
Dr. Irving McPhail, President and CEO
National Action Council for Minorities in Engineering, Inc.
before the
House Commerce, Justice, Science Appropriations Subcommittee
on
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Chairman Wolf, Ranking Member Fattah and members of this committee, my name is Dr. Irving Pressley McPhail and I am the President and Chief Executive Officer of the National Action Council for Minorities in Engineering (NACME). I would like to start off by thanking you for the opportunity to share my thoughts and insights regarding the need to increase the number of highly-qualified African American, American Indian and Latino women and men in science, technology, engineering and mathematics (STEM) careers. We also want to comment on how federal funding can be used to help increase the presence of underrepresented minority students in the STEM arena.

Our mission at NACME is to ensure American competitiveness in a flat world by leading and supporting the national effort to expand U.S. capability through increasing the number of successful African American, American Indian and Latino women and men in STEM education and careers. We would like to partner with the federal government, sharing what we have learned over the last three decades. We strongly support the need for continued funding for scholarships and encourage the Subcommittee to fund education and training efforts at the National Science Foundation, the National Oceanic and Atmospheric Administration, and the National Aeronautics and Space Administration. In addition to our overall support for those programs, we would especially highlight programs such as the STEM education and accountability programs at NASA, NSF's WIDER program, NSF's Broadening Participation in STEM program, and proposals that fund informal science education.

NACME's partners include 50 of the nation's top educational institutions. We are led by a blue-ribbon board of directors that is made up of more than 40 top executives from world-class, Fortune 500 companies— all of which are leaders in technology and innovation. Our model of public-private partnership is one that would serve well for Federal policies.

For nearly four decades, we have focused on the needs and interests of underrepresented populations in the STEM fields. We are the largest private provider of scholarships in engineering for underrepresented minority students. We are also the leading source of research information on the status of underrepresented minorities in engineering education and employment. We are now taking an active role in the formulation of Federal policy positions for increasing the opportunities for underrepresented minorities in STEM education and careers.

With funding from individual and corporate donors, including some of the biggest and most influential companies in the world, NACME has supported more than 24,000 students with more than \$124 million in scholarships and other support. We currently have more than 1,300 scholars at 50 partner institutions across the United States.

Our vision is an engineering workforce that looks like America. If we are to achieve this vision, more must be done to substantially increase the number of underrepresented minorities pursuing college degrees in the STEM fields. Underrepresented minorities account for approximately 13 percent of new engineers each year, yet account for 34 percent of all 18-to-24 year olds. This statistic alone is one of the driving factors to why greater emphasis must be placed on increasing the opportunities available for these students, but also improving the performance of those completing their baccalaureate degree in engineering.

As you know, this is a critical time for our nation. Whereas 30 years ago, American corporations competed with one another, today's competition is on a global scale. Among other things, corporations wishing to secure their status as leaders in research and development in STEM must confront the reality that the talent sources, critical for maintaining their preeminence, are changing. New and creative approaches will be required to ensure an adequate talent pool in the future. Given the tremendous progress in technology and innovation that is taking place in developing countries, the shortcomings of our public education systems, and the historic underrepresentation of sizable elements of our population, our nation must act quickly if we are to maintain a strong position of leadership in STEM.

The unfortunate reality is that there are many in the United States for whom participation in science and engineering has been, and continues to be unlikely. And despite tremendous milestones and decades of progress, their numbers continue to grow. In order to reverse this trend, immediate, strong, and broad action must be taken. This dilemma is one that has been unaddressed for too long.

Over the decades, NACME has learned that increasing underrepresented minority participation in STEM study requires a multifaceted strategy. Scholarship support is critical but a comprehensive engineering student support strategy that creates a supportive academic community— while promoting a high level of collaborative learning and group study— is also needed. Through our partnerships with colleges and universities from around the country, we have leveraged our scholarship grants with institutional activities that provide academic, and intellectual support, including: mentoring, peer tutoring, internship experiences, supplemental instruction, and bridge programs that improve students' preparation for pre-requisite mathematics and science courses prior to enrolling. This is the kind of training continuum that must be included in all federal plans for increasing the STEM workforce.

The February 2012 PCAST report to the President includes a recommendation to launch a national experiment in postsecondary mathematics education to address the math preparation gap. The math gap is particularly onerous in our nation's community colleges that enroll 45 percent of African American, 53 percent of Latino, and 52 percent of American Indian undergraduates. I ask that the Subcommittee encourage the National Science Foundation to support efforts that address the need to bring research-based solutions at community colleges to address the challenge of moving more underrepresented minorities from pre-calculus and pre-algebra, to higher-level math, en route to successful completion of bachelor's degrees in engineering. Over 11 million students are currently enrolled in one of the nation's 1,173 community colleges. These students represent a significant pool of talent for the nation's four-year engineering colleges. I would encourage the Subcommittee to provide funding for the

Administration's proposed joint NSF- Department of Education mathematics education initiative to support early research, development, validation, and scale-up of effective practices.

NACME also recognize the necessity for recruiting students along the STEM pathway. This is why NACME partnered with the National Academy Foundation (NAF) and Project Lead The Way (PLTW) to launch a national network of urban-centered, open enrollment, high-school level engineering academies that will provide students with a strong science and math education in order to better prepare them for college-level STEM courses. By involving parents, community resources, local corporations and higher education institutions (two-year and four-year) in the activities of the academies, it is expected that they will have the potential of dramatically increasing the numbers of underrepresented minorities who will be prepared to engage in engineering education.

I understand the budget pressures that the Subcommittee faces as you put together this year's bill. I urge you to ensure that the government continues to be an integral partner with corporations and non-profits in addressing many of the challenges I have identified in my testimony. Many of these public private partnerships are driving initiatives across the country to recruit and train teachers, spur curriculum improvements, and increase the ranks of students studying STEM, from grade school to graduate school. By putting in place the appropriate funding and programs that provide STEM education and training for our underserved talent pool, we ensure that we will have the intellectual capital to reinforce our nation's position as the world's strongest economy and source of innovation.

I would like to thank Chairman Wolf, Ranking Member Fattah, and the members of the Subcommittee for the opportunity to testify before you today and look forward to any comments or questions that you may have.