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August 21, 2015

The Honorable Cory Gardner
Committee on Commerce, Transportation and
Science
United States Senate
Washington, DC 20510

The Honorable Gary Peters
Committee on Commerce, Transportation
and Science
United States Senate
Washington, DC 20510

Dear Senators Gardner and Peters:

On behalf of the ASME Public Affairs and Outreach Sector, I would like to thank you for soliciting input on the Committee on Commerce, Transportation and Science's upcoming consideration of the reauthorization of the America COMPETES Act. Founded in 1880 as the American Society of Mechanical Engineers, ASME has been supportive of the principles of the America COMPETES Act since its inception in 2005, and has issued numerous position statements in support of the America COMPETES agencies, which can be found on the ASME Public Policy Education Center at: <http://ppec.asme.org/key-issues/>.

ASME is a not-for-profit professional organization representing over 140,000 engineers that enables collaboration, knowledge sharing, and skills development across all engineering disciplines, while promoting the vital role of the engineer in society. ASME codes and standards, publications, conferences, continuing education, and professional development programs provide a foundation for advancing technical knowledge and a safer world. ASME conducts one of the world's largest technical publishing operations, holds more than 30 technical conferences and 200 professional development courses each year, and sets some 600 industrial and manufacturing standards.

Robust, sustained investment in research and development is required for stimulating growth in high-wage industries, for generating new technologies in critical areas of need, including energy and manufacturing, and for preparing the workforce of tomorrow. Your continued support for fundamental research investments at the National Science Foundation, the Department of Energy Office of Science, and the National Institute of Standards and Technology, as well as science, technology, engineering, and mathematics education programs, is critical both to our nation's economic and national security.

Without this investment, the U.S. will soon lose its competitive advantage in innovative industries. The 2014 *Science & Engineering Indicators* report from the National Science Board recognized that the U.S. share of the world R&D budget fell from 37 percent to 30 percent in the years between 2001 and 2012. Our international competitors have recognized what economists have been reporting for some time: science, engineering, and technology are the principal drivers of economic growth. In recent years, other nations have been rapidly increasing their investments in scientific and engineering research while American investments have been stagnating and declining in real terms.

In addition to the resources mentioned above that are located on the ASME Public Policy Education Center, enclosed is a statement of principles for the reauthorization of America COMPETES that reflects

the broad-based support among industry, scientific, and higher education organizations for federally funded scientific and engineering research.

We appreciate the Senate Committee's leadership during the past two reauthorizations, and encourage your Committee's continued leadership in supporting these critically needed investments in basic research and math, science, and engineering education. We hope that you will look to ASME as a technical, nonpartisan resource on energy, manufacturing, research, education and other technology-related policy issues. We stand ready to work with you as you move this legislation forward.

If you or your staff have any questions or require more information, please contact ASME Government Relations Director Kathryn Holmes at 202/785-7390 or at holmesk@asme.org.

Sincerely,

A handwritten signature in dark ink, appearing to read "Timothy Wei". The signature is fluid and cursive, with a long horizontal stroke at the beginning.

Tim Wei
Senior Vice President
Public Affairs & Outreach
ASME

Guiding Principles for the America COMPETES Act Reauthorization

*The business, higher education, and scientific and engineering communities greatly appreciate efforts by the Congress and the current and past Administrations to respond to issues raised in the National Academies' 2007 report, *Rising Above the Gathering Storm*. Driven in large part by Congressional approval of the America COMPETES Acts of 2007 and 2010, there has been some progress toward achieving the goals set forth in that report. However, there is still much to do, and, despite the tremendous fiscal challenges currently facing the nation, now is not the time for us to back away from our commitment to increasing the productivity of our national science and technology enterprise. Indeed, maintaining our commitment is critical if the United States is to successfully compete, prosper, and be secure in the global community of the 21st century. With this in mind, we have delineated the following set of principles for consideration by the 113th Congress as it drafts legislation to reauthorize key federal research agencies and the America COMPETES Act.*

I. Funding for Science and Engineering

The National Academies' report, *Rising Above the Gathering Storm*, and both the America COMPETES Acts of 2007 and 2010, set goals and established funding targets aimed at doubling funding for key federal research agencies within seven years. We recognize the difficulty of achieving the doubling goal in the current fiscal environment, but we believe that any new bill to reauthorize the America COMPETES Act should:

- a) Make a strong statement that the United States sees funding across all disciplines of basic scientific research as a top national priority.
- b) Set targets that provide for steady and sustained real growth in funding for all of the major federal research agencies. The COMPETES bill should specifically strive to set such targets for the National Science Foundation (NSF), the DOE Office of Science and the National Institutes of Standards and Technology (NIST).
- c) Support funding increases without offsets that would force significant and potentially detrimental tradeoffs between one field of science and another. To ensure our national competitiveness, we need to maintain a strong foundation of basic research across all scientific disciplines, from the physical, mathematical and life sciences, to engineering, to the social, economic and behavioral sciences.
- d) Within the context of strong federal support for basic research, ensure that federal scientific agencies, guided by their scientific advisory committees and boards, continue to set priorities for funding within and among the full range of scientific disciplines. This principle has served the nation well for decades.

II. Education and Workforce

Maintaining and promoting scientific literacy for all to prepare our young people for 21st century jobs and citizenship, and strengthening the pipeline of scientists and engineers who will propel science and innovation forward, were essential goals of the *Rising Above the Gathering Storm* report and of previous America COMPETES Acts. Maintaining and enhancing our STEM literacy and talent base is essential to continuing U.S. scientific, technological and economic global leadership. To this end, we believe that a bill to reauthorize COMPETES should:

- a) Support innovative and effective education programs to promote the broad-based scientific literacy necessary to equip all citizens with the scientific and technical knowledge required to meet future national and global challenges, as well as to train future generations of U.S. scientists and engineers.
- b) Support the National Science Foundation's mission of improving science, engineering and math education at all levels by sustaining robust support for programs and core research of the NSF's Education and Human Resources Directorate. This directorate supports research critical to our understanding of how students learn STEM, how best to teach students in STEM fields, and how to increase participation of women and underrepresented minorities in STEM fields. It also plays a critical role in ensuring support for undergraduate and graduate students interested in pursuing STEM or STEM education careers.
- c) Support proven STEM education programs at other federal research agencies aimed at ensuring an adequate STEM workforce in direct support of the fulfillment of their respective agency missions.
- d) Support high-skilled immigration reform and other policies to ensure that the United States has access to, and is fully able to take advantage of, the best and brightest talent in STEM fields from around the world.

III. Research Excellence and Opportunity

The U.S. system of scientific research has been tremendously successful throughout the years because: 1) unlike in many other countries, it has remained insulated from political pressures and interference; 2) key scientific focus areas have been determined by federal agencies and guided by the scientific community through a strong system of merit review and advisory committees; and 3) research results have been widely distributed and accessible. We urge that any bill to reauthorize the America COMPETES Act take steps to:

- a) Preserve our system of support for basic research based upon excellence, competitive scientific merit and peer review. In addition, it is important to preserve and support programs that seek to stimulate competitive research capabilities and opportunities in particular states and regions, such as the EPSCoR program.
- b) Reduce or eliminate unnecessary or duplicative federal regulations and reporting requirements that increase research costs, impede research productivity, and needlessly divert researchers' time from directly conducting scientific research and mentoring students. This principle aligns with recommendation #7 of the National Research Council report "*Research Universities and the Future of America*."
- c) Ensure that any new programs, reporting requirements and/or other mandates contained in the bill are provided with the funding necessary to carry out such additional requirements and that they are accompanied by an analysis that details the cost of the new requirements.

Principles Developed By:

Norman R. Augustine, Retired Chairman and CEO, Lockheed Martin Corporation
Craig R. Barrett, Retired CEO and Chairman of the Board, Intel Corporation
Wes Bush, Chairman, CEO and President, Northrop Grumman Corporation
Brian K. Fitzgerald, Chief Executive Officer, Business-Higher Education Forum
Alan I. Leshner, Chief Executive Officer, American Association for the Advancement of Science
Peter McPherson, President, Association of Public and Land-grant Universities
Hunter R. Rawlings III, President, Association of American Universities
Richard Templeton, Chairman, President and CEO, Texas Instruments Incorporated
Charles M. Vest, President, National Academy of Engineering
Deborah L. Wince-Smith, President and CEO, Council on Competitiveness

Endorsing Organizations (as of May 22, 2013):

American Association for the Advancement of Science (approved by the AAAS Board of Directors)
American Association for Dental Research
American Association of Physics Teachers
American Astronomical Society
American Chemical Society
American Council on Education
American Educational Research Association
American Institute of Biological Sciences
American Mathematical Society
American Physical Society
American Political Science Association
American Psychological Association
American Society for Engineering Education
American Society of Agronomy
American Society of Civil Engineers
American Society of Plant Biologists
American Sociological Association
American Statistical Association
ASME
Association of American Medical Colleges
Association of American Universities (approved by the AAU Executive Committee)
Association of Population Centers
Association of Public and Land-grant Universities
Banning Science and Technology Center, Inc
Boise State University
Boston University
Business Higher Education Forum
California Institute of Technology
Campaign for Environmental Literacy
Carnegie Mellon University
Columbia University
Computing Research Association
Consortium for Ocean Leadership
Consortium of Social Science Associations
Council on Competitiveness
Crop Science Society of America
Ecological Society of America
Emory University
Energy Sciences Coalition
Entomological Society of America

Federation of Associations in Behavioral & Brain Sciences
 Federation of Materials Societies
 Florida State University
 Geological Society of America
 Georgia Institute of Technology
 Human Factors and Ergonomics Society
 Indiana University
 Information Technology Industry Council
 Institute of Electrical and Electronics Engineers, Inc (IEEE-USA)
 International Economic Development Council
 Ioxus, Inc.
 Materials Research Society
 Mathematical Association of America
 Minnesota State University – College of Science, Engineering and Technology
 National Academy of Neuropsychology
 National Action Council for Minorities in Engineering, Inc. (NACME)
 National Association of Colleges and Employers
 National Association of Marine Laboratories
 National Ecological Observatory Network
 National Science Teachers Association
 Natural Science Collections Alliance
 New York University
 North Carolina State University
 Northern Illinois University
 Northrup Grumman
 Pathways into Science
 Population Association of America
 Princeton University
 Psychonomic Society
 Reed Elsevier Inc.
 Rensselaer Polytechnic Institute
 Research!America
 Semiconductor Industry Association (SIA)
 Skidaway Institute of Oceanography
 Society for Personality and Social Psychology
 Soil Science Society of America
 South Dakota State University
 Southeastern Universities Research Association
 State University of New York
 STEM Education Coalition
 Task Force on American Innovation
 Texas Instruments Incorporated
 The Ohio State University
 The Optical Society
 The Science Coalition
 The University of North Carolina at Chapel Hill
 The University of Texas System
 Thurgood Marshall College Fund
 University at Buffalo
 University Corporation for Atmospheric Research (UCAR)
 University Corporation for Atmospheric Research (UCAR)
 University of California System
 University of California, Davis
 University of California, Los Angeles
 University of California, Irvine
 University of California, San Diego

University of California, San Francisco
University of California, Santa Barbara
University of Chicago
University of Colorado Boulder
University of Delaware
University of Florida
University of Idaho
University of Illinois at Chicago
University of Illinois at Urbana-Champaign
University of Kansas
University of Maryland
University of Michigan
University of Minnesota
University of Missouri
University of New Mexico
University of Oregon
University of Oregon
University of Pittsburgh
University of Tennessee
University of Virginia
University of Wisconsin-Madison
Vanderbilt University
Washington State University
Washington University in St. Louis
West Virginia University
Woods Hole Oceanographic Institution