



**Statement By The
Institute of Electrical and Electronics Engineers –
United States of America (IEEE-USA)**

To The

**Committee on Commerce, Science
and Transportation
U.S. Senate**

On

Innovation and Competitiveness Legislation

15 March 2006

IEEE-USA appreciates this opportunity to share our views on innovation and competitiveness challenges facing the United States and on legislative action that can be taken by Congress to address these challenges.

If the United States is to continue flourishing in the increasingly competitive global marketplace, the federal government needs to focus on ways to improve the science and technology research and development infrastructure and to broaden the technical expertise of its citizens. IEEE-USA believes that effective competitiveness and innovation policies will sustain U.S. technological leadership and encourage the development of a skilled, creative and competitive work force critical for U.S. prosperity. To accomplish this goal, the United States needs sustained commitment for supporting fundamental research in the physical sciences and for improving education, training and lifelong learning.

We appreciate the emphasis being put on this issue by Congress and by President Bush with his American Competitiveness Initiative, and have indicated our support for legislation currently under review in the Senate, in particular the National Innovation Act

of 2005 (S.2109) and the Protecting America's Competitive Advantage (PACE) energy and education acts (S.2197 & S.2198). We strongly encourage Congress to work together and with the administration for the good of country to pass consensus legislation during this legislative session to preserve America's competitive edge in the global arena.

To that end, IEEE-USA has identified workforce policies and federally-funded research policies as two broad areas where federal government policy can enhance the nation's intellectual capital and technical skills. Each area will be a decisive contributor to U.S. innovation in the coming years.

Education Policy Objectives

IEEE-USA believes that legislators and administration leaders should work to strengthen our current and future engineering work force by improving the United States' education system and enhancing life-long employment opportunities for scientists and engineers. We support the recommendations of the National Academy of Engineering in its report "RISING ABOVE THE GATHERING STORM: Energizing and Employing America for a Brighter, Economic Future", with specific emphasis on those recommendations targeted at:

- Improving the nation's education system from preschool through graduate school and beyond, with special emphasis on improving math, science and communications skills in grades K-12
- Early recognition and support for students with aptitude and passion in Science, Technology, Engineering and Math (STEM) fields
- Strengthening the skills and recruitment of science and mathematics teachers
- Increasing incentives for individuals to pursue an education and career in STEM fields, and promote more effective utilization of STEM personnel by public and private sector employers
- Making continuing education available to practicing scientists and engineers

R&D Policy Objectives

IEEE-USA believes that federal research and development policies and investments should be redirected, as recommended by the Council on Competitiveness in its Innovate America report and in the National Academy's Rising Above the Gathering Storm report, to:

- Intensify support for research in the physical sciences and engineering to achieve a more robust national R&D portfolio
- Enact a permanent, restructured research and experimentation tax credit, and extend the credit to research conducted in university-industry research consortia
- Address the looming energy concerns of the nation by supporting appropriate innovative energy technologies

- Promote innovative research through new approaches such as the establishment of innovation “hot spots” to capitalize on regional assets and leverage public and private sector investments and/or by reallocating at least three percent of agency R&D budgets to "Innovation Acceleration" grants

IEEE-USA also recommends the timely enactment of legislation to:

- Increase National Science Foundation (NSF) funding to nearly double by 2011
- Increase the funding for the Department of Energy basic research, development, demonstration, and commercial application to nearly double by 2011
- Increase R&D funding for the national Institute of Standards and Technology (NIST) to double over 10 years
- Maintain the long-term basic research focus in other science and technology programs, including those administered by the Department of Defense and its Defense Advanced Research Projects Agency, as well as the Department of Homeland Security and its Homeland Security Advanced Research Projects Agency
- Increase high-performance computing research and expanded access to supercomputing resources, including enactment of the High Performance Computing Research and Development Act (H.R. 28).
- Support funding for the National Nanotechnology Initiative at levels recommended in the 21st Century Nanotechnology Act (Public Law 108-153)
- Strengthen R&D designed to revitalize the manufacturing and the technical services sectors, including enactment of the Manufacturing Technology Competitiveness Act (HR 250)
- Revitalize U.S. leadership in aerospace and aviation research and development
- Support technologies that promote public health and safety, including deployment of advanced information technologies and bioinformatics infrastructure into the healthcare sector
- Accelerate broadband deployment in the United States as a national priority
- Protect intellectual property

Collectively, these reforms channel federal resources toward long-term research goals that will foster innovation. This investment helps foster innovation in two ways. First, it will generate scientific discoveries and technological breakthroughs that drive innovation, indirectly creating entire new industries. Second, the research itself provides valuable educational opportunities for the next generation of engineers and scientists, opportunities that cannot be reproduced any other way.

About the IEEE-USA

This statement was developed by the Technology Policy Council of the IEEE-United States of America (IEEE-USA) and represents the considered judgment of a group of U.S. IEEE members with expertise in the subject field. IEEE-USA is an organizational unit of the Institute of Electrical and Electronics Engineers, Inc., created in 1973 to advance the public good and promote the careers and public policy interests of the more

than 220,000 electrical, electronics, computer and software engineers who are U.S. members of the IEEE. The positions taken by IEEE-USA do not necessarily reflect the views of IEEE or its other organizational units.

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