

Written Testimony
Before the
Committee on Science, Space and Technology
by
Rush Holt, Ph.D.
Chief Executive Officer
American Association for the Advancement of Science
Executive Publisher, *Science*
February 7, 2017

Good Morning Chairman Smith, Ranking Member Johnson, and fellow colleagues of this esteemed committee. Thank you for the opportunity to testify before you today on behalf of the American Association for the Advancement of Science, or AAAS. AAAS is the largest general scientific society and publisher of the *Science* family of journals. Our mission is simple: to advance science, engineering, and innovation throughout the world for the benefit of all people.

I want to state from the outset that I do not want my presence here to be construed as advocating for a specific environmental regulation. Science, and the process by which science is conducted, must be recognized as the most reliable pathway to knowledge and the best basis for making public policy and regulations. To quote a recent editorial in our journal *Science*, “science is not a political construct or a belief system. It provides testable, fundamental knowledge of the world and how things work.” It is a set of principles dedicated to discovery and use of evidence to continually test these discoveries. Though science gets a great deal of credit for advancing our understanding of the world, it is less understood for its foundational quality: humility in the face of evidence. Overtime, when one’s cherished beliefs, partisan ideologies, and wishful thinking have turned out to be wanting, the scientific evidence is likely to remain.

We need more reverence for evidence in our policy making. Without respect for evidence, and by extension evidence-based policymaking, our country's future, and indeed all of humanity's future, becomes dangerously compromised.

Good regulations depend on scientific progress. Science is not static, that is why the process of science converges on reliable knowledge. Science does not deal with cut-and-dried facts, ever immutable. Sometimes we will see the science push aside an understanding for a better, more verifiable understanding. That is the job of scientists -- through the scientific process. However attractive you may find your own belief at any time, your odds of success are better if you can go with scientifically established thinking.

Scientific progress depends on openness, transparency, and the free flow of ideas and people. These are the principles that have helped the United States attract and richly benefit from scientific talent. From the Apollo Program and exploring the far reaches of the universe, advancing biomedical research for curing diseases, to harnessing science to build a thriving high-tech sector, the United States has been a leader in science, education, and innovation. In order to remain the world leader, the U.S. must continue to foster this free exchange of ideas and talent.

Furthermore, scientists -- whether in industry, academia, or the government -- must have confidence that they can conduct their work in an atmosphere free of intimidation or undue influence. Policymakers should never dictate the conclusions of a scientific study, and they should base policy on a review of relevant research and the provisions of relevant statutes. In other words, the integrity of the process must be upheld. During the Bush and Obama Administration federal agencies worked to develop and implement scientific integrity and access

to data policies. This bipartisan recognition of strengthening scientific integrity in federal agencies lays a crucial foundation that should not be weakened.

Moreover, regulations and agency actions should be informed by the best available science and a rigorous scientific process. Undermining the integrity of the scientific process, or the ability of federal agencies to utilize rigorous science in establishing policies, could have long-term consequences ranging from a depletion of intellectual capital, to negative health outcomes for Americans and the world. It is with this in mind that we urge caution in setting laws that would make science a combat zone. Legislation removing concepts like reproducibility and independent analysis from the hands of scientists and into a legislative chamber or a court room would truly have a chilling effect on the scientific process and reduce the benefits that science could bring to society. Seeking to influence the scientific process has no place in how a government or other entity should conduct science.

In recent decades, opinion and ideological assertions have crowded out scientifically validated evidence on some issues. If policymakers and citizens do not recognize the value that science plays in modern society, and the enormous opportunity for scientific evidence to help make better public decisions, research and innovation will not thrive.

Thank you again for the invitation to testify today. I look forward to working with you in the weeks and months ahead.

Biography of Rush D. Holt, Chief Executive Officer

Rush D. Holt, Ph.D., became the 18th chief executive officer of the American Association for the Advancement of Science (AAAS) and executive publisher of the Science family of journals in February 2015. In this role, Holt leads the world's largest multi-disciplinary scientific and engineering society.

Over his career, Dr. Holt has held positions as a teacher, scientist, administrator, and policymaker. From 1987 to 1998, Holt was assistant director of the Princeton Plasma Physics Laboratory (PPPL), a Department of Energy national lab, which is the largest research facility of Princeton University and one of the largest alternative energy research facilities in the country. At PPPL, Holt helped establish the lab's nationally renowned science education program. From 1980 to 1988, Holt served on the faculty of Swarthmore College, where he taught courses in physics and public policy. In 1982, he took leave from Swarthmore to serve as an AAAS/American Physical Society Science and Technology Policy Fellow on Capitol Hill. The Fellowships program, dating to 1973, places outstanding scientists and engineers in executive, legislative, and Congressional branch assignments for one or two years; by early 2015, the program had served nearly 3,000 alumni working worldwide in the policy, academic, industry, and nonprofit realms. Holt has said that his AAAS S&T Policy Fellowship was "life changing," and served as a springboard to his role in Congress. He also served as an arms control expert at the U.S. State Department, where he monitored the nuclear programs of countries such as Iraq, Iran, North Korea, and the former Soviet Union. In 1981, Holt was issued a patent for an improved solar-pond technology for harnessing energy from sunlight.

Before coming to AAAS, Holt served for 16 years as a member of the U.S. House of Representatives, representing New Jersey's 12th Congressional District. In Congress, Holt served as a senior member of the Committee on Natural Resources and the Committee on Education and the Workforce. On Capitol Hill, Holt established a long track record of advocacy for federal investment in research and development, science education, and innovation. He served on the National Commission on the Teaching of Mathematics and Science (known as the Glenn Commission), founded the Congressional Research and Development Caucus, and served as a co-chair of the Biomedical Research Caucus. Holt served eight years on the Permanent Select Committee on Intelligence and, from 2007 to 2010, chaired the Select Intelligence Oversight Panel, which worked to strengthen legislative oversight of the intelligence community. His legislative work earned him numerous accolades, including being named one of Scientific American magazine's "50 National Visionaries Contributing to a Brighter Technological Future" and a "Champion of Science" by the Science Coalition. He has also received awards from the American Chemical Society, the American Association of University Professors, the National Association of Graduate-Professional Students, the American Institute for Medical and Biological Engineering, the Council of Scientific Society Presidents, the American Geophysical Union, and the Biotechnology Industry Organization. Holt is also a past recipient of two of AAAS' highest honors: the William D. Carey Lectureship Award (2005) and the Philip Hauge Abelson Award (2010).

From December 2014 to February 2015, Holt was appointed a Director's Visiting Scholar at the Institute for Advanced Study in Princeton, New Jersey.

Holt is a Phi Beta Kappa graduate of Carleton College in Northfield, Minnesota, and he holds M.A. and Ph.D. degrees in physics from New York University. He is an elected fellow of AAAS, the American Physical Society, and Sigma Xi, and he holds honorary degrees from Monmouth University, Rider University, University of Toledo, and Thomas Edison State College. He is married to Margaret Lancefield, a physician, and they have three children and seven grandchildren.