

WASHINGTON REPORT

September 2008

Obama and McCain Science Policy

Washington DC is buzzing with election year politics. However, there is little chance that anything of significance will be moved forward by Congress between their August recess and their scheduled adjournment on September 26. This includes the FY 2009 appropriations bills.

When the 111th Congress of the United States commences, who will be the next U.S. President? I have to admit I'm a little disappointed after watching both presidential conventions and not hearing either candidate mention barely a lick about science, research, and innovation. The fact is that both candidates seem to agree on most issues regarding agriculture, the environment, climate change, and invasive species management. Depending on your political persuasion, that can be shocking or enlightening. Either way, your decision on November 4 will likely be driven by differences between the candidates outside the realm of agricultural and science policy. Regardless, as WSSA liaison to the American Association for the Advancement of Science (AAAS), I want to share with you McCain's and Obama's answers (or at least their campaign staff's answers) to three science policy questions.

1. Innovation- Science and technology have been responsible for half of the growth of the American economy since WWII. But several recent reports question America's continued leadership in these vital areas. What policies will you support to ensure that America remains the world leader in innovation?

McCain- I have a broad and cohesive vision for the future of American innovation. My policies will provide broad pools of capital, low taxes and incentives for research in America, a commitment to a skilled and educated workforce, and a dedication to opening markets around the globe. I am committed to streamlining burdensome regulations and effectively protecting American intellectual property in the United States and around the globe.

Transformative information and communications technologies permeate every aspect of our daily lives. In the last decade, there has been an explosion in the ways Americans communicate with family, friends, and business partners; shop and connect with global markets; educate themselves; become more engaged politically; and consume and even create entertainment. America has led the world into this technology revolution because we have enabled innovation to take root, grow, and prosper. Nurturing technology and innovation is essential for solving the critical problems facing our country: developing alternative fuels, addressing climate change, encouraging commercialization of new technologies, deploying technology to manage cost and enable new jobs, stopping the spiraling expense of health care, and better educating our children and our workforce.

I am uniquely qualified to lead our nation during this technological revolution. While in the Navy, I depended upon the technologies and information provided by our nation's scientists and engineers with during each mission. I am the former chairman of the Senate Committee on Commerce, Science and Transportation. The Committee plays a major role in the development of technology policy, specifically any legislation affecting communications services, the Internet,

cable television and other technologies. Under my guiding hand, Congress developed a wireless spectrum policy that spurred the rapid rise of mobile phones and Wi-Fi technology that enables Americans to surf the web while sitting at a coffee shop, airport lounge, or public park.

Above all, my commitment to innovation is a commitment to the well-established entrepreneurial spirit and creativity of America's thinkers and tinkerers whose inventions have improved our lives and promoted prosperity. To maintain American leadership, I believe we must nurture the conditions under which entrepreneurs can continue to prosper by bringing new innovators to market and the American people can reap the rewards.

As President, I will ---

- Focus on addressing national needs to make the United States a leader in developing, deploying, and exporting new technologies;
- Utilize the nation's science and technology infrastructure to develop a framework for economic growth both domestically and globally;
- Appoint a Science and Technology Advisor within the White House to ensure that the role of science and technology in policies is fully recognized and leveraged, that policies will be based upon sound science, and that the scientific integrity of federal research is restored;
- Eliminate wasteful earmarks in order to allocate funds for science and technology investments;
- Fund basic and applied research in new and emerging fields such as nanotechnology and biotechnology, and in greater breakthroughs in information technology;
- Promote greater fiscal responsibility by improving the scientific and engineering management within the federal government;
- Encourage and facilitate commercialization of new innovations, especially those created from federally funded research;
- Ensure U.S. leadership in space by promoting an exploration agenda that will combine the discoveries of our unmanned probes with new technologies to take Americans to the Moon, Mars, and beyond;
- Grow public understanding and popularity of mathematics and science by reforming mathematics and science education in schools;
- Leverage technologies to create employment in rural areas and deploy the displaced workforce;
- Create greater transparency in government and encourage more citizens-government dialogs using current technology; and
- Develop and implement a global competitive agenda through a series of business roundtables with industry and academia leaders.

Obama- Ensuring that the U.S. continues to lead the world in science and technology will be a central priority for my administration. Our talent for innovation is still the envy of the world, but we face unprecedented challenges that demand new approaches. For example, the U.S. annually imports \$53 billion more in advanced technology products than we export. China is now the world's number one high technology exporter. This competitive situation may only worsen over time because the number of U.S. students pursuing technical careers is declining. The U.S. ranks 17th among developed nations in the proportion of college students receiving degrees in science or engineering; we were in third place thirty years ago.

My administration will increase funding for basic research in physical and life sciences, mathematics, and engineering at a rate that would double basic research budgets over the next decade. We will increase research grants for early-career researchers to keep young scientists entering these fields. We will increase support for high-risk, high-payoff research portfolios at our science agencies. And we will invest in the breakthrough research we need to meet our energy challenges and to transform our defense programs.

A vigorous research and development program depends on encouraging talented people to enter science, technology, engineering, and mathematics (STEM) and giving them the support they need to reach their potential. My administration will work to guarantee to students access to strong science curriculum at all grade levels so they graduate knowing how science works – using hands-on, IT-enhanced education. As president, I will launch a Service Scholarship program that pays undergraduate or graduate teaching education costs for those who commit to teaching in a high-need school, and I will prioritize math and science teachers. Additionally, my proposal to create Teacher Residency Academies will also add 30,000 new teachers to high-need schools – training thousands of science and math teachers. I will also expand access to higher education, work to draw more of these students into science and engineering, and increase National Science Foundation (NSF) graduate fellowships. My proposals for providing broadband Internet connections for all Americans across the country will help ensure that more students are able to bolster their STEM achievement.

Progress in science and technology must be backed with programs ensuring that U.S. businesses have strong incentives to convert advances quickly into new business opportunities and jobs. To do this, my administration will make the R&D tax credit permanent.

2. Research- For many years, Congress has recognized the importance of science and engineering research to realizing our national goals. Given that the next Congress will likely face spending constraints, what priority would you give to investment in basic research in upcoming budgets?

McCain- With spending constraints, it will be more important than ever to ensure we are maximizing our investments in basic research and minimizing the bureaucratic requirements that eat away at the money designed for funding scientists and science. Basic research serves as the foundation for many new discoveries and represents a critical investment for the future of the country and the innovations that drive our economy and protect our people. I have supported significant increases in basic research at the National Science Foundation. I also called for a plan developed by our top scientists on how the funding should be utilized. We must ensure that our

research is addressing our national needs and taking advantage of new areas of opportunities and that the results of this research can enter the marketplace. We must also ensure that basic research money is allocated to the best science based on quality and peer review, not politics and earmarks.

I am committed to reinvigorating America's commitment to basic research, and will ensure my administration funds research activities accordingly. I have supported increased funding at DOE, NSF, and NIH for years and will continue to do so. I will continue my commitment to ensure that the funding is properly managed and that the nation's research needs are adequately addressed.

Obama- Federally supported basic research, aimed at understanding many features of nature—from the size of the universe to subatomic particles, from the chemical reactions that support a living cell to interactions that sustain ecosystems—has been an essential feature of American life for over fifty years. While the outcomes of specific projects are never predictable, basic research has been a reliable source of new knowledge that has fueled important developments in fields ranging from telecommunications to medicine, yielding remarkable rates of economic return and ensuring American leadership in industry, military power, and higher education. I believe that continued investment in fundamental research is essential for ensuring healthier lives, better sources of energy, superior military capacity, and high-wage jobs for our nation's future.

Yet, today, we are clearly under-investing in research across the spectrum of scientific and engineering disciplines. Federal support for the physical sciences and engineering has been declining as a fraction of GDP for decades, and, after a period of growth of the life sciences, the NIH budget has been steadily losing buying power for the past six years. As a result, our science agencies are often able to support no more than one in ten proposals that they receive, arresting the careers of our young scientists and blocking our ability to pursue many remarkable recent advances. Furthermore, in this environment, scientists are less likely to pursue the risky research that may lead to the most important breakthroughs. Finally, we are reducing support for science at a time when many other nations are increasing it, a situation that already threatens our leadership in many critical areas of science.

This situation is unacceptable. As president, I will increase funding for basic research in physical and life sciences, mathematics, and engineering at a rate that would double basic research budgets over the next decade.

Sustained and predictable increases in research funding will allow the United States to accomplish a great deal. First, we can expand the frontiers of human knowledge. Second, we can provide greater support for high-risk, high-return research and for young scientists at the beginning of their careers. Third, we can harness science and technology to address the “grand challenges” of the 21st century: energy, health, food and water, national security, information technology, and manufacturing capacity.

3. Genetics research- The field of genetics has the potential to improve human health and nutrition, but many people are concerned about the effects of genetic modification both in humans and in agriculture. What is the right policy balance between the benefits of genetic advances and their potential risks?

McCain- Genetic research holds great promise, but also demands great responsibility. We stand on the threshold of life-changing breakthroughs shepherded by the human genome project. I share in the wonder that unlocking the human genetic code affords and the life-changing treatments and therapies it could allow. But this discovery should inspire restraint to equal to its promise to ensure nascent discoveries are not abused. As genetic research becomes increasingly deployed, the need to ensure privacy of human records will become all the more essential, as will be the rigor to ensure there is no genetic discrimination. The scientific potential and ethical issues associated with genetics are important and complex enough that I will actively seek out the wise counsel of experts about how to ensure that we are best serving the needs of the American people.

Genetic research can already provide real assistance for those in some of the poorest regions who lack access to adequate food sources. Through increased research and development, we can help foster a new Green Revolution like the one that transformed Asia several decades ago. In partnership with government institutions, our colleges and universities should help train a new generation of African agro-scientists. Our aid programs should help focus on research into higher-yielding crops and make investments in infrastructure that will help farmers increase their yields and deliver their products to market.

Obama- The progress that has occurred in genetics over the past half century has been remarkable—from the discovery of DNA’s double helix structure in 1953 to the recent deciphering of all three billion letters of the human genome. New knowledge about genes is already transforming medicine and agriculture and has the potential to change other fields, including energy and environmental sciences and information technology.

I also recognize that the power of modern genetics has raised important ethical, legal, and social issues that require careful study. For example, new developments in human genetics allow individuals to be informed about their risks of various diseases; such information can be useful for diagnosing and treating disease, but it can also be misused by employers or insurers to discriminate. For this reason, I have been a long-time supporter of the recently passed Genetic Information Non-Discrimination Act. In addition, concerned about the premature introduction of genetic testing into the public domain without appropriate oversight, I introduced the Genomics and Personalized Medicine Act of 2007 aimed at ensuring the safety and accuracy of such testing.

Advances in the genetic engineering of plants have provided enormous benefits to American farmers. I believe that we can continue to modify plants safely with new genetic methods, abetted by stringent tests for environmental and health effects and by stronger regulatory oversight guided by the best available scientific advice.

Disease treatment and identification is likewise being transformed by modern genetics. Recombinant DNA (rDNA) technology has produced a number of products such as human growth hormone or insulin or other complicated proteins that are known to be involved in bone metabolism, immune response, and tissue repair. The promise of rDNA is its ability to sidestep potentially harmful intermediaries that could have a pathogenic effect. Some forms of gene therapy-replacing faulty genes with functional copies-in comparison have encountered safety issues that arise from how the functional gene is delivered. As a result, the NIH established the Recombinant DNA Advisory Committee, which now provides advice and guidance on human

gene therapy as well as other ethical concerns or potential abuse of rDNA technology. Until we are equipped to ascertain the safety of such methods, I will continue to support the activities and recommendations of the Recombinant DNA Advisory Committee.

National Park Service Boundary Bill Becomes Law

Earlier this year, Congress finally passed the Consolidated Natural Resources Act of 2008 and it became Public Law 110-229. This bill contained over 60 pieces of separate legislation, one of which was the Natural Resource Protection Cooperative Agreement Act.

Four major land management agencies are responsible for the management of over 630 million acres out of a total of over 700 million acres in the United States. Specifically, the Bureau of Land Management (BLM) has 261 million acres; the Forest Service has 193 million acres; the Fish and Wildlife Service (FWS) has 96 million acres; and the National Park Service (NPS) has 84 million acres. Three of the four agencies, the BLM, Forest Service, and FWS are already authorized to expend funds to protect resources outside of lands they manage, which is important in battling invasive weeds as the weeds do not respect jurisdictional borders. The National Park Service did not have this authority.

Section 301 of **Public Law 110-229** now authorizes the Secretary of the Interior to enter into cooperative agreements with state, local, or tribal governments, other federal agencies, other public entities, educational institutions, private nonprofit organizations, or participating private landowners for the purpose of protecting natural resources of units of the National Park System through collaborative efforts on land inside and outside of National Park System units. These agreements shall provide clear and direct benefits to park natural resources and shall provide for: (1) the preservation, conservation, and restoration of coastal and riparian systems, watersheds, and wetlands; (2) **preventing, controlling, or eradicating invasive exotic species that are within a unit of the National Park System or adjacent to such a unit**; or (3) restoration of natural resources, including native wildlife habitat or ecosystems.

10th National Invasive Weeds Awareness Week (NIWAW)

Please mark your calendars for the 10th National Invasive Weed Awareness Week (NIWAW) to be held in Washington, DC from February 22-27, 2009. The headquarters hotel for NIWAW 2009 is the Four Points by Sheraton Hotel, 1201 K Street NW, Washington, DC.

Unlike in past years, a new political advocacy coalition, currently called **Healthy Habitats**, will be meeting in conjunction with NIWAW. National Invasive Weeds Awareness Week has been a great event to bring people and groups from across the country together to increase awareness and educate both policy makers and federal agency personnel about the severe impacts caused by invasive weeds. The Healthy Habitats coalition plans to take this message to the next level by advocating for legislation and policies year-round that improve the prevention and management of invasive and noxious weeds. More details to come!

Apply Your Science to Serve Society

For 35 years, the American Association for the Advancement of Science (AAAS) **Science & Technology Policy Fellowships** have provided scientists and engineers with a unique opportunity to apply their knowledge and skills to national and international issues in the federal policy realm, while learning first-hand about establishing and implementing policy.

Fellows select assignments in Congressional offices or federal agencies. This is a year-long opportunity, beginning September 1 and ending August 31. Fellows have ranged in age from late 20s to early 70s. They represent a spectrum of career stages, from recent PhD graduates to faculty on sabbatical to retired scientists and engineers. Fellows also come from a range of sectors, including academia, industry, non-profit organizations, and government labs. AAAS also serves as the “umbrella” organization for other scientific societies that sponsor a Fellow, such as the American Society of Agronomy.

Fellows receive a stipend up to \$92,000 for the year. Relocation expenses of up to \$4,000 are also provided. The deadline for applications for the 2008-2009 Fellowship class is December 15, 2008. Full details at <http://fellowships.aaas.org>

Lee Van Wychen, Ph.D.
Director of Science Policy
The National and Regional Weed Science Societies
900 2nd St. NE, Suite 205
Washington, DC 20002
Lee.VanWychen@wssa.net
cell: 202-746-4686