Science and Technology Policy 2009

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Federal Demonstration Partnership
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“Barack Obama and Joe Biden understand that critical national goals can only be met if we renew our commitment to science, technology and innovation.”

www.barackobama.com

Science and Technology Themes

- Restore integrity to US S&T policy
- Increase funding and strengthen management of federal R&D
- Major commitment to STEM education
- Encourage private investment in research and innovation
- Using science and technology to address America’s greatest challenges

“The truth is that promoting science isn’t just about providing resources—it’s about protecting free and open inquiry, it’s about ensuring that facts and evidence are never twisted or obscured by politics or ideology. It’s about listening to what our scientists have to say, even when it’s inconvenient—especially when it’s inconvenient.”

Barack Obama, December 20, 2008 Weekly Address

Restore Integrity to US Science and Technology Policy

- **Restore and Enhance the Status of the President's Science and Technology Advisor**
- **Appoint Individuals with Strong Science and Technology Backgrounds to Key Positions**
- **Ensure Independent, Non-ideological, Expert Science and Technology Advisory Committees**
- **Restore Scientific Integrity in Government Decision Making**

Strong Research Programs

- **Double the Research Budgets of Key Science Agencies over a Decade**
- **Actively Encourage Multidisciplinary Research and Education**
- **Ensure support high risk, high return research**
- **Ensure support for young researchers at the beginning of their careers**

Space

- **Establish a robust program for human and robotic exploration that preserves our space workforce, engages international allies and draws on expertise in the private sector.**
- **Close the gap in NASA access to lower earth orbit and better utilize the International Space Station.**
- **Strengthen NASA's missions in space science, weather, climate research, and aeronautical research.**
- **Develop a new generation of space vehicles to replace the Space Shuttle scheduled to retire in 2010.**
- **Improve NASA's educational outreach and programs that promote spin-off consumer technologies.**

Strengthen STEM Education

- **Increase the Quantity and Quality of PreK-12 Math and Science Teachers**
- **Invest in Technology**
  - Integrate technology in the classroom so innovative learning technologies such as simulations, interactive games, and intelligent tutoring systems can assist in improving the quality of learning and instruction.
  - Use technology as a base for better methods of student assessments that allow teachers and parents to identify and focus on individual needs and talents throughout the school year.
  - Create new technology-based curriculum
- **Leverage national efforts and encourage state collaboration to improve implementation**
- **Improve measures of STEM learning**
- **Inspire Americans to excel in, and embrace, science and engineering**

Strengthen Higher Education

- **Triple the number of NSF graduate research fellowships**
- **Expand and Improve STEM Education in Community Colleges: Make College Affordable for All Americans**
- **Expand America's Research Workforce**

Foster Private Sector Innovation

- **Make the Research and Development Tax Credit Permanent**
- **Provide Tax Relief for Small Businesses and Start Up Companies**
- **Reform the Patent System**
- **Create a national network of public-private business incubators: Invest in key research infrastructure**
- **Partner with America's automakers to help save jobs and ensure that the next generation of clean vehicles is built in the United States**
- **create an Advanced Manufacturing Fund to identify and invest in the most compelling advanced manufacturing strategies.**

Support Immigration Reform

- Reduce the backlog
- Create a "fast track" system for foreign students that receive advanced technical degrees from U.S. universities
- Reduce barriers to international scientific exchange
- Work to ensure immigrant workers are less dependent on their employers for their right to stay in the country and hold accountable employers who abuse the system and their workers.

Science and Technology to Meet 21st Century Challenges

- Competitive economy
- Energy
- Climate Change and other Environmental Challenges
- National Security and Homeland Security
- Food
- Transportation
- Health Care
- Water

We’ll also do more to retrofit America for a global economy. That means investing in the science, research, and technology that will lead to new medical breakthroughs, new discoveries, and entire new industries

Barack Obama, January 8th, 2009

Competitiveness

- **Develop Next Generation Manufacturing Technologies**
- **Double Funding for the Manufacturing Extension Partnership**
- **Advance Information Technology**
- **Support a Strong Program of Basic and Applied IT Research**:
- **Bring Government into the 21st Century**

Energy

- New vehicle technologies capable of achieving fuel economies several times that of existing cars and trucks.
- Breakthroughs in energy storage and transmission that would greatly help the economics of new electric generating technologies and plug-in hybrids
- Equipment and designs that can greatly reduce energy use in residential and commercial buildings – both new and existing.
- Technologies for capturing and sequestering greenhouse gases generated by coal plants.
- A portfolio of renewable energy technologies including wind, photovoltaic, solar thermal, ocean technologies, and converting waste and other biomass to electricity and fuels.
- Advances in digital “smart grids” that can optimize the overall efficiency of the nation's electric utility system by managing demand and making effective use of renewable energy and energy storage.
- A new generation of nuclear electric technologies that address safety, waste, disposal, cost, and proliferation risks.

Energy Incentives

- a cap-and-trade system to reduce carbon emissions 80 percent below 1990 levels by 2050
- a Renewable Portfolio Standard of 10 percent by 2012
- extended Production Tax Credit for renewable energy production
- Clean Technologies Deployment Venture Capital Fund.

Health Care

- **Strong support for NIH**
- **Encourage Rapid Translation of Medical Research into Public Health Benefits**
- **Advance Stem Cell Research**
- **Advance Genomics to Improve Medicine**

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National Security and Homeland Security

- **Restore DARPA's Role in Supporting Revolutionary Technological Advances**
- **Renew Homeland Security ARPA**a.
- **Accelerate the Development of New Medicines, Vaccines, and Production Capabilities for Biodefense**
- **Initiate a Safe Computing R&D Effort (cybersecurity)**
- **Bolster Defense Manufacturing**

Open Internet and Diverse Media Outlets

- **Protect the Openness of the Internet**
- **Encourage Diversity in Media Ownership**
- **Protect Our Children While Preserving the First Amendment:**
- **Safeguard our Right to Privacy**

Make Full Use of Advanced Information Technology

- Productivity gains:
  - Medical records, personalized medicine
  - Smart Grid
  - Public Safety
  - In-silico research

- Transparent and Connected Democracy
  - Open up government to its citizens
  - Bring government into the 21st Century
  - Federal Chief Technology Officer

- Modern Communications Infrastructure (next generation broadband)

Transportation

- Respond to the safety challenge with research on vehicle and highway safety making full use of new design tools, new materials, and new sensor and communication systems that can prevent crashes and provide early warning of possible hazards.
- Make full use of new information technologies for safe and efficient dispatch of rail and highway vehicles.
- Encourage telecommuting by developing and deploying novel telecommuting and satellite office strategies to minimize travel by federal employees and contractors.

Agriculture

- **Increased attention to the basic science that underlies crop and forest productivity, livestock health, and ecosystem stability**
- **Understand how agricultural systems will respond to changes in climate, the introduction of pests and disease, and bioterrorist incidents**
- **A better understanding of genetic and population diversity will enhance productivity and stability of crop systems**
- **Learn how best to prepare for and combat invasive species**
- **Research to help address the challenges faced by farmers in developing countries (drought-resistant crops and affordable seed and fertilizer technology.)**

The Stimulus Proposal

- Doubling the production of alternative energy in the next three years.
- Modernizing more than 75% of federal buildings and improve the energy efficiency of two million American homes.
- Ensure that within five years, all of America's medical records are computerized.
- Equipping tens of thousands of schools, community colleges, and public universities with 21st century classrooms, labs, and libraries.
- Expanding broadband across America
- Investing in the science, research, and technology that will lead to new medical breakthroughs, new discoveries, and entire new industries.

“The highest purpose of science is the search for knowledge, truth and a greater understanding of the world around us. That will be my goal as President of the United States”

Barack Obama, December 20, 2008