

**President's Council of Advisors on Science and Technology (PCAST)
SIXTH MEETING
July 16, 2010
MINUTES**

Keck Center of the National Academies

Room Keck 100
500 5th Street, NW
Washington, DC

Members Present: John P. Holdren (Co-Chair), Eric Lander (Co-Chair), Rosina Bierbaum, Christine Cassel, Christopher Chyba, S. James Gates Jr. , Shirley Ann Jackson, Richard C. Levin, Chad Mirkin, Ernest J. Moniz, Craig Mundie, Ed Penhoet, William Press, Maxine Savitz, Barbara Schaal, Eric Schmidt, Daniel Schrag, David E. Shaw, Ahmed Zewail

Members Absent: Mario Molina

Staff: Deborah Stine, Mary Maxon, Gera Jochum

Public Attendance: Approximately 100 observers attended.

Video Webcast Archive: The archive of the video webcast is available at www.whitehouse.gov/ostp/pcast.

The President's Council of Advisors on Science and Technology (PCAST) convened in open session at 10:00 am with Dr. John Holdren and Dr. Eric Lander presiding on Friday, July 16, 2010.

Agenda Item 1: Welcome from PCAST Co-Chairs

Dr. Holdren, and Dr. Lander, PCAST Co-Chairs, opened the meeting and welcomed the participants just after 10:00 am.

Dr. Lander mentioned that Mario Molina was the only PCAST member not able to attend the meeting. Dr. Holdren mentioned President Obama's interest in obtaining input from PCAST and then listed the PCAST working groups scheduled to make presentations on their progress. He noted that recently there had been a great deal of activity focused on science and technology diplomacy including meetings between the United States and Japan, South Korea, India, Russia, and Brazil, and the one year anniversary of President Obama's Cairo Speech on June 8, 2009.

Agenda Item 2: Overview of National Institute of Standards and Technology (NIST)

Dr. Holdren introduced Dr. Patrick Gallagher, the 14th director of the U.S. Department of Commerce's National Institute of Standards and Technology, NIST. Dr. Gallagher shared some background about NIST and commented on a number of areas emerging in NIST's agenda that are relevant to the President's innovation agenda and also on a number of areas being studied by PCAST.

Among the specific areas of focus that relate to the President's innovation agenda, he discussed NIST's responsibility to work with DOE to modernize the electrical grid, work on interoperability standards with the smart grid, and creating advantages for U.S. manufacturers by acting as the first mover in this area and defining how these systems will be assembled. He also listed advanced manufacturing, a topic of study for PCAST, as his top priority at NIST.

Following Dr. Gallagher's remarks, PCAST members engaged him in discussion. The first topic was NIST's role in establishing standards for forensic science. Specifically, there was discussion regarding the role of the Department of Justice, which funds research on forensic science, in establishing standards for such. Other questions focused on the development of standards for nanotechnology and the energy efficiency of buildings and standards research. PCAST members also asked Dr. Gallagher about NIST's role in advanced manufacturing and how it decides to set its priorities in that area of focus.

Agenda Item 3: Science, Technology, and Diplomacy

Dr. Holdren introduced the three science envoys. The first to speak was Dr. Bruce Alberts who spoke about his year as a Science Envoy to Indonesia. Dr. Alberts mentioned the importance of defining the role of a science envoy, as it is a new position, and the unique aspects of his job in Indonesia. He discussed how his role allowed him to interact with the Indonesian President, as well as scientists and students. He mentioned the focus Indonesia is now trying to place on science and the significant room the nation has for growth in science.

Dr. Alberts mentioned three questions PCAST might address. They included: How the US can help build local, merit based institutions for science and technology? How does one make international development a science? And how does one create more effective coordination mechanisms in the US government?

The second to speak was Dr. Elias Zerhouni, who worked as Science Envoy to Algeria. Dr. Zerhouni spoke of the fact that the US is seen by virtually all nations, regardless of their political or economic relationship with the US, as a model for scientific and technological development. As such, he mentioned the importance that the Science Envoys are observed as scientists without other agendas. Dr. Zerhouni also discussed the important international issues of health and the environment.

In addition, Dr. Zerhouni spoke of the importance of improving knowledge sharing, STEM education, and collaboration between nations with varying resources. He raised recommendations that included the need to create sustainable exchange programs and to develop a feeling of trust between the US and other nations.

The third and final speaker in this session was Ahmed Zewail, the science envoy to Egypt, who is also a PCAST member. Dr. Zewail spoke of the many nations throughout the Middle East that he visited during his time as envoy and the wide breadth of people he was able to meet on his trips. He made the point that what people overseas value most about the US are its achievements in science and technology. Dr. Zewail stated that it is in the best interest of the US to help people living in the Middle East and that science and technology can have a positive impact in doing so.

After the conclusion of Dr. Zewail's remarks, the floor was opened for questions from PCAST members. The ensuing discussion covered topics such as the exchange of best-practices in STEM education between the US and the rest of the world, development of science and technology partnerships on an international level, and President Obama's role in improving relations between the US and Middle Eastern nations. Other questions brought up the role of USAID and large international and national corporations in science and technology and development.

The co-chairs adjourned this portion of the Open Session at 12:45 am.

PCAST reconvened in Open Session at 2:00 pm.

Agenda Item 4: Public Comment

PCAST heard from members of the public in person and via the web. The following individuals provided oral comments to PCAST:

- Earl Blake, *Private Citizen*
- Damon Landau, *Private Citizen*
- John Mankins, *President of Artemis Innovation Management Solutions LLC*
- Camsie Matis, *Albert Einstein Distinguished Education Fellow*
- Christopher J. Pestak, *Project Manager/Sr. Market Manager, Battelle Memorial Institute*
- Linda Staheli, *Senior Staff Associate, U.S. Civilian Research and Development Foundation*
- Nathan Strange, *Private Citizen*
- Robert Wegeng, *President, Space Resources Roundtable*
- John Youskauskas, *Private Citizen*

Numerous individuals provided written comments to PCAST that are posted on the PCAST website. Additional public comments were provided through the PCAST Facebook, Twitter, and Open PCAST webpages.

Agenda Item 5: Health Information Technology Study Update

The Health Information Technology working group Co-Chairs, Craig Mundie and Christine Cassel, and PCAST report supervisor, Bill Press, presented the "Realizing the Potential of Health Information Technology" report to PCAST. The primary question answered by the report is how the U.S. can advance the use of electronic information in health care to address the range of issues that challenge our health care system both in terms of improving quality and safety, and in reducing costs. After a series of questions regarding the report by PCAST members, a motion was made and seconded to approve the report pending suggested revisions with Craig Mundie abstaining from the vote.

Agenda Item 6: Science, Technology, Education, and Mathematics Education (STEM) Study Update

Eric Lander and Jim Gates, co-chairs of the PCAST STEM Education subcommittee, provided an update on the status of PCAST's report on K-12 STEM education. Among the issues discussed in that report are coordination of federal activities in STEM education; teacher recruitment, preparation, professional development, and retention; STEM-focused schools; and preparing and inspiring students. PCAST members asked questions on topics such as using knowledge gained from social sciences research as to how people learn to enhance STEM education, interagency coordination, and informal STEM education conducted outside of schools at museums, afterschool programs, and so forth.

Agenda Item 7: President's Innovation and Technology Advisory Committee (PITAC) Update

Recent activities under PITAC, Co-Chaired by Shirley Ann Jackson and Eric Schmidt, were presented. Dr. Jackson began the discussion on recent PITAC activities, which center around developing a broad strategy for innovation in the 21st century and the idea that economic growth and vitality depend on sustained innovation and idea generation. Richard Levin then went onto discuss the economic aspects of innovation and the role of market failures in necessitating government intervention in funding research and development activities. Dr. Jackson also provided an update on a June brainstorming workshop centering on the fields of biotechnology, nanotechnology, and information technology.

Dr. Holdren and Dr. Lander adjourned the meeting at 5:00 pm.

Respectfully Submitted:

[signed]

Deborah D. Stine
Executive Director
President's Council of Advisors on Science and Technology

[signed]

Mary E. Maxon
Deputy Executive Director
President's Council of Advisors on Science and Technology

Approved:

[signed]

John P. Holdren
Co-Chair
President's Council of Advisors on Science and Technology

[signed]

Eric Lander
Co-Chair
President's Council of Advisors on Science and Technology

Attachments:

Appendix A: PowerPoint Presentations

Appendix B: Written Public Comments