

President's Council of Advisors on Science and Technology (PCAST)
FIFTH MEETING
May 21, 2010
MINUTES

Keck Center of the National Academies
Room 100
500 5th Street, NW
Washington, DC

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

Members Absent: Richard Levin, Ahmed Zewail

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 <http://www.whitehouse.gov/ostp/pcast>.

The President's Council of Advisors on Science and Technology (PCAST) convened in open session at 8:30 am with Dr. John Holdren, Dr. Eric Lander, and Dr. Harold Varmus presiding on Friday, May 21, 2010.

Agenda Item 1: Welcome and Overview of PCAST

Dr. Holdren, Dr. Varmus, and Dr. Lander, PCAST Co-Chairs, opened the meeting and welcomed the participants at 8:30 am.

Dr. Holdren began by discussing the departure of Co-chair Dr. Varmus as well as the ongoing Senate confirmations of the Associate Director for Science and the Associate Director for National Security and International Affairs. Dr. Lander then went onto also discuss how much Dr. Varmus will be missed in PCAST once he moves onto the National Cancer Institute (NCI). He then handed the floor over the Dr. Shirley Ann Jackson to discuss the report on advanced manufacturing.

Agenda Item 2: Advanced Manufacturing

Dr. Shirley Ann Jackson began by giving an overview of advanced manufacturing, its impact on innovation, the economy, as well as President Obama's commitment to rejuvenating this industry. Dr. Eric Schmidt then went on to discuss the difficulty in scaling-up a manufacturing process due to the lack of requisite funding and infrastructure available.

The floor was then opened up for comment during which Dr. Ernie Moniz made note of the growing educational demands placed on the advanced manufacturing work force. This led to a discussion of America losing its desirability as a manufacturing destination, behind countries such as China and others in Europe. Dr. Moniz then commented on the need to understand the structures of advanced manufacturing work forces to build our own STEM initiatives to strengthen our workforce in this sector.

Agenda Item 3: Energy Technology Innovation

Dr. Ernest Moniz began the conversation by describing the federal role in energy technology innovation. Specifically, he mentioned the role the government could play in the goals of climate change and risk mitigation, together with global demand and security and in terms of developing low carbon options that can be employed at scale. He discussed the implementation of such ideas and the need for cross-coordination across federal organizations. A general conversation then ensued amongst PCAST members regarding the need for coordination between Federal and State organizations, the lack of funding in future budgets, the role of alternative and green generation of power, the role of STEM education in advanced manufacturing, and the need to consider information from the social sciences. This led to a conversation regarding inter-disciplinary education and the need to incorporate cross-departmental programs at the university level, not just between the sciences, but also with policy.

Agenda Item 4: National Oceanic and Atmospheric Administration (NOAA) and Biodiversity

Dr. Holdren introduced the guest, Jane Lubchenco, the Under Secretary of Commerce for Oceans and Atmosphere and the Administrator of NOAA as well as Steve Murawski, the Director of Scientific Programs and Chief Science Advisor in National Marine Fishery Service. The topic of the conversation was the intersection of biodiversity and ecosystem management with the responsibilities of NOAA.

Dr. Lubchenco's presentation focused on the state of knowledge and functional aspect of biodiversity, how it relates to the provision of our life support systems for the planet, and what that means in terms of resilience of ecosystems. She also discussed the results of the Millennium Ecosystem Assessment which indicates that natural security, economic opportunity, human health, all can be connected in part to healthy, productive and resilient ecosystems. Additionally, she discussed the suite of activities going on within NOAA, such as preserving and restoring habitats as well as expanding the wealth of scientific understanding within these areas. Dr. Lubchenco described the increasing prevalence of technology

within NOAA activities to achieve goals such as gaining a better understanding of the state of ecosystems or predicting potential harm to an ecosystem. She discussed the Ocean Policy Task Force, which focuses on coastal and marine spatial planning with the idea of maximizing the benefits of existing and emerging uses of oceans while minimizing conflicts and sustaining ecosystem services.

During the question and answer session, several topics were discussed, such as the role of government in conservation of the ecosystem, directions PCAST can take in its study of biodiversity, and what kind of agency coordination on biodiversity issues is necessary.

Agenda Item 5: PCAST Discussion of Report on Influenza Vaccinology

Dr. Harold Varmus provided a background of the PCAST Influenza Vaccinology report and previous related PCAST work. He discussed the time lag in producing influenza vaccine 2009, which led to a reconsideration of the methods undertaken to produce vaccines. As a part of his presentation, Dr. Varmus provided an overview of how vaccines are produced under the guidelines of pandemic responses laid out by the WHO. He then went onto discuss methods of speeding up this process, by for example, speeding up detection of the pandemic. Dr. Varmus proceeded to describe the various types of vaccines, such as attenuated virus based vaccines, vaccines based on recombinant DNA based production of viral proteins, as well as vaccines produced by cell-based methods. As a concluding remark, he mentioned how the proposed methods of increasing the efficiency of vaccine production and distribution can shave several weeks to months off the process.

During the question and answer session, the discussion turned to topics such as,

PCAST members then discussed the report. Issues discussed included the universality of the proposed recommendations, FDA approval of new influenza vaccines, and priority setting. A motion was made and seconded to approve the report pending the suggested revisions. PCAST approved the report with no opposing votes.

Agenda Item 6: Public Comment

PCAST heard from members of the public in person, via the web, and through written comments read by a staff member during this session. The following individuals provided oral comments to PCAST:

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

- Brett Loper, Director, Government Affairs, The Advanced Medical Technology Association (AdvaMed) spoke about the importance of government policy on the ability of the United States to maintain its position as the world leader in medical technology.

- Paula Skedsvold, Executive Director, Federation of Associations in Behavioral & Brain Sciences (FABBS) Foundation addressed the significance of the behavioral and social sciences -- highlighting the role they play in addressing many of society's biggest challenges and the importance of incorporating these disciplines into STEM education.
- Fred Wentzel, Executive Vice President, National Council for Advanced Manufacturing spoke regarding the critical role of manufacturing in the U.S. economy and the important part the government can do to ensure the manufacturing sector remains strong into the future.
- Cameron Wilson, Director of Public Policy, Association For Computing Machinery spoke on the need for better computer science education at the K-12 level in the United States.

PCAST members asked questions of several speakers.

Agenda Item 7: Advanced Research Projects Agency – Energy (ARPA-E)

Dr. Holdren called the meeting back to order and introduced the next speaker, Dr. Arun Majumdar, Director of ARPA-E. Dr. Majumdar provided a brief overview of ARPA-E and its mission before beginning to discuss the agency's progress over the first year. The agency received 3700 concept papers for review and selected 37 to be funded at an average of \$4 million each and a maximum of time period of 3 years. Examples of the projects that are being funded include cellulosic biofuels, grid-level electricity storage, wind turbines, carbon capture, and. In addition to the projects ARPA-E is funding, Dr. Majumdar discussed the creation of the ARPA-E Fellows program, the ARPA-E Commercialization team, and the ARPA-E Operations team.

Dr. Majumdar also focused on managing expectations of the timeline for delivery on ARPA-E's goals. Many of the big projects are not likely to show a large impact until 10 to 15 years in the future. Dr. Majumdar argued that in the near-term ARPA-E needs to focus on making sure that its progress is on the right track and the projects being funded are moving towards deliverables of domestic and global sales, avoided greenhouse gas emissions, reduced oil imports, and jobs created. Furthermore, he made clear that even though 100 different projects might be on track to deliver, only 5 or 6 may be real home runs, but that given the nature of the projects ARPA-E is designed to fund, that success rate is fine. From there he moved to talk about how ARPA-E fits into the Department of Energy.

Dr. Holdren then opened the floor to questions from PCAST members. The topics of discussion included how to best recruit new people into energy research, the nature of ARPA-E's consumers, deployment of ARPA-E generated technologies in developing countries, and the relationship between ARPA-E and the venture capital community

Agenda Item 8: PCAST Discussion of the Health Information Technology (IT) Report

Dr. Craig Mundie and Dr. Christine Cassel provided an overview of the status of PCAST's Health IT report – currently in development. They indicated that the report has a goal of providing the President with advice regarding the future of health information technology and the impact it will have on improving patient health outcomes, decreasing costs, and improving aggregated data availability. The report has taken on renewed significance in the context of the Affordable Care Act passed in March. Dr. Mundie and Dr. Cassel also mentioned the importance of keep all of the different stakeholders in mind and of addressing the specific needs of physicians who work in small practices.

Agenda Item 9: Science, Technology, Engineering, and Math (STEM) Education Report

Dr. Eric Lander and Dr. Jim Gates provided an update of the STEM Education report that PCAST is currently developing. This report will address STEM issues in at the K-12 level and work to attempt to achieve goals that include creation of an entire citizenry that is at least STEM capable and can utilize their STEM knowledge in the workforce and in making decisions, supplying a continuing flow of STEM experts, and closing the STEM achievement gap between different groups within the United States.

Dr. Holdren, Dr. Lander, and Dr. Varmus adjourned the meeting at 4:30 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
President's Council of Advisors on Science and Technology

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

[signed]
Harold Varmus
Co-Chair
President's Council of Advisors on Science and Technology

Attachments:

Appendix A: Powerpoint presentations

Appendix B: Written Public Comment