

Summary of the Inaugural Meeting of the President's Council of Advisors on Science and Technology (PCAST)

Council Members: Present: Kelvin Droegemeier, Chair; Catherine Bessant; Dario Gil; Sharon Hrynkow; H. Fisk Johnson; A.N. Sreeram; Shane Wall; Birgitta Whaley.

Date and Time: November 18, 2019, 9:21 AM – 5:19 PM

Location: National Academy of Sciences, Washington, DC (Lecture Room)

Purpose: Inaugural Meeting of the President's Council of Advisors on Science and Technology (PCAST)

PCAST Staff: Edward G. McGinnis, PCAST Executive Director, DFO

Invited Speakers: Michael Kratsios, Chief Technology Officer of the United States;
Chris Liddell, White House Deputy Chief of Staff for Policy Coordination;
Chris Fall, Director of the Department of Energy's Office of Science;
Diane Souvaine, Chair, National Science Board;
Ellen Ochoa, Vice Chair, National Science Board;
John Veysey, Executive Officer, National Science Board.

Meeting Summary

This PCAST meeting was the first convened under President Donald J. Trump. PCAST Members heard from individuals from the Executive Office of the President, the Department of Energy, and the National Science Board, and discussed potential PCAST activities. Next steps include formation of several subcommittees delineating PCAST work streams, information-gathering visits of PCAST members to several National Laboratories, and four PCAST meetings to be held in 2020.

Public Meeting

The session began at 9:21 AM.

Introduction from PCAST Chair Kelvin Droegemeier

Droegemeier began by welcoming all present to the inaugural meeting of the President's Council of Advisors on Science and Technology. He called the meeting to order, expressing his gratitude to the Council members for their willingness to serve in this important role as presidential appointees, and extended a special welcome on behalf of President Donald J. Trump. He thanked the Department of Energy for administering PCAST and Susan Beard for her guidance; introduced Edward G. McGinnis, PCAST Executive Director; acknowledged Michelle LeVine and Randy Hansen of WWC for their logistical support; and noted that the meeting minutes would be made publicly available on the PCAST website.

He identified the goals for the day as: understanding the roles of the White House Office of Science and Technology Policy (OSTP) and PCAST; finalizing work streams and developing a 6-month work plan; initiating engagement with the National Science Board (NSB); and setting a schedule for the next year.

He then shared important historical context including the history of the U.S. Research Enterprise; potential for a Second Bold Era of S&T; OSTP's mission to ensure that the U.S. continues to lead the world in science and technology; the organizational structure of OSTP and the National Science and Technology Council (NSTC); key interests and accomplishments of the Administration; and a history of Presidential scientific advisory committees.

He concluded with thoughts on the role of PCAST in the Trump Administration. PCAST's role is to advise the President, either directly or through the OSTP Director, and the NSTC upon request. PCAST also fills the role of two additional Federal advisory groups as mandated in the High Performance Computing Act of 1991 and the 21st Century Nanotechnology Research and Development Act.

The current PCAST is unique in that it is chaired by the OSTP director without a co-chair; has no current plans for major reports; will collaborate with the NSB; and is launching a new Students,

Postdoctoral Scholars and Early Career (SPEC) Professionals Subcommittee. PCAST will meet in person three to four times per year, with the support of the Executive Director, WWC, and the Science and Technology Policy Institute.

Swearing in of PCAST Members

At 9:48 AM, the seven Inaugural members of PCAST were officially sworn in by Kelvin Droegemeier, PCAST Chair and Director of the White House Office of Science and Technology Policy.

Remarks: The Imperative of American Leadership in Technology **Michael Kratsios, Chief Technology Officer of the United States**

Droegemeier introduced and welcomed Kratsios, who shared additional context on the technology agenda of the Administration. He began by noting his own background as a technology industry investor and advisor in Silicon Valley, and his early work honing the President's key priorities into a technology policy agenda with two key goals: driving America's leadership in emerging technology and developing its workforce. A key role for the Federal Government is to optimize its own contributions to the multi-sector science and technology enterprise. A key example is how best to make resources such as National Labs available to a wider community.

The Administration has had a strong emphasis on "Industries of the Future" (IoT), with efforts organized around four lines of effort: R&D leadership, workforce (both needs for and implications of building the IoT), regulatory issues, and international engagement. Kratsios provided examples of Administration actions along these lines.

The remarks were followed by discussion with the PCAST chair and members. In response to the question of how PCAST can best provide input to the Administration on the identified topics, Droegemeier reiterated that PCAST will not be writing lots of reports because it will be focusing, instead, on ideas for policy action. He pointed to the previously identified PCAST work stream of helping to create a 5-year action plan for Industries of the Future. Kratsios agreed, noting that OSTP is essentially in the implementation phase for the Artificial Intelligence and Quantum strategies, and that there will be opportunities to bounce ideas off of PCAST as they work through various issues in all areas.

Droegemeier then introduced the next invited speaker, Chris Liddell, White House Deputy Chief of Staff for Policy Coordination and former Chief Financial Officer of both GM and Microsoft.

Remarks: Importance of PCAST in National Policy Activities **Chris Liddell, White House Deputy Chief of Staff for Policy Coordination**

Liddell thanked the Chair, welcomed the members, and expressed enthusiasm for getting to know them. He identified his principal responsibility as Deputy Chief of Staff for Policy Coordination as bringing policy options to the President. He then addressed the importance of PCAST in informing national priorities. Two questions of particular interest to the President include 1) how does America win in the Industries of the Future and 2) how do we prepare the workforce of the future to take advantage of this opportunity? Liddell sees PCAST as having a central role in helping the White House think through the policies associated with these questions.

Liddell propose that, for each of its work streams, PCAST consider: 1) What is the 5-year strategy that we are trying to achieve, and 2) How do we break that down into single-year plans? Some of the work towards a 5-year vision has already been done, and it would be great to get a fresh perspective on these efforts. Given the activities already underway and the short timeframe, PCAST was encouraged to complement ongoing efforts.

Droegemeier thanked the speaker and initiated a group discussion by asking about the mechanisms available for implementing policy actions. Liddell mentioned resource allocation through the regular budget cycle, regulatory changes to leverage existing resources such as Federally-held data, and potential legislative ideas. PCAST member contributions could be to help agencies to identify priorities,

which will affect how they allocate their resources in the future, rather than making budget recommendations. The group also discussed opportunities to learn from best practices overseas.

Discussion: Setting PCAST Work Streams and Priorities

Kelvin Droegemeier, PCAST Chair

Droegemeier led discussion on the proposed PCAST work streams: 1) a 5-year plan for Industries of the Future (IoT), 2) national needs for STEM education and workforce, and 3) engaging National and Federal Labs more broadly in the R&D enterprise. Topics discussed included opportunities to bring the IoT together to accelerate science and discovery, potential intersections between the IoT, the role of the IoT as tools rather than destinations, opportunities for multisector collaboration, the potential for “Laboratories of the Future” or “Alpha Institutes” centered around National Labs, potential barriers and incentives to collaboration, the need to define success, and a need to work through existing mechanisms. Droegemeier reiterated key points and closed the morning session.

Presentation: U.S. Department of Energy Science Priorities and National Laboratories

Chris Fall, Director, DOE Office of Science

In the afternoon session, Fall was introduced by Droegemeier. He congratulated the PCAST members on their appointment and highlighted the importance of the Council. He then provided an overview of DOE’s history and organizational structure; the capabilities at the 17 DOE National Laboratories; DOE’s key missions of Energy, Nuclear Safety and Security, Science and Innovation, and Management and Operational Excellence; allocation of its \$11.7 billion non-defense R&D budget to support both basic and applied science across all sectors through individual awards, demonstrations, and facilities. He described the role, organization, and research priorities of DOE’s Office of Science; the work of DOE’s Applied Energy Offices; the mission of the National Nuclear Security Administration; DOE’s high performance computing mission and its origins. He also noted current challenges, such as aging infrastructure in some facilities and DOE’s ongoing efforts to improve outreach and communication about the role and value of the National Labs. Fall closed by noting that DOE coordinates with other Federal Agencies that fund or conduct S&T R&D.

Discussion: Setting PCAST Work Streams and Priorities

Kelvin Droegemeier

Droegemeier provided Fall with a brief recap of the discussions from the morning sessions, and initiated a group discussion. Topics addressed included the potential to leverage the National Labs to accelerate the IoT, in particular through cross-sector partnerships; resources such as supercomputers and secure data enclaves at the National Labs; potential destinations around which to build the IoT; existing and potential user facilities to serve as test beds for the IoT; the future of computing; and the potential for a high-level mandate for building a cross-sector initiative.

The session concluded with Fall thanking PCAST and inviting them to visit National Labs, which Droegemeier said they would take him up on. This session was followed by a short break.

Presentation: PCAST – National Science Board (NSB) Collaboration

Diane Souvaine, NSB Chair; Ellen Ochoa, NSB Vice Chair; John Veysey, NSB Executive Officer

Droegemeier introduced the NSB speakers and provided some background on the NSB, on which he previously served. Souvaine showed a short video about the NSB and then described its roles and its operation: it is a policymaking body for the National Science Foundation (NSF) and also provides advice to the President and Congress through reports and statements; its membership is designed to span multiple administrations. Ochoa described the policy-neutral and statutorily mandated biannual *Science & Engineering Indicators* that are often the basis for NSB recommendations, provided results from recent reports illustrating U.S. and global R&D investment and patent trends, and shared NSB’s new

strategy of staggering release of the Indicators in the form of online modules. Souvaine noted key STEM workforce trends, including major HR investments in China, NSB's recognition that the changing nature of STEM occupations means the a linear pipeline has been superseded by a diverse range of career pathways, and recommendations from the NSB report on *Building the Skilled Technical Workforce*. Ochoa provided an overview of NSB's current Vision 2030 Task Force, which is focused on long-term attributes of the S&E enterprise of the future, the impact of demographic shifts, and how best to leverage new technologies to advance S&E. She expressed NSB's interest in collaborating with PCAST.

Droegemeier thanked the speakers and initiated a Q&A and discussion session. Topics included the potential to engage with Industry associations on building the skilled technical workforce, reskilling and upskilling, lifelong learning and training opportunities, how CAW could help improve data on the STW, geographical variations in reskilling opportunities, and the AAAS Sea Change program which certifies Universities with exemplary inclusivity practices.

Droegemeier reiterated key points from earlier sessions and asked the group to consider what NSB, NSF, and PCAST might contribute to meeting national needs in STEM education and training. Discussion centered on diversity and future demographics for STEM and STW workforce pathways, in particular the prevalence of foreign-born workers and workforce diversity. Topics included recent trends, the potential to model future trends, and strategies for increasing diversity in STEM and the STW.

Discussion: PCAST Work Plan and Next Steps

Droegemeier stated that the Administration intends to appoint additional members in advance of the next meeting, noting the recent announcement of intent to nominate Shannon Blunt and Dorota Grejner-Brzezinska.

Droegemeier highlighted key points of the day and noted OSTP planning for a 25-50 year outlook of the S&T Enterprise, the asked for input on how PCAST might best proceed. The group discussed plans to visit National Labs, formation of subcommittees around the three work streams, creation of a matrix to assign individual members from each subcommittee to cover specific lotF, plans to hold subcommittee teleconferences, inclusion of SPEC and NSB in future meetings, potential destinations around which to build the industries of the future, and how best to convey these goals to different audiences.

The four 2020 PCAST meetings were planned for February 3-4, June 3, August 25, and November 9-10, some of which will be planned to overlap with NSB meetings.

Public Comment Period:

There were no requests for public comment.

Meeting Wrap-up and Adjournment

Chair Droegemeier closed the meeting with a brief recap of the Council's plans, noting that PCAST's next meeting is tentatively scheduled for February 3, 2020. The meeting adjourned at 5:19 PM ET.

Respectfully Submitted:

Edward G. McGinnis
Designated Federal Officer

I hereby certify that this summary of the November 18, 2019, PCAST meeting is true and correct to the best of my knowledge.

Kelvin Droegemeier
Chair, President's Council of Advisors on Science and Technology