

**APPROVED MINUTES¹
OPEN SESSION
411TH MEETING
NATIONAL SCIENCE BOARD**

The Ohio State University
Columbus, Ohio
September 24, 2009

Members Present:

Steven C. Beering, Chairman
Patricia D. Galloway, Vice Chairman
Mark R. Abbott
Barry C. Barish*
Ray M. Bowen
John T. Bruer
Kelvin K. Droegemeier
José-Marie Griffiths
Esin Gulari
Elizabeth Hoffman*
Alan I. Leshner
G. P. “Bud” Peterson
Douglas D. Randall
Arthur K. Reilly
Diane L. Souvaine
Jon C. Strauss
Kathryn D. Sullivan
Thomas N. Taylor
Richard F. Thompson

Cora Marrett, *ex officio***

Members Absent:

Dan E. Arvizu
Camilla P. Benbow
G. Wayne Clough
France A. Córdoba
Louis J. Lanzerotti

¹ The minutes of the 411th meeting were approved by the Board at the December 2009 meeting.

* Consultant

** Cora Marrett, NSF Acting Deputy Director, served as NSF Acting Director in the absence of Arden Bement, Jr.

Prior to the Open Session, the National Science Board (Board, NSB) was welcomed by Dr. Caroline Whitacre, Vice President for Research at The Ohio State University (Ohio State). She presented information on the research at Ohio State, emphasizing interdisciplinary, transformative, and translational research. She also discussed the research strengths at Ohio State in advanced materials; computer science and engineering; nanotechnology; electromagnetics, cancer; infectious diseases; imaging; agricultural bioproducts; mathematical biosciences; business; and especially global climate change. Additionally, Dr. Whitacre noted that distinguished researchers, Dr. Lonnie Thompson, a Presidential Medal of Science recipient, and his wife, Dr. Ellen Mosley-Thompson, lead the Byrd Polar Research Center.

Dr. Whitacre concluded that the university is moving forward with a large emphasis on technology commercialization, and was especially successful in three areas: engineering, agriculture, and medicine. Dr. Whitacre stated that although Ohio State is number two in the country in industry-sponsored research, it needs to reach the next level of getting research products into the marketplace.

The Board convened in Open Session at 8:35 a.m. on Thursday, September 24, 2009 with Dr. Steven Beering, Chairman, presiding (Agenda NSB-09-77, Board Book pages 183 and 263). In accordance with the Government in the Sunshine Act, this portion of the meeting was open to the public.

AGENDA ITEM 1: Approval of Open Session Minutes, August 2009

The Board unanimously APPROVED the Open Session minutes of the August 2009 Board meeting (NSB-09-75, Board Book page 185).

AGENDA ITEM 2: Closed Session Items for December 2009 Meeting

The Board unanimously APPROVED the Closed Session items for the December 9-10, 2009 meeting (NSB-09-76, Board Book page 201).

AGENDA ITEM 3: Chairman's Introduction and Report

In the Chairman's Introduction, Dr. Beering announced that The White House asked Dr. Arden Bement, the NSF Director, to lead a U.S. delegation to the inaugural ceremonies of the King Abdullah University of Science and Technology in Saudi Arabia. For the delegation, Dr. Bement was substituting for Dr. John Holdren, Director, Office of Science and Technology Policy (OSTP), who was asked by President Obama to accompany him to the G-20 meeting in Pittsburgh. Dr. Beering noted that Dr. Bement sent his regrets for having to miss this meeting and that Dr. Cora Marrett, NSF Acting Deputy Director, would serve as Acting NSF Director during his absence.

Dr. Beering expressed the Board's gratitude for Ohio State's hospitality and warm welcome. He also noted the warm welcome received from President Gordon Gee on the evening of Tuesday, August 4, 2009 at his home, and the opportunity to meet with many of Ohio's academic leaders at that time. The Board was impressed with the outstanding facilities at new William Oxley Thompson Library on the evening of Wednesday, August 5, 2009, and was especially privileged to witness the opening of that exceptional facility, which represents the state of the art in library science. Later in the day, the Board would visit the Metro Early College High School, the Center of Science and Industry (COSI), and the Center of Automotive Research (CAR).

Dr. Beering expressed appreciation to the Ohio State staff, especially Ms. Linda Neidherdt, who attended to all the details that made the visit a rich and rewarding experience, as well as Ms. Beverly Sherman, Board Office staff. He also thanked Dr. Kathryn Sullivan, Board Member, past NSB Vice Chairman, and Director of the Battelle Center for Mathematics and Science Education Policy at the John Glenn School of Public Affairs, The Ohio State University, for all her work to arrange the Board meeting, retreat, and research site visits.

During the Chairman's Report of the Plenary Open Session on Thursday, August 6, 2009, Dr. Beering announced and reported on the following items.

a. Committee Information

Dr. Beering announced the updated Committee List ([NSB-09-79](#), Board Book page 283). He mentioned that Dr. Camilla Benbow will be added as a member of the CPP Subcommittee on Polar Programs.

Dr. Beering announced that at the August 2009 meeting the *ad hoc* Committee on Honorary Awards was established to work on the Vannevar Bush Award and the NSB Public Service Award. Dr. Ray Bowen, with previous experience with this assignment, will be chairman of this committee, and Drs. Douglas Randall and Thomas Taylor, members. He indicated that NSB had a larger number of award nominations for both awards from prior years. As part of the Board's communication plan, a call for nominations was placed in the October 9, 2009 edition of *Science* magazine.

b. Statement on Open Board Meetings

The Chairman addressed the "Statement on Open Board Meetings" distributed to Board Members at the table. He reported that the Board remains committed to public observation of Board Meetings. If future budgets permit, the Board hopes to Webcast the meetings to allow greater opportunities for public observation, and mentioned that the off-site meeting in Fairbanks, Alaska, in September 2008 was Webcast. Dr. Beering noted that Webcasting is especially important now that more security restrictions are in place for access to the NSF building.

Dr. Beering also reported that starting with the August 2009 Board meeting, members of the public who did not pre-register for Board events needed to be escorted by security staff to the Board meeting rooms. Although this security measure was implemented without problems for the August Board meeting, this change did produce challenges for the "Next Generation of

STEM Innovators Expert Panel Discussion” held at NSF on August 24-25, 2009, where over 150 members of the public pre-registered but many others came without registering. Fortunately, in order to accommodate the pre-registrations, staff had provided two overflow rooms with video monitors, as the Board Room only has the capacity for about 100 visitors. This arrangement also addressed Department of Education security concerns prior to the visit of U.S. Secretary of Education, Mr. Arne Duncan, to participate in the STEM Innovators discussion.

Although technically permitted under the Sunshine Act, the Board did not support a suggestion by the NSF security staff that the public view Board meetings on video screens from the public conference rooms on the first floor of the NSF building, beginning in December 2009, as it would interfere with important opportunities for Board interaction with the public and the press.

The Board has not yet addressed the concerns expressed in the 2004 National Academy of Public Administration (NAPA) Report to Congress that opening essentially all NSB gatherings to public observation was inappropriate and that such an approach “could hamper the NSB’s effectiveness and adversely affect scientific advancement.” The NAPA report encouraged “thoughtful adherence to the Sunshine Act” and recommended that the Board define which NSB gatherings are “meetings” subject to the Sunshine Act.

The “Statement on Open Board Meetings” is first step in that process. The statement includes principles that help to further define transparency of Board decisions. It covers many of the Board’s activities -- from Board committee meetings and teleconferences, to the annual retreat, occasional workshops, and special commissions. It reaffirms the Board’s commitment to Congress in 2002 that the 2-day Board meetings will be open to the public. The Board’s goal is also to keep, as pointed out in the Office of the Inspector General audit reports, the presumption in favor of open meetings when the Board decides to use exemptions that are permissible under law.

The statement defines which discussions should be open to the public even for Board committees and other subunits which cannot, by the terms of the NSF Act, take action on behalf of the Board or NSF. It states that Board committee, subcommittee, and task force meetings and teleconferences will be open to the public whenever there is a quorum of the Board present – subject only to the general exemptions permissible under the Sunshine Act. Board committee, subcommittee and task force advice must still be presented to the full Board for full deliberation and action at Board meetings.

The Board unanimously APPROVED the Statement on Open Board Meetings (NSB-09-85, Appendix A).

Dr. Beering asked Dr. Craig Robinson, Acting Executive Officer and NSB Office Director, to meet with interested stakeholders, including the NSF General Counsel, Inspector General and Congressional staff, to discuss this guidance in further detail.

AGENDA ITEM 4: Director's Report

Dr. Marrett, NSF Acting Deputy Director, served as NSF Acting Director in the absence of Dr. Bement.

a. Congressional Highlights

Dr. Marrett reported on the following congressional items:

Markup

On September 23, 2009, the Subcommittee on Research and Science Education, House Committee on Science and Technology, held a markup on draft legislation to authorize activities for support of cybersecurity research and development.

Hearings

On October 8, 2009, the Subcommittee on Research and Science Education, House Committee on Science and Technology will hold a hearing entitled, "Investing in High-Risk, High-Reward Research." Dr. James P. Collins, Assistant Director, Directorate for Biological Sciences (BIO), was asked to testify on behalf of NSF. The purpose of this hearing would be to examine mechanisms for funding high-risk, potentially high pay-off research, and the appropriate role of the Federal Government in supporting such research. Dr. Collins will depict mechanisms and developments not just from BIO, but those developments throughout NSF, and his testimony will be available for all who are interested. Dr. Marrett commented that the Board would find this plan of particular interest given the Board's expressed interest in high pay-off research and transformative and potentially transformative research.

Continuing Resolution

The House will begin work on a Continuing Resolution to keep agencies operating at FY 2009 levels while Congress completes the 12 annual appropriations bills. The House passed all 12 of its FY 2010 appropriations bills, while the Senate passed 6. As the fiscal year would end on September 30, 2009, it was expected that there would be a Continuing Resolution for the next fiscal year.

Medal of Science

President Obama recently named nine researchers as recipients of the National Medal of Science and four inventors and one company as recipients of the National Medal of Technology and Innovation, the highest honors bestowed by the U.S. Government on scientists, engineers, and inventors. The recipients will receive their awards on October 7, 2009 at a White House ceremony.

Congressional Briefings

In June 2009, NSF *Discover* Magazine, the Institute of Electrical and Electronics Engineers (IEEE), and the American Society of Mechanical Engineers (ASME) launched "The Road to the New Energy Economy," a series of congressional briefings on the science and technology required to achieve the nation's energy goals. On September 17, 2009, NSF held a congressional luncheon briefing on "Increasing Efficiency," during which leading experts discussed how increasing energy efficiency can produce a cleaner more economical world. Approximately 75 people attended the briefing, including Hill staffers.

On July 9, 2009, NSF held a congressional luncheon briefing and open house in the Hart Senate Office Building where over 50 researchers and students presented their research to members of Congress, academia, and industry. The research was supported by NSF's program on Cyber-Physical Systems (CPS). The event featured special guest Senate Majority Leader Harry Reid, who, along with Dr. Bement, delivered remarks on the importance of CPS research, noting the "tremendous impact" that the technologies can make on many sectors of the economy. The total number of participants was about 250, which included over 70 congressional staff. The luncheon speakers included Dr. Jeannette Wing, Assistant Director, Computer and Information Science and Engineering (CISE); Mr. Don C. Winter, Vice President, Engineering and Information Technology, Boeing Phantom Works; and Dr. Julian M. Goldman a physician at Massachusetts General Hospital in Boston and the Medical Director of Partners HealthCare System Biomedical Engineering.

The event brought together experts from diverse backgrounds, allowing congressional staff, researchers, and the general public to explore recent breakthroughs and improve their understanding of the potential impacts that cyber-physical systems can make on securing a safer, healthier, and more prosperous future. Information was presented in the form of informative presentations, posters, and other activities that engaged all who attended, illustrating cyber can contribute to matters that range from what happens in the health care sector to any number of other arenas and informing the public about important activities at NSF.

b. Track-2C Update

Dr. Marrett presented an update regarding an information item that the Office of Cyber-infrastructure (OCI) provided to the Board in August 2009. OCI had discussed the status of the Track-2C award to the Pittsburgh Supercomputer Center (PSC). The funding for that award had been authorized by the Board, but not yet awarded due to vendor financial difficulties, timing and technical issues, and the possibility that there could be options that PSC would explore given the financial problems of the initial vendor. Because of the concerns expressed by the Board and the fact that the awardee was unable to arrive at a set of satisfactory terms and conditions with their chosen vendor partner or with an alternative partner, OCI consulted with the Director and the Office of the General Counsel and decided not to make this award. Instead, OCI will issue a new solicitation in FY 2010.

The new solicitation will be focused on acquiring an innovative system to meet the specific needs of the S&E research community and to close the gap between computational resource requests and available assets. Drawing on the requirements of the S&E communities, as well as new architectures that are becoming available, the solicitation will provide the opportunity to significantly increase the capability and range of computational resources available to NSF-funded researchers.

Dr. Marrett noted that NSF appreciates the significant efforts made by PSC, its openness and cooperation in discussions with OCI, and its willingness to be as flexible as possible during this very active negotiation process. All parties worked hard at trying to arrive at a satisfactory conclusion that would benefit all stakeholders, while ensuring that NSF funds were not expended unless certain guarantees and financial commitments were in place. It was anticipated that the new solicitation and subsequent award will more than compensate for any delay in meeting the needs of the community.

At the conclusion of Dr. Marrett's report, Dr. Kelvin Droegemeier, chairman of the Committee on Programs and Plans, offered to make the committee available to the OCI staff to discuss issues regarding the new solicitation. Dr. Mark Abbott echoed Dr. Droegemeier's comments and noted that there may be some innovative architecture and ways to deploy systems, which OCI may consider in light of advances over the past 2 years as well as the needs of the community.

AGENDA ITEM 5: Open Committee Report

Executive Committee (EC)

Dr. Marrett, who served as the EC chairman in the absence of Dr. Bement, updated the committee on NSF support for the Human Frontier Science Program (HFSP). As requested by OSTP, NSF will continue to support HFSP. She also indicated that EC did not probe the set of priorities for FY 2010. Instead, there will be more work undertaken over the next several months, and the committee will return this topic at the December 2009 meeting

Dr. Beering added that he will meet with President's Science Adviser and OSTP Director, Dr. Holdren, on the priorities for the next year, and hoped that the Board will be able to combine efforts with OSTP, the Department of Education, and others.

AGENDA ITEM 6: Board Member Proposal Review Process

Dr. Beering addressed the Board Member proposal review process, "Evaluation of the Merit Review Process for Board Member Proposals." The statement maintains an important review step and procedural safeguard but no longer requires that the review be performed only in Plenary Executive Session. The pertinent part of the statement indicated that the Board requests NSF to revise Section IV.D.1. of the NSF *Proposal and Award Manual* to reflect the following policy change: Delete the sentence "Board review takes place during an Executive Closed Session of the Board meeting" and replace it with the "Board review may take place in Executive Closed Session of Board meetings or by polling Board members between meetings."

Dr. Beering commented that the current process was written before the widespread use of e-mail, and therefore did not contemplate practical and expedient mechanisms for polling Board Members between meetings. Board staff also indicated that under current policy, if a program office is late by 1 day in getting a review package ready 4 weeks before a Board meeting, the review is not supposed to be held for another 2 Board meetings, which could produce a delay of many months.

The Board unanimously APPROVED the Evaluation of the Merit Review Process for Board Member Proposals (NSB-09-84, Board Book page 205, Appendix B).

Dr. Beering adjourned the Open Session at 9:05 a.m.

[signed]

Ann A. Ferrante
Executive Secretary
National Science Board

Attachment:

Appendix A: NSB-09-85, Statement on Open Board Meetings

Appendix B: NSB-09-84, Evaluation of the Merit Review Process for Board Member Proposals

STATEMENT ON OPEN BOARD MEETINGS

The National Science Board reaffirms that transparency and openness is important because, among other things, it helps to build understanding, interest and support in the Board activities from stakeholders. These communications also help to inform the Board as it makes policy decisions that apply to the National Science Foundation.

The Board believes that the principles below help to further transparency of Board decisions:

- The National Science Board benefits from input from its constituencies, and public observation of Board activities is an important part of this process.
- National Science Board Meetings are defined by statute and the Board is subject to all provisions of the Government in the Sunshine Act and NSF Regulations, including those related to notice, recorded vote, closure, and public observation.
- The Board remains committed to public observation of committee, subcommittee and task force discussions at Board meetings.
- Board committee, subcommittee, and task force meetings and teleconferences, will be open to the public whenever attendance reaches at least a quorum of the Board, even though committees and Board subunits, other than the Executive Committee, cannot by the terms of the NSF Act, take actions on behalf of the Board. The Board's website will provide advance 'notice' to the public whenever such meetings or teleconferences are expected to include at least a quorum of the Board. All committee, subcommittee and task force advice must still be presented to the full Board for deliberation and action at Board meetings.
- The annual Board retreat is intended to provide an opportunity for Board Members to exchange ideas and to identify and frame issues for possible future Board consideration. These issues and opinions would then be open to full consideration at a Board meeting before any action is taken. Board retreats are structured so as to fall outside the definition of "meeting" defined in the Sunshine Act, since all discussion is informal and preliminary, informational and exploratory or tentative, and focused on identifying, clarifying, or framing issues or options.
- The National Science Board occasionally hosts workshops and other public events to gather input from the science, engineering, and education communities on a variety of topics of interest to the Board. The Board will publicize these events on its 'notice' website, as appropriate, and these workshops will remain open to the public.
- The National Science Board occasionally establishes "special commissions" to advise the Board on a variety of topics. These commissions, which are subject to the Federal Advisory Committee Act and the Board, will comply with all applicable public notice, public access, recordkeeping, and reporting requirements.

**EVALUATION OF THE MERIT REVIEW PROCESS FOR
BOARD MEMBER PROPOSALS**

WHEREAS, National Science Board Members may submit proposals and serve as Principal Investigators and Co-Principal Investigators on NSF Awards.

WHEREAS, the National Science Board implemented several procedural safeguards in 1983 recommended by the Board's *ad hoc* Committee on NSB Research regarding the review and funding for Member proposals to eliminate even the appearance of special treatment.

WHEREAS, one of these safeguards is the National Science Board's evaluation of the Merit Review process for a Member's proposal recommended for funding by program staff.

WHEREAS, the Proposal and Award Manual (PAM) specifies this evaluation will be conducted during an Executive Closed session of *the Board meeting*.

WHEREAS, program staff members have expressed concern that the examination of the review process and time period between Board meetings have unnecessarily delayed award action with respect to merit reviewed proposals for Member PI and co-PI awards.

WHEREAS, the 1983 policy was adopted at a time when most Board decision-making could reasonably occur only at scheduled Board meetings, and currently available telecommunications (e.g., teleconferences, cell phones, and e-mail) were not readily available to the Board.

NOW THEREFORE BE IT RESOLVED that the National Science Board requests the Foundation to revise section IV. D. 1. of the NSF Proposal and Award Manual to reflect the following policy change:

Delete the sentence "Board review takes place during an Executive Closed Session of the Board meeting" and replace it with:

"Board review may take place in Executive Closed Session of Board meetings or by polling Board members between meetings."

[signed]
Steven C. Beering
Chairman