

**National Science Foundation
Business and Operations Advisory Committee
Meeting Minutes – Spring 2017 Meeting (Virtual)
March 13, 2017**

Members in Attendance

Lee Cheatham	Brookhaven National Lab
Chuck Grimes (in person)	Consultant
Michael Holland	New York University
Ned Holland (in person)	Retired
John Kamensky	IBM Center for the Business of Government
Kim Moreland	University of Wisconsin- Madison
John Palguta	Partnership for Public Service
Theresa Pardo	University of Albany- State University of New York
Susan Sedwick	Attain LLC
Stephanie Short	US Department of Energy, Office of Science
Joe Thompson	Retired
Pamela Webb	University of Minnesota

Welcome/Introductions/Recap of Meeting Purpose and Anticipated Outcomes

Co-chairs Chuck Grimes/Susan Sedwick

Roll call was conducted. A quorum was present. Subcommittee members present are identified above. No Panel Members were in attendance.

Chuck Grimes discussed logistics for the meeting and introduced Michael Holland as the presenter to address the Subcommittee's response to the National Academy and Public Administration (NAPA) and National Science Board recommendations for NSF operations.

Report of the Subcommittee on Implementation of NAPA Recommendations

Presenter: Dr. Michael Holland

Mike Holland provided a presentation to report on the results of the Subcommittee's charge of providing options for appropriate agency-wide oversight for the NSF Office of the Director (OD). The charge contained four elements – two from the NAPA report including the value in creation of a new Federal Advisory Committee Act (FACA) committee and two additional charges that were issues raised by House legislation and the bill signed in January.

The presentation started with a listing of the Subcommittee members followed with a description of the Subcommittee's review process, which included kick-off meetings and information briefs from various NSF groups, including their view on strengths and weaknesses on the current processes. Fae Korsmo, Matt Hawkins, Assistant Director's, NSB, Inspector General, and other stakeholders provided the Subcommittee with their oversight perspectives. The Subcommittee conducted additional information gathering through discussions with the NSF Director and NSB Office staff, and used Lt. Gen Abrahamson as a sounding board.

Before providing recommendations for each of the four areas that the Subcommittee reviewed, four overarching observations were made:

- Limiting the role of the stage-gate process to one funding type (i.e., the MREFC budget account) does not support a systematic Foundation-wide approach to risk-management;
- NSF's current use of the MREFC Panel confounds approvals (for moving from one stage to the next in a stage-gate review process) and oversight of performance within a stage (conceptual design, preliminary design, construction, operations, etc.);
- Research infrastructure investments in the development stage (pre-conceptual design phase) are opaque to NSF leadership and oversight; and
- Director Cordova's interim watch group that meets regularly to monitor progress on all research infrastructure projects and periodically take a deep dive into an individual project is a move in the right direction. The Subcommittee does not feel another group is needed, which was a sense that the Subcommittee was receiving. The important take away is that it is essential for senior-level engagement in these facilities.

The remaining presentation focused on describing the Subcommittee's charge for each of the four review areas, including a summary of the resulting findings and list of recommendations for each area. Refer to the full report, *Report of the Subcommittee on NAPA implementation of the National Science Foundation's Business and Operations Advisory Committee*, for the detailed list of findings and recommendations.

- Re-scope of the role, duties, and membership of the Major Research Equipment and Facilities Construction (MREFC) Panel to include status update reviews of projects in the development and construction phases focusing on cost, schedule, and performance. (NAPA Recommendation 6.2) [4 findings, 6 recommendations]

The MREFC Panel is appropriately focused for moving projects from one phase to the next, but the panel does not have a formal role in the development, operations, or divestment stages. The Integrated Project Teams (IPT) are the appropriate groups for conducting on-going oversight. For projects in the design and construction stages, where things are moving rapidly and you need to catch things early, quarterly updates are not sufficient.

The MREFC Panel should include a formal approval for the development stage, and at that point importance should be given to identifying a clear gap in capabilities for the relevant science community and that the broad functional requirements for a facility are well articulated. Also, it was recommended to add a stage gate approval for transition to operations. There appears to be disconnect between the MREFC charter and the Large Facilities Manual (LFM) and alignment between the two is recommended. Further, it is recommended that the Deputy Director/COO meet, at least monthly, with the Head of the Large Facilities Office (HLFO) and IPT Chairs for all projects under design and construction.

For the external review panels, the LFM assigns responsibility for membership and the charge to the Program Officer. During the design, pre-construction phase, where the opportunity for cost growth and choices have large implications for cost, scope, and schedule, the Subcommittee thinks it is important that the Large Facilities Office (LFO) own the process. This process reform would make LFO analogous to the Office of Project Assessment in DOE's Office of Science.

There is significant variance in how different research communities queue up projects, but each community tends to have a very stable process. To resolve the opacity, definition of the discipline-specific processes is needed.

- Evaluate the potential value in extending the MREFC Panel's role to operating facilities, including divestment (i.e. full life-cycle). [2 findings, 5 recommendations]

In response to whether the NSF processes adequately address the full life-cycle, a consistent framework is needed, regardless of funding and for the full range of scale of projects. There is room for improvement. Congress has enacted the American Innovation and Competitiveness Act (AICA), which defines MREFC projects at \$100M or 10% of a Directorate's budget. NSF is now using a \$70M threshold, which the Subcommittee feels is more appropriate. There is also flexibility for Directorates to set thresholds below \$70M for mid-scale instrumentation. The Subcommittee acknowledges the necessity of the flexibility for each Directorate to establish its own thresholds given the various needs by discipline. However, the thresholds need to be defined, applied consistently, and clearly articulated in the LFM

For risk management, LFO should take a hand to assure the right skill set is included on the review groups or oversight groups in consideration for the stage of the project under review. The Total Project Cost is not always a reflection of the risk inherit to a project. A high dollar amount may be virtually all off-the-shelf components and some tailoring of the oversight to match the level of risk. It is worthwhile for NSF to investigate this further and ensure systemic risk management approach that covers the entire project lifecycle.

For the Operations stage, the Deputy Director/COO and HLFO should meet at least every six months to review performance metrics. Serious science metrics should be developed with the relevant research community. The suite of science facilities should have similar performance metrics.

For the Divestment stage, it is appropriate for the MREFC panel to be brought into the review and recommendation of any approval to divest from a facility or for a serious upgrade. These recommendations should go through the same process with the MREFC panel reviewing and recommending those packages to the Director. This is a great opportunity for consultation with the relevant research community.

- Evaluate the potential value in creating an internal agency "senior official" position in OD charged with reporting to the Director and Deputy Director/Chief Operating Officer on large facilities. [1 finding, 1 recommendation]

The Subcommittee found a lot of intersection between a Senior Official and the NAPA call for a FACA. In comparison to DOE or NASA, there is not a clearly defined owner of these facilities. There is a need for a Senior Official with appropriate authority and accountability to the Office of the Director. The Subcommittee does not want to undercut the role of the LFO nor cause confusion within the Directorates or the research community. Suggest a presidentially appointed senate confirmed Senior Official, which would be analogous to other agencies.

- Evaluate the potential value in creating a new FACA committee to provide the NSF Director with a sounding board for objective insight on large research projects. (NAPA Recommendation 6.4) [2 findings, 2 recommendations]

The Subcommittee does not think it would be a good idea to send packages out to a separate FACA for an additional review. With revisions to the LFM to clarify external reviews and to include people with greater project management and cost estimating expertise, the Subcommittee feels a separate FACA may undercut the progress that has been made.

It appears that the NAPA recommendation may have been motivated by the lack of connection between the advisory committees within NSF and the NSF Director; and therefore, the NSF

Director was not getting the appropriate advice. The Subcommittee found that the NSF advisory committees are not entirely aligned with GSA guidelines. It is recommended that the Business and Operations Advisory Committee be chartered to the Director through the Heads of BFA and OIRM.

Lastly, the presenter summarized three additional areas that arose during the process where the Subcommittee identified additional opportunities for NSF to improve its internal processes for reviewing, approving and overseeing its research. The three areas include:

- MREFC Review Packages – Make more explicit the responsibility of the Director’s Review Board to prepare cover memos that focus executive attention on key aspects, such as core risks and strategy, in a succinct way.

There is enormous effort to pull together the full measure of documentation to demonstrate that all issues have been addressed. However, the executive level officials have limited time to sort through large collections of information to find the potential issues. One of the Director’s Review Board’s (DRB) responsibilities should be to prepare a cover memo to address the cost, schedule, and scope risks, including mitigation and remediation actions. Generally, DRB already has a role in the review packages; however, it should ensure that core risks and strategy are reported in a succinct way for executive level official to rapidly focus on decisions that were made and the assuring themselves that the risks were appropriately managed.

- MREFC Ranking Criteria – The International leadership question generally comes late in the process and it is recommended that it be considered as one criterion for approval to enter into Conceptual Design Review Phase.

The international leadership question for facilities seems to come late, when it goes to the NSB for inclusion in the budget request. The importance on how investments are positioning US research globally indicates that the criteria of international leadership needs to be addressed earlier by the MREFC Panel and the NSF Director.

- FACA Committees – Consider re-chartering the advisory committees reporting to the Associate Directors as well as the two joint NSF/DOE FACAs.

All high level advisory committees within the foundation ought to be chartered to the NSF Director and with charges, membership, et cetera, flowing up through the appropriate Associate Director or Office Head. The formal paper flow ensures that the Director and his or her staff are well connected to the ongoing work of the advisory committee meetings.

Discussion and questions from committee:

Chuck Grimes and various committee members thanked Michael Holland for the presentation and the Subcommittee’s execution of the charge and the report.

Several questions and clarifications were raised regarding the recommendation (5.1) made by the Subcommittee that there should be a clearly-designated senior official in the Office of the Director with direct visibility into and accountability for the Foundations’ facilities and research infrastructure.

Kim Moreland started the discussion with asking the presenter (Michael Holland) for additional insight into the Subcommittee recommendation. Michael Holland further explained that when the Subcommittee looked at equivalent processes within other agencies, final authority and

responsibility for ongoing oversight for all major acquisitions is vested in a senate confirmed political position. The Subcommittee was not clear on how everything ended at the same place within NSF, saw an opportunity for improvement, and felt that there is clarity in assigning that responsibility to a political appointee.

John Palguta raised concerns that the Senior Official had to be Senate confirmed and noted potential issues with the extended period of time before an individual is nominated for the role. Ned Holland echoed the concerns raised and stated that it would be a mistake to add a PAS (presidential appointed senate confirmed) position. Michael Holland clarified that the Subcommittee is not recommending an additional position and actually trying to avoid it. A core issue was that after the all the effort NSF has gone through to establish a well-functioning LFO; the Subcommittee wanted to ensure that this would not be muddied. Rather, the Subcommittee recommended that the Deputy Director/COO serve as the senior accountable official.

John Palguta noted that the Deputy Director/COO position is a fixed term appointment and pointed out that a fixed term position would possibly have some continuity between administrations. Though as a factual matter only the Director's term is fixed, not the term of the Deputy Director/COO.

Kim Moreland noted that the PowerPoint slides were not clear. The full Subcommittee report indicates that a new position is not recommended. John Palguta noted that his comments were clarified with this update. Michael Holland acknowledged the error and he will update the slides, if needed.

Joanne Tornow, Head of OIRM and NSF's Chief Human Capital Officer, clarified the political appointed positions within NSF. NSF maintains 2 PAS, presidential appointed senate confirmed, positions (Director and Deputy Director), with the Director appointed for a six-year term; it does not have any positions that are Schedule C appointments; and there is the National Science Board which are presidential appointed, but not senate confirmed.

John Kamensky continued the discussion with a suggestion for additional text reference under Section 5 regarding new legislation passed in December 2016, called Program Management Improvement and Accountability Act. The Act requires each agency designate a program management improvement officer at a senior level and this could be the same senior official. The legislation calls for government wide standards for program management and project management established by OMB by next December. This is a new dynamic that did not exist when the Subcommittee was conducting its work. Mike Holland responded he will review to see if there is a link and consider in the context of this report. John Kamensky will provide Mike with a copy of the statute. John added that on March 17th, the OMB staff responsible for developing implementation strategy for this new legislation will be talking at the National Academy for Public Administration (NAPA). If anything comes out of the OMB/NAPA discussion, John will also provide this information to Mike Holland.

Kim Moreland requested clarification that Recommendation 4.3 focuses on NSF risk and not from recipient risk stand point. Mike Holland confirmed that her assessment is correct and the recommendations regarding risk are based from NSF's perspective and not the recipient perspective.

Lee Cheatham requested clarification regarding Recommendation 4.1. and whether there is enough details supporting the recommendation for NSF to take action. Michael Holland clarified that NSF has already defined a \$70M threshold for inclusion into the MREFC process. However, each Division or Directorate also sets a threshold below this to establish their mid-scale projects. These projects can be 10s of millions of dollars. For example, Astronomy is set at \$30M for mid-scale. With great variation in the research

communities, the flexibility between the Directorates is legitimate. The Subcommittee is recommending that the Divisions and Directorates continue to maintain their flexibility to set their appropriate thresholds. Once the thresholds are set, the information should be collected and published in the Large Facilities Manual and then applied consistently.

Lee Cheatham also inquired, with 16-19 recommendations, on whether the Subcommittee prioritized the recommendations or had any guidance on the urgency, impact, or precedence of the recommendations. Michael Holland indicated that the Subcommittee did not tackle this issue. Michael expanded the Subcommittee felt some of the Charges were broad in nature.

Chuck Grimes called for action on the Subcommittee's report (accept, reject, or send back to the Subcommittee for revisions). The report was accepted and the motion was seconded. None were opposed, so the motion carried.

The meeting was adjourned at approximately 2:30 pm.