

**National Science Foundation  
Directorate for Engineering  
4201 Wilson Boulevard  
Suite 505  
Arlington, VA 22230**



July 22, 2005

Dr. Gary May (Chair)  
Georgia Institute of Technology  
225 North Avenue NW  
Atlanta, GA 30332-0325

Dear Dr. May:

The BES COV Report was transmitted previously, by Dr. Katehi. We thank you and the COV members for their support of the NSF BES programs.

I have attached a response to the recommendations in the BES COV report that was prepared by Bruce Hamilton, the Director of the Office of Industrial Innovation. I concur with this document and adopt it as the official response of the Directorate for Engineering.

I wish to express my appreciation to the individuals who participated in the COV review. This process is critical to the management of the Directorate and will help to guide our future decision-making.

Sincerely,

A handwritten signature in blue ink that reads "John A. Brighton".

John A. Brighton  
Assistant Director for Engineering

NATIONAL SCIENCE FOUNDATION  
Directorate for Engineering  
4201 Wilson Boulevard, Room 505  
Arlington, Virginia 22230



**MEMORANDUM**

**TO:** John A. Brighton, Assistant Director, ENG  
**FROM:** Bruce Hamilton, Division Director, BES  
**DATE:** July 22, 2005  
**SUBJECT:** Response to the Report of the Committee of Visitors for the BES Division

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On behalf of the Division of Bioengineering and Environmental Systems (BES), I thank the Committee of Visitors (COV) for their thoughtful and thorough report covering FY 2002-2004, and for the opportunities for improvement that it provides the Division, the Directorate for Engineering (ENG), and the National Science Foundation (NSF). We are delighted that the COV report states: "Overall the COV found the programs in the Division were doing extremely well in meeting stated goals and objectives. The management of BES appears excellent. As noted in the last COV report, this is particularly noteworthy in view of the wide range of programs in the Division's portfolio, the very tight budget within NSF, and the emphasis on building young academic investigators through a large investment in the CAREER Awards." The COV report also states: "The COV commends the Division for its effective and efficient processing of proposal reviews, exceeding the 70% less than six month dwell-time target in each of the three years under study. This is particularly impressive in light of the greatly increased numbers of proposals processed compared to the 2000-2002 time frame of the last COV report."

BES is also thankful to the Advisory Committee for the Engineering Directorate for their acceptance of the COV report, as expressed in a message from the Advisory Committee chair: "The ADCOM has found this program (division) to be of exceptional quality and we strongly recommend its continuing support."

The detailed response on the following pages is organized in the order of comments as they appear in the COV report. It includes a brief synopsis of COV comments, and brief responses by the BES division.

<b>Comment in COV Report</b>	<b>BES Response</b>
<p>A.1.3. While reviews are clearly focused on intellectual merit first and broader impact secondarily, awards and feedback are generally consistent with stated program criteria. However, the COV felt that continued improvement in attention to broader impact should be encouraged. In addition, the COV recommends that BES provide more guidance for the panel members about the significance of the broader impact criterion.</p>	<p>BES will encourage continued improvement in attention by panelists to broader impact by providing more guidance for panel members about the significance of the broader impact criterion.</p>
<p>A.1.4. While the majority of reviewers adequately comment on the intellectual merit of each proposal, the COV suggests that the panel moderators ensure that each panelist revises (if necessary) their review comments to ensure the PIs receive constructive feedback on declined proposals. The written comments should be consistent with the overall rating.</p>	<p>BES Program Officers that serve as panel moderators will ensure that each panelist revises (if necessary) their review comments to ensure that PIs receive constructive feedback on declined proposals, so that the written comments are consistent with the overall rating.</p>
<p>A.1.5. While the summaries frequently reflect some aspects of the panel discussion, they do not always fully address the evaluation criteria. The COV recommends that panel moderators review the summaries and suggest improvements when the summaries are lacking. When the reviewers' evaluations are widely divergent, the panel summary should reflect the resolution reached during the panel's discussion.</p>	<p>BES Program Officers that serve as panel moderators will review panel summaries and suggest improvements as appropriate.</p>
<p>A.1.6-comment #1. The COV recommends that proposals withdrawn due to funding by other agencies must still contain a context statement summarizing the review process.</p>	<p>Jackets for proposals withdrawn due to funding by other agencies will still contain a context statement summarizing the review process.</p>
<p>A.1.6-comment#2. If a program officer's funding deviates from the panel's recommendation, this should be clearly documented. The COV suggests adding a diary note when the rationale is based on information that is not intended for the PI.</p>	<p>If a Program Officer's funding deviates from the panel's recommendation, the rationale will be documented in a diary note.</p>

<p>A.3.2. A highly qualified group of individuals representing a broad and appropriate range of expertise was recruited to serve as reviewers. Reviewers included a mix of senior and junior faculty and representative from industry, though industrial representation could be improved. Increase efforts to recruit professionals from industry are encouraged; recipients of SBIRs may be a promising source.</p>	<p>Efforts to recruit industrial panelists will be increased, particularly SBIR awardees.</p>
<p>A.3.3. While the representation from members of underrepresented groups and women was in line with distributions within the population and within academe, the Program (Division) is encouraged to continue and intensify its efforts to include underrepresented minorities and women as reviewers.</p>	<p>BES will continue and intensify its efforts to include underrepresented minorities and women as reviewers. We are hopeful that with time, graduates funded by the new ECS-BES GRS grants will be a new source of such reviewers.</p>
<p>A.4.2. The average BES award size is essentially the same dollar amount, \$120,998, as the average ENG award of \$119,837, and is appropriate given the scope of the project proposed. However, BES-supported research generally has a higher burden of laboratory /experimental costs that are not reflected in the typical award. In fact, BES awards are considerably smaller and shorter (e.g., 3 yrs vs. 4-5 yrs) than similar awards by other organizations (e.g., NIH), resulting in relatively limited scope projects relative to those funded by other organizations.</p>	<p>BES agrees with the COV, and regrets that BES's level of resources is much more constrained than NIH counterparts.</p> <p>(During the period covered by the COV review, NSF's goal for award duration was 3 years.)</p>
<p>A.5.4. BES success rate for 2004 was 13%, average ENG average was 15%. These success rates are too low—management should seek ways to improve this. One possibility might be to explore mergers and consolidations both within ENG and with units of other directorates.</p>	<p>BES plans to merge with CTS.</p>
<p>B.4-comment #1. The COV strongly recommends that BES hire a permanent Division Director for sustained management and leadership.</p>	<p>Bruce Hamilton has been selected as BES Division Director.</p>
<p>B.4-comment #2. The current draft strategic plan lays out goals and strategies</p>	<p>BES and CTS are undergoing merger. A new strategic plan, including an</p>

<p>for the Division in a very broad sense and lists activities that have already been implemented to reach the goals. The COV recommends that a strategic implementation plan be developed with future goals that are focused and specific and a map with out-year budget projections for the various programs.</p>	<p>implementation plan, will be developed.</p> <p>(OAD/ENG intends to have an annual planning retreat with ENG DDs. The first occurred recently in Annapolis, and it was at this retreat that a decision was made to move forward with the reorganization of ENG.)</p>
<p>B.4-comment #3. A program evaluation process should be put in place that feeds into the strategic implementation plan</p>	<p>The ENG-wide Awards Impact Assessment (AIA) Task Group is developing a program evaluation plan. The BES DD is a member of the AIA Task Group.</p>
<p>B.4-comment #4. There should be a clear relationship between the numerous WTEC study outcomes and the program priorities and program announcements in the Division.</p>	<p>BES intends for the WTEC studies that it co-funds to lead to new calls for proposals. Examples: (1) the WTEC EBM study co-funded by BES led, with NRC Environmental Grand Challenge #8, to MUSES, (2) the WTEC Biosensing study co-funded by BES led into the sensors solicitation, and (3) the WTEC Systems Biology study co-funded by BES is intended to lead to a new interagency solicitation.</p>
<p>B.4-comment #5. If possible, BES should be more pro-active with the nanotechnology announcement so the funded proposals have a high relevance to the division.</p>	<p>In the current FY 2005 cycle, nano solicitation proposals funded by BES do have high relevance to the division. In fact, currently there are many more nano solicitation proposals that BES Program Officers wish to fund than BES has nano solicitation money with which to do the funding.</p>
<p>B.5-comment #6. The projected future costs of CLEANER are very large. The Division should seek partnerships with other federal agencies such as NIH (NIEHS), EPA, and/or Dept. of Homeland Security to help leverage NSF funds.</p>	<p>BES (more broadly, ENG) is partnering with GEO/NSF (Hydrologic Observatories) and is seeking partnerships with other federal agencies (e.g., EPA, NOAA, USGS).</p>