

**Basic Energy Sciences (BES) Response to the Report of the Basic Energy Sciences Advisory Committee
Committee of Visitors (COV) Review of the BES Division of Materials Sciences and Engineering (DMS&E)
August 2006**

	COV General Recommendation/Comment	BES Response
1	<p>Of particular concern to the COV is the very large work load of the program managers in the Division, which continued to intensify through the review period because of retirements and an untimely death. ... The Office of Science management should begin planning to meet these needs before crisis sets in again, likely in 2007. Aggressively expanded recruiting of program managers and support staff is a necessity, especially if high quality program managers are to be recruited and retained. Planned increased staffing beyond currently approved levels should begin in 2007.</p>	<p>BES agrees with the observation that the staffing level is not commensurate with the workload and with the recommendation to increase permanent staff. Based on the recommendations of this and previous COVs, BES has developed a BES-wide staffing plan that includes more than one dozen new program manager and support staff positions. BES has been allocated several new positions in FY 2007, and the remainder will be requested in FY 2008. BES is also using additional rotators—both IPAs and detailees—to help with the program workload.</p>
2	<p>The resources and staff should be immediately allocated to implement comprehensive and effective information management within the Office of Science. While it will not be as effective to build such a system just within BES, this should be done if the Office of Science cannot or will not make it a priority.</p>	<p>Issues with the current information management system have been raised by previous COVs. Based on the recommendation of at least two previous COVs to institute diversity tracking, BES has researched and recommended a mechanism for tracking diversity, both for PIs and for reviewers, within the current information management structures. That recommendation is being actively pursued for implementation SC wide. BES will continue to work with the SC management to improve the current information management systems within the constraints of staffing and financial resources. BES will assess the feasibility of creating its own, separate information management system.</p>
3	<p>The planning of and resources for continued Basic Research Needs workshops to identify grand energy challenges should continue and be expanded to the extent that the BES budgets and staff can manage the activity.</p>	<p>BES recognizes the benefits of the Basic Research Needs (BRN) workshops to the program and has continued the process of planning future BRN workshops. In FY 2006, DMS&E took the lead within BES for the BRN workshops on superconductivity and solid-state lighting and participated in the BRN workshop on advanced nuclear systems. In FY 2007, DMS&E will lead the BRN on electric energy storage. Additional staff anticipated in FY 2007 and FY 2008 will aid in the planning and execution of future workshops.</p>

4	The present management of initiatives by folding them into the dynamically managed CRAs is a model for effective management and should be continued.	BES concurs with the COV recommendation that integrating new initiative projects into the core research program offers maximum flexibility and allows the core program to evolve dynamically. This practice will continue.
5	The COV supports the idea that the balance of support between laboratories and universities be determined by open competition wherever and whenever feasible.	BES concurs and will continue to use scientific peer review as the major determinant in making awards. The peer review process for laboratories and universities was standardized some years ago in order to make the process as close as possible to identical for awards of grants to universities and contracts to the DOE laboratories.
6	The COV suggests that BESAC be used as a sounding board (formally and informally) as the details of university based multi-investigator programs are being explored and developed.	In recent years, the number of multi-investigator grants at universities has increased, perhaps reflecting a trend toward the formation of teams, especially multidisciplinary teams, to address complex problems. BES agrees that exploring the extent of this trend and its implications on funding in universities would be an important topic for BESAC.

COV Subpanel Recommendation/Comment	BES Response
Sub-panel 1: Structure and Composition of Materials	
<p>a. It is noted that few of the proposers or reviewers specifically address the energy significance of the proposed work. It would make the program managers job easier if this was specifically requested from both.</p> <p>b. The time to notification could be reduced in the “easy” declination cases.</p> <p>c. More extensive contact with the community through attending meetings and making site visits is clearly desirable—when the proper staffing in BES is attained.</p> <p>d. There is some concern over increasing the number of new program starts.</p>	<p>a. The criteria for review are specified in 10 CFR Part 605 for grant applications and in the analogous document for laboratory applications. See http://www.sc.doe.gov/bes/peerreview.html. This policy notes that the criteria for a review may also include other appropriate factors established and announced by the Office of Basic Energy Sciences. On occasion, it is appropriate to include a factor relating to energy significance (for example, in a solicitation relating to the Hydrogen Fuel Initiative); however, in general, BES does not require each proposal to demonstrate energy significance, because it has been our experience that this emphasizes research with a short-term pay-off.</p> <p>b. BES concurs and will work to report declinations more promptly. The anticipated staff increases will help enormously.</p> <p>c. Staffing level and work load permitted, BES will allocate travel resources and encourage staff to attend national meetings and make site visits. As part of the BES staffing plan, BES has requested significantly increased travel funding for its entire program management staff.</p> <p>d. BES will continue to monitor the new program starts in this activity to ensure a healthy balance between new and renewal projects. The projected funding increase in FY 2007 is expected to increase the number of new program starts.</p>
Sub-panel 2: Mechanical and Physical Behavior of Materials	
<p>a. The radiation effects area is sub-critical and should be rebuilt.</p>	<p>a. The current interest in advanced nuclear energy systems has brought renewed focus and attention to radiation effects in materials research. The recently announced American Competitiveness Initiative (ACI) and the Presidential Initiative on Global Nuclear Energy Partnership (GNEP) call for increases in this area of research beginning in FY 2007. The budget increase should afford the program opportunities to expand and initiate new projects to address what has been called “a lost generation” of researchers in basic research related to nuclear energy.</p>

<p>b. While the building up of the computational materials science has been very successful, the experimental part of the program needs strengthening.</p>	<p>b. Recent advances in computational tools and capabilities have paved ways for building up the computational materials science effort. While the expansion of the experimental effort has trailed behind its computational counterpart, the projected funding increases associated with the ACI and GNEP will bring new opportunities for program expansion.</p>
<p>Sub-panel 3: Synthesis, Processing, and Engineering Sciences</p>	
<p>a. It would be helpful to permit subscription to the BES website for e-mail notification of new solicitations, especially for university PIs.</p> <p>b. More time to visit university PIs is needed.</p> <p>c. The phase out of the Engineering Physics program made sense, since the portfolio was very broad and diffuse. The best parts of the program are now parts of other CRAs.</p> <p>d. Encouraging program managers and PIs to attend the best international conferences in the field is recommended in order for all to be aware of and make connections to the best world science.</p>	<p>a. BES-DMS&E has recently established a “Dear Colleague” mailing list and will expand the list to accept open subscriptions, via the Division website, from all interested investigators. The mailing list will be used for general program announcements including new solicitation opportunities.</p> <p>b. Staffing level and work load permitted, BES will allocate travel resources and encourage staff to make site visits to university PIs.</p> <p>c. BES concurs with this assessment and has continued to incorporate high quality projects in the Engineering Physics program into pertinent core research areas.</p> <p>d. BES agrees that attending national/international meetings is an effective mechanism for communicating the BES programs with the community and for staying abreast of scientific trends and challenges of interest to DOE. Staffing level and work load permitted, BES will allocate travel resources and encourage staff to attend key conferences that are pertinent to the core research areas. As noted above, both staffing and travel funding are addressed in the BES staffing plan.</p>
<p>Sub-panel 4: X-ray and Neutron Scattering Science</p>	
<p>a. Request capturing of statistics on why a proposal is declined (merit, program priority, mission relevance, mix of programs, availability of funds).</p>	<p>a. There are usually multiple reasons for a decision to decline a proposal, and the proposed collection of statistics would likely produce ambiguous results that would not be of significant value to principle investigators in their proposal preparation or to program managers in managing their portfolios.</p>

<p>b. Concern over the ability of the program manager to maintaining an active and current knowledge of the field due to the very high work load in the Division.</p> <p>c. The panel was impressed with the number of new starts in the portfolio, but suggest increasing the levels of investment in enabling technologies, such as detector development, advanced optics, software, etc.</p>	<p>b. BES encourages the program managers to attend national/international meetings to maintain an active knowledge of the field and to be kept abreast of the scientific opportunities. BES will also engage in active recruitments of additional staffing, including both permanent and rotator positions, to bring current knowledge and expertise to assist the management of the portfolio.</p> <p>c. BES concurs with the COV's recommendation that increased funding in enabling technologies such as detectors, software, and sample environments is necessary for the full exploitation and utilization of BES's neutron and x-ray scattering user facilities. The development and fabrication of these enabling technologies is a shared responsibility between DMS&E and the Division of Scientific User Facilities (DSUF). BES also participates in interagency co-funding of such technologies, with the high field magnet research at the NHMFL being a prime example. Both the targeted funds (such as those made available via the Mid-Scale Instrumentation solicitation) and the new Instrumentation staff position should aid the DMS&E in maintaining and growing both ancillary technologies and x-ray and neutron instrumentation development and fabrication. A new Core Research Activity in DSUF is devoted exclusively to accelerator R&D and enabling technologies.</p>
<p>Sub-panel 5: Condensed Matter Physics</p>	
<p>a. Suggest that, when the time-to-decision is longer than 9 months, the program manager inform the investigator that there is a delay, the reason for the delay and to provide guidance.</p>	<p>a. For our recent large solicitations, e.g., “Basic Research for the Hydrogen Economy” or “Basic Research for Solar Energy Utilization,” the submission times were specified in the solicitation announcements and the decision times followed by a well-defined period; the decision times were strictly adhered to. However, because proposals submitted through SC’s Broad Agency Announcement (BAA) may be submitted at any time during the fiscal year, it is possible that a proposal may be submitted just after the close of awards for a given fiscal year (approximately June) and must wait nearly twelve months for a decision, i.e., until the close of awards for the next fiscal year. This will be the case for proposals that are at the margin. We agree that twelve months is a long time to wait. We already have revised our web guidelines so that investigators understand the timing of awards for proposals submitted to the BAA.</p>

<p>b. The reviews at the National Laboratories are perhaps too onerous and time-consuming.</p> <p>c. Recommend instituting an early career research award program young investigators in academia (such as the Outstanding Junior Investigator Awards within the Office of Science at DOE).</p>	<p>b. The review process for laboratories has the same schedule as that for universities, i.e., laboratory programs are reviewed every three to four years. Laboratory reviews require preparation of a “review document,” similar in nature to a proposal that would be submitted for a grant renewal. The laboratory reviews also often include a visiting committee that reviews many investigators at one time, and often a significant fraction of a laboratory Division. Other than these site visits, the reviews for investigators at laboratories and universities are very similar. There is no additional burden placed on the laboratories.</p> <p>c. BES participates in the SC-wide Presidential Early Career Award for Scientists and Engineers (PECASE), which provides funding for early career scientists engaging in research within the purview of the BES program. To encourage proposal submissions from young investigators, BES will modify the DMS&E website to specifically encourage young investigators to submit proposals and to provide detailed feedback to those investigators when the funding decision is made. BES Program Manager attendance at national and topical conferences also will provide useful contacts with young investigators. In addition, BES will consider hosting informational sessions at national meetings for young investigators, explaining our research programs and giving advice on how to write a good proposal.</p>
<p>Sub-panel 6: Materials Chemistry and Biomolecular Materials</p>	
<p>The reviews of the smaller FWP's at the Labs appear to be overly burdensome and time consuming. Perhaps the smaller FWP's should be merged into large groups.</p>	<p>BES concurs and, during the past few years, has merged smaller Lab FWP's into larger projects when scientific opportunities and synergism to warrant the consolidation. This practice will continue.</p>
<p>Sub-panel 7: Experimental Program to Stimulate Competitive Research (EPSCoR)</p>	
<p>There is a general concern that there are no metrics for success in this [EPSCoR] program. BES should consider coordinating an interagency assessment program for EPSCoR.</p>	<p>BES is pursuing an interagency assessment program for EPSCoR together with the EPSCoR Interagency Coordinating Committee (EICC). In cooperation with EICC, BES will convene a study group to formulate an evaluation system for DOE EPSCoR. The purpose of the study will be to guide DOE EPSCoR in the collection and reporting of data, establishment of performance metrics, and measurement of the efficacy of the program in meeting its goals and objectives.</p>