

UNIVERSITY OF OREGON

10 March 2000

Dr. James Decker
Acting Director
Office of Science
U.S. Department of Energy
19901 Germantown Road
Germantown, Maryland 20874-1290

Dear Dr. Decker,

I would like to express my appreciation for your attendance and presentation at our Basic Energy Science Advisory Committee (BESAC) meeting last week. It is encouraging to see the proposed budget increases for the Office of Science and Basic Energy Sciences (BES). As a Committee we are committed to helping to make the proposed budget a reality.

At our meeting three Subpanel reports were presented addressing the recent charges given to us by former Director of Science, Martha Krebs. The three reports submitted by the Subpanels pertained to Neutron Scattering in light of the recent shutdown of the High Flux Beam Reactor (HFBR) at Brookhaven National Laboratory (BNL), a review of the Advanced Light Source (ALS) at Lawrence Berkeley National Laboratory (LBNL), and a review of the Electron Beam Microcharacterization Centers at Oak Ridge National Laboratory (ORNL), University of Illinois, Argonne National Laboratory (ANL), and LBNL. The purpose of this letter is to forward to you the reports of these Subpanels and the response of BESAC to these reports. Overall, the BESAC members are supportive of the recommendations of the Subpanels. We are appreciative of the tremendous amount of work that Panelists and BES staff contributed to these important planning and review exercises.

Neutron Scattering Research Capabilities

The purpose of this Subpanel, chaired by Dr. Martin Blume, was to recommend steps to provide the best possible neutron scattering research capabilities in the United States in the near term. Subpanel deliberations took into account the shutdown of the High Flux Beam Reactor at BNL and assumed that the Spallation Neutron Source at ORNL would be operational in a timely manner. The Subpanel was also asked to provide advice on how to properly accommodate the neutron scattering groups at BNL, conditional on their submitting satisfactory long-term plans for programs to be funded by BES.

Neutron scattering is a critical tool in the arsenal of experimental techniques for studying condensed matter systems. It will be particularly valuable for studies in nanotechnology and nanoscience. BESAC is committed to assuring that neutron scattering science in this country retains its world-class standing and to supporting facilities that allow

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scientists to conduct first-rate science in this area. BESAC commends the Subpanel for the high quality of the submitted report, recognizing the short time constraints imposed by the need to assure continuity in the field in light of the HFBR shutdown. BESAC supports the general recommendations of the report that is provided with this letter. However, with respect to the funding recommendations, first BESAC regards these numbers as estimates requiring detailed review. Second, several factors need to be considered before funding decisions are made, including determination of what costs are currently in the FY 2001 budget, the shutdown costs of HFBR, and the anticipated growth in the number of users over the next few years as the other neutron scattering facilities increase their operations. BESAC however felt strongly that any increase for the existing facilities should not come at the expense of core BES programs. The funding for research and instrumentation should be competitive with the core program.

Review of the Electron Beam Microcharacterization Centers

BESAC's charge was to help assess the scientific impact of the nation's need for the Electron Beam Microcharacterization Centers operated by BES. To this end a Subpanel of experts was assembled and chaired by Dr. John Stringer. The four centers considered were the Shared Research Equipment Program at ORNL, the Center for Microanalysis of Materials Research Laboratory at the University of Illinois Frederick Seitz Materials Research Laboratory, the Electron Microscopy Center for Materials Research at ANL, and the National Center for Electron Microscopy at Lawrence Berkeley National Laboratory. The Subpanel visited each of the four centers and met with members of their management, staff and user communities. The recommendations of this group are summarized in the enclosed report. The Subpanel's review was a monumental effort and BESAC expresses its appreciation for the efforts of the committee, the chair and the BES staff.

In general these facilities were found to operate well and produce excellent science. BESAC is supportive of the recommendations found in the report. The recommendations have been carefully derived and attention has been paid to the unique nature of different facilities. BESAC accepted the recommendations provided that any additional funds allocated to these centers as a result of the review be competitive with the core BES program.

Review of the Advanced Light Source

BESAC was charged in August 1999 with reviewing the Advanced Light Source (ALS) at LBNL. The purpose of the review was to examine those issues that were raised by the BESAC report on "DOE Synchrotron Radiation Sources and Science," known as the Birgeneau Report. In particular, BESAC was asked to explore ALS's vision for the future, the quality and diversity of the science program at the facility, the user demand, and the interaction and relationship with the user committee. The Subpanel charged with this study was chaired by Dr. Yves Petroff and consisted of expert scientists from a broad spectrum of scientific areas.

The Subpanel gave an enthusiastic review of the ALS. The response of the management of the ALS to criticism in the Birgeneau Report has led to a restructuring of LBNL to raise the ALS to the divisional level. The user hours have dramatically increased, and the user participation in the ALS decision making process has been welcomed by the users. Most important is the high quality of the science being generated at the ALS. LBNL

Director Chuck Shank and ALS Director Daniel Chemla are commended for this impressive turn around. BESAC accepted the recommendations of the subpanel provided that any increase in funding to the ALS as a result of this positive review not come at the expense of the BES core program. Increases in funding for beamlines should be competitive with the core program.

Thank you again for attending our BESAC meeting and giving us your insights into the FY 2001 budget process.

Enclosures

Sincerely,

/s/ by

Geraldine L. Richmond
Chair
Basic Energy Sciences Advisory Committee

cc. Iran Thomas, Acting Director of Basic Energy Sciences
Patricia Dehmer, Acting Deputy Director of the Office of Science
Sharon Long, BES