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September 3, 2004

Professor Gordon E. Brown, Jr.  
Dorrell William Kirby Professor  
Department of Geological & Environmental Sciences  
Stanford University  
Stanford, CA 94305-2115

Dear Gordon:

The Basic Energy Sciences Advisory Committee (BESAC) has been charged by the Department of Energy Office of Science to assemble a Committee of Visitors (COV) to review the management processes for the Chemical Sciences, Geosciences, and Biosciences Division of the Basic Energy Sciences (BES) program. Thank you for agreeing to chair this BESAC COV panel. Through your leadership, the panel should provide an assessment of the processes used to solicit, review, recommend, and document proposal actions and monitor active projects and programs.

The panel should assess the operations of the Division's programs during the fiscal years 2002, 2003, and 2004. The panel may examine any files from this period for both DOE laboratory projects and university projects. The components of the Division that you are being asked to review are:

- (1) Atomic, Molecular, and Optical Sciences
- (2) Chemical Physics
- (3) Photochemical and Radiation Sciences
- (4) Catalysis and Chemical Transformations
- (5) Separations and Analysis
- (6) Heavy Element Chemistry
- (7) Chemical Engineering and Chemical Energy.
- (8) Geosciences Research
- (9) Energy Biosciences

You will be provided with background material on these program elements prior to the meeting. The COV is scheduled to take place during the first week of April at the BES/DOE Germantown location at 19901 Germantown Road, Germantown, Maryland 20874-1290. A presentation to BESAC is requested at its Summer 2005 meeting. Following acceptance of the full BESAC committee, the COV report with findings and recommendations will be presented to the Director of the Office of Science.

I would like the panel to consider and provide evaluation of the following major elements:

1. For both the DOE laboratory projects and the university projects, assess the efficacy and quality of the processes used to:
  - (a) solicit, review, recommend, and document proposal actions and
  - (b) monitor active project and programs.
2. Within the boundaries defined by DOE missions and available funding, comment on how the award process has affected:
  - (a) the breadth and depth of portfolio elements, and

(b) the national and international standing of the portfolio elements.

In addition to the above elements, the panel is asked to provide input for the Office of Management and Budget (OMB) evaluation of Basic Energy Sciences progress toward the long-term goals specified in the OMB Program Assessment Rating Tool (PART, attached). Each of the nine components (or sub-components, if appropriate) of the Chemical Sciences, Geosciences, and Biosciences Division should be evaluated against each of the four PART long-term goals. If a particular long-term goal is not applicable to a specific program component, please indicate so in the evaluation. Note that the OMB guidelines specify ratings of (1) excellent, (2) minimally effective, or (3) insufficient. In addition to these ratings, comments on observed strengths or deficiencies in any component or sub-component of the Division's portfolio, and suggestions for improvement, would be very valuable.

If you have any questions regarding BESAC or its legalities, please contact Karen Talamini, Office of Basic Energy Sciences at 301-903-4563 or by e-mail at [Karen.talamini@science.doe.gov](mailto:Karen.talamini@science.doe.gov). Diane Marceau, the Program Analyst for the Chemical Sciences, Geosciences, and Biosciences Division, will provide logistical support for the COV meeting. She may be contacted by phone at 301-903-0235 or by e-mail at [diane.marceau@science.doe.gov](mailto:diane.marceau@science.doe.gov). For questions related to the Division of Chemical Sciences, Geosciences, and Biosciences, please contact Walter Stevens, 301-903-5804, or by e-mail at [walter.stevens@science.doe.gov](mailto:walter.stevens@science.doe.gov).

Sincerely,

John C. Hemminger  
Professor of Chemistry  
Chair, Basic Energy Sciences Advisory Committee

Enclosure: OMB PART Long Term Measures for DOE BES

cc:  
P. Dehmer  
W. Stevens  
D. Marceau

**Office of Management and Budget  
Program Assessment Rating Tool (PART)  
Long Term Measures for DOE Basic Energy Sciences**

- By 2015, demonstrate progress in designing, modeling, fabricating, characterizing, analyzing, assembling, and using a variety of new materials and structures, including metals, alloys, ceramics, polymers, biomaterials and more – particularly at the nanoscale – for energy-related applications.
  - Definition of “Success” – BES-supported research leads to important discoveries that impact the course of others’ research; new knowledge and techniques, both expected and unexpected, within and across traditional disciplinary boundaries; and high-potential links across these boundaries.
  - Definition of “Minimally Effective” – BES-supported research leads to a steady stream of outputs of good quality.
  - How will progress be measured? – Expert Review every three years will rate progress as “Excellent”, “Minimally Effective” or “Insufficient”.
  
- By 2015, demonstrate progress in understanding, modeling, and controlling chemical reactivity and energy transfer processes in the gas phase, in solutions, at interfaces, and on surfaces for energy-related applications, employing lessons from inorganic, organic, self-assembling, and biological systems.
  - Definition of “Success” - BES-supported research leads to important discoveries that impact the course of others’ research; new knowledge and techniques, both expected and unexpected, within and across traditional disciplinary boundaries; and high-potential links across these boundaries.
  - Definition of “Minimally Effective” - BES-supported research leads to a steady stream of outputs of good quality.
  - How will progress be measured? - Expert Review every three years will rate progress as “Excellent”, “Minimally Effective” or “Insufficient”.
  
- By 2015, develop new concepts and improving existing methods for solar energy conversion and other major energy research needs identified in the 2003 Basic Energy Sciences Advisory Committee workshop report, Basic Research Needs to Assure a Secure Energy Future.
  - Definition of “Success” - BES-supported research leads to important discoveries that are rapidly and readily available and feed, as appropriate, into use or projected use by the Department’s technology offices, by other federal agencies, and/or by the private sector. There is evidence of substantive interactions with the Department’s technology offices in most BES program areas.
  - Definition of “Minimally effective” - BES-supported research leads to a steady stream of outputs of good quality that show the potential to impact energy research.
  - How will progress be measured? - Expert Review every three years will rate progress as “Excellent”, “Minimally Effective” or “Insufficient”.
  
- By 2015, demonstrate progress in conceiving, designing, fabricating, and using new instruments to characterize and ultimately control materials.
  - Definition of “Success” - BES-supported research leads to new concepts and designs for next-generation instruments and detectors for x-ray, neutron, and electron-beam scattering and for research using electric and/or magnetic fields.
  - Definition of “Minimally effective” - ES-supported research leads to new instruments that are world class.
  - How will progress be measured? - Expert Review every three years will rate progress as “Excellent”, “Minimally Effective” or “Insufficient”.