



Department of Energy  
Office of Science  
Washington, DC 20585

Office of the Director

February 14, 2011

Professor John Hemminger, Chair  
Vice Chancellor for Research  
Professor of Chemistry  
Department of Chemistry  
University of California, Irvine  
Irvine, California 92697

Dear Professor Hemminger:

Thank you very much for your continuing service as the Chair of the Basic Energy Sciences Advisory Committee (BESAC). During your tenure as Chair of BESAC, the Committee has delivered the report *Opportunities for Discovery: Theory and Computation in Basic Energy Sciences*; the Grand Challenges report *Directing Matter and Energy: Five Challenges for Science and the Imagination*; the highly impactful report *New Science for a Secure and Sustainable Energy Future*; the report resulting from the Photon Workshop *Next-Generation Photon Sources for Grand Challenges in Science and Energy*; and most recently the report *Science for Energy Technology: Strengthening the Link between Basic Research and Industry*.

The impact of the BESAC reports in combination with the ten BES reports on Basic Research Needs for energy technologies has been great. Perhaps most important is the clear recognition of the importance of fundamental science to the solution of energy/environment problems. These reports have helped shape the research agenda of the BES programs and, in particular, they have been instrumental in guiding the establishment of the suite of Energy Frontier Research Centers.

A central theme of these reports is the importance of atomic and molecular scale understanding of how nature works and how this relates to advancing the frontiers of science and innovation. I would now like BESAC to extend this work by addressing the research agenda for mesoscale science, the size regime of hundreds of nanometers where classical, microscale science and nanoscale science meet. I see two parts to this new study:

1. Identify mesoscale science directions that are most promising for advancing the Department's energy mission.
2. Identify how current and future BES facilities can impact mesoscale science.

This study could prompt a national discussion of mesoscale science at the level heard during the initial formulation of the National Nanotechnology Initiative a decade ago.



In addition, I would like you to continue to oversee the Committees of Visitors (COVs) through which BESAC can provide an assessment on a regular basis of matters pertaining to program decisions. The COVs should review program management every three years on a rotating basis for major elements of the BES program selected by the Associate Director of Science for BES. The COVs will assess the efficacy and quality of the processes used to solicit, review, recommend, monitor, and document funding actions and to assess the quality of the resulting portfolio. The national and international standing of the elements are part of the evaluation of the breadth and depth of the portfolio. The portfolio under review by a COV generally includes all actions – both awards and declinations – for universities, national laboratories, and industry administered by the program for a set period of time, usually three years.

Sincerely,

A handwritten signature in black ink, appearing to read 'W. F. Brinkman', with a long horizontal flourish extending to the right.

W. F. Brinkman  
Director, Office of Science