



Department of Energy  
Office of Science  
Washington, DC 20585

Office of the Director

September 14, 2011

Dr. Gary Stacey  
Associate Director, National Soybean Biotechnology Center  
Department of Microbiology and Molecular Immunology  
University of Missouri  
271 E Christopher S. Bond Life Sciences Center  
Columbia, MO 65211

Dear Dr. Stacey:

In December 2010, the Biological and Environmental Research Advisory Committee (BERAC) prepared a report, "Grand Challenges for Biological and Environmental Research: A Long-Term Vision," that laid out grand research challenges for BER in biological systems, climate, energy sustainability, computing, and education and workforce training that can put society on a path to achieve the scientific evidence and predictive understanding needed to inform decision making and planning to address future energy needs, climate change, water availability, and land use. Two key goals were to: (1) describe how BER should be positioned to address those challenges; and (2) determine the new and innovative tools needed to advance BER science.

A recognized strength of the Office of Science, and BER is no exception, is the development of tools and technologies that enable science - from synchrotrons to genomic sequencing to nanoscience research centers. The BERAC report identifies technology needs that will be important for BER to achieve the scientific grand challenges outlined in the report. These ranged from the development of new observational technologies for biological systems, climate model integration, and energy sustainability, to the application of advanced computational and analytical capabilities to characterize network interactions. I am now charging BERAC to:

- Expand on the development and use of new tools that were only briefly mentioned in the "Long Term Vision" report;
- Identify the development and use of new tools and their linkage to existing or new user facilities;
- Identify linkages between new tools and existing resources, new resources and to diverse scales of time and space;
- Expand on the concepts of virtual laboratories and collaborative tools, including a discussion of how to facilitate these concepts and interactions.



I would like to receive a progress report on this charge at the early spring 2012 BERAC meeting and a final report at the fall 2012 BERAC meeting. I look forward to what should be a stimulating and useful report. Many thanks for your contributions to this important effort.

Sincerely,

A handwritten signature in black ink, appearing to read "W. F. Brinkman". The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

W. F. Brinkman  
Director, Office of Science

cc: Sharlene Weatherwax  
David Thomassen