



## Under Secretary for Science

Washington, DC 20585

Dr. Jill P. Dahlburg, Chair  
Naval Research Laboratory, Code 1001  
4555 Overlook Avenue  
Washington, DC 20375

Dear Dr. Dahlburg:

I am requesting that the Advanced Scientific Computing Advisory Committee (ASCAC) undertake two charges this year.

- 1) The August 15, 2003 charge to ASCAC instituted a Committee of Visitors (COV) to assess the program management of major elements of Advanced Scientific Computing Research (ASCR) program every two to three years. The first two COV reviews - of the research program and the facilities efforts – resulted in a number of improvements to the processes. Following on these reviews I now ask ASCAC to conduct a COV review of the SciDAC efforts within ASCR. A report to ASCAC should be planned for the Fall 2007 ASCAC meeting.
- 2) Next, I would like ASCAC to convene a Joint Panel with the Biological and Environmental Research Advisory Committee (BERAC) to examine the issue of computational models for GTL and how progress could be accelerated through targeted investments in applied mathematics, computer science and computational biology. The Joint Panel should consider whether the current ASCR long-term goal described below is too ambitious given the status and level of buy-in from the community. The Joint Panel should also discuss possible intermediate goals that might be more relevant to the two programs. Finally, the Joint Panel should identify the key computational obstacles to developing computer models of the major biological understandings necessary to characterize and engineer microbes for DOE missions such as biofuels and bioremediation. The context for this charge is the fact that both ASCR and Biological Environmental Research (BER) have long-term goals for developing GTL models:
  - a. (ASCR) By 2015, demonstrate progress toward developing, through the Genomes to Life partnership with the Biological and Environmental Research program, the computational science capability to model a complete microbe and a simple microbial community.
  - b. (BER) By 2015, provide sufficient scientific understanding of plants and microbes to develop robust new strategies to produce biofuels, clean up waste, or sequester carbon. This includes research that supports the development of computational models to direct the use and design of improved organisms carrying out these processes.



In 2006, both ASCAC and BERAC reviewed progress toward the respective goals. BERAC rated progress as “excellent” and ASCAC rated progress as “good” with “concerns regarding adequate communication and reasonable timescales for achieving research objectives.”

To inform the FY 2009 Budget Request, I would like a full report on the findings and recommendations at the August 2007 ASCAC meeting. I appreciate ASCAC’s willingness to undertake this important activity.

Sincerely,

A handwritten signature in cursive script that reads "Raymond L. Orbach". The signature is written in dark ink and is positioned above the printed name.

Raymond L. Orbach



## Under Secretary for Science

Washington, DC 20585

Dr. Michelle S. Broido  
Associate Vice Chancellor for Basic Biomedical Research  
And Director, Office of Research, Health Sciences  
University of Pittsburgh  
Scaife Hall, Suite 401  
3550 Terrace Street  
Pittsburgh, PA 15261

Dear Dr. Broido:

I am requesting that the Biological and Environmental Research Advisory Committee (BERAC) convene a Joint Panel with the Advanced Scientific Computing Advisory Committee (ASCAC) to examine the issue of computational models for GTL and how progress could be accelerated through targeted investments in applied mathematics, computer science and computational biology. The Joint Panel should consider whether the current Advanced Scientific Computing Research (ASCR) long-term goal described below is too ambitious given the status and level of buy-in from the community. The Joint Panel should also discuss possible intermediate goals that might be more relevant to the two programs. Finally, the Joint Panel should identify the key computational obstacles to developing computer models of the major biological understandings necessary to characterize and engineer microbes for DOE missions such as biofuels and bioremediation. The context for this charge is the fact that both ASCR and Biological and Environmental Research (BER) have long-term goals for developing GTL models:

- 1) (ASCR) By 2015, demonstrate progress toward developing, through the Genomes to Life partnership with the Biological and Environmental Research program, the computational science capability to model a complete microbe and a simple microbial community.
- 2) (BER) By 2015, provide sufficient scientific understanding of plants and microbes to develop robust new strategies to produce biofuels, clean up waste, or sequester carbon. This includes research that supports the development of computational models to direct the use and design of improved organisms carrying out these processes.

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Raymond L. Orbach

cc: Dr. Jill P. Dahlburg