



Department of Energy
Office of Science
Washington, DC 20585

Office of the Director

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Professor Roscoe Giles, ASCAC Chair
Department of Electrical & Computer Engineering
Boston University
8 St. Mary's Street
Boston, MA 02215

Dear Professor Giles:

Thank you for the recent Advanced Scientific Computing Advisory Committee (ASCAC) report on the Computational Sciences Graduate Fellowship. The report was thorough, informative and very timely.

Overcoming the challenges of managing data rates and movement of data in an exascale computing environment will likely require significant research investments. In addition to the challenges and opportunities of exascale computing, the Office of Science is facing related challenges from data-intensive research activities, such as the growing volumes of data generated at our next generation scientific user facilities and by the new genomics-based technologies that are enabling a revolution in systems biology research. The Linac Coherent Light Source, for example, currently generates several petabytes of data each year and the National Synchrotron Light Source II, currently under construction and scheduled to begin operations later this decade, is expected to generate hundreds of petabytes of data each year. In order to maximize the return on our limited federal resources, we need to understand the similarities among and differences between these data challenges and the potential to leverage research investments to address issues spanning both exascale and data-intensive science.

By this letter, I am charging the ASCAC to assemble a subcommittee to examine the potential synergies between the challenges of data-intensive science and exascale. The subcommittee should take into account the Department's mission needs, which define the Office of Science's unique role in data-intensive science vis-a-vis other agencies. The subcommittee should specifically address what investments are most likely to positively impact both our exascale goals and our data-intensive science research programs, including data management at our next generation facilities.

I would appreciate the committee's preliminary comments by November 2012 and a final report by March 30, 2013. I appreciate ASCAC's willingness to undertake this important activity.

