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Federation of American Societies for Experimental Biology

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Testimony of
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on
FY 2012 Appropriations for the Department of Energy Office of Science
submitted to the
Senate Committee on Appropriations
Subcommittee on Energy and Water Development
Senator Dianne Feinstein, Chair
Senator Lamar Alexander, Ranking Member

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The Federation of American Societies for Experimental Biology (FASEB) respectfully requests an appropriation of \$5.10 billion for the Department of Energy Office of Science (DOE SC) in fiscal year 2012. This figure is in keeping with President Obama's vision for strong national investment in innovation, and it would enable DOE SC to continue to support essential research programs that enhance human health and quality of life, invigorate the economy, bring the nation closer to energy independence, and drive scientific advances.

As a Federation of 23 scientific societies, FASEB represents more than 100,000 life scientists and engineers, making it the largest coalition of biomedical research associations in the United States. FASEB's mission is to advance health and welfare by promoting progress and education in biological and biomedical sciences, including the research funded by DOE SC, through service to its member societies and collaborative advocacy. FASEB enhances the ability of scientists and engineers to improve—through their research—the health, well-being, and productivity of all people.

DOE SC provides over 40 percent of the total funding for basic research in the physical sciences, including fundamental research in energy sciences, biological and environmental sciences, materials and chemical sciences, and computational science. In addition to supporting research at over 300 colleges and universities, DOE SC funds and manages ten world-class national laboratories.

The DOE SC national laboratories, located in eight states across the country, maintain essential research and development facilities containing sophisticated instrumentation such as particle accelerators, advanced light sources, and supercomputers. Because large-scale facilities provide infrastructure beyond the budget of any individual research institution, tens of thousands of university and industry scientists rely heavily on access to unique DOE SC instrumentation in order to conduct cutting-edge research. For example, x-ray facilities housed at DOE SC national laboratories, such as the Advanced Photon Source at Argonne National Laboratory, are used by nearly all U.S.-based pharmaceutical and biotechnology companies to conduct protein structure studies critical to the drug

design process. Furthermore, the oil and gas industry uses DOE SC instrumentation to study the atomic structure of chemicals used to process and refine fossil fuels. Without strong and sustained support for DOE SC, operations at national laboratory facilities could be limited or terminated, forcing U.S. companies that depend on them to move their research studies to overseas locations providing better access to instrumentation.

At academic institutions and national laboratories across the country, DOE SC-funded scientists have uncovered a wealth of knowledge that has led to life-changing developments in energy, medicine, computer science, and other fields. For example, a team of DOE SC-funded scientists is studying a fungus capable of degrading plant material into the simple sugars necessary to make biofuels, possibly leading to a more economical means of manufacturing ethanol for industrial applications. DOE SC also partners with other federal science agencies on projects requiring multidisciplinary resources and expertise. Along with the National Science Foundation and the National Eye Institute, DOE SC sponsored the research and development of an artificial retina to restore sight in patients blinded by eye diseases such as macular degeneration and retinitis pigmentosa. The study of artificial retina technology has advanced the general field of neural prostheses, which has the potential to improve the lives of people with spinal cord injuries, Parkinson's disease, deafness, and other neurological disorders.

Now is not the time to abandon investment in the innovative research supported by DOE SC. Insufficient funding for the agency would curtail groundbreaking scientific discoveries by forcing essential research facilities to close, causing thousands of scientific jobs to be lost, and deterring the next generation of scientists and engineers. A source of abundant, safe, clean, and sustainable energy is critical to the nation's future. Development of new energy sources that can be used in place of fossil fuels will create new industries, reduce U.S. dependency on foreign oil, protect the environment, provide economic opportunities, and strengthen national security. Furthermore, because of the collaborative work of science agencies and the increasingly interdisciplinary nature of scientific research, support for the federal research and development portfolio has never been more important. With its vital mission and unique research facilities, investment in DOE SC programs should be one of our highest national priorities.

Thank you for the opportunity to offer FASEB's support for DOE SC.

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