



ENERGY SCIENCES
COALITION

October 27, 2017

The Honorable Mick Mulvaney
Director
Office of Management and Budget
Eisenhower Executive Office Building
1650 Pennsylvania Avenue, NW
Washington, DC 20503

Dear Director Mulvaney:

The member organizations of the Energy Sciences Coalition (ESC) urge you to strongly support the Department of Energy's (DOE) Office of Science during Fiscal Year (FY) 2019 budget discussions. We recommend that the President's FY 2019 budget request provide no less than \$5.8 billion for the Office of Science. This increased level of funding is consistent with recommendations from science and technology organizations, business leaders, and Members of Congress. It would allow the Office of Science to continue to support cutting-edge research at universities and national laboratories and the construction and operation of world-class science infrastructure needed to maintain U.S. leadership in scientific innovation, economic competitiveness and national security.

Your August 17, 2017 memo (M-17-30) broadly outlined President Trump's five research and development budget priorities for FY 2019: American military superiority, American security, American prosperity, American energy dominance and American health. Similarly, Secretary of Energy Perry, during testimony before Congress, discussed the DOE's four research and development priorities: American energy security, innovation, enhancing national security, and addressing the obligation of legacy management and nuclear waste. The Office of Science plays a prominent and critical role in supporting the world-class scientists, scientific tools and state-of-the-art facilities needed to meet *all* of these challenges.

The Office of Science is an integral component of the U.S. scientific enterprise, providing funding to researchers across scientific fields in pursuit of both fundamental discoveries and advancing U.S. leadership in energy technologies, new industries, medicine and national security. Office of Science-supported research, for example, has led to high-energy storage capacity lithium batteries, energy efficient superconducting wires, DNA sequencing technologies, advanced medical imaging technologies and detectors to identify concealed nuclear weapons and land mines. Generally, as the nation's largest sponsor of basic research in the physical sciences, the Office of Science pushes the frontiers of knowledge and long-term, sustained investments have had broad benefits to many sectors of society.

But U.S. leadership in global R&D funding is being challenged by our economic competitors. Other countries are now attempting to copy the United States' success in generating scientific breakthroughs by establishing their own

network of national laboratories and research universities, which has long been a strength of the U.S. research and innovation ecosystem. While the Office of Science has built and maintains a unique collection of large-scale user facilities – including supercomputers, advanced x-ray light sources, and accelerators – that more than 32,000 researchers from academia, industry and government laboratories rely on, nations such as China, Japan, Germany, France, Brazil, Sweden and Switzerland are building or updating their own world-class facilities. Our competitors’ increased investments make the next great technological breakthrough increasingly likely to occur outside the U.S. For example, a recent report titled *[U.S. Leadership in High Performance Computing](#)* (HPC), authored by experts from DOE, the National Security Agency (NSA), the National Science Foundation (NSF) and other federal agencies, indicates that without significant U.S. investment, China is extremely likely to become the world leader in supercomputing as early as 2020. This is not only a national security risk but also an economic risk given the HPC needs of high-tech manufacturing. If the U.S. does not continue to show leadership in funding high-risk, long-term research and invest in the most advanced scientific tools and facilities, which attract and retain the best minds and talent from around the U.S. and the world, the next wave of technological advances will occur elsewhere and contribute to other countries’ innovation enterprises.

Office of Science facilities also offer the National Nuclear Security Administration (NNSA), Department of Defense (DOD), Department of Homeland Security and Intelligence Agency researchers unique capabilities necessary to advance a broad range of national security applications, aligning with the Administration’s American security and military superiority priorities. NNSA scientists, for example, rely on Office of Science facilities to understand the material properties of an aging nuclear weapons stockpile and how to harden electronic components against radiation. Additionally, Office of Science-supported research has helped develop lighter, stronger armor for our soldiers; increased the electric grid’s resilience to cyber attacks; and improved our ability to detect nuclear and radiological smuggling at our borders.

Finally, your August 2017 memo acknowledged a widely shared goal of preparing a “future-focused workforce.” The Office of Science is a leader in preparing the next generation of American scientific and engineering talent, supporting approximately 22,000 Ph.D. scientists, engineers, graduate students, undergraduates and technical personnel at more than 300 academic institutions across the entire country.

We recognize the challenges presented by a constrained federal budget. However, robust funding for the Office of Science is essential to our nation’s national security, energy security, scientific leadership and economic prosperity. We urge the Administration’s strong support for it.

Thank you for your consideration of our views.

Sincerely,

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The Energy Sciences Coalition (ESC) is a broad-based coalition of organizations representing scientists, engineers and mathematicians in universities, industry and national laboratories who are committed to supporting and advancing the scientific research programs of the U.S. Department of Energy (DOE), and in particular, the DOE Office of Science.

ESC Membership

American Association for the Advancement of Science	Jefferson Science Associates, LLC
American Astronomical Society	Krell Institute
American Chemical Society	Lehigh University
American Geophysical Union	Massachusetts Institute of Technology
American Geosciences Institute	Materials Research Society
American Institute of Physics	Michigan State University
American Mathematical Society	Michigan Technological University
American Physical Society	New York University
American Society for Engineering Education	Northeastern University
American Society of Agronomy	Northern Illinois University
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American Society of Plant Biologists	OSA—The Optical Society
Arizona State University	Pace University
Association of American Universities	Penn State University
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Boston University	Society for Industrial and Applied Mathematics
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Clemson University	Southeastern Universities Research Association
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The Ecological Society of America	University of Missouri System
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	West Virginia University
	Yale University