



ASSOCIATION OF
PUBLIC &
LAND-GRANT
UNIVERSITIES

FY2022 Appropriations Priorities

Energy, Water Development, and Related Agencies

Agency	Account	APLU FY2022 Request*
Department of Energy (DOE)	Office of Science	\$7.7 billion
DOE	Advanced Research Projects Agency – Energy (ARPA-E)	\$500 million

*APLU advocates for *at least* these sums

DEPARTMENT OF ENERGY (DOE)

OFFICE OF SCIENCE

APLU FY2022 Request: \$7.7 billion

FY2022 PBR = \$7.4 B; FY2021 = \$7.026 B; FY2020 = \$7.0 B

APLU urges Congress to fund the DOE Office of Science with an appropriation of at least \$7.7 billion in FY2022. This level is needed to enhance support for groundbreaking scientific discoveries, building and operating world-class scientific facilities, helping advance energy technologies needed for the nation to meet net-zero carbon emissions economy wide, developing industries of the future and emerging technologies, and maintaining the highly skilled science and technology workforce that is essential for the United States to compete globally. This proposed funding level is consistent with the recent report from the American Academy of Arts and Sciences which recommends a sustained real growth rate of *at least* 4% for basic research across the federal government, with commensurate growth in applied research investment trajectories, in order to maintain U.S. research and development leadership internationally.¹

The Office of Science is our nation’s largest supporter of foundational research in the physical sciences, the steward of 10 national laboratories, and the lead federal agency supporting fundamental research for energy production and security. Each year, the Office of Science provides the world’s largest array of scientific user facilities serving more than 34,000 researchers from universities, government laboratories, and industry. The Office of Science further supports 25,000 researchers, including Ph.D. scientists, engineers, graduate students, undergraduates, and technical and support personnel, through competitive awards annually at DOE laboratories and more than 300 institutions of higher education throughout the U.S.

The Office of Science plays a key role in preparing our next generation of STEM researchers, inventors, and entrepreneurs. Through its Early Career Research Program, DOE provides funds for outstanding scientists early in their careers helping to stimulate research careers in the disciplines supported by the DOE Office of Science. Additionally, the Office of Workforce Development for Teachers and Scientists

¹ American Academy of Arts and Sciences, “Restoring the Foundation: The Vital Role of Research in Preserving the American Dream” 2014. Updated 2018. Available at <https://innovation-imperative.herokuapp.com/index.html>

(WDTS) sponsors student internships and other education and training programs at DOE's 17 national laboratories. The DOE laboratories also provide opportunities for STEM training and education, annually engaging over 250,000 K-12 students, 22,000 K-12 educators, 4,000 undergraduate interns, 3,000 graduate students, and 1,600 postdoctoral researchers who will be among our nation's future energy leaders.

APLU recommends at least \$7.7 billion in funding for the Office of Science to:

- grow core research at national laboratories and research universities in the physical sciences, biological sciences, advanced materials, geosciences, computing and engineering to help develop future energy technologies and fully utilize new and updated world-class facilities and cutting-edge instrumentation, especially with ambitious goals to achieve net-zero emissions economy-wide no later than 2050;
- prepare the next generation of American scientific and engineering talent through competitively awarded grants and significantly expand existing workforce and education programs, such as the DOE Office of Science Graduate Fellowship and Computational Sciences Graduate Fellowship, while also creating new programs to address the nation's growing workforce needs in STEM and energy industries as well as meaningfully tackle issues of broadening participation and diversity, equity, and inclusion;
- accelerate the construction and upgrades of world-class scientific user facilities and maximize operations to support the more than 36,000 researchers from academia, industry and federal agencies that rely on these facilities for their science and engineering pursuits;
- advance new, strategic investments in innovative high-risk, high-reward research areas, such as quantum science and technology, genomics and engineering biology, microelectronics, next-generation communications, accelerator and laser systems, and artificial intelligence and scientific machine learning; and
- maintain and grow multi-disciplinary centers focused on addressing scientific grand challenges, such as Energy Frontier Research Centers, Bioenergy Research Centers, Energy Innovation Hubs, and national quantum information science research centers as well as artificial intelligence co-design and microelectronics research centers.

As more countries continue to invest heavily in research and development, it is imperative that the U.S. makes bold new investments in fundamental research to stay ahead of international competition, maintain U.S. competitiveness, and create American jobs of the future in key energy sectors as well as new technology areas such as high-performance computing, artificial intelligence, biotechnology, and quantum information science.

ADVANCED RESEARCH PROJECTS AGENCY-ENERGY (ARPA-E)

APLU FY2022 Request: \$500 million

FY2022 PBR = \$500 M; FY2021 = \$427 M; FY2020 = \$425 M

ARPA-E provides funding to some of our nation's brightest minds in cross-disciplinary research teams to radically transform how we generate, store, and use energy. By leveraging talent in all sectors—from universities, to private industry, to government labs—ARPA-E fosters a robust and cohesive community of energy researchers and technology developers to advance high-potential, high-impact energy technologies. These technologies can radically transform how we generate, store, and use energy. APLU requests funding ARPA-E at least at \$500 million in FY2022 to support additional solicitations and an increase in support for Scale-up and Demonstration projects.

In 2017, the National Academies of Science noted that “APRA-E has the ability to make significant contributions to energy R&D that likely would not take place absent the agency’s activities.” Thanks to federal investment in ARPA-E, 88 companies have been formed, 4,256 peer-reviewed journal articles have been published to advance knowledge, and 643 patents have been issued by the U.S. Patent and Trademark Office. Continued funding for this game-changing agency will lead to more groundbreaking technological developments that boost our nation’s economy and keep the U.S. at the forefront of energy advancement.

About the Association of Public and Land-grant Universities

APLU is a research, policy, and advocacy organization dedicated to strengthening and advancing the work of public universities. With a membership of 201 U.S. public research universities, land-grant institutions, state university systems, and affiliated organizations, APLU's agenda is built on the three pillars of increasing degree completion and academic success, advancing scientific research, and expanding engagement. Annually, its 201 U.S. member campuses enroll 4.2 million undergraduates and 1.2 million graduate students, award 1.2 million degrees, employ 1.1 million faculty and staff, and conduct \$46.8 billion in university-based research.