

The background of the cover is a photograph of the University of California, Berkeley campus. On the left, the Sather Tower (Cathedral of Learning) stands prominently against a clear blue sky. The foreground is filled with lush green trees and a red-tiled roof. A dark blue, semi-transparent geometric pattern, resembling a network or molecular structure, is overlaid on the right side of the image, serving as a backdrop for the title text.

# **University of California, Berkeley Sponsored Projects Annual Report Fiscal Year 2015**

## Sponsored Projects Annual Report, Fiscal Year 2015

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## University of California, Berkeley / Sponsored Projects Overview

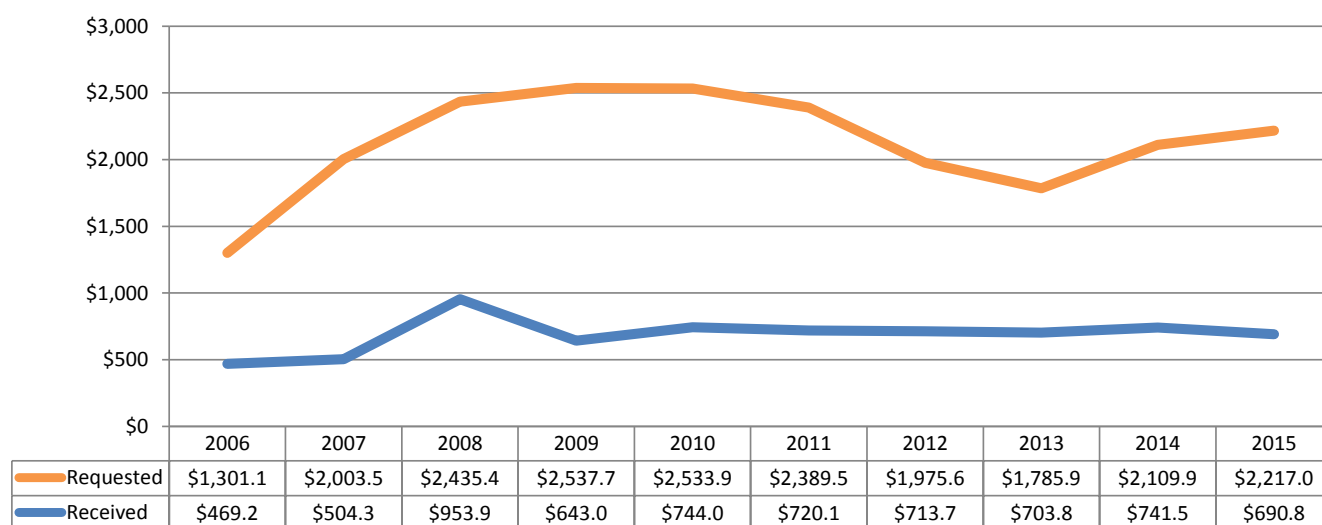
The **University of California, Berkeley** is one of the world's leading universities in research, teaching, and public service, with an enrollment of over 27,000 undergraduates and over 10,000 graduate students. The campus employs 1,620 full-time and 616 part-time faculty in more than 170 academic departments and more than 80 interdisciplinary research units. UC Berkeley is divided into 14 colleges and schools, most of which are subdivided into departments. The campus offers over 10,000 undergraduate and graduate courses in 300 degree programs, and typically produces more Ph.D.s than any other U.S. research university.

The Sponsored Projects Office (SPO) at UC Berkeley is responsible for endorsing and authorizing proposals to and interpreting, negotiating, and accepting contracts and grants for projects funded by federal and state agencies, foundations, and other public and private sources. SPO prepares and negotiates all subawards for collaborative research. SPO is part of the Research Administration and Compliance Office (RAC), under the Vice Chancellor for Research.

Berkeley Coeus, managed by RAC, has been the campus research contract and grant system of record since 1998. A project is underway to replace Coeus with the next generation of the software, the Kuali Coeus research administration system. Berkeley Phoebe Proposal Development is the first in a series of modules based on Kuali Coeus. Phoebe Proposal Development supports fully online proposal approvals and routing from departments and units to SPO and the Industry Alliances Office. RAC has integrated Phoebe with Coeus to feed completed proposal information directly into Coeus, and is in the process of migrating all Coeus data and functionality into Phoebe so that Coeus can be retired.

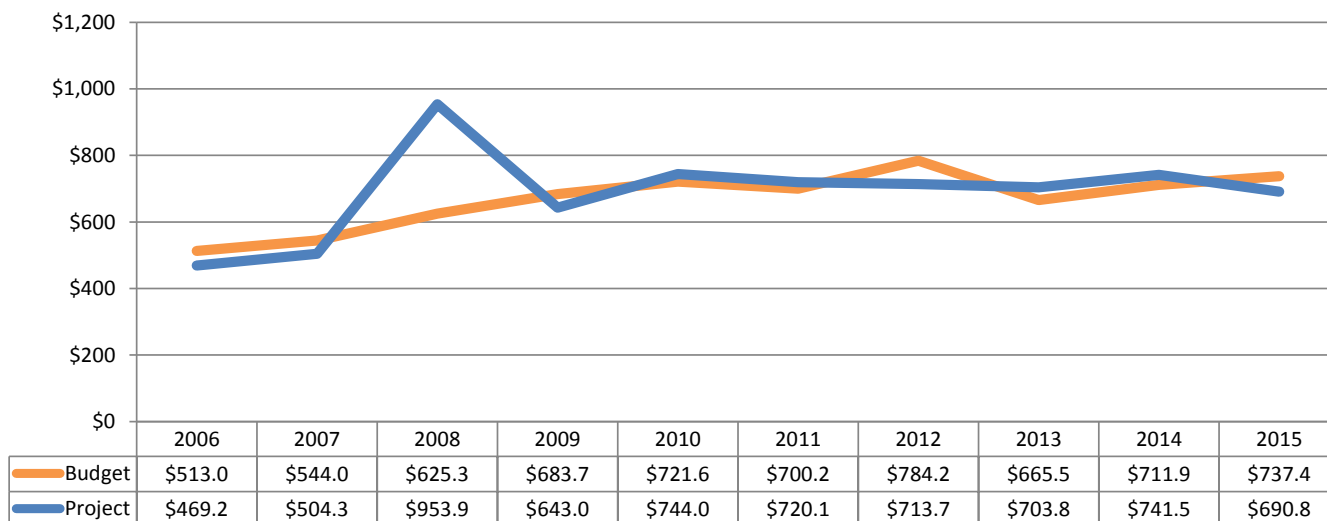
## Proposal and Award Overview

**Ten-Year Comparison of Funding Requested and Funding Received, FY 2006-2015**  
(dollars in millions)



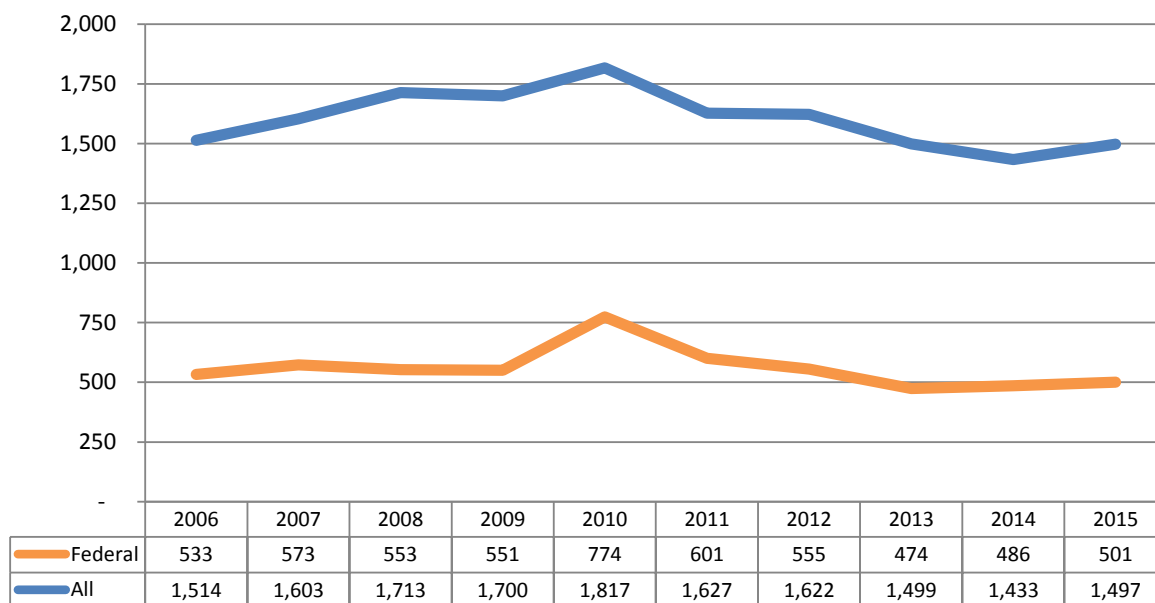
## Proposal and Award Overview

**Ten-Year Comparison of Project and Budget Period Funding, FY 2006-2015**  
(dollars in millions)



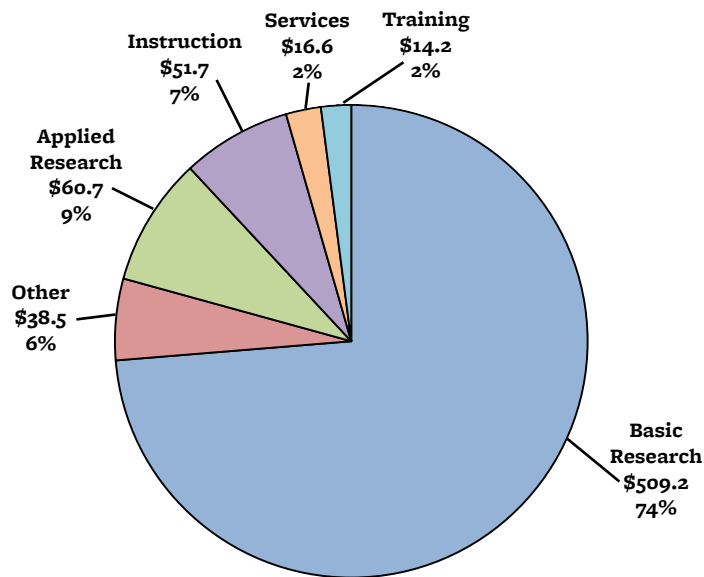
Project period funding includes all funding anticipated for a project, reporting in the fiscal year of its begin date. Budget period funding reports each budget period for a project in the fiscal year of its begin date. Budget period funding increased by 3.5% in fiscal year 2015, while project period funding declined by 7%.

**Ten-Year Comparison of Number of New Awards Received, FY 2006-2015**



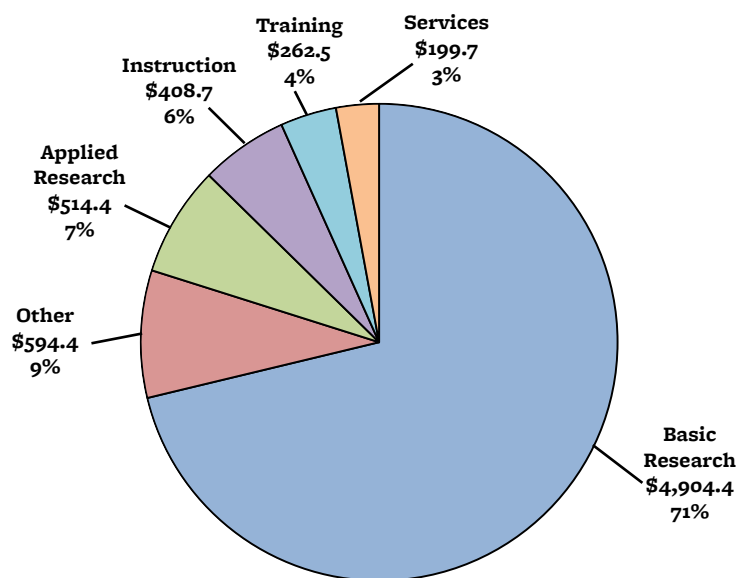
## Proposal and Award Overview

**Fiscal Year 2015 Funding Summary by Activity Type**  
 (\$690.8 million total - dollars in millions)



Activity type “Other” primarily includes funding transferred from the Lawrence Berkeley National Laboratory for administrative purposes, along with projects that span multiple activities or do not cleanly fit into the five other categories.

**Ten-Year Funding Summary by Activity Type, FY 2006-2015**  
 (\$6.88 billion total - dollars in millions)





## Proposals and Awards by Campus Control Unit

UC Berkeley colleges, schools, and divisions include the Colleges of Chemistry, Engineering, Natural Resources, and Environmental Design, as well as Optometry, Law, Journalism, Public Policy, Public Health, Education, Business, Social Welfare, and others.

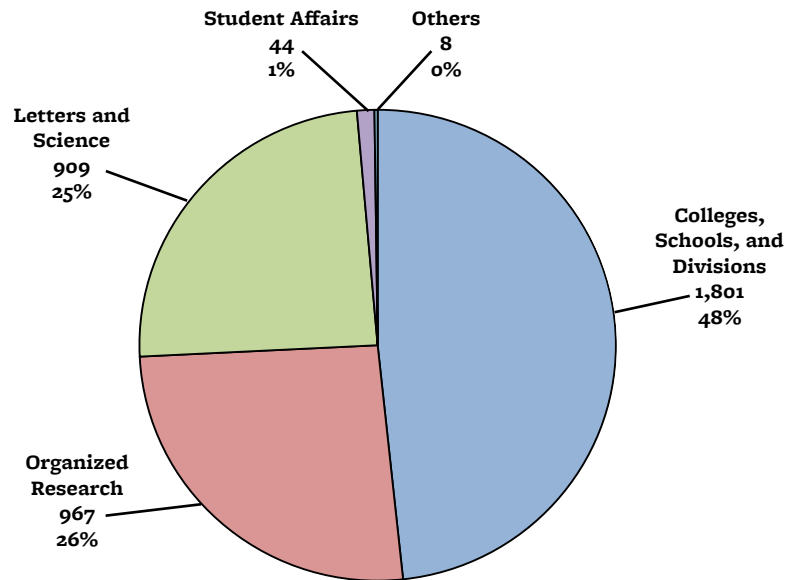
Organized Research Units (ORUs) report to the Vice Chancellor for Research and span many disciplines. These institutes, centers, and departments exist primarily to conduct research, and include the Space Sciences Laboratory, the Institute of Transportation Studies, the Berkeley Seismological Laboratory, and many others.

The College of Letters and Science, or L&S, includes Biological, Physical, Social Science, and Arts and Humanities Divisions.

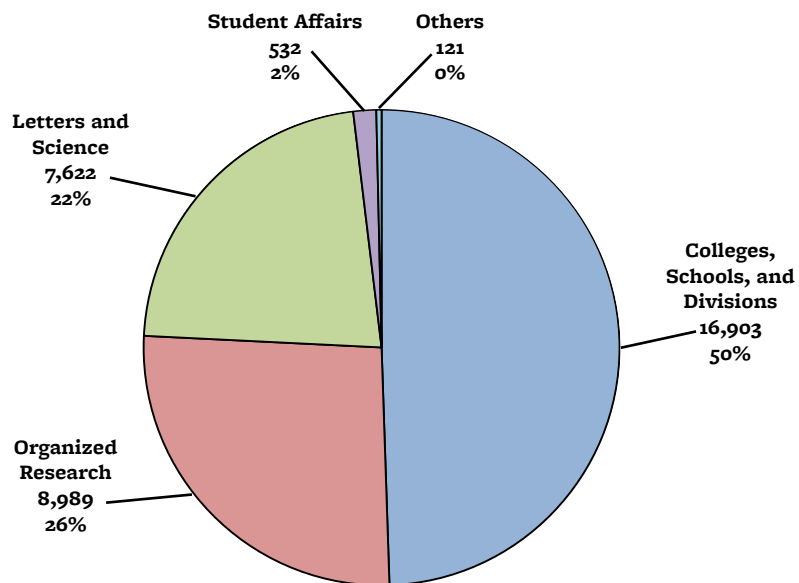


## Proposals by Campus Control Unit

**Fiscal Year 2015 Number of Proposals Submitted by Control Unit  
(3,729 total)**

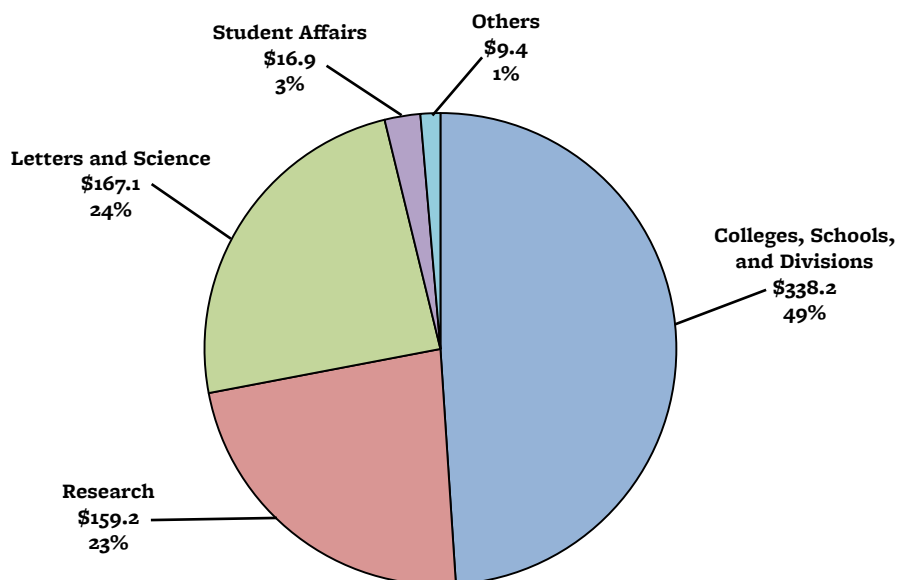


**Ten-Year Number of Proposals Submitted by by Control Unit, FY 2006-2015  
(34,167 total)**

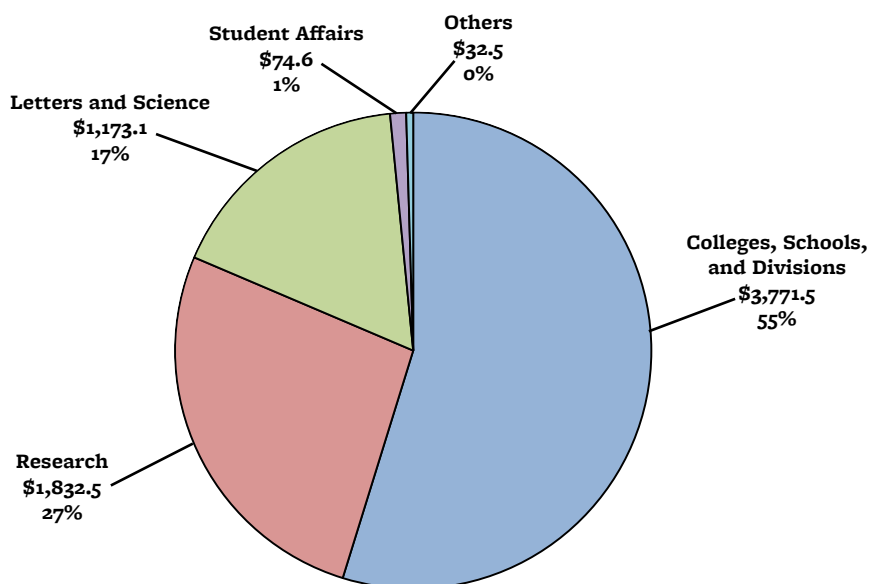


## Funding by Campus Control Unit

**Fiscal Year 2015 Funding Summary by Control Unit**  
(**\$690.8 million total - dollars in millions**)



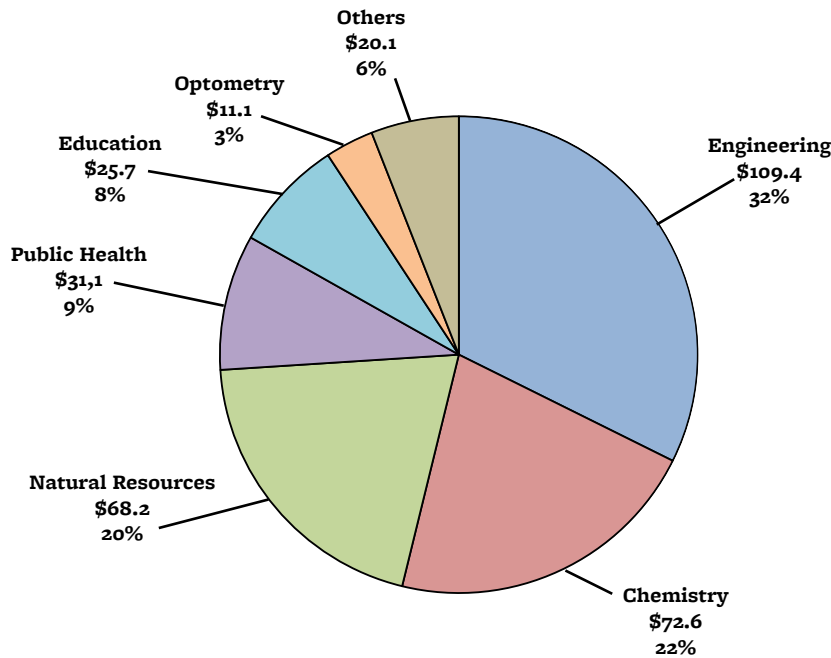
**Ten-Year Funding Summary by Control Unit, FY 2006-2015**  
(**\$6.88 billion total - dollars in millions**)



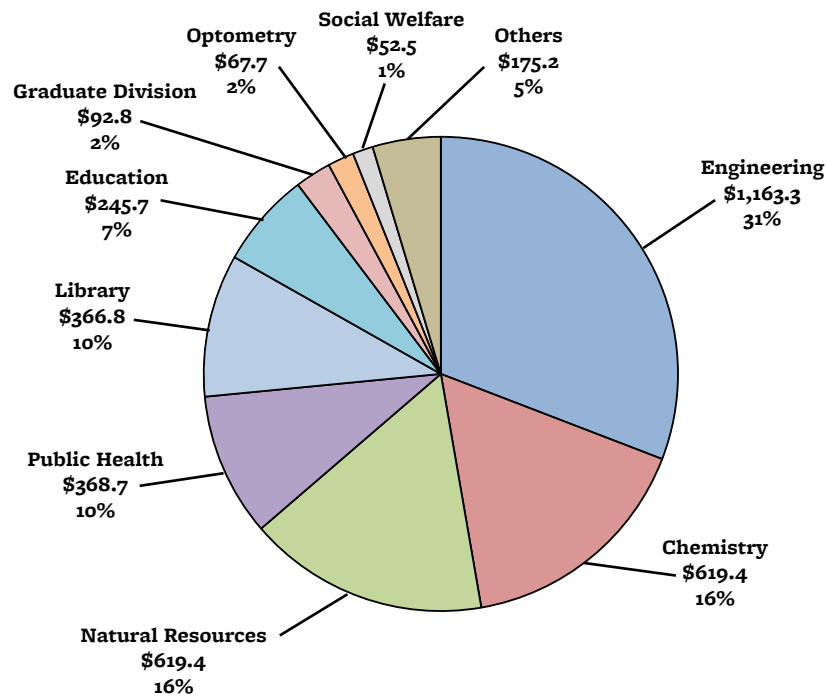


## Funding by Campus Colleges, Schools, and Divisions

**Fiscal Year 2015 Funding Summary by Colleges, Schools, and Divisions**  
 (\$338.2 million total - dollars in millions)



**Ten-Year Funding Summary by Colleges, Schools, and Divisions, FY 2006-2015**  
 (\$3.77 billion total - dollars in millions)



## Awards by Funding Source Overview - All Sponsors

In fiscal year 2015, federal funding declined by 27% from fiscal year 2014. The decline was due in part to the receipt of a \$132 million NASA award in fiscal year 2014. Federal funding again made up the largest portion of total funding received with 55% of the total.

Funding from nonprofit organizations in fiscal year 2014, including foundations, charities, research institutes, and institutions of higher education, increased by 6% to a total of \$138.1 million.

State of California funding increased by 30% in fiscal year 2015, at \$96.6 million. Funding from other governmental sources totaled \$10 million.

### Award Highlight

#### CLTC: The Center for Long-Term Cybersecurity

**With a starting grant of \$15 million from the William and Flora Hewlett Foundation, the Center for Long-Term Cybersecurity was established in 2015 as a research and collaboration hub at the University of California, Berkeley.** Housed in the School of Information (I School), the Center will create an effective dialogue among industry, academia, policy, and practitioners, with an aim to foster research programs, technologies, and recommendations. CLTC's work is founded on a future-oriented conceptualization of cybersecurity—what it could imply and mean for human beings, machines, and the societies that will depend on both.

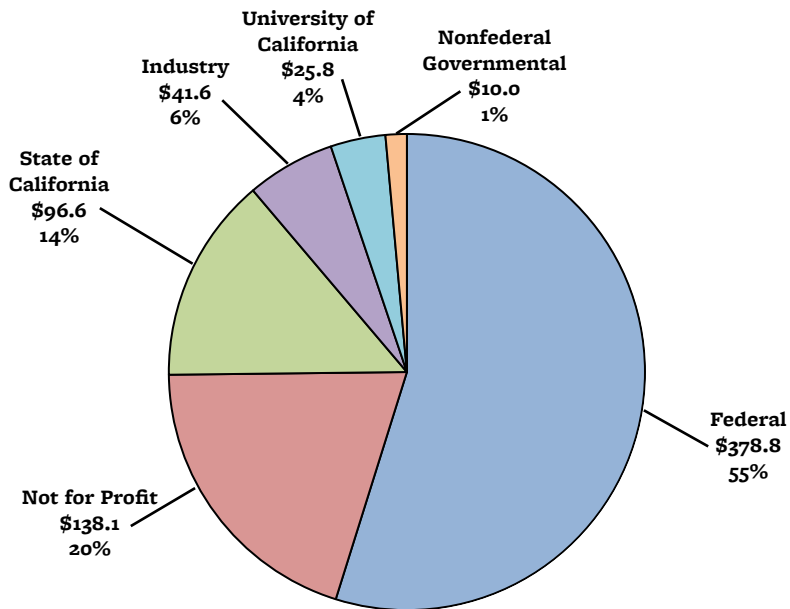
The CLTC's mission is to develop a deeper and broader understanding of information technology security. The Center conducts and supports rigorous research into the socio-economic, technology, and policy issues that will bear on security wherever humans and digital machines interact.

<https://cltc.berkeley.edu/>

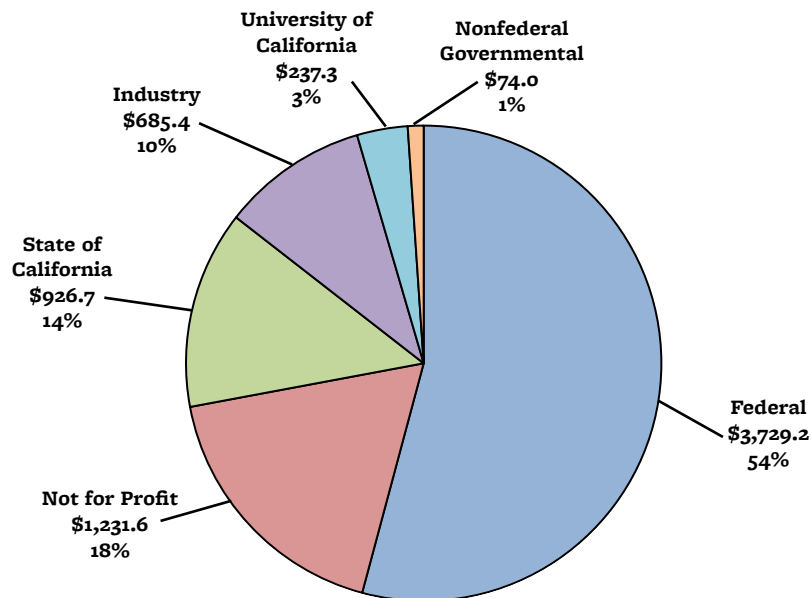


## Overview - All Sponsors

**Fiscal Year 2015 Funding Summary - All Sponsors**  
 (\$690.8 million total - dollars in millions)

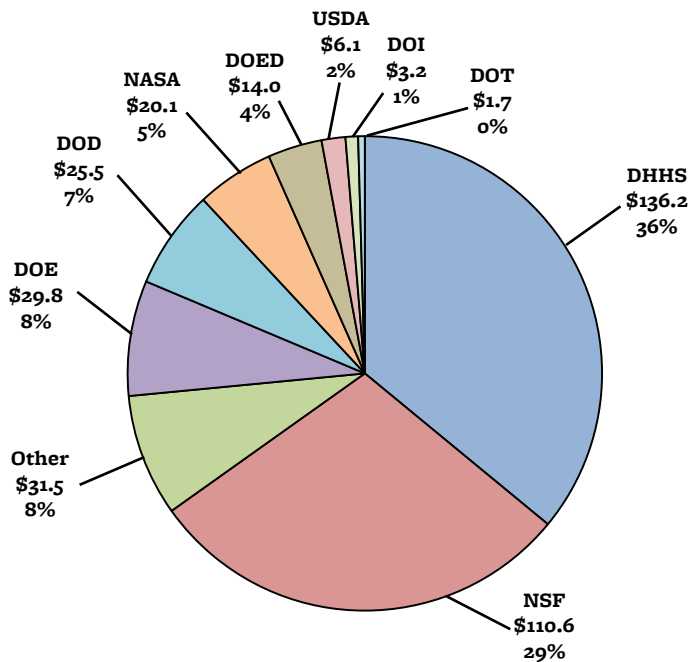


**Ten-Year Funding Summary - All Sponsors, FY 2006-2015**  
 (\$6.88 billion total - dollars in millions)



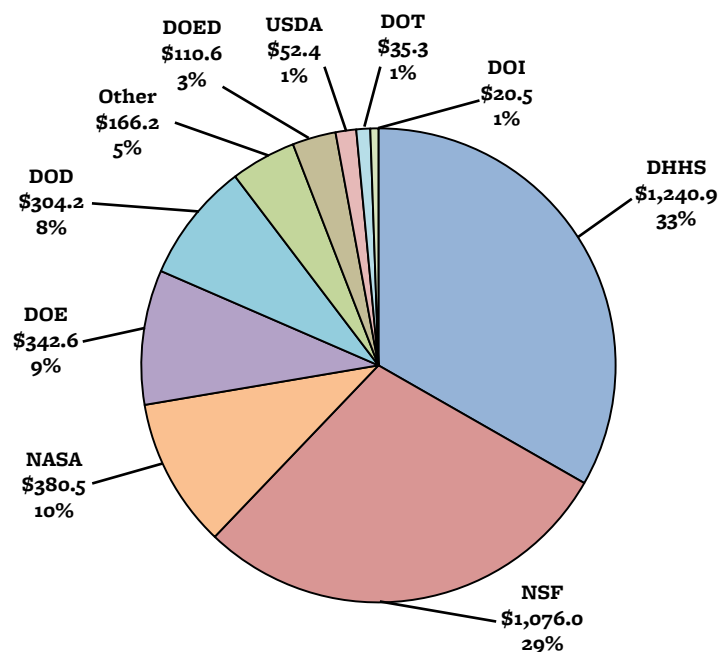
## Federal Agencies

### Fiscal Year 2015 Funding Summary - Federal Sponsors (\$378.8 million total - dollars in millions)



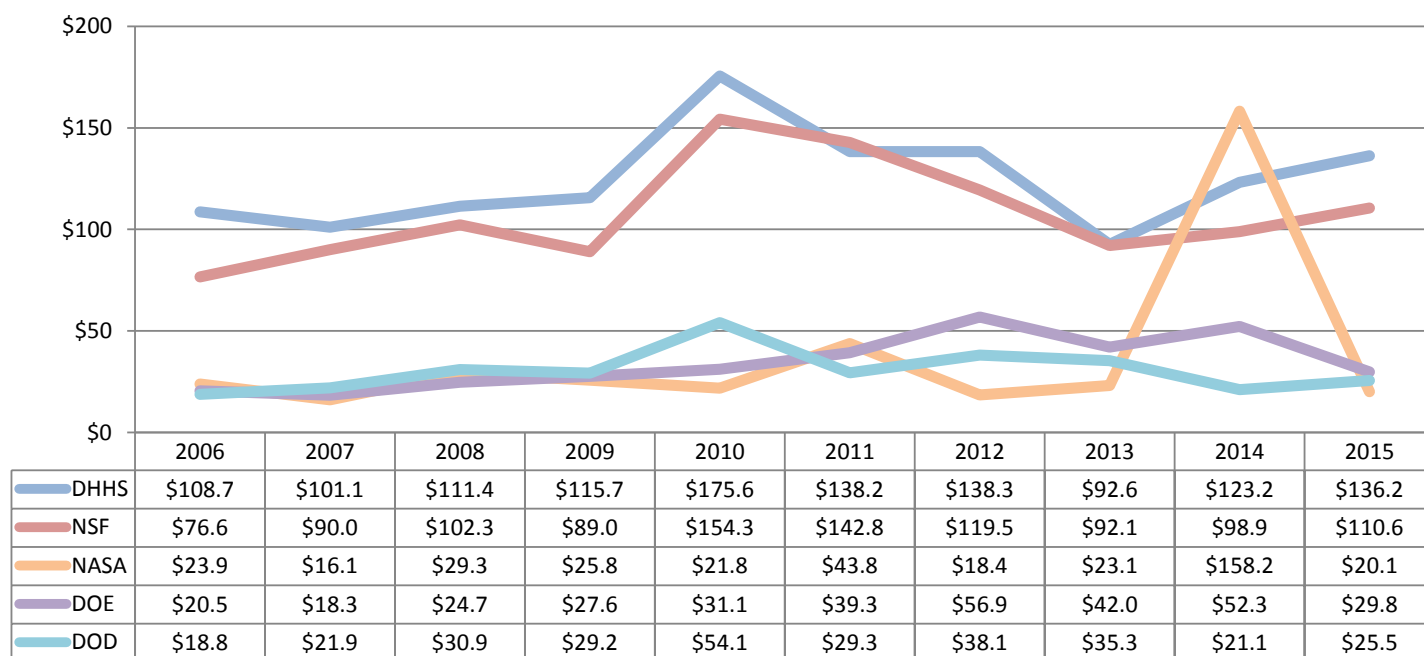
The Department of Health and Human Services was once again the largest source of federal funds in fiscal year 2015, awarding \$136.2 million. The National Science Foundation awarded \$110.6 million, up 11% from last year's total of \$98.6 million. Together, these two agencies comprise nearly 30% of total funding in fiscal year 2015.

### Ten-Year Funding Summary - Federal Sponsors, FY 2006-2015 (\$3.73 billion total - dollars in millions)



## Federal Agencies

**Ten-Year Funding Summary for Top-Five Federal Sponsors, FY 2006-2015**  
(dollars in millions)



### Award Highlight

#### **POLARBEAR/Simons Array: High-Fidelity Maps of Cosmic Microwave Background Polarization**

The POLARBEAR experiment measures polarized fluctuations in the Cosmic Microwave Background (CMB) to search for the signature of gravitational waves from inflation, potentially opening a window on the universe a fraction of a second after the Big Bang. An award of almost \$5 million from the National Science Foundation will support commissioning and operations of a second telescope under partnership with the Simons Foundation and other collaborating institutions in the US, Japan, Canada, and the UK.

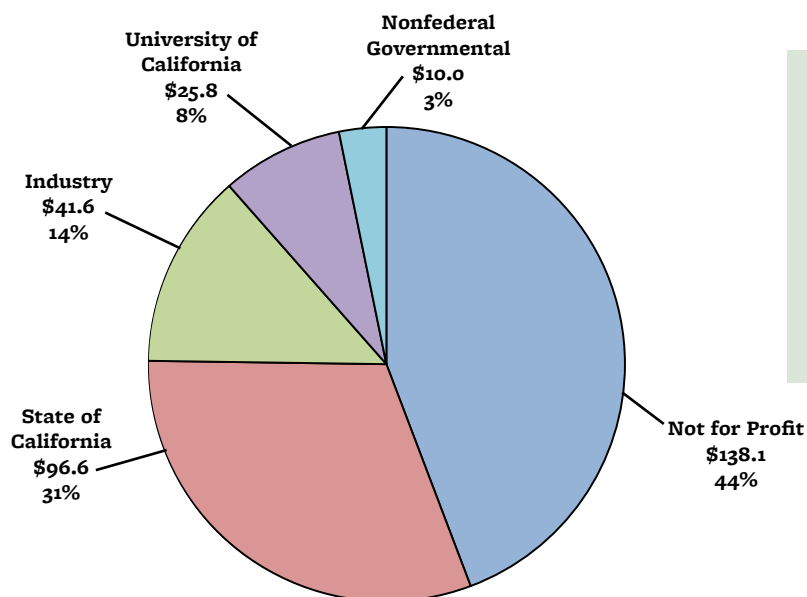
<http://bolo.berkeley.edu/polarbear/>





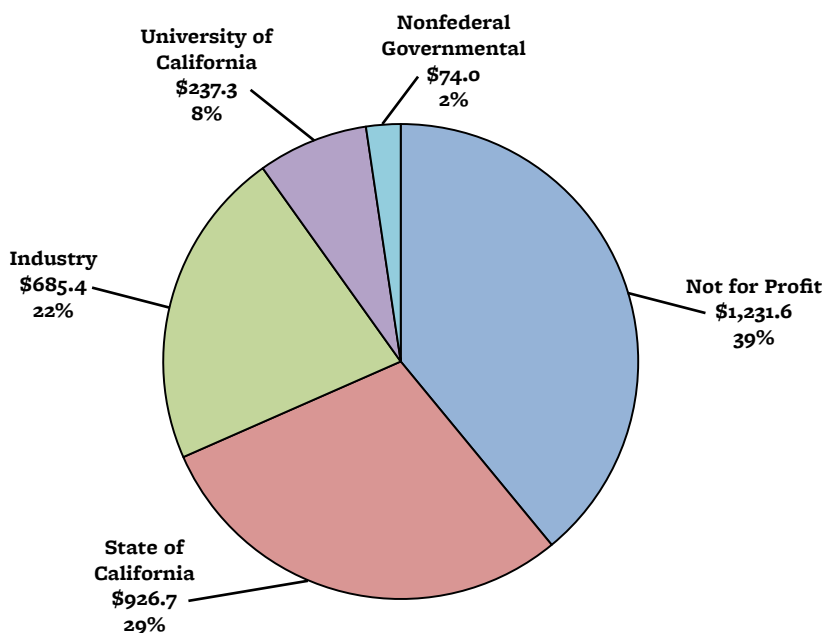
## Nonfederal Agencies

### Fiscal Year 2015 Funding Summary - Nonfederal Sponsors (\$312 million total - dollars in millions)



Over the last ten years, funding from the nonprofit sector has made up almost 40% of nonfederal funding. In fiscal year 2015, that sector provided 44% of the \$312 million received from nonfederal sources.

### Ten-Year Funding Summary - Nonfederal Sponsors, FY 2006-2015 (\$3.16 billion total - dollars in millions)



## Largest Awards, Fiscal Year 2015

Jeffrey L. Edleson, School of Social Welfare, "Title IV-E Social Work Training Program," State of California Department of Social Services, \$35,457,371

Annalee Saxenian, School of Information, "Cybersecurity and Internet Policy," William and Flora Hewlett Foundation, \$15,000,000

Patricia Crawford, College of Natural Resources, "Obesity Prevention Evaluation and Research," State of California Department of Public Health, \$10,902,520

Jeffrey R. Long, Chemistry Department, "Center for Gas Separations Relevant to Clean Energy Technologies," U.S. Department of Energy, \$8,600,000

Jeffrey L. Edleson, School of Social Welfare, "Behavioral Health Social Work Program," State of California Office of Statewide Health Planning and Development, \$6,800,000

Lee W. Riley, School of Public Health, "Consortium for Drug-Resistant Gram-Negative Pathogen Detection," National Institute of Allergy and Infectious Diseases, \$5,517,596

Adrian Lee, Physics Department, "POLARBEAR/Simons Array: High-Fidelity Maps of CMB Polarization to Study Large-Scale Structure, Measure Neutrino Masses, and Search for the Signature of Inflation," National Science Foundation, \$4,999,157

Catherine D. Wolfram, Haas Centers and Institutes, "Unlocking Industrial Energy Efficiency Through Optimized Energy Management Systems," California Energy Commission, \$4,981,729

Roberto Horowitz, Civil and Environmental Engineering, "California Partners for Advanced Transportation Technology, Program Management," State of California Department of Transportation, \$4,797,496

John Ngai, Molecular and Cell Biology, "Classification of Cortical Neurons by Single Cell Transcriptomics," National Institute of Mental Health, \$4,278,433

Xavier Darzacq, Molecular and Cell Biology, "Single Molecule Biophysics and Biology of Cellular Identity," California Institute for Regenerative Medicine, \$4,255,167

Ming Wu, Electrical Engineering and Computer Sciences, "Heterogeneously Integrated Optical Synthesizer (HiOS)," Defense Advanced Research Projects Agency, \$4,210,192

Stephen R. Leone, Chemistry Department, "Post-Born-Oppenheimer Dynamics Using Isolated Attosecond Pulses," Army Research Office, \$4,174,249

Siddiqi, Irfan, Physics Department, "Optimization of Readout Fidelity and Coherence in Superconducting Flux Qubits," Massachusetts Institute of Technology (U.S. Air Force prime sponsor), \$4,000,000

William H. Dow, Institute of Business and Economic Research, "Center on the Economics and Demography of Aging," National Institute on Aging, \$3,963,016

Dacher Keltner, Institute for Personality and Social Research, "Expanding the Science of Practice of Gratitude, Phase Two," John Templeton Foundation, \$3,693,907

Janet Luhmann, Space Sciences Laboratory, "In-SITU Measurements of Particles and CME Transients," National Aeronautics and Space Administration, \$3,308,891

Juan M. Pestana-Nascimento, Engineering Systems Research Center, "Partnered Pavement Research Center," UC Davis (State of California Department of Transportation prime sponsor), \$3,266,562

Austin J. Roorda, School of Optometry, "Interferometric Optophysiology of the Human Retina," National Eye Institute, \$3,263,329

## Award Highlights

### E2e Project: Data-Driven Analytics to Better Understand the Industrial Energy Efficiency Gap

**The E2e Project, a joint initiative of the University of California, Berkeley's Energy Institute at Haas, Massachusetts Institute of Technology, and University of Chicago, has partnered with Lightapp Technologies to receive a research grant of almost \$5 million from the California Energy Commission to conduct the largest demonstration and evaluation of an innovative energy monitoring system for industrial facilities.** The project will provide industrial customers and policymakers data-based evidence on whether advanced energy monitoring is a cost-effective approach to save energy and reduce greenhouse gas emissions. Uniting the goal of creation of knowledge with a commitment to non-partisan outreach, E2e aims to create a cheaper and greener future.

<http://e2e.haas.berkeley.edu/>



### Ngai Lab BRAIN Initiative Project: Classification of Cortical Neurons by Single Cell Transcriptomics

**John Ngai, the Coates Family Professor of Neuroscience and director of the QB3 Functional Genomics Laboratory, and his UC Berkeley colleagues will receive \$4.3 million over three years from the National Institute of Mental Health to use new techniques for identifying and isolating different types of neurons, and then sequencing the genes of these cells to discover the full variety of cell types in the brain involved in processes such as memory and learning.** The Brain Research through Advancing Innovative Neurotechnologies (BRAIN) Initiative is part of a Presidential focus aimed at revolutionizing our understanding of the human brain. This NIH-supported BRAIN Initiative project aims to provide a suite of technologies for identifying and classifying the diverse cell types in the mammalian nervous system. We are developing our method using layer 5 pyramidal cells from mouse somatosensory cortex as a model system.

<https://sites.google.com/site/ngaineuro/>

