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R&D EXPENDITURES AT FEDERALLY FUNDED R&D CENTERS REACH \$15.2 BILLION IN FY 2009

by Ronda Britt¹

Research and development expenditures at the nation's 39 federally funded R&D centers (FFRDCs) increased 3.5% in FY 2009 to \$15.2 billion, according to FY 2009 data from the National Science Foundation (NSF) Survey of Research and Development Expenditures at FFRDCs (table 1). The annual increase in

FFRDC R&D expenditures has outpaced the general rate of inflation in the economy for the past 3 years.

FFRDCs are privately operated R&D organizations that are exclusively or substantially financed by the federal government. FFRDCs provide the sponsoring federal

TABLE 1. Total and federally financed R&D expenditures at federally funded research and development centers, by type of FFRDC: FY 2006–09

Type of FFRDC	2006	2007	2008	2009
	Dollars (thousands)			
Total R&D, all FFRDCs	13,218,497	13,824,987	14,707,088	15,220,621
University-administered FFRDCs	7,790,137	5,855,193	4,701,645	4,958,944
Nonprofit-administered FFRDCs	2,859,751	3,189,208	3,689,108	3,827,802
Industry-administered FFRDCs	2,568,609	4,780,586	6,316,335	6,433,875
Federally financed R&D, all FFRDCs	12,824,552	13,401,081	14,262,947	14,784,361
University-administered FFRDCs	7,600,335	5,654,952	4,550,332	4,811,485
Nonprofit-administered FFRDCs	2,729,011	3,052,730	3,536,795	3,687,331
Industry-administered FFRDCs	2,495,206	4,693,399	6,175,820	6,285,545
	Share of total R&D (percent)			
Federally financed R&D, all FFRDCs	97.0	96.9	97.0	97.1
	Percent change over previous year			
Total R&D, all FFRDCs	-	4.6	6.4	3.5
GDP price deflator	-	2.9	2.3	1.5

FFRDC = federally funded research and development center; GDP = gross domestic product.

NOTES: Los Alamos National Laboratory (approximately \$2 billion in annual R&D expenditures in recent years) became industry-administered in June 2006; previously, it was university-administered. Lawrence Livermore National Laboratory (more than \$1 billion in annual R&D expenditures in recent years) became industry-administered in October 2007; previously, it was university-administered. Changes are reflected in distribution of R&D expenditures for FY 2007–08.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Research and Development Expenditures at FFRDCs, FY 2009.



Information and data from the Division of Science Resources Statistics are available on the web at <http://www.nsf.gov/statistics/>. To request a printed copy of this report go to <http://www.nsf.gov/publications/orderpub.jsp> or call (703) 292-PUBS (7827). For NSF's Telephonic Device for the Deaf, dial toll-free (800) 281-8749 or (703) 292-5090.

agencies with capabilities to meet special long-term R&D needs that cannot be met as effectively by existing in-house or contractor resources. Each FFRDC is operated, managed, and/or administered by a university or university consortium, a nonprofit organization, or an industrial firm, either as an autonomous organization or as a separate operating unit.²

Federal government funding accounted for 97.1% (\$14.8 billion) of the FY 2009 FFRDC expenditures total (table 1). The small remainder (just over \$0.4 billion) came from a mix of other sources, including state and local government, industry, and the discretionary funds of FFRDCs.

Los Alamos National Laboratory, a national security research institution focused on nuclear defense, reported the most FFRDC R&D spending, \$2.2 billion in FY 2009 (table 2). Sandia National Laboratories, also specializing in national security, reported \$2.0 billion. Both FFRDCs receive most of their funding from the Department of Energy (DOE). The NASA-sponsored Jet Propulsion Laboratory was the third largest, with \$1.7 billion in R&D spending in FY 2009.

In FY 2009 basic research activities accounted for 38.5% of total FFRDC R&D expenditures; applied research, 30.5%; and development, 31.0% (table 3). When the expenditure totals are distinguished by type of administrator, the shares for basic research remain similar, ranging from 36% to 40%. More variation was found in the shares of applied research and development across administration types. University-administered FFRDCs were the least likely of the three types to conduct applied research (26%) but the most likely to conduct development (38%).

Data Comments

The statistics on FFRDC R&D presented in this report come from the NSF Survey of Research and Development Expenditures at FFRDCs. This survey—completed by FFRDC administrators—is conducted annually, in conjunction with the NSF Survey of Research and Development Expenditures at Universities and Colleges. The survey collects data from the FFRDCs on R&D expenditures by source of funds (federal, state and local, industry, institutional, or other) and by character of work (basic research, applied research, or development). Since FY 2001 this survey has been a census of the full population of FFRDCs.

The full set of detailed tables from this survey will be available in the report *FFRDC Research and Development Expenditures: Fiscal Year 2009* at <http://www.nsf.gov/statistics/ffrdc/>. Individual detailed tables from the FY 2009 survey may be available in advance of publication of the full report. For further information, please contact the author.

Update on NSF Survey of FFRDC Postdocs

Many FFRDCs employ postdoctoral researchers (postdocs) as part of their efforts to assist government agencies with scientific research and analysis and to train the country's researchers and scientists. NSF, in partnership with DOE and the National Institutes of Health, collected data in 2009 on the total number of postdocs at FFRDCs, categorized by selected demographic characteristics, source of support (federal or non-federal), and selected fields of research. An InfoBrief summarizing the results of this survey is expected in fall 2011.

TABLE 2. R&D expenditures at federally funded research and development centers, by FFRDC and source of funding: FY 2009
(Dollars in thousands)

FFRDC	Sponsor	Location	R&D expenditures		
			Total	Federally financed	All other funding ^a
All FFRDCs	-	-	15,220,621	14,784,361	436,260
University-administered FFRDCs	-	-	4,958,944	4,811,485	147,459
Ames Laboratory	DOE	Ames, IA	29,012	29,012	0
Argonne National Laboratory	DOE	Argonne, IL	543,169	498,847	44,322
Fermi National Accelerator Laboratory	DOE	Batavia, IL	376,791	374,668	2,123
Jet Propulsion Laboratory	NASA	Pasadena, CA	1,711,528	1,711,528	0
Lawrence Berkeley National Laboratory	DOE	Berkeley, CA	611,711	555,842	55,869
Lincoln Laboratory	DOD, Air Force	Lexington, MA	706,555	704,050	2,505
National Astronomy and Ionosphere Center	NSF	Arecibo, PR	14,738	14,032	706
National Center for Atmospheric Research	NSF	Boulder, CO	203,627	177,877	25,750
National Optical Astronomy Observatories	NSF	Tucson, AZ	56,972	52,089	4,883
National Radio Astronomy Observatory	NSF	Charlottesville, VA	151,396	149,960	1,436
Princeton Plasma Physics Laboratory	DOE	Princeton, NJ	81,113	80,985	128
SLAC National Accelerator Laboratory	DOE	Stanford, CA	294,421	294,421	0
Software Engineering Institute	DOD, OSD	Pittsburgh, PA	89,077	80,618	8,459
Thomas Jefferson National Accelerator Facility	DOE	Newport News, VA	88,834	87,556	1,278
Nonprofit-administered FFRDCs	-	-	3,827,802	3,687,331	140,471
Aerospace FFRDC	DOD, Air Force	El Segundo, CA	41,470	14,386	27,084
Arroyo Center	DOD, Army	Santa Monica, CA	27,692	27,692	0
Brookhaven National Laboratory	DOE	Upton, NY	569,240	545,267	23,973
C3I FFRDC	DOD, OSD	Bedford, MA/McLean, VA	46,790	46,790	0
Center for Advanced Aviation System Development	DOT, FAA	McLean, VA	10,575	10,575	0
Center for Communications and Computing	DOD, NSA	Alexandria, VA	66,293	66,293	0
Center for Enterprise Modernization	Treasury (IRS), VA	McLean, VA	7,458	7,458	0
Center for Naval Analyses	DOD, Navy	Alexandria, VA	109,694	95,128	14,566
Center for Nuclear Waste Regulatory Analyses	NRC	San Antonio, TX	16,614	15,715	899
Homeland Security Studies and Analysis Institute	DHS	Arlington, VA	32,173	32,173	0
Homeland Security Systems Engineering and Development Institute	DHS	McLean, VA	1,559	1,559	0
National Biodefense Analysis and Countermeasures Center	DHS	Frederick, MD	19,934	19,934	0
National Defense Research Institute	DOD, OSD	Santa Monica, CA	42,265	42,265	0
National Renewable Energy Research Laboratory	DOE	Golden, CO	273,640	264,828	8,812
Oak Ridge National Laboratory	DOE	Oak Ridge, TN	1,259,259	1,217,301	41,958
Pacific Northwest National Laboratory	DOE	Richland, WA	1,086,884	1,063,705	23,179
Project Air Force	DOD, Air Force	Santa Monica, CA	45,162	45,162	0
Science and Technology Policy Institute	NSF	Washington, DC	5,100	5,100	0
Studies and Analyses Center	DOD, OSD	Alexandria, VA	166,000	166,000	0
Industry-administered FFRDCs	-	-	6,433,875	6,285,545	148,330
Idaho National Laboratory	DOE	Idaho Falls, ID	388,062	372,502	15,560
Lawrence Livermore National Laboratory	DOE	Livermore, CA	1,321,633	1,261,769	59,864
Los Alamos National Laboratory	DOE	Los Alamos, NM	2,172,179	2,141,950	30,229
National Cancer Institute at Frederick	NIH	Frederick, MD	378,200	378,200	0
Sandia National Laboratories	DOE	Albuquerque, NM	2,043,509	2,000,832	42,677
Savannah River National Laboratory	DOE	Aiken, SC	130,292	130,292	0

DHS = Department of Homeland Security; DOD = Department of Defense; DOE = Department of Energy; DOT = Department of Transportation; FAA = Federal Aviation Administration; FFRDC = federally funded research and development center; IRS = Internal Revenue Service; NASA = National Aeronautics and Space Administration; NIH = National Institutes of Health; NRC = Nuclear Regulatory Commission; NSA = National Security Agency; NSF = National Science Foundation; OSD = Office of the Secretary of Defense; VA = Department of Veterans Affairs.

^a Includes funding from state and local government, industry, institutional (own) funds, and any other nonfederal sources.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Research and Development Expenditures at FFRDCs, FY 2009.

TABLE 3. R&D expenditures at federally funded research and development centers, by character of work and type of FFRDC: FY 2009

Type of FFRDC	All R&D expenditures	Basic research	Applied research	Development
Dollars (thousands)				
All FFRDCs	15,220,621	5,854,464	4,649,566	4,716,591
University-administered	4,958,944	1,804,117	1,286,651	1,868,176
Nonprofit-administered	3,827,802	1,505,486	1,437,022	885,294
Industry-administered	6,433,875	2,544,861	1,925,893	1,963,121
Percent distribution				
All FFRDCs	100.0	38.5	30.5	31.0
University-administered	100.0	36.4	25.9	37.7
Nonprofit-administered	100.0	39.3	37.5	23.1
Industry-administered	100.0	39.6	29.9	30.5

FFRDC = federally funded research and development center.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Research and Development Expenditures at FFRDCs, FY 2009.

Notes

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2. For a description of the federal guidelines and definitions governing FFRDCs, see the "General Notes" section at <http://www.nsf.gov/statistics/ffrdclist/gennotes.cfm>. The master list of FFRDCs is accessible at <http://www.nsf.gov/statistics/ffrdclist/>.

NSF 11-310

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