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ARRA Funding Raises R&D Expenditures within Federally Funded R&D Centers 11% to $16.8 Billion in FY 2010

by Ronda Britt[1]

Research and development expenditures at the nation's 39 federally funded R&D centers (FFRDCs) rose from $15.2 billion in FY 2009 to $16.8 billion[2] in FY 2010, according to data from the National Science Foundation (NSF) FFRDC Research and Development Survey. Over $1 billion of the FY 2010 total was supplied by funds from the American Recovery and Reinvestment Act of 2009 (ARRA) (table 1). This 10.6% increase is the largest one-year increase since 2002, when expenditures increased 14.5% to $11.5 billion. Between FY 2002 and 2009, FFRDC expenditures increased an average of 5% each year, with the exception of a brief stall in FY 2006 (figure 1).

FFRDCs are privately operated R&D organizations that are exclusively or substantially financed by the federal government.[3] FFRDCs provide the sponsoring federal agencies with capabilities to meet special long-term R&D needs that cannot be met as effectively by existing in-house or by 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.[4]

Federal funding accounted for 97.3% ($16.4 billion) of the FFRDC's total expenditures in FY 2010. Since 2001 the federal government has consistently provided over 96% of the funding to the FFRDCs each year, and the FFRDCs' federally funded R&D expenditures have increased 69%, from $9.7 billion in FY 2001 to $16.4 billion in FY 2010.

The laboratories, centers, and institutes that are designated as FFRDCs conduct work within a variety of fields, such as physics, engineering, astronomy, computer science, and psychology. Similar to the proportions in previous years, in FY 2010 basic research activities accounted for 39% of total FFRDC R&D expenditures; applied research, 31%; and development, 30%.

Five FFRDCs reported ARRA-funded expenditures of over $100 million in FY 2010: the Jet Propulsion Laboratory ($101 million), Pacific Northwest National Laboratory ($113 million), Oak Ridge National Laboratory ($135

TABLE 1. R&D expenditures at federally funded research and development centers, by source of funding and type of FFRDC: FY 2010

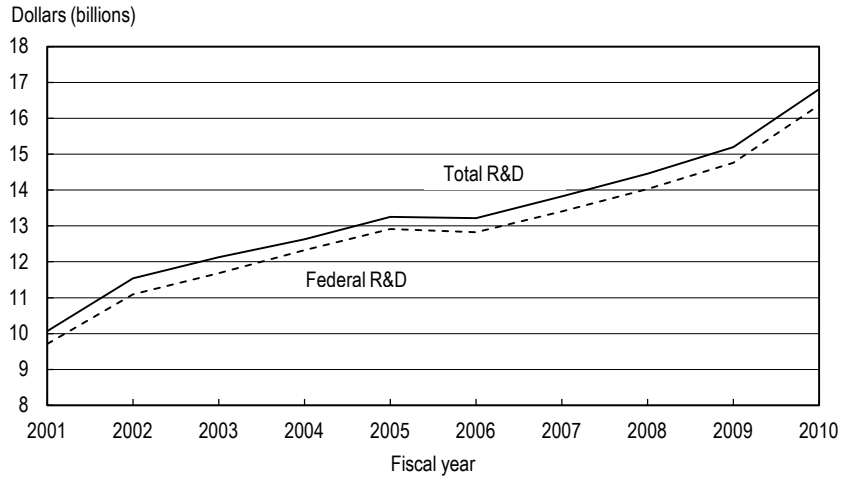
(Dollars in thousands)

FFRDC	Total R&D expenditures	All federal R&D expenditures	ARRA	Federal R&D expenditures funded by ARRA (%)
All FFRDCs	16,814,698	16,367,226	1,072,079	6.6
University-administered FFRDCs	5,341,437	5,188,709	377,139	7.3
Nonprofit-administered FFRDCs	4,190,128	4,042,711	333,821	8.3
Industry-administered FFRDCs	7,283,133	7,135,806	361,119	5.1

ARRA = American Recovery and Reinvestment Act of 2009; FFRDC = federally funded research and development center.

SOURCE: National Science Foundation/National Center for Science and Engineering Statistics, FFRDC Research and Development Survey, FY 2010.

FIGURE 1. Total and federally financed R&D expenditures at federally funded R&D centers: FY 2001–10



FFRDC = federally funded research and development centers.

NOTE: FY 2010 total includes $1.1 billion of expenditures funded by the American Recovery and Reinvestment Act of 2009.

SOURCE: National Science Foundation/National Center for Science and Engineering Statistics, FFRDC Research and Development Survey, FY 2010.

million), Los Alamos National Laboratory ($139 million), and the National Cancer Institute at Frederick ($183 million) (table 2). ARRA provided the funding for nearly 30% of the National Cancer Institute's total R&D expenditures in FY 2010 and was responsible for 50% ($48 million) of the FY 2010 R&D expenditures at the Thomas Jefferson National Accelerator Facility.

Data Sources and Limitations

The statistics on FFRDC R&D presented in this report come from the FY 2010 NSF FFRDC R&D Survey. This annual survey is completed by FFRDC administrators and collects data from the FFRDCs on R&D expenditures by source of funds (federal, state and local, business, nonprofit organizations, or other), character of work (basic research, applied research, or development), and type of cost (salaries, software, equipment, subcontracts, or indirect costs). This survey has been a census of the full population of FFRDCs since FY 2001.

The survey was redesigned for FY 2010 to update the sources of funding categories and to include three additional questions. A separate source of funding category was added for "Nonprofit organizations," the seldom used category of "Institutional funds" was deleted, and the "Industry" category was renamed "Business" to be comparable with other National Center for Science and Engineering Statistics (NCSES) surveys. The three new questions asked for the total R&D expenditures funded by ARRA, R&D expenditures by type of cost, and the total operating budget of the FFRDC. Finally, the instructions were revised to explicitly include clinical trial expenditures as well as research training grants in the definition of R&D.

The full set of detailed tables from this survey will be available in the report *FFRDC Research and Development Expenditures: Fiscal Year 2010* at http://www.nsf.gov/statistics/ffrdc/. Individual detailed tables from the FY 2010 survey may be available in advance of publication of the full report. For further information, please contact the author.

Notes

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2. R&D expenditures presented in this report are in current dollars.

3. Several FFRDCs are prohibited from accepting nonfederal R&D funding.

4. For a description of the federal guidelines and definitions governing FFRDCs, see the "General Notes" section of the NSF's Master Government List of FFRDCs at http://www.nsf.gov/statistics/ffrdclist/gennotes.cfm. The Master Government List of FFRDCs is accessible at http://www.nsf.gov/statistics/ffrdclist/.

TABLE 2. R&D expenditures at federally funded research and development centers, by source of funds and FFRDC: FY 2010
(Dollars in thousands)

FFRDC	Total R&D expenditures	All federal R&D expenditures	ARRA-funded expenditures
All FFRDCs	16,814,698	16,367,226	1,072,079
University-administered FFRDCs	5,341,437	5,188,709	377,139
Ames Lab.	30,836	30,289	30
Argonne National Lab.	650,504	603,841	77,017
Fermi National Accelerator Lab.	402,658	402,150	19,474
Jet Propulsion Lab.	1,640,341	1,640,341	101,205
Lawrence Berkeley National Lab.	759,381	703,564	80,399
Lincoln Lab.	789,502	785,774	NA
National Astronomy and Ionosphere Ctr.	13,203	13,084	0
National Ctr. for Atmospheric Research	220,328	188,960	464
National Optical Astronomy Observatories	64,983	60,758	9,125
National Radio Astronomy Observatory	137,607	136,748	2,539
Princeton Plasma Physics Lab.	83,932	83,521	6,132
SLAC National Accelerator Lab.	354,393	350,377	32,796
Software Engineering Institute	99,334	96,595	12
Thomas Jefferson National Accelerator Facility	94,435	92,707	47,946
Nonprofit-administered FFRDCs	4,190,128	4,042,711	333,821
Aerospace FFRDC	44,149	12,962	0
Arroyo Ctr.	28,647	28,647	0
Brookhaven National Lab.	535,546	515,142	49,712
C3I FFRDC	43,650	43,650	0
Ctr. for Advanced Aviation System Development	7,617	7,617	0
Ctr. for Communications and Computing	71,927	71,927	0
Ctr. for Enterprise Modernization[a]	10,126	10,126	0
Ctr. for Naval Analyses	109,068	93,310	0
Ctr. for Nuclear Waste Regulatory Analyses	15,346	14,860	0
Homeland Security Studies and Analysis Institute[b]	33,402	33,402	0
Homeland Security Systems Engineering and Development Institute[b]	1,271	1,271	0
National Biodefense Analysis and Countermeasures Ctr.	50,058	50,058	0
National Defense Research Institute	51,652	51,652	0
National Renewable Energy Lab.	326,652	315,568	36,383
Oak Ridge National Lab.	1,538,412	1,494,690	134,856
Pacific Northwest National Lab.	1,116,648	1,091,872	112,870
Project Air Force	43,957	43,957	0
Science and Technology Policy Institute	6,000	6,000	0
Studies and Analyses Ctr.	156,000	156,000	0
Industry-administered FFRDCs	7,283,133	7,135,806	361,119
Idaho National Lab.	478,356	463,843	3,536
Lawrence Livermore National Lab.	1,370,747	1,323,623	3,624
Los Alamos National Lab.	2,505,913	2,470,421	139,376
National Cancer Institute at Frederick	643,935	643,935	183,335
Sandia National Labs.	2,157,022	2,106,824	14,073
Savannah River National Lab.	127,160	127,160	17,175

NA = not available; data were not provided by institution.

ARRA = American Recovery and Reinvestment Act of 2009; FFRDC = federally funded research and development center.

[a] In prior-year tables the Center for Enterprise Modernization was listed as the Internal Revenue Service (IRS) FFRDC.
[b] On 5 March 2009 the Homeland Security Studies and Analysis Institute and the Homeland Security Systems Engineering and Development Institute were created. These new FFRDCs replaced the Homeland Security Institute.

SOURCE: National Science Foundation/National Center for Science and Engineering Statistics, FFRDC Research and Development Survey, FY 2010.

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