U.S. DEPARTMENT OF ENERGY

Fiscal Year 2020 Report to Congress: Laboratory Directed Research and Development at DOE National Laboratories

Report to Congress
December 2020

United States Department of Energy
Washington, DC 20585

Message from the Deputy Chief Financial Officer

As required by Section 3136 of the National Defense Authorization Act for Fiscal Year 1997 (Public Law 104-201; 50 U.S.C. 2793) and requested in the Conference Report accompanying the Department of Veterans Affairs and Housing and Urban Development, and Independent Agencies Appropriations Act, 2001, (H. Rept. 106-988), this is the Department of Energy (DOE)'s Report on Laboratory Directed Research and Development (LDRD), Plant Directed Research and Development (PDRD), and Site Directed Research and Development (SDRD) for FY 2020.

The report provides FY 2020 LDRD, PDRD, and SDRD expenditures by laboratory, weapons production plant and site. In FY 2020 there were 2,207 LDRD projects with a total cost of $686.48 million, 336 PDRD projects with a total cost of $72.07 million and 54 SDRD projects with a total cost of $11.80 million.

Pursuant to statutory requirements, this report is being provided to Members of Congress:

- **The Honorable Nita M. Lowey**
  Chairwoman, House Committee on Appropriations

- **The Honorable Kay Granger**
  Ranking Member, House Committee on Appropriations

- **The Honorable Marcy Kaptur**
  Chairwoman, Subcommittee on Energy and Water Development
  House Committee on Appropriations

- **The Honorable Mike Simpson**
  Ranking Member, Subcommittee on Energy and Water Development
  House Committee on Appropriations

- **The Honorable Richard Shelby**
  Chairman, Senate Committee on Appropriations

- **The Honorable Patrick Leahy**
  Vice Chairman, Senate Committee on Appropriations

- **The Honorable Lamar Alexander**
  Chairman, Subcommittee on Energy and Water Development
  Senate Committee on Appropriations

- **The Honorable Dianne Feinstein**
  Ranking Member, Subcommittee on Energy and Water Development
  Senate Committee on Appropriations

- **The Honorable James Inhofe**
  Chairman, Senate Committee on Armed Services

- **The Honorable Jack Reed**
  Ranking Member, Senate Committee on Armed Services

- **The Honorable Deb Fischer**
  Chairman, Subcommittee on Strategic Forces
  Senate Committee on Armed Services

- **The Honorable Martin Heinrich**
  Ranking Member, Subcommittee on Strategic Forces
  Senate Committee on Armed Services

- **The Honorable Adam Smith**
  Chairman, House Committee on Armed Services

- **The Honorable Mac Thornberry**
  Ranking Member, House Committee on Armed Services

- **The Honorable Jim Cooper**
  Chairman, Subcommittee on Strategic Forces
  House Committee on Armed Services

- **The Honorable Michael Turner**
  Ranking Member, Subcommittee on Strategic Forces
  House Committee on Armed Services

If you have any questions or need additional information, please contact Ms. Katie Donley, Deputy Director for External Coordination, Office of the Chief Financial Officer, at 202-586-0176, or Mr. Christopher Morris, Deputy Assistant Secretary for House Affairs, or Mr. Shawn Affolter, Deputy Assistant Secretary for Senate Affairs, Office of Congressional and Intergovernmental Affairs, at 202-586-5450.

Sincerely,

R. M. Hendrickson
Deputy Chief Financial Officer

Executive Summary

The Laboratory Directed Research and Development (LDRD) Program at the Department of Energy (DOE) National Laboratories, and analogous programs at DOE such as the nuclear weapons production Plant Directed Research and Development (PDRD) and Nevada National Security Site Directed Research and Development (SDRD), are key components of the DOE mission to promote scientific and technical (S&T) innovation that advances the economic, energy, and national security of the Nation.

This report provides DOE's FY 2020 expenditures for LDRD, PDRD, and SDRD and certifies that individual projects or activities are charged within the statutory maximum authorized for these programs. It also affirms that every LDRD activity derived from funds of other agencies is conducted in a manner that supports S&T development that benefits the programs of the sponsoring agencies and is consistent with the Appropriations Acts that provided funds to those agencies.

DOE National Laboratories' LDRD projects address the Nation's energy, environmental, and national security challenges. LDRD is an institutional investment, part of the overhead rate charged by a DOE National Laboratory for work performed by the laboratory. LDRD is accrued in accordance with cost accounting standards and the terms of the laboratory management and operating contracts. FY 2020 LDRD projects were relevant to defense, non-defense, and homeland security mission categories. In FY 2020, Field Chief Financial Officers certified that the 2,207 LDRD projects, totaling $686.48 million, which represents 4.21 percent of total cost base at the 16 laboratories, were in compliance with statutory requirements.

Section 308 of Division C of the Omnibus Appropriations Act, 2009 (Public Law 111-8), authorizes the Secretary of Energy to expend an amount less than four percent for both PDRD and SDRD. In FY 2020, DOE's Site and Plants invested $72.07 million and $11.80 million through the PDRD and SDRD programs, respectively, to fund S&T projects with the potential to enhance the plants' mission-related manufacturing capabilities, operations, and core technical competencies. The Field Chief Financial Officers certified these programs were funded within the maximum authorized amount.

LDRD, PDRD, and SDRD funding by DOE program office or SPP and projects which started or ended in FY 2020 are at **Appendix C**.

DOE continues to manage the LDRD program in accordance with all Congressional requirements. DOE will continue to review the management and administrative procedures and funding levels at each of the relevant laboratories.

FY 2020 REPORT ON LDRD[1] AT THE NATIONAL LABORATORIES

Table of Contents

[1] This report also includes SDRD and PDRD in accordance with all statutory report language requirements.

I. Legislative Language

This report responds to Section 3136 of the National Defense Authorization Act for Fiscal Year (FY) 1997 (Public Law 104-201; 50 U.S.C. 2793). It requires "a report [annually] on the funds expended during the preceding fiscal year on [LDRD] activities […] to permit an assessment of the extent to which such activities support the national security mission of the Department of Energy".

It also responds to the Conference Report accompanying the Department of Veterans Affairs and Housing and Urban Development, and Independent Agencies Appropriations Act, 2001, which requested that the DOE Chief Financial Officer develop and implement a financial accounting report of LDRD expenditures by laboratory and weapons production plant.

This report also addresses the Conference Report (H. Rept. No. 107-258) that accompanied the Energy and Water Development Appropriations Act, 2002. It requested that the Secretary of Energy affirms in the annual Report to Congress on LDRD expenditures that every LDRD activity derived from funds of other agencies is conducted in a manner that supports science and technology development that benefits the programs of the sponsoring agencies and is consistent with the Appropriations Acts that provided funds to those agencies.

The full list of statutory and legislative report language requirements is in **Appendix A and B**.

II. Background

Section 31 of the Atomic Energy Act of 1954, as amended (42 U.S.C. 2051), directs DOE to maintain oversight on the continued conduct of research and development (R&D) and assist in the acquisition of the existing and growing body of theoretical and practical knowledge in the fields of energy, production, uses, handling, and effects. This mission was initially the responsibility of the Atomic Energy Commission (AEC), then that of the Energy Research and Development Administration, and subsequently DOE.

The AEC recognized that to maintain laboratories' intellectual vitality, ability to respond immediately to developments at the cutting edge of science and technology**,** and retain the best scientific, technological, and managerial talent, a certain amount of work is to be at the laboratories' discretion. From inception, the AEC and successor agencies made available certain amounts of research derived from the ideas from National Laboratory researchers.

In 1985, in response to the recommendations of national panels and commissions, the Department established the Exploratory Research and Development Program to formalize the practice of providing National Laboratories with the means to conduct laboratory-initiated

R&D.[2] Six years later, DOE renamed the program Laboratory Directed Research and Development (LDRD) and formally established Department-wide policies for implementation at the DOE National Laboratories. Today, the LDRD Program at the DOE National Laboratories, and analogous programs at the Department's nuclear weapons production plants (Plant Directed Research and Development, or PDRD) and Nevada National Security Site (NNSS) (Site Directed Research and Development, or SDRD), are critical components of the DOE mission to promote scientific and technical (S&T) innovation that advances the economic, energy, and national security of the United States (U.S.).

Every LDRD activity conducted at DOE National Laboratories is governed by DOE policy (DOE Order 413.2C, *Laboratory Directed Research and Development*), which provides guidance on effective management and oversight of the LDRD Program, while at the same time supporting the laboratories' statutory authority to pursue innovative, self-selected projects in support of the DOE mission. DOE's LDRD policy is consistent with the Department's management practices for R&D activities including annual planning and reporting requirements, as well as program and peer reviews to verify the investments reflect innovative, quality research projects. DOE reviews and concurs with each proposed LDRD project before a laboratory commences work to guarantee the project complies with DOE policy. The remainder of this report responds to the LDRD, PDRD, and SDRD Program financial reporting requirements required by law (**Appendix A and B** list the statutory and report language requirements).

III. FY 2020 LDRD Financial Reporting

Table 1 enumerates DOE's FY 2020 LDRD costs, total funded amount, and the LDRD rate charged by laboratory. In accordance with Section 311 of Division D of the Consolidated and Further Continuing Appropriations Act, 2015, (Public Law 113-235) and DOE Order 413.2 C, *Laboratory Directed Research and Development* individual projects and activities are charged within the statutory maximum authorized amount for LDRD by the Secretary of Energy. The total cost figures in the table represent a laboratory's total operating and capital equipment costs, including non-DOE funded work, less exemptions and LDRD. DOE Field Chief Financial Officers certify that each laboratory is in compliance with statutory requirements, and to the accuracy of the total cost figures.

[2] See, among others, the *Report of the White House Science Council*, Office of Science and Technology Policy, Executive Office of the President, Washington, DC, May 1983; and Guidelines, Energy Research Advisory Board, December 1985.

Table 1. FY 2020 Laboratory Costs and LDRD Costs at DOE Laboratories

Lab	DOE Costs ($M)	SPP Costs ($M)	Total Costs ($M)	LDRD Total Costs ($M)	LDRD Rate	Projects
Ames Laboratory	41.43	0.99	42.42	1.58	3.71%	18
Argonne National Lab	646.32	100.47	746.79	26.39	3.53%	142
Brookhaven National Lab	524.63	47.84	572.47	14.44	2.52%	62
FERMI National Accelerator Lab	293.08	0.85	293.93	3.38	1.14%	48
Idaho National Lab	996.22	456.34	1,452.56	32.99	2.27%	126
L. Berkeley National Lab	760.97	106.59	867.56	23.06	2.65%	104
L. Livermore National Lab	1,805.15	330.01	2,135.16	121.49	5.69%	244
Los Alamos National Lab	2,528.56	235.36	2,763.92	146.71	5.30%	398
National Renewable Energy Lab	436.91	63.67	500.59	19.90	3.97%	95
Oak Ridge National Lab	1,313.38	258.64	1,572.02	50.65	3.22%	154
Pacific Northwest National Lab	732.34	272.44	1,004.77	37.01	3.68%	213
Princeton Plasma Physics Lab	111.29	4.36	115.66	3.83	3.31%	36
Sandia National Labs	2,450.91	1,057.91	3,508.82	188.88	5.38%	447
Savannah River National Lab	201.23	20.09	221.32	10.46	4.72%	87
SLAC National Accelerator Laboratory	351.63	23.70	375.33	4.94	1.31%	26
Thomas Jefferson National Accelerator Facility	138.55	2.47	141.02	0.78	0.55%	7
Total LDRD	**$13,332.59**	**$2,981.74**	**$16,314.33**	**$686.48**	**4.21%**	**2,207**

LDRD is an institutional investment, part of the overhead rate charged by a laboratory, which funds cutting-edge, creative work that benefits laboratory programs. Consistent with Public Law 113-235, LDRD is accumulated through a percentage of the total cost, excluding LDRD and line-item construction, for work performed by a laboratory. LDRD is accrued in accordance with cost accounting standards and with the terms of the laboratory management and operating contracts.

The total FY 2020 LDRD program cost at the National Laboratories was $686.48 million, which represents 4.21 percent of total cost base at these laboratories. This includes minimal credits or costs for projects which completed in previous fiscal years.

Each National Laboratory conducted a review of the FY 2020 LDRD projects to determine the relevance of those projects to the missions of the various laboratory customers that provided funds for LDRD. For this review, laboratory consumers are considered in three mission categories – defense, non-defense, and homeland security (i.e., Department of Homeland Security (DHS)). The review concluded that FY 2020 LDRD projects were relevant to one, two or three mission categories. The review also indicated that funds contributed by each consumer category were invested in LDRD projects relevant to the respective mission areas at a level at least equal to the LDRD funds provided by the customers.

IV. LDRD and Strategic Partnership Projects

Strategic Partnership Projects (SPP) funding from non-DOE Federal and non-Federal resources to promote, and where possible accelerate, scientific discovery and deploy solutions that benefit both DOE and sponsoring entity missions and goals. SPP plays an important role in the laboratories' efforts to develop, strengthen, and sustain unique S&T capabilities deemed critical by the Government and, in most cases, represents a coordinated set of activities that seek to

address large and complex national needs. This use of DOE facilities, personnel, and capabilities for SPP activities provides the laboratories an opportunity to deliver national solutions in a cost-effective manner.

Congress provided language in Conference Report 107-258 accompanying the Energy and Water Development Appropriations Act, 2002, which requested that DOE notify other Federal agencies that a portion of SPPs will be used to fund LDRD projects. With the creation of DHS in the FY 2002 Homeland Security Act, Congress enacted a requirement that LDRD funding provided by DHS must benefit DHS missions. In response to the FY 2002 Conference Report, the Secretary of Energy issued guidance requiring every LDRD laboratory to notify other Federal agencies of LDRD charges before funding work at the laboratories. Each SPP proposal DOE provides to a Federal agency must indicate the amount of LDRD charges that the project will collect. The proposal also serves to notify the sponsor that, by providing funding, the agency is acknowledging that LDRD activities are beneficial to the organization and are consistent with the appropriation acts that provided funds to the agency. In February 2003, the Secretary of Energy and the Secretary of Homeland Security entered into a Memorandum of Agreement to implement key provisions of the Homeland Security Act. To support DHS efforts, the Deputy Secretary of Energy issued DOE Order 484.1 on Reimbursable Work for the Department of Homeland Security. The Order provides information on the process by which the DHS may place orders for reimbursable work activities at the DOE laboratories. In the Order, there are provisions for notification of LDRD charges in the cost proposal as well as requirements for acknowledgements regarding the benefits of LDRD before final approval.

In December 2003, the DOE Office of the Chief Financial Officer provided other Federal agency Chief Financial Officers who are customers and sponsors of work at the Department's laboratories with applicable guidance and policy documents to explain the Department's processes. Collectively, the implementation and execution of these policies provide the basis for the Secretary's affirmation that the LDRD Program is managed in accordance with the Congressional requirements cited above.

V. FY 2020 PDRD and SDRD Programs – Financial Reporting

Plant Directed Research and Development (PDRD) - Fiscal Year Expenditures

Section 308 of Division C of the Omnibus Appropriations Act, 2009 (Public Law 111-8) authorizes the Secretary of Energy to authorize an amount less than four percent for PDRD. Table 2 enumerates the Department's FY 2020 PDRD costs, total funded amount, and the PDRD rate charged by site. The total cost figures in the table represents a plant's total operating and capital equipment costs, including non-DOE funded work, less exemptions and PDRD. DOE Field Chief Financial Officers certify that each plant is in compliance with statutory requirements, and to the accuracy of the total cost figures.

Table 2. FY 2020 PDRD Expenditures

Plant	DOE Costs ($M)	SPP Costs ($M)	Total Costs ($M)	PDRD Total Costs ($M)	PDRD Rate	Projects
Kansas City National Security Campus	1,094.42	389.37	1,483.79	37.46	2.52%	228
Pantex Plant	787.56	0.00	787.56	7.66	0.97%	33
Savannah River Site	325.29	0.00	325.29	1.77	0.54%	12
Y-12 National Security Complex	1,066.21	0.00	1,066.21	25.18	2.36%	63
Total PDRD	**$3,273.48**	**$389.37**	**$3,662.85**	**$72.07**	**1.97%**	**336**

Site Directed Research and Development (SDRD) - Fiscal Year Expenditures

Section 308 of Division C of the Omnibus Appropriations Act, 2009 (Public Law 111-8) authorizes the Secretary of Energy for an amount less than four percent for SDRD. Table 3 enumerates the Department's FY 2020 SDRD costs, total funded amount, and the SDRD rate charged by site. The total cost figures in the table represents the site's total operating and capital equipment costs, including non-DOE funded work, less exemptions and SDRD. DOE Field Chief Financial Officers certify that the site is in compliance with statutory requirements, and to the accuracy of the total cost figures.

Table 3. FY 2020 SDRD Expenditures

Site	DOE Costs ($M)	SPP Costs ($M)	Total Costs ($M)	SDRD Total Costs ($M)	SDRD Rate	Projects
Nevada National Security Site	486.09	44.19	530.28	11.80	2.22%	54
Total SDRD	**$486.09**	**$44.19**	**$530.28**	**$11.80**	**2.22%**	**54**

VI. Conclusion

The Department continues to manage the LDRD, PDRD, and SDRD programs in accordance with all Congressional requirements. LDRD, PDRD, and SDRD provide the laboratories with the means to explore pioneering and cutting-edge research concepts to support current and future DOE and DOE/National Nuclear Security Administration and other national missions. LDRD, PDRD, and SDRD research projects bridge disciplinary boundaries to find solutions to science and technology challenges, to find and build capabilities that can support multiple cross-cutting interests. DOE has, and will continue to, review the management and administrative procedures and funding levels at each of the relevant laboratories for compliance with statutory requirements.

VII. Secretarial Affirmation

As required by Section 3136 of the National Defense Authorization Act of 1997 (Public Law 104-201; 50 U.S.C. 2793) and requested in the Conference Report accompanying the Energy and Water Development Appropriations Act, 2002, (H. Rept. 107-258), the following is the affirmation by the Secretary of the Department of Energy (DOE) on the ***Report on Laboratory Directed Research and Development (LDRD) for FY 2020****.*

Based on the information and acknowledgments provided to the Department and DOE contractors by the Federal agencies that are funding LDRD activities in Fiscal Year 2020, I affirm that every LDRD activity derived from funds of other Federal agencies (1) is conducted in a manner supporting scientific and technical development that benefit the programs of those agencies, and (2) is consistent with the appropriations acts that provided funds to those agencies.

Dan Brouillette
Secretary of Energy
December 2020

Appendix A. Statutory Language Requirements

Public Law 114-328, Section 3119 – Pilot Program on Unavailability for Overhead Costs of Amounts Specified for Laboratory Directed Research and Development.

(a) IN GENERAL.—The Secretary of Energy shall establish a pilot program under which each national security laboratory (as defined in section 4002 of the Atomic Energy Defense Act (50 U.S.C. 2501)) is prohibited from using funds described in subsection (b) to cover the costs of general and administrative overhead for the laboratory.

(b) FUNDS DESCRIBED.—The funds described in this subsection are funds made available for a national security laboratory under section 4811(c) of the Atomic Energy Defense Act (50 U.S.C. 2791(c)) for laboratory-directed research and development. (c) DURATION.—The pilot program required by subsection (a) shall— (1) take effect on the first day of the first fiscal year beginning after the date of the enactment of this Act, and (2) terminate on the date that is three years after the day described in paragraph (1).

(d) REPORT REQUIRED.—Before the termination under subsection (c)(2) of the pilot program required by subsection (a), the Administrator for Nuclear Security shall submit to the congressional defense committees a report that assesses the costs, benefits, risks, and other effects of the pilot program.

Section 3115 of the National Defense Authorization Act for Fiscal Year 2016 (Public Law 114-92)

FUNDING OF LABORATORY-DIRECTED RESEARCH AND DEVELOPMENT PROGRAMS.

(a) IN GENERAL.—Section 4811(c) of the Atomic Energy Defense Act (50 U.S.C. 2791(c)) is amended—

(1) by striking ''to such laboratories'' and inserting ''to a national security laboratory'';

(2) by striking ''not to exceed 6 percent'' and inserting ''of not less than 5 percent and not more than 7 percent''; and

(3) By striking ''by such laboratories'' and inserting ''by the laboratory''.

(b) BRIEFING REQUIRED.—Not later than February 28, 2016, the Administrator for Nuclear Security shall provide a briefing to the congressional defense committees on—

(1) all recent or ongoing reviews of the laboratory-directed research and development program, including such reviews initiated by the Secretary of Energy;

(2) costs and accounting practices associated with laboratory-directed research and development; and

(3) how laboratory-directed research and development projects support the mission of the National Nuclear Security Administration.

Section 311 of the Consolidated and Further Continuing Appropriations Act, 2015 (Public Law 113-235)

Of the funds authorized by the Secretary of Energy for laboratory-directed research and development, no individual program, project, or activity funded by this or any subsequent Act making appropriations for Energy and Water Development for any fiscal year may be charged more than the statutory maximum authorized for such activities: Provided that this section shall take effect not earlier than October 1, 2015.

Section 309 of Division D of the Consolidated Appropriations Act, 2014 (Public Law 113-76) Notwithstanding section 307 of Public Law 111-85, of the funds made available by the Department of Energy for activities at Government-owned, contractor-operated laboratories funded in this or any subsequent Energy and Water Development Appropriations Act for any fiscal year, the Secretary may authorize a specific amount, not to exceed 6 percent of such funds, to be used by such laboratories for laboratory-directed research and development.

Section 307 of the Energy and Water Development and Related Agencies Appropriations Act, 2010 (Public Law 111-85) Of the funds made available by the Department of Energy for activities at Government-owned, contractor-operated laboratories funded in this Act or subsequent Energy and Water Development Appropriations Acts, the Secretary may authorize a specific amount, not to exceed 8 percent of such funds, to be used by such laboratories for laboratory-directed research and development: Provided, That the Secretary may also authorize a specific amount not to exceed 4 percent of such funds, to be used by the plant manager of a covered nuclear weapons production plant or the manager of the Nevada Site Office for plant or site-directed research and development.

Section 308 of Division C of the Omnibus Appropriations Act, 2009 (Public Law 111-8) LABORATORY DIRECTED RESEARCH AND DEVELOPMENT. Of the funds made available by the Department of Energy for activities at government-owned, contractor-operated laboratories funded in this Act or subsequent Energy and Water Development Appropriations Acts, the Secretary may authorize a specific amount, not to exceed 8 percent of such funds, to be used by such laboratories for laboratory-directed research and development: Provided, That the Secretary may also authorize a specific amount not to exceed 4 percent of such funds, to be used by the plant manager of a covered nuclear weapons production plant or the manager of the Nevada Site Office for plant or site directed research and development: Provided further, That notwithstanding Department of Energy order 413.2A, dated January 8, 2001, beginning in fiscal year 2006 and thereafter, all DOE laboratories may be eligible for laboratory-directed research and development funding.

Section 309 of Division C of the Consolidated Appropriations Act, 2008 (Public Law 110-161) LABORATORY DIRECTED RESEARCH AND DEVELOPMENT. Of the funds made available by the Department of Energy for activities at government-owned, contractor-operated laboratories funded in this Act or subsequent Energy and Water Development Appropriations Acts, the Secretary may authorize a specific amount, not to exceed 8 percent of such funds, to be used by such laboratories for laboratory-directed research and development: Provided, That the Secretary may also authorize a specific amount not to exceed 4 percent of such funds, to be used by the plant manager of a covered nuclear weapons production plant or the manager of the Nevada Site Office for plant or site-directed research and development: Provided further, That notwithstanding Department of Energy order 413.2A, dated January 8, 2001, beginning in fiscal year 2006 and thereafter, all DOE laboratories may be eligible for laboratory-directed research and development funding.

Section 311 of the Energy and Water Development Appropriations Act, 2006 (Public Law 109-103) Of the funds made available by the Department of Energy for activities at government-owned, contractor-operator operated laboratories funded in this Act or subsequent Energy and Water Development Appropriations Acts, the Secretary may authorize a specific amount, not to exceed 8 percent of such funds, to be used by such laboratories for laboratory-directed research and development: Provided, That the Secretary may also authorize a specific amount not to exceed 3 percent of such funds, to be used by the plant manager of a covered nuclear weapons production plant or the manager of the Nevada Site Office for plant or site-directed research and development: Provided further, That notwithstanding Department of Energy order 413.2A, dated January 8, 2001, beginning in fiscal year 2006 and thereafter, all DOE laboratories may be eligible for laboratory-directed research and development funding.

Section 310 of the Energy and Water Development Appropriations Act, 2002 (Public Law 107-66) The Administrator of the National Nuclear Security Administration may authorize the manager of the Nevada Operations Office to engage in research, development, and demonstration activities with respect to the development, test, and evaluation capabilities necessary for operations and readiness of the Nevada Test Site: Provided, That of the amount allocated to the Nevada Operations Office each fiscal year from amounts available to the Department of Energy for such fiscal year for national security programs at the Nevada Test Site, not more than an amount equal to 2 percent of such amount may be used for these activities.

Section 309(f) of the Homeland Security Act of 2002 (Public Law 107-296, 6 USC 189(f)
Laboratory Directed Research and Development by the Department of Energy.--No funds authorized to be appropriated or otherwise made available to the Department in any fiscal year may be obligated or expended for laboratory-directed research and development activities carried out by the Department of Energy unless such activities support the missions of the Department of Homeland Security.

Section 310 of the Energy and Water Development Appropriations Bill, as enacted by the Department of Veterans Affairs and Housing and Urban Development, and Independent Agencies Appropriations Act, 2001 (Public Law 106-377)
The Administrator of the National Nuclear Security Administration may authorize the plant manager of a covered nuclear weapons production plant to engage in research, development, and demonstration activities with respect to the engineering and manufacturing capabilities at such plant in order to maintain and enhance such capabilities at such plant: Provided, That of the amount allocated to a covered nuclear weapons production plant each fiscal year from amounts available to the Department of Energy for such fiscal year for national security programs, not more than an amount equal to 2 percent of such amount may be used for these activities: Provided further, That for purposes of this section, the term ''covered nuclear weapons production plant'' means the following:
(1) The Kansas City Plant, Kansas City, Missouri.
(2) The Y–12 Plant, Oak Ridge, Tennessee.

(3) The Pantex Plant, Amarillo, Texas.
(4) The Savannah River Plant, South Carolina.

Section 3156 of the National Defense Authorization Act for Fiscal Year 2000 (Public Law 106-398) ENGINEERING AND MANUFACTURING RESEARCH, DEVELOPMENT, AND DEMONSTRATION BY PLANT MANAGERS OF CERTAIN NUCLEAR WEAPONS PRODUCTION PLANTS

(a) Authority for Programs at Nuclear Weapons Productions Facilities.--The Administrator for Nuclear Security shall authorize the head of each nuclear weapons production facility to establish an Engineering and Manufacturing Research, Development, and Demonstration Program under this section.

(b) Projects and Activities.--The projects and activities carried out through the program at a nuclear weapons production facility under this section shall support innovative or high-risk design and manufacturing concepts and technologies with potentially high payoff for the nuclear weapons complex. Those projects and activities may include--

(1) replacement of obsolete or aging design and manufacturing technologies;
(2) development of innovative agile manufacturing techniques and processes; and
(3) training, recruitment, or retention of essential personnel in critical engineering and manufacturing disciplines.

(c) Funding.--The Administrator may authorize the head of each nuclear weapons production facility to obligate up to $3,000,000 of funds within the Advanced Design and Production Technologies Campaign available for such facility during fiscal year 2001 to carry out projects and activities of the program under this section at that facility.

(d) Report.--The Administrator for Nuclear Security shall submit to the Committee on Armed Services of the Senate and the Committee on Armed Services of the House of Representatives, not later than September 15, 2001, a report describing, for each nuclear weapons production facility, each project or activity for which funds were obligated under the program, the criteria used in the selection of each such project or activity, the potential benefits of each such project or activity, and the Administrator's recommendation concerning whether the program should be continued.

(e) Definition.--For purposes of this section, the term ``nuclear weapons production facility'' has the meaning given that term in section 3281(2) of the National Nuclear Security Administration Act (title XXXII of Public Law 106-65; 113 Stat. 968; 50 U.S.C. 2471(2)).

Section 3136 of the National Defense Authorization Act for Fiscal Year 1997 (Public Law 104-201)

(a) Limitation— No funds authorized to be appropriated or otherwise made available to the Department of Energy for fiscal year 1997 under section 3101 may be obligated or expended for activities under the Department of Energy Laboratory Directed Research and Development Program, or under any Department of Energy technology transfer program or cooperative research and development agreement, unless such activities support the national security mission of the Department of Energy.

(b) Annual Report— (1) The Secretary of Energy shall annually submit to the congressional defense committees a report on the funds expended during the preceding fiscal year on activities under the Department of Energy Laboratory Directed Research and Development Program. The purpose of the report is to permit an assessment of the extent to which such activities support the national security mission of the Department of Energy. (2) Each report shall be prepared by the officials responsible for Federal oversight of the funds expended on activities under the program. (3) Each report shall set forth the criteria utilized by the officials preparing the report in determining whether or not the activities reviewed by such officials support the national security mission of the Department.

Appendix B. Conference Report Language

109th Congress Conference Report regarding the Energy & Water Development Appropriations Bill, 2006 (H. Rept. Report 109-275) The conferees are concerned with the level of overhead charges applied to programs funded in this bill and urge the Department to continue to work to minimize the overhead burden on all program activities. In order to guarantee an equitable allocation of overhead costs the Secretary should apply overhead charges to LDRD activities consistent with cost accounting practices applied to program activities that are direct funded. The conference agreement increases the allowable percentage for LDRD, PDRD and SDRD activities to allow this accounting change without harming the underlying discretionary research activities. The change in accounting practices should be implemented with no net reduction in LDRD levels below 6 percent of the funds provided by the Department of Energy to such labs for national security activities and 2 percent for PDRD and SDRD activities at the appropriate plants and sites. Within 90 days after the date of enactment of this Act, the Secretary of Energy shall submit a report to the Committees on Appropriations detailing how the accounting change will be implemented without effecting the basic research and the change shall be implemented within 180 days of enactment.

108th Congress - House Report Regarding the Energy & Water Development Appropriations Bill, 2004 (H. Rept. Report 108-212) The Committee recognizes the value of conducting discretionary research at DOE's National Laboratories. Such research provides valuable benefits to the Department and to other Federal agencies, and is crucial to attracting and retaining scientific talent at the laboratories. However, the Committee continues to have concerns about the financial execution of this program. One concern centers on the manner in which DOE levies the LDRD ''tax'' on all DOE and Work for Other programs, and then accumulates the funds into an overhead pool. This Committee typically deals with defense and non-defense allocations within the Energy and Water Development bill, and the line between those two allocations is not easily crossed. Under LDRD, however, the laboratory directors are able to pool defense and non-defense appropriations at will. The only obvious solution to this concern is to require DOE to establish and track separate LDRD accounts for defense and non-defense funding sources, and the Committee is not yet ready to direct that change. The other principal concern deals with the application of LDRD to work being performed for other agencies (Work for others). The conference report accompanying the Energy and Water Development Appropriations Act, 2002 (P.L. 107–66) directed the Secretary to ''include in the annual report to Congress on LDRD activities an affirmation that all LDRD activities derived from funds of other agencies have been conducted in a manner that support science and technology development that benefits the programs of the sponsoring agencies and is consistent with the Appropriations Acts that provided funds to those agencies.'' The Department has implemented this guidance by including the following language into its standard project proposal and funding acceptance documents that it requires the funding WFO agencies to sign: ''The Department of Energy believes that LDRD efforts provide opportunities in research that are instrumental in maintaining cutting-edge science capabilities that benefit all of the customers at the laboratory. The Department will conclude that by providing funds to DOE to perform work, you

acknowledge that such activities are beneficial to your organization and consistent with appropriations acts that provide funds to you.'' This is too facile a solution for the Department. According to a review conducted by this Committee's investigative staff, only a little more than half of the WFO customers indicated they could reliably certify that DOE's LDRD activities are consistent with the funding agencies' appropriations acts. Nevertheless, most agencies sign the required certification letter to DOE because they see no real alternative. The Committee fully expects that there are terms and conditions attached to the appropriations acts for these other agencies that are being ignored through this so-called ''certification'' process for LDRD work.

The Committee is considering changing the arrangement by which LDRD activities are funded to eliminate these concerns. The results of an ongoing General Accounting Office review will help to inform the Committee's choice. The Committee is receptive to streamlining the annual LDRD report to Congress, which is undoubtedly a significant burden for the Department to prepare and is of little value to this Committee in resolving the concerns identified above. The Department should work with Committee staff to develop a simpler and more useful LDRD report.

107th Congress Conference Report regarding the Energy & Water Development Appropriations Bill, 2002 (H. Rept. Report 107-258) The conference agreement does not include bill language proposed by either the House or the Senate regarding the Laboratory Directed Research and Development (LDRD) program. The conferees recognize the benefits of LDRD and expect LDRD activities to continue at previously authorized levels. However, when accepting funds from another Federal agency that will be used for LDRD activities, the Department of Energy shall notify that agency in writing how much will be used for LDRD activities. In addition, the conferees direct the Secretary of Energy to include in the annual report to Congress on all LDRD activities an affirmation that all LDRD activities derived from funds of other agencies have been conducted in a manner that supports science and technology development that benefits the programs of the sponsoring agencies and is consistent with the Appropriations Acts that provided funds to those agencies.

106th Congress – House Report Regarding the Energy & Water Development Appropriations Bill, 2001 (H. Rept. Report 106-693) The Committee has retained the limitation of four percent on laboratory directed research and development (LDRD) that was included in the fiscal year 2000 appropriations bill. This program allows each laboratory director to use four percent of all operating funds provided to the laboratory to conduct research and development projects selected at the discretion of the laboratory directors. For fiscal year 2001, the Department estimates that the laboratories will spend $300,000,000 on LDRD and additional funds on Director's Discretionary Research and Development (DDRD). The Committee recommendation would provide approximately $200,000,000 for LDRD, the same level as fiscal year 2000. Rather than allowing each laboratory to tax all operating dollars that are sent to the laboratory, the Committee directs the Department to submit a separate line item for LDRD funding in each appropriation account in the fiscal year 2002 budget request. This will provide the visibility and accountability for this type of funding that the Committee believes has been lacking in prior years. It also addresses another concern of the Committee that LDRD funding is automatically

taken off the top of each program performed at the laboratory. This has the effect of placing LDRD funding in a completely protected funding category at the expense of all other programs in the Department. The Committee supports some LDRD funding, but believes it should be placed on equal terms with other important programs. The Department is directed to submit a specific request for laboratory-directed research and development funding in each program in the annual budget submission.

106th Congress – House Report Regarding the Energy & Water Development Appropriations Bill, 2001 (H. Rept. Report 106-688) The conference agreement includes an allowance of six percent for the laboratory-directed research and development (LDRD) program and two percent for nuclear weapons production plants. Travel costs for LDRD are exempt from the contractor travel ceiling. The conferees direct the Department's Chief Financial Officer to develop and execute a financial accounting report of LDRD expenditures by laboratory and weapons production plant. This report, due to the House and Senate Committees on Appropriations by December 31, 2000, and each year thereafter, should provide costs by personnel salaries, equipment, and travel. The Department should work with the Committees on the specific information to be included in the report.

Appendix C. Cost Base by Program Offices or SPP

DOE Program Funding Office ($M)	NNSA	Office of Science	Office of Energy Efficiency & Renewable Energy	Office of Nuclear Energy	Office of Environmental Management	Office of Cybersecurity, Energy Security, & Emergency Response	Office of Electricity	Office of Fossil Energy	Advanced Research Projects Agency - Energy	Office of Environment, Health, Safety and Security	Other DOE Program Offices	SPP	Total Costs
Ames Laboratory	0.00	24.30	14.15	0.00	0.00	0.00	0.23	1.69	0.42	0.00	0.64	0.99	**$42.42**
Argonne National Lab	58.91	416.98	87.96	29.83	4.30	0.00	9.21	1.51	1.40	0.92	35.29	100.47	**$746.78**
Brookhaven National Lab	11.77	487.60	4.97	2.20	1.10	0.00	1.00	0.00	0.12	0.03	15.84	47.83	**$572.46**
FERMI National Accelerator Lab	0.00	293.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.85	**$293.93**
Idaho National Lab	90.62	9.09	42.23	776.33	12.72	0.00	12.43	2.11	0.00	0.12	50.55	456.33	**$1,452.53**
Kansas City National Security Campus	1094.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	389.37	**$1,483.79**
L. Berkeley National Lab	10.27	609.99	107.29	0.00	0.00	0.00	4.97	11.89	0.00	0.00	16.56	106.59	**$867.56**
L. Livermore National Lab	1665.18	71.10	18.98	0.87	3.53	1.02	6.90	7.68	1.67	2.04	26.19	330.01	**$2,135.17**
Los Alamos National Lab	2235.98	107.12	17.52	20.42	29.30	0.00	5.55	11.49	2.45	0.76	97.95	235.36	**$2,763.90**
National Renew able Energy Lab	0.00	16.71	401.91	0.15	0.00	0.00	5.86	0.32	6.71	0.00	5.25	63.67	**$500.58**
Nevada National Security Site	486.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.19	**$530.28**
Oak Ridge National Lab	174.77	800.66	171.07	98.89	0.66	0.67	21.05	9.29	5.49	1.50	29.34	258.64	**$1,572.03**
Pacific Northw est National Lab	270.04	176.11	112.74	17.20	1.70	0.45	38.29	13.28	3.80	2.48	96.26	272.43	**$1,004.78**
Pantex Plant	787.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**$787.56**
Princeton Plasma Physics Lab	0.81	109.63	0.00	0.00	0.00	0.00	0.00	0.00	0.84	0.00	0.01	4.36	**$115.65**
Sandia National Labs	2173.58	65.75	69.66	36.84	17.84	1.32	22.18	6.94	2.92	4.19	49.70	1057.92	**$3,508.84**
Savannah River National Lab	90.00	1.45	1.55	2.00	91.13	0.05	0.36	0.00	0.26	0.04	14.40	20.09	**$221.33**
Savannah River Site	325.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**$325.29**
SLAC National Accelerator Laboratory	1.95	327.79	10.64	0.00	0.00	0.00	2.38	1.15	0.10	0.00	7.62	23.70	**$375.33**
Thomas Jefferson National Accelerator Facility	0.00	137.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.61	2.47	**$141.02**
Y-12 National Security Complex	1066.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**$1,066.21**
Total by Office or SPP	**$10,543.45**	**$3,655.30**	**$1,060.67**	**$984.73**	**$162.28**	**$3.51**	**$130.41**	**$67.35**	**$26.18**	**$12.08**	**$446.21**	**$3,415.27**	**$20,507.44**

[1] The cost base information is provided by the labs, plants, or sites and certified by the field office managing the lab, plant, or site.

[2] The cost base does not directly tie to obligations in the DOE accounting system because the LDRD, PDRD and SDRD base is accrued through indirect costs.

Appendix D. FY 2020 LDRD, SDRD, and PDRD Projects Status

	Started		Completed	
Lab, Site, or Plant Name	Projects with a Start Date Prior to FY 2020	Projects with an FY2020 Start Date	Projects Started in Prior Fiscal Years and Completed in FY 2020	Projects Started and Completed within FY 2020
Ames Laboratory	7	11	4	4
Argonne National Lab	73	69	44	38
Brookhaven National Lab	42	20	7	4
FERMI National Accelerator Lab	31	17	7	0
Idaho National Lab	71	55	36	8
Kansas City National Security Campus	117	111	117	111
L. Berkeley National Lab	59	45	48	5
L. Livermore National Lab	132	112	68	25
Los Alamos National Lab	214	184	89	60
National Renewable Energy Lab	40	55	29	28
Nevada National Security Site	38	16	30	3
Oak Ridge National Lab	80	74	15	0
Pacific Northwest National Lab	107	106	19	0
Princeton Plasma Physics Lab	22	14	8	3
Sandia National Labs	198	249	12	93
Savannah River Site	10	2	104	0
Savannah River National Lab	45	42	45	23
SLAC National Accelerator Laboratory	20	6	7	0
Thomas Jefferson National Accelerator Facility	5	2	8	2
Y-12 National Security Complex	30	33	5	8
Pantex Plant	20	13	10	8
Total Count	**1361**	**1236**	**712**[1]	**423**

[1]This includes minimal credits and costs from projects completed in prior fiscal years.