



October 2013

NATIONAL LABORATORIES

DOE Needs to Improve Oversight of Work Performed for Non-DOE Entities

GAO Highlights

Highlights of [GAO-14-78](#), a report to congressional committees

Why GAO Did This Study

DOE's 17 national laboratories house cutting-edge scientific facilities and equipment, ranging from high-performance computers to ultra-bright X-ray sources for investigating fundamental properties of materials. DOE allows the capabilities of the laboratories to be made available to perform work for other federal agencies and nonfederal entities through its WFO program, provided that the work does not hinder DOE's mission or compete with the private sector, among other things. GAO was asked to review the WFO program. GAO examined (1) the amount and type of work conducted under the program, (2) the extent to which DOE has ensured that WFO program requirements are met, and (3) the extent to which program performance is measured against WFO program objectives. GAO reviewed DOE and laboratory data and documents, internal and external review reports, and interviewed officials from DOE and the laboratories.

What GAO Recommends

GAO recommends, among other things, that DOE take steps to ensure compliance with project approval requirements; require laboratories to establish written procedures for charging costs to projects; specify what the annual program reviews should include; produce annual reports on WFO activities; and establish performance measures for the WFO program. DOE generally agreed with the report and its recommendations.

View [GAO-14-78](#). For more information, contact David C. Trimble at (202) 512-3841 or trimbled@gao.gov

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NATIONAL LABORATORIES

DOE Needs to Improve Oversight of Work Performed for Non-DOE Entities

What GAO Found

In fiscal years 2008 through 2012, the Department of Energy (DOE) performed about \$2 billion annually of Work for Others (WFO) projects, as measured by the costs incurred. Although the amount of WFO performed has remained relatively constant over the last 5 years overall, WFO as a percentage of the total work performed at the laboratories—measured in total laboratory costs incurred—has declined from 17 percent in fiscal year 2008 to about 13 percent in fiscal year 2012. In fiscal year 2012, the WFO program included more than 6,500 projects. About 88 percent of this work was for other federal agencies, with the majority of it performed for the Department of Defense. For example, one project for the Army applies a laboratory's expertise in laser decontamination of surfaces to develop a system that will remove chemical agent residues from equipment. The remaining WFO work was sponsored by nonfederal entities, including state and local governments, universities, private industry, and foreign entities.

DOE officials have not ensured that WFO program requirements are consistently met. For example, a DOE official is required to determine whether a proposed WFO project has met DOE requirements for accepting work before approving, or certifying, the work and this responsibility may not be delegated to the laboratories. However, DOE officials from site offices at 8 of the 17 laboratories reported that these determinations were made by the laboratories and that the DOE officials did not take steps to independently verify the determinations prior to approving the work. DOE also cannot ensure that the full costs of materials and services for WFO projects are charged to sponsors because 12 of 17 laboratories have limited or no written procedures for developing WFO project budgets or charging costs to ongoing projects, two important steps for recovering the full costs of materials and services. A 2013 DOE Office of Inspector General report found that the costs of administering WFO projects at one laboratory were allocated to DOE projects, resulting in an estimated \$400,000 in WFO project costs that were not reimbursed to the laboratory. DOE requires that its program offices annually review the WFO program at each of its laboratories. However, DOE requirements do not specify what the reviews should include, and DOE program offices varied in what they consider to be an annual review. DOE also requires the department's Chief Financial Officer to report annually on the activities conducted under the WFO program, but DOE officials told GAO that they no longer produce the report because the requirement is outdated, choosing instead to fulfill data requests on a case-by-case basis. As a result, DOE does not have data that are comparable across laboratories or over time.

DOE has not measured the extent to which WFO program performance is measured against program objectives and has not established performance measures to do so. Some DOE site offices and laboratories have taken steps to evaluate the performance of the WFO program, but these steps are not consistent across the laboratories, do not incorporate key attributes of successful performance measures, and do not address the WFO program objectives. Recent internal and external reviews of the laboratories have recommended that DOE establish clear measures to evaluate laboratory WFO program performance against the WFO program objectives. DOE officials told GAO that they do not believe it is appropriate to develop one set of measures for all laboratories and that they do not plan to do so.

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Abbreviations

CAS	Cost Accounting Standards
CFO	Office of the Chief Financial Officer
DHS	Department of Homeland Security
DOD	Department of Defense
DOE	Department of Energy
GPRA	Government Performance and Results Act
M&O	management and operating
NAPA	National Academy of Public Administration
NASA	National Aeronautics and Space Administration
NNSA	National Nuclear Security Agency
STARS	Standard Accounting and Reporting System
TEPCO	Tokyo Electric Power Company
WFO	Work for Others

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October 25, 2013

The Honorable Fred Upton
Chairman
The Honorable Henry Waxman
Ranking Member
Committee on Energy and Commerce
House of Representatives

The Honorable Timothy F. Murphy
Chairman
The Honorable Diana DeGette
Ranking Member
Subcommittee on Oversight and Investigations
Committee on Energy and Commerce
House of Representatives

Since the 1940s, the Department of Energy's (DOE) national laboratories and specialized research facilities have played a central role in advancing research in physics and other basic and applied sciences. As one of the largest research agencies in the federal government, DOE spends billions of dollars each year on publicly funded research to support its diverse missions, including advancing scientific research and technology development, ensuring efficient and secure energy, and ensuring the safety and reliability of the nation's nuclear weapons stockpile. In fiscal year 2012, from its appropriations DOE allocated nearly \$11 billion to its 17 national laboratories. These laboratories house cutting-edge scientific facilities and equipment, ranging from high-performance computers to ultra-bright X-ray sources for investigating fundamental properties of materials. The majority of the research and development funded by DOE is carried out under the department's direction and overseen by scientists, engineers, and others employed at the 17 national laboratories, 16 of which are managed and operated by contractors under management and operating (M&O) contracts,¹ and 1 of which DOE directly manages and

¹M&O contracts are agreements under which the government contracts for the operation, maintenance, or support, on its behalf, of a government-owned or -controlled research, development, special production, or testing establishment wholly or principally devoted to one or more of the major programs of the contracting federal agency. See Federal Acquisition Regulation, 48 C.F.R. § 17.601.

operates.² The M&O contractors include universities, private companies, and nonprofit organizations.

To allow non-DOE entities to benefit from the significant public investment in DOE's laboratories and from the unique and highly specialized facilities and scientific and technical expertise at these laboratories, DOE operates the Work for Others (WFO) program. This program allows work to be performed at the laboratories for both federal agencies and nonfederal entities, provided that several requirements are met, including that WFO projects do not hinder DOE's mission or compete with the private sector. Several laws provide the foundation for DOE's WFO program. The Economy Act of 1932 allows federal agencies to obtain goods and services from other agencies as long as the work cannot be performed as conveniently or cheaply by the private sector and is in the best interests of the federal government.³ The Atomic Energy Act of 1954 also provides DOE the authority to perform work for other federal agencies, as well as for state and local governments, private-sector organizations, academic institutions, and foreign entities, if private-sector facilities or laboratories are not adequate for the purpose.⁴ In addition, the Energy Reorganization Act of 1974 gives the Nuclear Regulatory Commission special access to DOE research and development capabilities.⁵

DOE has established program and financial management policies, requirements, and procedures for WFO that are contained in several DOE directives. DOE Order 481.1C establishes WFO management requirements, program roles and responsibilities, as well as defines the program's objectives.⁶ These objectives include providing access to DOE laboratories—including National Nuclear Security Agency (NNSA)

²At DOE's National Energy Technology Laboratory, DOE employees—rather than employees of one of DOE's contractors—carry out the laboratory's activities.

³31 U.S.C. § 1535.

⁴42 U.S.C. § 2053.

⁵42 U.S.C.A. § 5801.

⁶DOE, *Work for Others (Non-Department of Energy Funded Work)*, DOE Order 481.1C (Washington, D.C.: Mar. 14, 2011).

laboratories⁷—to accomplish goals that may be otherwise unattainable by federal agencies and nonfederal entities and avoid duplication of effort at federal facilities, to provide access for non-DOE entities to DOE’s unique and highly specialized facilities when private-sector facilities are inadequate, to increase the research and development interaction between the laboratories and industry, and to maintain core competencies and enhance the science and technology base at the laboratories. DOE’s WFO order also establishes requirements for project selection, program reviews, and annual reporting on WFO activities performed by DOE. According to the order, WFO projects must meet the following criteria:

- be consistent with or complementary to the missions of DOE and the facility to which the work is to be assigned;
- avoid adverse impact to programs assigned to the facility;
- not place the facility in direct competition with the domestic private sector; and
- not create a detrimental future burden on DOE resources.

DOE Order 522.1 requires that the entity requesting the work reimburse the laboratory for the full cost of the work—including labor, materials, overhead, and other costs—plus a federal administrative charge, unless waived under departmental guidelines.⁸

In a time of uncertainty over future federal budgets and calls to reduce spending, DOE may have difficulty sustaining its current laboratory structure. Under budget pressure, DOE’s Office of Inspector General officials and others have observed that the laboratories could become dependent on reimbursements received under the WFO program to maintain the laboratories’ current facilities. In this context, you asked us to review the WFO program at DOE’s laboratories. Our objectives were to determine (1) the amount and type of work conducted under DOE’s WFO program, (2) the extent to which DOE has ensured that WFO program requirements are met, and (3) the extent to which DOE and the

⁷Congress created NNSA as a semiautonomous agency within DOE in 1999 (Title 32 of the National Defense Authorization Act for Fiscal Year 2000, Pub. L. No.106-65, § 3201 et seq.). Although the DOE order related to WFO makes separate reference to NNSA and its facilities, including NNSA laboratories, for purposes of this report references to DOE or its program offices will include NNSA.

⁸DOE, *Pricing of Departmental Materials and Services*, DOE Order 522.1 (Washington, D.C.: Nov. 3, 2004).

laboratories have measured WFO program performance against WFO program objectives.

To determine the amount and type, or sponsors, of the work conducted under DOE's WFO program, we reviewed DOE data on the amount of work performed under the WFO program in total and by laboratory for fiscal years 2008 through 2012, as measured by costs incurred for WFO projects. We also obtained total costs incurred for each laboratory for fiscal years 2008 through 2012. To assess the reliability of these data, we interviewed DOE officials who oversee them for DOE's Office of the Chief Financial Officer (CFO) to understand how the data are collected and reported. We also reviewed recent external audits of DOE's financial reporting system and financial data. We determined that the data were sufficiently reliable to describe the amount of WFO activities performed at the laboratories. To determine the amount of work conducted by federal and nonfederal sponsors under the program, we gathered data on the costs of WFO activities performed for federal versus nonfederal sponsors. In addition, we interviewed DOE headquarters and site officials and officials for the 17 laboratories to gather examples of projects performed for federal and nonfederal sponsors. We visited 3 laboratories and contacted the remaining 14 laboratories by telephone. To determine the extent to which DOE has ensured that WFO program requirements are met, we reviewed federal regulations; DOE requirements; and DOE and laboratories' policies and procedures governing the WFO program, including those for approval of WFO projects; cost recovery for WFO projects (i.e., development of project budgets and charging of costs); and reports of reviews of WFO programs. To determine the extent to which DOE and the laboratories have measured WFO project performance against program objectives, we reviewed DOE orders; performance requirements for WFO projects, if any, in DOE contracts with laboratories; DOE evaluations of laboratories' performance; and laboratories' strategic plans and procedures for establishing and executing WFO projects. We discussed laboratories' strategies and goals for the WFO program and WFO program performance measurement with DOE headquarters and site officials and officials from each of the laboratories. See appendix I for a more detailed description of our scope and methodology.

We conducted this performance audit from August 2012 to October 2013, in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that

the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Background

DOE program offices manage the department's 17 national laboratories and support the department's diverse missions, as follows:

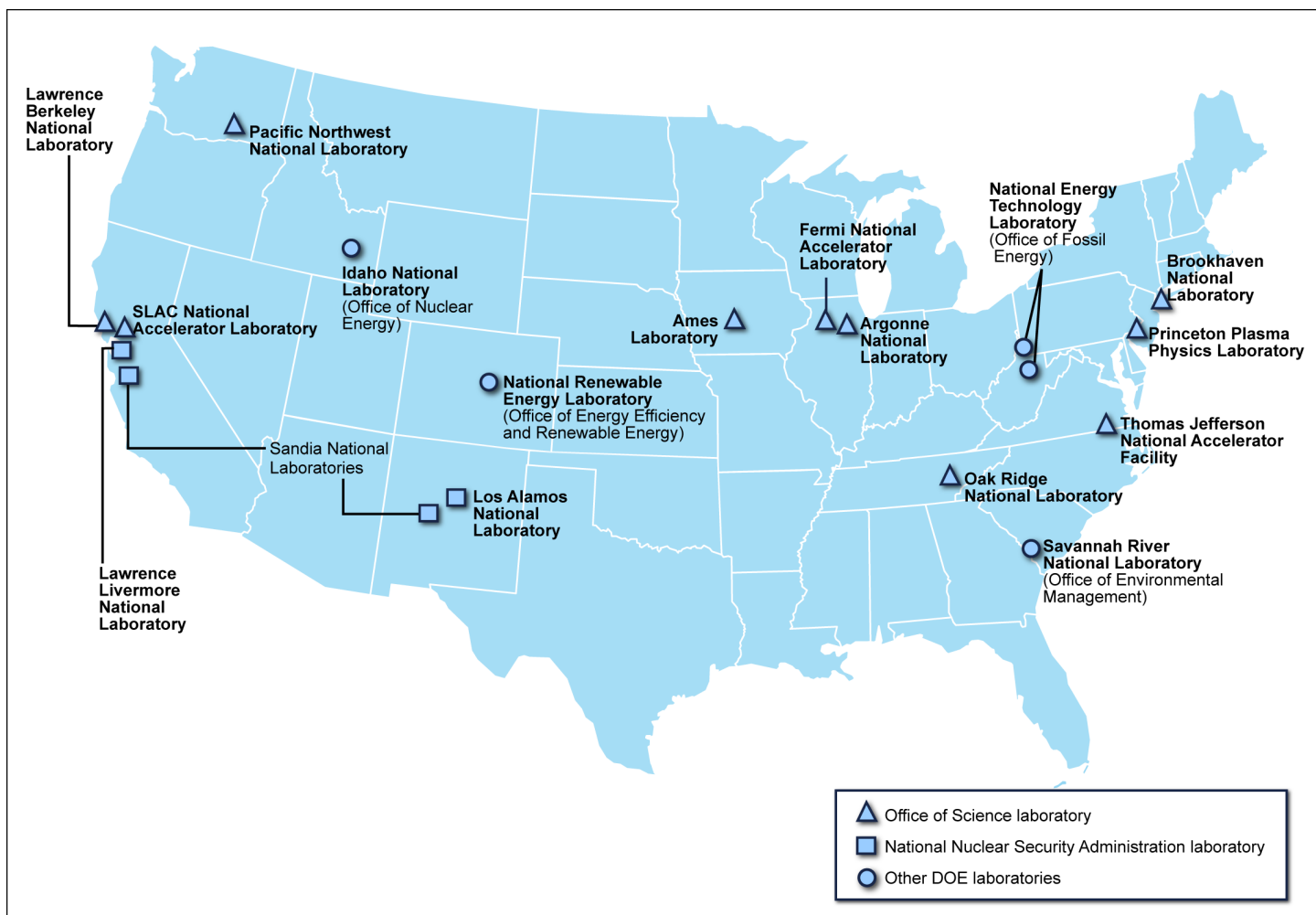
- The Office of Science oversees 10 national laboratories and, for fiscal year 2012, received appropriations of more than \$4.3 billion to operate these laboratories. The Office of Science is the nation's single largest funding source for basic research in the physical sciences, supporting research in energy sciences, advanced scientific computing, and other fields.
- NNSA oversees 3 national laboratories and, for fiscal year 2012, received appropriations of more than \$4.6 billion to operate these laboratories. NNSA helps support understanding of the physics associated with the safety, security, and reliability of nuclear weapons and maintains core competencies in nuclear weapons science, technology, and engineering.
- The Office of Nuclear Energy oversees 1 laboratory and received appropriations for fiscal year 2012 totaling more than \$1 billion to operate this laboratory. The primary mission of the Office of Nuclear Energy is to advance nuclear power as a resource capable of meeting the nation's energy, environmental, and national security needs by resolving technical, cost, safety, proliferation resistance, and security barriers.
- The Office of Fossil Energy oversees 1 laboratory and received appropriations for fiscal year 2012 totaling more than \$551 million to operate this laboratory. The Office of Fossil Energy's primary mission is to ensure reliable fossil energy resources for clean, secure, and affordable energy while enhancing environmental protection.
- The Office of Energy Efficiency and Renewable Energy oversees 1 laboratory and received appropriations for fiscal year 2012 totaling over \$271 million to operate this laboratory. The Office of Energy Efficiency and Renewable Energy's mission is to develop solutions for energy-saving homes, buildings, and manufacturing; sustainable transportation; and renewable electricity generation.
- The Office of Environmental Management oversees 1 laboratory and, for fiscal year 2012, received appropriations of about \$7.6 million to operate this laboratory. The Office of Environmental Management is responsible for cleaning up hazardous wastes left from decades of nuclear weapons research and production.

See figure 1 for the locations of the laboratories managed by the various program offices. DOE also maintains individual site offices that provide federal oversight at 16 of the 17 laboratories.⁹ In addition, DOE's field CFOs are responsible for overseeing financial activities at each location.¹⁰ For a complete list of DOE's national laboratories and more information on each, see appendix II.

⁹With the exception of DOE's National Energy Technology Laboratory, which reports directly to DOE headquarters, each DOE laboratory is overseen by a single federal site office that reports to DOE headquarters. Similarly, each NNSA laboratory is overseen by a single federal office, called a field office, and each field office reports directly to NNSA headquarters. For the purposes of this report, we will use the term site office to indicate the federal office overseeing the laboratories.

¹⁰A total of seven field CFOs oversee financial activities at the 17 national laboratories.

Figure 1: Location of the 17 Department of Energy (DOE) National Laboratories



Sources: DOE; Map Resources (map).

DOE's WFO program aims to provide benefits to organizations such as U.S. companies or academic institutions that have work performed at the laboratories and to the national laboratories as well. For example, according to a 2011 DOE report to Congress,¹¹ the WFO program helps

¹¹DOE, *U.S. Department of Energy Work for Others at the National Laboratories Report to Congress* (Washington, D.C.: May 2011).

to leverage DOE investment in the laboratories by further developing technical expertise for accomplishing critical tasks needed to fulfill DOE's mission priorities. Furthermore, according to the DOE report, the WFO program can also help the national laboratories to retain highly trained scientists and engineers in support of DOE and national priorities by, for example, providing opportunities for them to stay engaged during times when mission critical work has slowed.

According to officials from DOE and laboratories and DOE documentation, a potential WFO project begins when an entity desiring to have work performed becomes aware of the capabilities available at a laboratory. Entities can become aware of these capabilities in a number of different ways, including as a result of networking by laboratory researchers and scientists, by responding to funding opportunity announcements of other federal agencies, or through information posted on the laboratories' public websites. Once a potential project has been identified, representatives of the entity (i.e., the sponsor) and the laboratory begin to negotiate the work to be performed and the estimated costs. When the laboratory and sponsor have agreed to the terms of work, DOE site officials review the proposed WFO agreement. Finally, if the terms are approved by DOE and the sponsor has provided certification of funding or advance payment for the work, a DOE contracting officer certifies that the requirements have been met for the laboratory to conduct the work.

DOE's WFO order establishes DOE policy and requirements for accepting, authorizing, and administering such work. This order applies to work for all non-DOE entities except the Department of Homeland Security (DHS), which is covered by a separate order, and is not considered to be WFO work.¹² In addition, under the WFO order, each site office is responsible for establishing its own procedures and processes for the review and approval of work performed under WFO

¹²The Homeland Security Act of 2002, Pub. L. No. 107-296, Title III, § 309 (2002) authorizes DOE to accept and perform work at its laboratories in support of Homeland Security activities on an equal basis to other missions at the laboratories. Accordingly, work performed by DOE for DHS is covered by a separate order that differs from the WFO order in one key way: while work performed under the WFO order must not adversely impact DOE mission-related work assigned to the facility performing the WFO, work performed for DHS has no such limitation. In part because of this difference, DHS work is not considered to be WFO. See DOE, *Reimbursable Work for the Department of Homeland Security*, DOE Order 484.1 (Washington, D.C.: Mar. 14, 2011).

agreements and for conducting periodic reviews of laboratory policies and procedures for negotiating and administering WFO projects.

Requirements for establishing prices and charges for materials and services sold or provided to outside entities either directly or through the department's M&O contracts are established through DOE's pricing order, including for the WFO program.¹³

DOE Has Performed About \$2 Billion of Work under the WFO Program Annually, but the Amount and Sponsors of Work Varied Among Laboratories

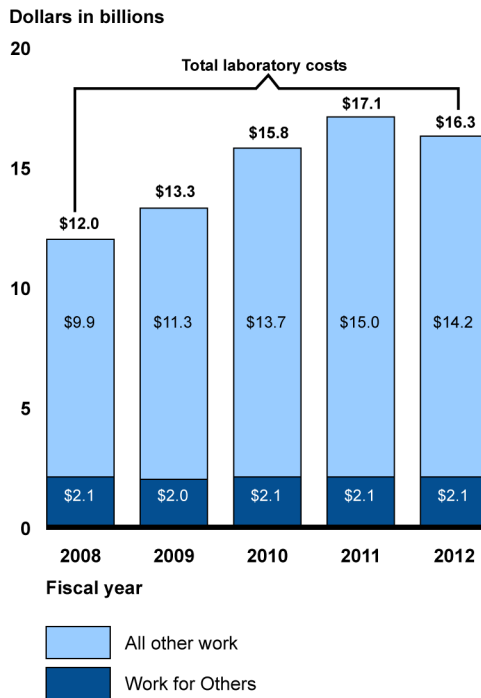
The total amount of work performed under the WFO program, as measured by costs incurred for WFO projects, has remained relatively constant over the last 5 fiscal years overall, but the amount of WFO work performed and the sponsors of the work varied widely among the laboratories.

Amount of Work Performed under the WFO Program Has Been About \$2 Billion Annually

In fiscal years 2008 through 2012, DOE performed about \$2 billion of work annually under the WFO program, as measured by costs incurred (see fig. 2). Although the amount of work performed under the WFO program has remained relatively constant over the last 5 years, it has declined slightly relative to total work performed at the laboratories during this period. From fiscal year 2008 through fiscal year 2011, total work performed at the laboratories increased from \$12.0 billion to \$17.1 billion and fell to \$16.3 billion in fiscal year 2012. As a result, the proportion of WFO performed as a percentage of total work performed declined from 17 percent in fiscal year 2008 to about 13 percent in fiscal year 2012. In fiscal year 2012, more than 6,500 WFO projects were carried out at DOE's laboratories.

¹³DOE, *Pricing of Departmental Materials and Services*, DOE Order 522.1 (Washington, D.C.: Nov. 3, 2004).

Figure 2: Amount of Work for Others (WFO) Performed and Total Work at the 17 Department of Energy (DOE) National Laboratories, Fiscal Years 2008 through 2012



Source: GAO analysis of DOE data.

Note: Because Work for Others (WFO) agreements can span multiple years, the amounts shown in the figure for WFO performed are the costs incurred by the laboratories for each of the fiscal years. The total laboratory costs incurred are the operating costs incurred for all laboratory activities. Totals may not add due to rounding.

Amount of WFO Performed Varied by Laboratory

During the period we reviewed, each of DOE's 17 national laboratories performed some work on WFO projects, with some laboratories involved in significantly more WFO activities than others. In fiscal year 2012, the amount of work performed by the laboratories on WFO projects ranged from about \$1.5 million at the National Energy Technology Laboratory to over \$803 million at the Sandia National Laboratories. The proportion of WFO activities relative to all work at the laboratories also varied widely. Specifically, work performed on WFO projects as a percentage of total work performed at the laboratories ranged from less than 1 percent at the National Energy Technology Laboratory to nearly 33 percent at the Sandia National Laboratories (see table 1).

Table 1: Amount of Work for Others (WFO) Performed and as a Percentage of Total Work Performed at the Department of Energy (DOE) Laboratories for Fiscal Year 2012

Dollars in thousands

DOE National Laboratory	Amount of WFO performed	Total work performed	Percentage of total work performed
Sandia National Laboratories	\$803,313	\$2,437,990	32.9%
Lawrence Livermore National Laboratory	242,975	1,628,530	14.9
Oak Ridge National Laboratory	206,770	1,532,200	13.5
Los Alamos National Laboratory	197,770	2,298,488	8.6
Pacific Northwest National Laboratory	182,399	877,366	20.8
Idaho National Laboratory	148,506	849,413	17.5
Lawrence Berkeley National Laboratory	118,320	804,545	14.7
Argonne National Laboratory	85,132	756,078	11.3
Brookhaven National Laboratory	50,823	726,971	7.0
National Renewable Energy Laboratory	33,756	508,932	6.6
Savannah River National Laboratory	25,563	1,080,017	2.4
Thomas Jefferson National Accelerator Facility	8,250	177,822	4.6
SLAC National Accelerator Laboratory	8,226	362,929	2.3
Fermi National Accelerator Laboratory	5,722	424,843	1.3
Ames Laboratory	4,106	36,751	11.2
Princeton Plasma Physics Laboratory	3,227	82,615	3.9
National Energy Technology Laboratory	\$1,498	\$1,713,844	0.1%
Total	\$2,126,357	\$16,299,334	13.0%

Source: GAO analysis of DOE data.

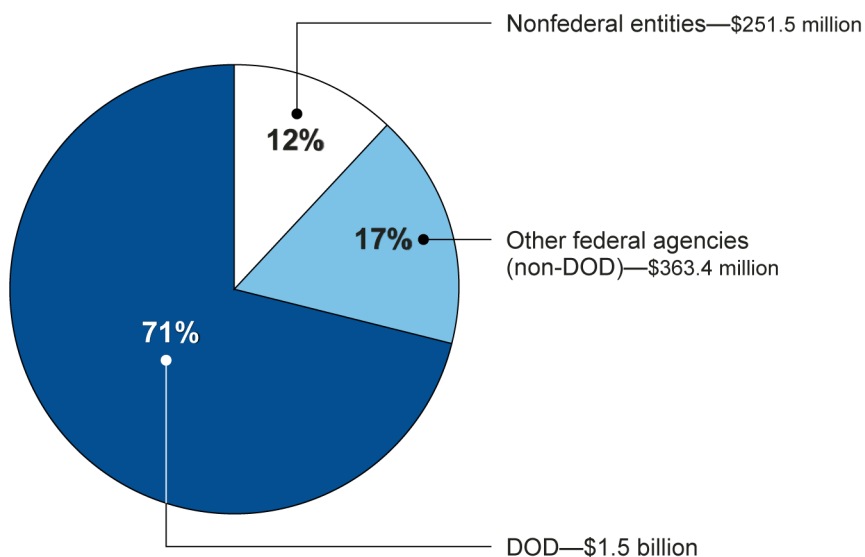
Note: The amount of Work for Others (WFO) performed and the total work performed reported in this table is the costs incurred by each laboratory for fiscal year 2012. Totals may not add due to rounding.

According to DOE officials, the variation in the amount of WFO performed is due in large part to differences in the core mission capabilities of each laboratory. For example, Sandia National Laboratories has extensive expertise in systems engineering, a capability that is heavily utilized by other federal agencies. According to the officials, other laboratories' capabilities are less in demand and, therefore, less WFO work is performed at these laboratories.

Type, or Sponsors, of WFO Projects Performed Varied by Laboratory

DOE's laboratories carried out a variety of WFO projects for many different sponsors, but the majority of the work was for other federal agencies—in particular, the Department of Defense (DOD). Of the \$2.1 billion in work performed on WFO projects in fiscal year 2012, over \$1.8 billion, or about 88 percent, was for other federal agencies, with DOD sponsoring about \$1.5 billion, or 71 percent of the work performed (see fig. 3). The majority of the work performed under the program for DOD for fiscal year 2012 was carried out at six national laboratories—Idaho, Lawrence Livermore, Los Alamos, Oak Ridge, Pacific Northwest, and Sandia. The type of work sponsored by DOD included a variety of projects. For example, Pacific Northwest National Laboratory has developed a software technology for the Air Force that performs, among other things, automatic topical analysis and organization of large collections of documents graphically. The laboratory is training the Air Force on applying the software to a diverse set of Air Force data to help analysts extract information to better identify potential uses for emerging technologies. In another example, the Idaho National Laboratory has applied its expertise in the area of laser decontamination of surfaces to develop and deploy a laser cleaning system for the Army. The objective of the project is to develop a system to, among other things, remove chemical agent residues from contaminated surfaces and equipment so that equipment can be reused, reduce personnel exposure risks, and reduce secondary waste streams.

Figure 3: Sponsors of Work for Others (WFO) Performed at the 17 Department of Energy (DOE) National Laboratories, Fiscal Year 2012



Source: GAO analysis of DOE data

Note: Totals may not add due to rounding.

Other federal agencies also sponsored a variety of WFO projects in fiscal year 2012, such as climate change and energy efficiency research conducted at the Lawrence Berkeley National Laboratory for the Environmental Protection Agency, and plutonium production research conducted at the Idaho National Laboratory for the National Aeronautics and Space Administration's (NASA) space exploration program. For more information on the amount and type of work carried out at each laboratory, see appendix III.

Nonfederal entities sponsored \$251.5 million, or 12 percent, of the WFO performed at the laboratories in fiscal year 2012. Sponsors and types of projects included the following:

- State and local governments. For example, officials in Sonoma County, California, entered into an agreement with the Lawrence Berkeley National Laboratory to conduct research on local rivers and dams to better understand the natural riverbed processes that occur as a function of dam and pumping operations, including sedimentation and evolution of biomass. These processes can lead to clogging of the riverbed, which in turn can limit the ability to pump water from beneath the riverbed as is needed for subsequent distribution as

drinking water in the county. Under the current phase of this WFO project, the laboratory is using its hydrological, geochemical, and biological tools and expertise to quantify the riverbed clogging mechanisms and to represent them in a computer model.

- Colleges and universities. For example, researchers at the University of Chicago studied the structures of proteins and, in particular, how proteins in lung cancer patients are affected by certain drugs. These researchers set up a WFO agreement with Argonne National Laboratory, under which the laboratory drew upon its extensive protein sequence database and its research capabilities to assist the university in analyzing, modeling, detecting, and characterizing proteins in lung cells. Under this agreement, Argonne National Laboratory also updated and maintained a database of protein structures that will be accessible to the broad biology community.
- Private industry. For example, GE Global Research, a private research laboratory, has entered into a WFO agreement with Lawrence Livermore National Laboratory to help refine wind prediction and control capabilities at wind farms. Under this agreement, the laboratory is evaluating high-resolution wind farm modeling tools in natural terrain using high-performance computers to run wind simulation and forecasting models.
- Foreign entities. For example, following the events at the Fukushima Daiichi Nuclear Power Station resulting from the earthquake and tsunami in March 2011, Tokyo Electric Power Company (TEPCO) entered into a WFO agreement with the Savannah River National Laboratory and the Pacific Northwest National Laboratory. The laboratories were to evaluate and define the scope of work for TEPCO to accomplish a number of tasks including the prevention of underground water contamination and the treatment and disposal of nuclear waste. The laboratories each drew upon their expertise in these areas to develop a schedule for how the work could proceed and to identify the necessary equipment, materials, facilities, personnel, and the costs to perform the work.

DOE Has Not Ensured That WFO Program Requirements Are Consistently Met

DOE has not ensured that WFO program requirements are consistently met. Specifically, DOE has not ensured compliance with requirements for the approval of WFO projects, cost recovery, program reviews, and annual reporting.

**DOE Has Relied on
Laboratories'
Determinations That WFO
Projects Meet
Requirements for Approval**

According to DOE's WFO order, WFO projects must meet specific DOE requirements, including being consistent with or complementary to DOE's missions and those of the laboratories, not hindering those missions, and not placing the laboratories in direct competition with the domestic private sector. A DOE contracting officer or other authorized DOE designee is required to determine whether a proposed WFO project has met all of these requirements before approving or certifying the work. These determinations may not be delegated to the laboratories. However, DOE officials from site offices at 8 of the 17 laboratories told us that the laboratories provide written justification in the WFO package to support, or determine, that some or all of the requirements are met and that the DOE officials have often accepted the laboratories' determinations without taking steps to independently verify them. DOE officials cited various reasons for relying on the laboratories to make the determinations. For example, an official from one site office told us that he relies on the laboratory's determination that WFO projects are consistent with the mission. He explained that he does not believe that the laboratory would accept work that would be inconsistent with its mission. Similarly, an official at another DOE site office explained that she relies on the laboratory's determination that the work cannot be performed by the private sector because she believes the laboratory staff are better informed about the capabilities available in the private sector. By relying on the laboratories' determinations without taking steps to independently verify the information, DOE does not have assurances that the WFO projects selected meet DOE's requirements. The DOE Office of Inspector General has identified the WFO program as a priority area and is reviewing laboratories with major WFO programs to determine whether they meet internal control and compliance requirements established by DOE.

**DOE Has Not Ensured
That Cost Recovery
Procedures for WFO
Projects Are in Place**

DOE's pricing order requires that the department charges for the full cost of materials and services provided to external organizations, including the amounts charged for work under the WFO program. DOE has not ensured, however, that all laboratories have formal, written procedures for developing WFO project budgets or charging costs to ongoing projects, two important steps for recovering the full costs of materials and services

provided.¹⁴ Specifically, five laboratories have detailed, written procedures for developing WFO project budgets and charging costs to projects that include, among other things, detailed instructions on the types of costs to include in a WFO project budget and specific instructions for calculating the costs and for ensuring that the costs of the work are charged to the sponsor. However, while the remaining laboratories did provide a description of their WFO budget development and cost charging processes, five of these laboratories had limited written procedures or tools in place for these processes. For example, one laboratory had a template that could be used to prepare a WFO budget but did not have detailed, written requirements or procedures for using this tool. The remaining seven laboratories did not provide any formal, written procedures to guide the development of WFO project budgets or the charging of costs. Without detailed, written guidance, DOE may not be able to ensure that its cost recovery requirements are consistently met.

In addition, DOE field CFOs do not always review costs charged to WFO projects in accordance with DOE's pricing order, which requires that DOE's field CFOs conduct biennial reviews of the pricing of materials and services and other costs charged to WFO projects at the laboratories. Under the pricing order, the reviews are required to include steps to ensure that (1) prices charged conform to the requirements of OMB Circular A-25 and departmental pricing policy or other legislative authority, as applicable; (2) adequate documentation exists for prices established for materials and services; and (3) exceptions to the full cost recovery requirements were limited to those authorized in the order. The reviews are intended to provide assurance to the department's CFO that the full cost of the work, including all applicable direct and indirect costs,

¹⁴DOE laboratory contractors are required by 48 C.F.R. 9903.202 to develop Cost Accounting Standards (CAS) disclosure statements. These statements describe contractors' cost accounting practices and procedures and are reviewed and approved by DOE officials. DOE officials told us that these CAS disclosure statements serve as written procedures used for cost recovery and assignment of costs to ongoing projects, but we found that five of the laboratories also developed detailed, written procedures for staff to use when developing WFO project budgets and charging costs to projects.

is charged to the sponsor of each WFO project.¹⁵ We requested DOE's most recent biennial review reports of WFO project pricing for each of the 17 laboratories. Reviews for 16 of the 17 laboratories were provided.¹⁶ These reviews were conducted by the seven field CFOs that oversee the laboratories and covered fiscal years 2010 and 2011.¹⁷ We found that 6 of the 16 reviews did not include steps to ensure that prices for WFO projects conformed to DOE requirements. For example, in order to ensure that adequate documentation exists for prices established for materials and services charged to sponsors of WFO projects, reviewers need to examine pricing documentation for a sample of WFO projects. Reports for 6 reviews indicated that, for a sample of WFO projects, pricing documentation for overhead and administrative costs was examined, but the reports did not provide evidence that documentation to support direct costs—such as labor and materials—was examined. Furthermore, one biennial pricing review was conducted by the laboratory instead of by the DOE field CFO, as required, and no details on the review steps were provided in the report. Reports for 9 of the 16 reviews indicated that a sample of WFO projects was reviewed. Reviewing a sample of WFO projects can provide useful information, such as identifying errors in costs charged to those projects. For example, 2 of the reviews that included an examination of a sample of WFO project documentation identified errors in general and administrative costs charged to WFO projects that resulted in either undercharges or in overcharges to the sponsor. In the case of undercharges, DOE paid part of the sponsor's cost of the WFO project. In the case of overcharges, the sponsor subsidized a portion of DOE's mission work. The DOE Office of Inspector General has also identified

¹⁵DOE requires advance payment before beginning work on a WFO project. Specifically, under DOE requirements, WFO projects for federal sponsors may not begin until a valid reimbursable agreement has been executed, and certification of funding has been completed. Under DOE's financial management policy, sponsors of nonfederal WFO projects must provide a 60-day cash advance of funds before work can begin (DOE, "Reimbursable Work, Revenues, and Other Collections," chap. 13 in *DOE Financial Management Accounting Handbook*).

¹⁶DOE's National Renewable Energy Laboratory did not provide a biennial pricing review. Instead, they provided a letter from the Golden, Colorado field office (the DOE field office responsible for oversight of the laboratory) stating the Golden field office is in full compliance with biennial pricing review requirements because each WFO proposal request is reviewed by a budget analyst and the field CFO.

¹⁷Biennial pricing reviews cover a 2-year period. The biennial pricing reports that we reviewed were the most recent reviews conducted and covered the 2-year period of fiscal years 2010 and 2011.

errors related to the charging of general and administrative costs to WFO projects in their audits of WFO programs at the laboratories. For example, a 2013 review at Lawrence Berkeley National Laboratory found that costs of administering WFO projects were allocated in part to other DOE projects, resulting in estimated \$400,000 in project costs that the sponsor did not reimburse to the laboratory.¹⁸

DOE Did Not Consistently Conduct Required Annual WFO Program Reviews

DOE's WFO order requires each DOE program office to annually review the WFO program at each of its laboratories to ensure compliance with WFO policies and procedures. The order does not specify what the reviews should include. As a result, the program offices varied in what they consider to be their annual review. For example, DOE Office of Science program officials explained that they believe their annual WFO planning efforts with the laboratories fulfill the program review requirements in the WFO order. Specifically, each of the Office of Science laboratories develops a plan that contains a section that summarizes the laboratory's WFO portfolio and discusses the WFO strategy for the future. DOE Office of Science officials told us that, as part of this process, each federal site office manager provides a review of the laboratory's ongoing WFO program operations and proposed WFO funding level that includes a statement about the adequacy of the laboratory's management and oversight of WFO activities. However, these plans were primarily focused on planning for WFO project work to be performed in the future and were not reviews to ensure compliance with WFO policies and procedures. NNSA officials told us that they had performed annual reviews of their WFO program since 2008; however, in response to our request for information, they provided one briefing from 2012 that focused on improving the WFO agreement processing times.

Program officials also conducted reviews of WFO policies and procedures at 6 of the 16 site offices. However, officials from the Office of Science told us that these reviews were not conducted to satisfy the annual review requirement in the WFO order because they focused on the site offices' WFO policies and procedures rather than laboratories' policies and

¹⁸DOE, Office of Inspector General Office of Audits and Inspections, *Fiscal Year 2011 Audit of the Work for Others Program at the Lawrence Berkley National Laboratory* (Washington, D.C.: June 2013). DOE officials told us that they do not agree with the Inspector General's finding because they believe that the cost allocation methodology used to allocate WFO administrative costs complies with CAS.

procedures. Specifically, as of May 2013, Office of Science program officials conducted a total of six reviews—one at each of 6 site offices—since 2008. These generally consisted of a review of WFO program policy and procedure documents at the site offices including flow charts, forms, and correspondence. Each of the six reviews identified areas of concern within the WFO programs. For example, one program office review reported that the laboratory was dependent on funds from a single WFO project to support a major DOE program. The review cautioned that if the WFO project was discontinued, it could create a detrimental financial burden on the laboratory in the future, which is not consistent with DOE's requirement to avoid doing so. In addition, four of the reviews found deficiencies related to WFO program documentation or procedures. For example, one review reported that a DOE site office WFO program procedural guide was out of date and did not reflect all relevant DOE policy requirements or current DOE site office operating procedures. Although the reviews were not conducted to satisfy the annual review requirement in the WFO order, the reviews appeared to include useful information about the WFO program that was not included in the annual laboratory planning processes, which were focused on future WFO efforts. No program office reviews were conducted at the other 10 site offices.

DOE Does Not Produce the Required Annual Summary Report on Project Activities

DOE's WFO order also requires that the DOE headquarters CFO prepare an annual summary report of WFO activities performed at its laboratories. DOE headquarters officials told us they have not produced this report in the past several years because the requirement to produce it is an outdated requirement that was put into place to facilitate data collection before the implementation of DOE's current financial system. The officials said that they plan to eliminate this requirement. They also said that they have made better use of their limited program resources by choosing to fulfill requests for WFO project data from Congress and others on a case-by-case basis. For example, in the Conference Report¹⁹ to accompany the Energy and Water Development and Related Agencies Appropriations Act of 2010,²⁰ DOE was directed to submit an annual report on the status of its WFO activities. DOE officials provided the requested information on WFO activities; however, this information might have already been

¹⁹H.R. Conf. Rep. No. 111-278 at 101 (2009).

²⁰Pub. L. No. 111-85, 123 Stat. 2845 (2009).

available if DOE had prepared the annual summary report as required by the WFO order. In addition, other DOE programs regularly need and collect WFO project data that could be provided by the annual summary report if it had been prepared in accordance with the order. For example, DOE's technology transfer coordinator has been collecting data on nonfederal WFO project activities from each of the laboratories since 2001 for inclusion in the Department of Commerce's annual report on technology transfer.²¹ Choosing to report data on a case-by-case basis, rather than in an annual report, may make it difficult for those providing oversight and for some users of the data. This is because the data are not readily available, requiring DOE to generate it, which is time-consuming and, because depending on how the data are generated, they may not be comparable across laboratories or over time.

DOE Has Not Measured WFO Program Performance against Established Objectives

DOE has not measured the extent to which WFO program objectives are being met, even though DOE site offices are required under the WFO order to measure their laboratories' WFO program performance. Some DOE site offices and laboratories have taken steps to evaluate WFO program processes, but these steps are not consistent across the laboratories, generally do not address the program objectives in the WFO order, and do not incorporate key attributes of successful performance measures.

DOE's WFO order requires that DOE site offices establish performance goals and measures to assess field performance of the WFO program at the laboratories they oversee, including the effectiveness and impact of WFO program processes and improvements.²² Moreover, in 2011, the President directed each agency with a federal laboratory to establish

²¹The Energy Policy Act of 2005, Pub. L. No. 109-58, Title X, sec. 1001(a) (2005) sought to improve the process for transferring technologies by requiring the Secretary of Energy to, among other things, appoint a technology transfer coordinator for the department and to develop technology transfer goals and a plan for implementing them.

²²In 1993, Congress enacted the Government Performance and Results Act (GPRA) to improve the efficiency and accountability of federal programs, among other purposes, and established a system for agencies to set goals for program performance and to measure results. Federal agencies are to comply with GPRA requirements, such as developing performance goals and measures, and we have previously reported that these requirements also can serve as leading practices for lower levels within federal agencies, such as individual divisions, programs, or initiatives. GPRA is a leading practice, but DOE's WFO program is not subject to its requirements.

performance goals, measures, and evaluation methods related to technology transfer.²³ Although the presidential memo does not specifically mention the WFO program, an objective of the program is to transfer technology originating at DOE facilities to industry for further development or commercialization. We found that, although some DOE site offices and laboratories have taken steps to evaluate the performance of the WFO program, these steps do not directly address the WFO program objectives. Moreover, DOE site offices' and laboratories' efforts to evaluate the WFO programs are focused on reviewing processes; including tracking the number of WFO agreements and improving timeliness of project selection and approval, rather than developing goals and measures for assessing performance against WFO program objectives.²⁴

According to our discussions with officials from DOE headquarters and site offices and laboratory representatives, efforts to evaluate the performance of the WFO program at the laboratories include the following:

- Assessing customer satisfaction or other qualitative measures. Officials from 4 of the 17 laboratories told us that they have some mechanisms in place to collect qualitative information about WFO projects, such as customer satisfaction. This information is shared with DOE site officials. For example, officials at one laboratory send surveys to sponsors to assess customer satisfaction after the completion of WFO projects. Another laboratory reports to DOE on success stories about WFO projects once they are complete.
- Tracking the number of WFO agreements. Officials from 6 of the 17 laboratories told us that they track the amount of or have set targets related to the number of WFO agreements in place.
- Evaluating WFO agreement processing times. Officials from 6 of the 17 laboratories told us that they have goals to streamline the WFO agreement process, as measured by the time it takes from initiation to

²³The White House, *Presidential Memorandum-Accelerating Technology Transfer and Commercialization of Federal Research in Support of High-Growth Business* (Oct. 28, 2011).

²⁴For example, in 2009, DOE commissioned a study of the time it takes to process WFO agreements and what best practices existed to streamline that process; and, in 2011, NNSA (which oversees three of DOE's laboratories) commissioned a similar study of process time for WFOs and other interagency agreements at its laboratories.

approval of a WFO agreement. In addition, in 2009 DOE commissioned a study of the time it takes to process WFO agreements across the laboratories and identified best practices for streamlining that process. Moreover, in 2011 NNSA commissioned a similar study of processing time for WFO and other interagency agreements at the 3 laboratories that it oversees.

We have previously reported on the nine attributes most often associated with successful performance measures,²⁵ which are summarized in table 2.

Table 2: Key Attributes of Successful Performance Measures

Attributes	Definitions	Potentially adverse consequences of not meeting attribute
Linkage	Measure is aligned with division and agencywide goals and mission and clearly communicated throughout the organization.	Behaviors and incentives created by measures may not support achieving division or agencywide goals or mission.
Clarity	Measure is clearly stated and the name and definition are consistent with the methodology used to calculate it.	Data may confuse or mislead users.
Measurable target	Measure has a numerical goal.	Managers may not be able to determine whether performance is meeting expectations.
Objectivity	Measure is reasonably free from significant bias or manipulation.	Performance assessments may be systematically over- or understated.
Reliability	Measure produces the same result under similar conditions.	Reported performance data may be inconsistent and add uncertainty.
Core program activities	Measures cover the activities that an entity is expected to perform to support the intent of the program.	Information available to managers and stakeholders in core program areas may be insufficient.
Limited overlap	Measure provides new information beyond that provided by other measures.	Manager may have to sort through redundant, costly information that does not add value.

²⁵GAO, *Environmental Justice: EPA Needs to Take Additional Actions to Help Ensure Effective Implementation*, [GAO-12-77](#) (Washington, D.C.: Oct. 6, 2011); *Tax Administration: IRS Needs to Further Refine Its Tax Filing Season Performance Measures*, [GAO-03-143](#) (Washington, D.C.: Nov. 22, 2002).

Attributes	Definitions	Potentially adverse consequences of not meeting attribute
Balance	Taken together, measures ensure that an organization's various priorities are covered.	Measures may over emphasize some goals and skew incentives.
Governmentwide priorities	Each measure should cover a priority such as quality, timeliness, and cost of service.	A program's overall success is at risk if all priorities are not addressed.

Source: GAO.

Our analysis shows, however, that the steps DOE and the laboratories have taken to evaluate performance did not include some of these key attributes. For example, while customer satisfaction surveys or other qualitative measures, such as success stories gathered by the laboratories, may provide some useful information and indicate areas for improvement, customer satisfaction is not included in the WFO order as a program goal. Furthermore, the performance measures do not directly link with the WFO program goals or objectives such as providing access to DOE laboratories to accomplish goals that may be otherwise unattainable by federal agencies and nonfederal entities. Without such linkage, DOE and decision makers may not have the needed information to track the program's progress in meeting its objectives. Additionally, some WFO qualitative measures such as customer satisfaction may lack clarity and a measurable target, making it difficult to compare performance across laboratories. These types of qualitative measures also may not meet the key attribute of objectivity due to the potential for bias or other manipulation, depending on how the information is gathered and assessed. Other efforts to measure the performance of the program—specifically, the number of WFO agreements in place and WFO agreement processing time—both provide some helpful information but do not include all key attributes of successful performance measures. For example, tracking the number of agreements is clear and measurable and provides some information about the number of WFO projects at a laboratory. However, without linkage to the program's objectives, measuring the number of agreements in place does not capture the program's effectiveness in meeting the program's objectives laid out in the WFO order, such as maintaining core competencies and enhancing the science and technology base at the laboratories.

As we have reported,²⁶ performance measures provide organizations with the ability to track the progress they are making toward their mission and objectives. We also have found that performance measures can create powerful incentives to influence organizational and individual behavior. Our analysis indicates that site office and laboratory performance measures lack these key attributes. In addition, DOE headquarters officials told us that there are no performance measures to assess the WFO program's performance against WFO program objectives across all laboratories. The officials said that this is because the WFO program is decentralized, and laboratories are managed individually.

Recent external and internal reviews of the DOE laboratories have recommended that clear performance measures are needed to measure laboratory WFO program performance against the WFO program objectives. In January 2013, the National Academy of Public Administration (NAPA) reported that while DOE officials at the laboratories have measures to assess DOE funded work; these measures do not always apply to non-DOE funded work such as work performed under the WFO program.²⁷ NAPA also noted that DOE's decentralized approach to managing the WFO program raised questions about DOE's ability to oversee the program as a whole. NAPA recommended that DOE include measures for WFO work performed in its evaluations of laboratory performance. Similarly, in 2012, a working group set up by DOE headquarters to oversee efforts at the laboratories to share technology with non-DOE entities, reported concerns that measures did not exist to evaluate the impact and success of WFO work activities in achieving program objectives. DOE officials told us that, because WFO agreements are unique to each laboratory, they do not believe it is appropriate to develop one set of measures for all laboratories and that they have no plans to do so. However, without measures that apply to all laboratories, it is difficult to compare performance across laboratories in meeting overall program objectives.

²⁶GAO-12-77.

²⁷NAPA, U.S. Department of Energy: *Positioning DOE's Labs for the Future: A Review of DOE's Management and Oversight of the National Laboratories* (Washington, D.C.: January 2013). NAPA was established in 1967 and chartered by Congress as an independent, nonpartisan organization to evaluate, analyze, and make recommendations on the nation's most critical and complex public management, governance, policy and operational challenges.

Conclusions

DOE laboratories' highly specialized facilities, cutting-edge technologies, and highly trained scientists, technicians, and other staff represent a significant investment of public funds. DOE's WFO program has allowed the department to share these capabilities with both other federal agencies and nonfederal entities. DOE has established WFO program requirements—including for project approval, cost recovery, program reporting, and program review—that together are intended to help DOE operate a successful WFO program and avoid adverse impacts on the laboratories' missions and facilities and to avoid competition with the private sector. DOE falls short, however, in ensuring that these requirements are consistently met. For example, DOE has frequently relied on the laboratories to determine whether WFO projects selected meet the requirements of the WFO order, and DOE officials have accepted the laboratories' determinations without taking steps to independently verify these determinations. Ensuring that the WFO projects selected meet DOE requirements is a governmental responsibility and, according to the WFO order, a DOE contracting officer or other authorized DOE designee is required to determine whether a proposed WFO project has met all of these requirements before approving the work. By relying instead on the laboratories to make these determinations, DOE cannot ensure that all WFO projects meet requirements. DOE may also not be able to ensure that the costs of WFO projects are recovered according to its pricing order because it has not required the laboratories to establish written procedures to guide development of project budgets or charging of costs to projects, important steps for determining and recovering the full costs of WFO projects' materials and services. The department's CFO also does not have assurance that the full costs of WFO projects are charged to the projects' sponsors because field CFOs do not always conduct biennial pricing reviews according to requirements.

Furthermore, the WFO order does not specify what should be included in the annual WFO program reviews required by the order. Without clear and specific requirements, it may be difficult for DOE to identify WFO program deficiencies, if any. In addition, DOE officials told us that the requirement to prepare an annual summary report of WFO activities performed at its laboratories is outdated and has not been followed for several years, and that the department plans to eliminate this requirement. However, members of Congress have directed DOE to provide information on the status of WFO activities, and other DOE programs regularly need and collect WFO project data that would be available if DOE prepared the annual summary report. Choosing to report data on a case-by-case basis, rather than in an annual report, may make

it difficult for those providing oversight and some users of the data, and because the data are not readily available, DOE will need to generate them, which is time-consuming, and the data may not be comparable across laboratories or over time. Furthermore, while some site offices have made efforts to evaluate the performance of the WFO program, these efforts do not always incorporate key attributes of successful performance measures, such as being quantifiable or having a numerical goal. Moreover, these efforts generally do not directly address the objectives of the WFO program. Without better measures to evaluate program performance, DOE and decision makers will not have the needed information to track the program's progress in meeting its objectives.

Recommendations for Executive Action

To improve DOE's management and oversight of the WFO program, we recommend that the Secretary of Energy take the following six actions:

- Ensure compliance with the requirements in the WFO order for project approval.
- Require laboratories to establish and follow written procedures for developing WFO project budgets and for charging costs to WFO projects.
- Ensure compliance with the requirements for conducting biennial pricing reviews.
- Specify in the WFO order what the annual WFO program reviews should include.
- Ensure that annual summary reports of WFO activities are prepared so that data on those activities are readily available for those who need this information.
- Establish performance measures that incorporate key attributes of successful performance measures and that address the objectives of the WFO program.

Agency Comments and Our Evaluation

We provided DOE with a draft of this report for its review and comment. In written comments, reproduced in appendix IV, DOE stated that it concurred with the recommendations in the report and provided information on planned actions to address each recommendation. We believe that many of the proposed actions, while good first steps, fall short of our recommendations, however, and may not fully address the issues we discussed in our report.

For example, in response to the first three recommendations (i.e., ensure compliance with the requirements in the WFO order for project approval;

require laboratories to establish and follow written procedures for developing WFO project budgets and for charging costs to WFO projects; and ensure compliance with the requirements for conducting biennial pricing reviews), DOE stated that it will issue a policy flash, or notice, on the requirements of the WFO program. While reminding staff of the requirements of the WFO order would likely be beneficial, to improve its management and oversight of the WFO program, DOE also needs to take steps to ensure that these requirements are consistently being met by periodically monitoring the processes for project approval, full cost recovery of projects, and biennial pricing reviews.

DOE also stated that it concurred in principle with the fourth recommendation to specify in the WFO order what the required annual program reviews should include. DOE added, however, that the current WFO order appropriately provides discretion to DOE program offices in determining the scope and extent of WFO program reviews. Again, DOE states that it will issue a policy flash reminding the program offices of the annual review requirement for the WFO program. DOE's planned action, however, does not directly address our recommendation to update the WFO order with specific requirements for these reviews. Likewise, DOE stated that it concurred in principle with the fifth recommendation that it ensure that annual summary reports of WFO activities are prepared so that data on those activities are readily available for those who need this information. However, rather than preparing annual summary reports, DOE stated that the WFO order requires revision to reflect its current practice of providing current WFO program summary information. As we said in our report, choosing to report data on a case-by-case basis rather than in an annual report may make it difficult for those providing oversight, and for some users of the data, because the data are not readily available and DOE will need to generate them, which is time-consuming, and they may not be comparable across laboratories or over time. Finally, in response to the sixth recommendation to establish performance measures that incorporate key attributes of successful performance measures and that address the objectives of the WFO program, DOE plans to issue a policy flash on the current requirements of the WFO program related to program assessments. In our report, we discussed that the WFO order, however, does not include specific requirements for program assessments and a policy flash that repeats the current requirements for program assessments would, therefore, not address the recommendation.

DOE also provided clarifying comments that we incorporated, as appropriate. In particular, DOE requested that we consider its laboratory

contractors' Cost Accounting Standards (CAS) disclosure statements describing their cost accounting practices and procedures as written procedures for charging costs to ongoing projects. We have added information to our report about the CAS disclosure statements. While these statements describe how the laboratory plans to allocate costs, we do not agree that these disclosure statements constitute procedural guidance for developing project budgets and charging costs to projects. Moreover, as we point out in the report, we found that several laboratories have developed detailed written procedures for developing project budgets and charging costs to projects, which would be unnecessary if the disclosure statements were sufficient as guidance.

As agreed with your offices, unless you publicly announce the contents of this report earlier, we plan no further distribution until 30 days from the report date. At that time, we will send copies to the Secretary of Energy, the appropriate congressional committees, and other interested parties. In addition, the report will be available at no charge on the GAO website at <http://www.gao.gov>.

If you or your staff members have any questions about this report, please contact me at (202) 512-3841 or trimbled@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. GAO staff who made key contributions to this report are listed in appendix V.



David C. Trimble
Director, Natural Resources and Environment

Appendix I: Scope and Methodology

To determine the amount and type of work conducted at the laboratories under the Department of Energy's (DOE) Work for Others (WFO) program, we requested and obtained DOE data on WFO costs from DOE's Office of the Chief Financial Officer (CFO) for fiscal years 2008 through 2012, including WFO program costs by sponsor and by laboratory, as measured in costs incurred. We also requested and obtained total costs incurred for each laboratory for these same fiscal years. We selected costs incurred as the measure of the amount of WFO projects performed for our purposes because WFO agreements can span multiple years and these costs are similar to the costs presented in reports by DOE and its Office of Inspector General. We used data for fiscal years 2008 through 2012 because our last report on DOE WFO projects reported data through fiscal year 2008. We interviewed DOE officials who oversee and collect these cost data for DOE's Office of the CFO and determined that these data were obtained from DOE's Standard Accounting and Reporting System (STARS) financial reporting system.

To assess the reliability of DOE's WFO project cost data and total laboratory costs, we reviewed information about DOE's STARS financial reporting system, as well as a recent external audit of the STARS system and DOE's financial data. We also reviewed recent GAO assessments of the STARS system. No material weaknesses were reported. For data verification purposes, we obtained fiscal year 2012 cost data on WFO projects from each laboratory and compared that data with the fiscal year 2012 cost data on WFO projects obtained from the DOE CFO. Although we identified some differences between the data, through discussions with the DOE CFO, we determined that those differences were the result of variances in the cost elements that were included in the information provided by each laboratory. Based on our assessment, we concluded that the data obtained from the DOE CFO were sufficiently reliable to describe the dollar amount and percentage of WFO projects performed at the laboratories. To determine the number of WFO projects that were active during fiscal year 2012, we used information from the fiscal year 2012 WFO project lists provided by each laboratory, as the DOE CFO does not have the capability to identify individual nonfederal projects. To determine the type of WFO projects performed at DOE's laboratories, we gathered data on the costs of WFO activities performed for federal versus nonfederal sponsors. We also reviewed the lists of WFO projects provided by each laboratory, we conducted interviews with DOE headquarters officials, and we conducted structured interviews with DOE site officials and officials for the 17 laboratories to gather more information about examples of WFO projects performed for one federal and one nonfederal WFO sponsor from each laboratory with activity

during fiscal year 2012. We judgmentally selected three laboratories to visit; including the National Nuclear Security Agency's (NNSA) Sandia National Laboratory in Albuquerque, New Mexico, the DOE laboratory with the largest dollar amount of WFO project work conducted in fiscal year 2012. We also visited NNSA's Los Alamos National Laboratory in Los Alamos, New Mexico, due to its size and proximity to Sandia National Laboratory; and Pacific Northwest National Laboratory—a larger Office of Science of laboratory located in Richland, Washington. We contacted officials at the remaining 14 laboratories by phone.

To determine the extent to which DOE ensures that WFO program requirements are met, we reviewed federal regulations, DOE requirements, and DOE and laboratories' policies and procedures governing the WFO program, including for selection and approval of WFO projects and for cost recovery—establishing project budgets and charging costs to ongoing projects—for WFO projects. We discussed these policies and procedures and how they are carried out in practice in our structured interviews with DOE site office and laboratory officials responsible for the WFO program at each laboratory. We reviewed and analyzed biennial pricing reviews conducted by the DOE field CFOs responsible for oversight of each laboratory covering fiscal years 2010 and 2011, the most recent data available. We discussed procedures for review and approval of WFO project proposals in our structured interviews with DOE site office and laboratory officials. We discussed DOE requirements for WFO project pricing, pricing reviews, and review results with officials from DOE's CFO offices at headquarters and the seven DOE field CFOs that oversee the laboratories. We also reviewed DOE program office and site office review reports on laboratory WFO programs that were conducted from calendar years 2008 through 2012 to identify findings related to the WFO programs. For additional information applicable to all of our objectives, we reviewed external reports on the WFO program, including several reports issued from calendar years 2009 through 2013 by the DOE Office of Inspector General, a December 2010 report issued by the Department of Defense Office of Inspector General, a February 2012 report issued by the National Research Council, and a January 2013 report issued by the National Academy of Public Administration. We contacted officials from these external entities to discuss their reports.

To determine the extent to which DOE and the laboratories have measured WFO program performance against WFO program objectives, we reviewed DOE orders, performance requirements in DOE's contracts with laboratory management and operating contractors, DOE evaluations

of laboratories' performance, and laboratories' strategic plans. We also reviewed policies and procedures for establishing and for executing WFO projects at each laboratory. We discussed laboratories' strategies and goals for their WFO programs and WFO program performance measurements with DOE headquarters officials, and in our structured interviews with DOE site office officials, and with officials from each of the laboratories.

Appendix II: List of the 17 Department of Energy (DOE) National Laboratories

National Laboratory	Location	Research area	DOE program office	Laboratory contractor
Ames Laboratory	Ames, IA	Rare earths and other critical materials, applied energy, fossil energy, and nonproliferation programs.	Science	Iowa State University
Argonne National Laboratory	Argonne, IL	Energy innovation, sustainable energy.	Science	U Chicago Argonne, LLC
Brookhaven National Laboratory	Upton, NY	Physical, energy, environmental, and life sciences; energy technologies and national security.	Science	Brookhaven Science Associates, LLC
Fermi National Accelerator Laboratory	Batavia, IL	Experimental and theoretical particle physics, astrophysics, and accelerator science.	Science	Fermi Research Alliance, LLC
Idaho National Laboratory	Idaho Falls, ID	Sustainable energy and national and homeland security.	Nuclear Energy	Battelle Energy Alliance
Lawrence Berkeley National Laboratory	Berkley, CA	Particle and nuclear physics; physical, chemical, computational, biological, and environmental systems.	Science	University of California
Lawrence Livermore National Laboratory	Livermore, CA	National defense, nuclear weapons stockpile stewardship, weapons of mass destruction, and nuclear nonproliferation.	National Nuclear Security Administration	Lawrence Livermore National Security, LLC
Los Alamos National Laboratory	Los Alamos, NM	National defense, nuclear weapons stockpile stewardship, weapons of mass destruction, and nuclear nonproliferation.	National Nuclear Security Administration	Los Alamos National Security, LLC
National Energy Technology Laboratory	Pittsburgh, PA	Environmental stewardship, clean energy.	Fossil Energy	Government owned and operated by DOE
National Renewable Energy Laboratory	Golden, CO	Renewable energy and energy efficiency research.	Energy Efficiency and Renewable Energy	Alliance for Sustainable Energy, LLC
Oak Ridge National Laboratory	Oak Ridge, TN	Neutron scattering, advanced materials, high-performance computing, and nuclear science and engineering.	Science	UT-Battelle, LLC
Pacific Northwest National Laboratory	Richland, WA	Electricity management, sustainability, threat detection and reduction, in situ chemical imaging and analysis, simulation and analytics.	Science	Battelle Memorial Institute
Princeton Plasma Physics Laboratory	Princeton, NJ	Plasma and fusion energy sciences.	Science	Princeton University

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Energy (DOE) National Laboratories**

National Laboratory	Location	Research area	DOE program office	Laboratory contractor
Sandia National Laboratories	Albuquerque, NM	National defense, weapons of mass destruction, transportation, energy, telecommunications, and financial networks, and environmental stewardship.	National Nuclear Security Administration	Sandia Corporation
Savannah River National Laboratory	Aiken, SC	Environmental stewardship, national and homeland security, clean energy.	Environmental Management	Savannah River Nuclear Solutions, LLC
SLAC National Accelerator Laboratory	Menlo Park, CA	Materials, chemical and energy science, structural biology, and particle physics and astrophysics.	Science	Stanford University
Thomas Jefferson National Accelerator Facility	Newport News, VA	Fundamental nature of confined states of quarks, gluons, and nucleons; superconducting radio-frequency technology.	Science	Jefferson Science Associates, LLC

Source: GAO analysis of DOE data.

Appendix III: Department of Energy National Laboratory Work for Others Costs and Total Costs, as Measured in Costs Incurred, in Fiscal Year 2012

Dollars in thousands						
National Laboratory	Total Work for Others (WFO) performed	WFO performed as a percentage of total laboratory work performed	WFO sponsor			
			Federal		Nonfederal	
			Total	% of total WFO	Total	% of total WFO
Sandia National Laboratories	\$803,313	32.9%	\$786,915	98.0%	\$16,398	2.0%
Lawrence Livermore National Laboratory	242,975	14.9	206,222	84.9	36,752	15.1
Oak Ridge National Laboratory	206,770	13.5	186,713	90.3	20,057	9.7
Los Alamos National Laboratory	197,770	8.6	169,847	85.9	27,923	14.1
Pacific Northwest National Laboratory	182,399	20.8	173,794	95.3	8,605	4.7
Idaho National Laboratory	148,506	17.5	144,729	97.5	3,777	2.5
Lawrence Berkeley National Laboratory	118,320	14.7	61,250	51.8	57,070	48.2
Argonne National Laboratory	85,132	11.3	50,017	58.8	35,115	41.2
Brookhaven National Laboratory	50,823	7.0	40,369	79.4	10,454	20.6
National Renewable Energy Laboratory	33,756	6.6	22,055	65.3	11,701	34.7
Savannah River National Laboratory	25,563	2.4	22,929	89.7	2,634	10.3
Thomas Jefferson National Accelerator Facility	8,250	4.6	5,160	62.5	3,090	37.5
SLAC National Accelerator Laboratory	8,226	2.3	2,263	27.5	5,963	72.5
Fermi National Accelerator Laboratory	5,722	1.3	95	1.7	5,627	98.3
Ames Laboratory	4,106	11.2	667	16.3	3,439	83.7
Princeton Plasma Physics Laboratory	3,227	3.9	790	24.5	2,437	75.5
National Energy Technology Laboratory	\$1,498	0.1	\$1,014	67.7%	\$485	32.3%
Total	\$2,126,357	13.0%	\$1,874,829	88.2%	\$251,527	11.8%

Source: GAO analysis of DOE data.

Appendix IV: Comments from the Department of Energy



Department of Energy

Washington, DC 20585

September 26, 2013

Mr. David Trimble
Director
Natural Resources and Environment
United States Government Accountability Office
441 G Street, NW
Washington, DC 20548

Dear Mr. Trimble:

This letter provides the U.S. Department of Energy's consolidated comments to the Government Accountability Office (GAO) draft report entitled *National Laboratories: DOE needs to Improve Oversight of Work Performed for Non-DOE Entities* (GAO-13-745, September 2013). We appreciate GAO's perspective on the work for others program and recommendations for improvement.

GAO provides six recommendations for ensuring DOE compliance with various requirements of the DOE work for others program. The Department concurs with the report's recommendations and will notify relevant Departmental officials of the various WFO program requirements that were the subject of GAO's assessment. Additionally, the Department provides the following clarifying comments regarding GAO's conclusions related to DOE's management of the work for others program.

- **DOE Has Not Ensured That Cost Recovery Procedures for WFO Projects Are in Place:** The GAO concluded that DOE has not ensured that the laboratories have written procedures for charging costs to ongoing projects. Contractors are required to submit Cost Accounting Standards (CAS) disclosure statements describing their cost accounting practices and procedures (48 CFR 9903.202). To ensure consistent treatment of laboratory costs and consistency with CAS, contractors use these cost recovery and cost allocation procedures regardless of the source of funds. All DOE contractor CAS disclosure statements are reviewed and approved by DOE officials. DOE considers the disclosed CAS practices described above to be specific written procedures used for cost recovery and cost allocation. We request that GAO take the DOE required CAS disclosure statements and their requisite written procedures into consideration in its report.
- **2013 Inspector General Report on WFO at Lawrence Berkeley National Laboratory:** The GAO states that the DOE Office of Inspector General (IG) has identified errors related to the charging of general and administrative costs to WFO projects. The GAO cited a report issued by the IG in 2013 on WFO at Lawrence Berkeley National Laboratory and stated that the IG found that



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\$400,000 in project costs were not reimbursed by the sponsor of the WFO projects. DOE's position is that the \$400,000 does not represent non-compliance with the Cost Accounting Standards (CAS) and is further supported by the DOE IG auditor who agreed the current allocation methodology complies with CAS.

A response to the report recommendations is attached.

For further questions regarding our response, please contact A. Scott Geary at (202) 287-1507 or Andrew.Geary@HQ.DOE.GOV.

Sincerely,

A handwritten signature in black ink, appearing to read 'Ingrid Kolb', with a stylized flourish at the end.

Ingrid Kolb
Director
Office of Management

Attachment

**Department of Energy Response to
GAO Draft Report 13-745
“NATIONAL LABORATORIES: DOE Needs to Improve Oversight of Work
Performed for Non-DOE Entities”**

Recommendation 1: Ensure compliance with the requirements in the WFO order for project approval.

DOE Response: Concur. DOE will issue a Policy Flash reminding organizations involved in the review, approval and performance of WFO activities of the DOE Order which lays out policy, procedures and responsibilities including the importance of having sufficient information for making contract related decisions.

DOE was pleased that GAO did not identify any instances where projects were not being approved by a DOE Contracting Officer (CO) and noted that all required determinations were being made prior to the CO approval. The report also did not identify any projects thought to be inappropriately approved and performed by DOE. The draft report did question how much the COs relied on contractor provided information when assessing whether a proposed WFO project meets DOE requirements and should be approved. To address this potential issue, DOE will issue a reminder to COs of the requirements of the DOE order.

Recommendation 2: Require laboratories to establish and follow written procedures for developing WFO project budgets and for charging costs to WFO projects.

DOE Response: Concur in principle. DOE will issue a Policy Flash on the requirements of the WFO program. All laboratories will be reminded of the written procedures for charging costs to WFO projects as set forth in their Cost Accounting Standards disclosure statement. DOE officials will continue to verify that contractors follow these practices. WFO projects budgets and costs will continue to be developed and charged consistent with those used for DOE work.

Recommendation 3: Ensure compliance with the requirements for conducting biennial pricing reviews.

DOE Response: Concur. DOE will issue a notice on the requirements of the WFO program.

Recommendation 4: Specify in the WFO order what the annual WFO program reviews should include.

DOE Response: Concur in principle. DOE will issue a Policy Flash reminding the program offices of the annual review requirement for the WFO program.

The current DOE Order appropriately provides discretion to DOE program offices in determining the scope and extent of WFO program reviews. However, program offices

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identified structured review processes that are used to meet the intent of the annual review requirement. These processes are based on specific risks identified by the program offices and overlap with other existing program office oversight activities.

Recommendation 5: Ensure that annual summary reports of WFO activities are prepared so that data on those activities are readily available for those who need this information.

DOE Response: Concur in principle. The DOE recognizes the DOE Order is out of date and requires revision to properly reflect DOE's current practices for providing current WFO program summary information. The Office of the CFO will continue to ensure the DOE accounting system provides accurate summary WFO program information as needed.

Recommendation 6: Establish performance measures that incorporate key attributes of successful performance measures and that address the objectives of the WFO program.

DOE Response: Concur in principle: DOE will issue a Policy Flash on the requirements of the WFO program related to program assessments.

As required by DOE Order 481.1C, DOE site office managers will develop performance goals and measures appropriate for their laboratories. As appropriate, site office managers will consider the best practices identified by GAO in its draft report when developing these measures.

Appendix V: GAO Contact and Staff Acknowledgments

GAO Contact

David C. Trimble, (202) 512-3841 or trimbled@gao.gov

Staff Acknowledgments

In addition to the individual named above, Dan Feehan and Janet Frisch, Assistant Directors; Joseph Cook; Elizabeth Curda; Paul Kinney; Jeff Larson; Cynthia Norris; Josie Ostrander; Kathy Pedalino; Tim Persons; Cheryl Peterson; Carl Ramirez; and Kiki Theodoropoulos made key contributions to this report.

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