



Report to the Ranking Member,
Permanent Subcommittee on
Investigations, Committee on Homeland
Security and Governmental Affairs, U.S.
Senate

August 2016

DEPARTMENT OF ENERGY

Actions Needed to Strengthen Acquisition Planning for Management and Operating Contracts

Accessible Version

GAO Highlights

Highlights of [GAO-16-529](#), a report to the Ranking Member, Permanent Subcommittee on Investigations, Committee on Homeland Security and Governmental Affairs, U.S. Senate

Why GAO Did This Study

In fiscal year 2015, the federal government spent almost \$19 billion on 22 DOE M&O contracts—a form of contract that traces its origins to the Manhattan Project. DOE uses M&O contracts to operate sites to carry out missions such as maintaining nuclear weapons and conducting energy and science research. Regulations require agencies to perform acquisition planning to ensure that the government meets its needs in the most effective, economical, and timely manner.

GAO was asked to review DOE's use of M&O contracts. This report examines (1) why DOE uses M&O contracts and key attributes associated with them, (2) the extent to which M&O contractors carried out mission-support activities and used subcontracts in fiscal year 2015, and (3) the extent to which DOE considered alternatives during acquisition planning for M&O contracts. GAO reviewed acquisition planning documents and other information on the 22 M&O contracts in place at the end of fiscal year 2015 and DOE regulations and procedures. GAO also interviewed DOE headquarters and M&O site office officials, contractors, and other federal contracting officials.

What GAO Recommends

GAO recommends that DOE's acquisition planning documents for M&O contracts discuss alternatives beyond extending the M&O contract or competing a similar contract, and that DOE establish a process to analyze and apply its experience with contracting alternatives. In commenting on a draft of this report, DOE generally concurred with GAO's recommendations.

View [GAO-16-529](#). For more information, contact David Trimble at (202) 512-3841 or trimbled@gao.gov.

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What GAO Found

Management and operating (M&O) contracts represented almost three-quarters of the Department of Energy's (DOE) total spending in fiscal year 2015 and were used extensively to support its missions. According to DOE officials, the agency uses M&O contracts for a number of reasons. For example, they said that the complex and unique nature of DOE's missions makes M&O contracts a good fit, and these contracts are less burdensome to manage than other types of contracts, requiring fewer DOE personnel. GAO identified three key attributes associated with DOE's M&O contracts:

- **Limited competitive environment.** About half of DOE's fiscal year 2015 M&O contract spending was on contracts that were awarded noncompetitively or that received one offer—situations that the Office of Management and Budget identified as high-risk contracting activities. In addition, M&O contracts include longer terms than other federal contracts, so they are competed less frequently.
- **Broad scopes of work.** DOE officials said that M&O contracts have broad scopes of work and use a work authorization system that allows DOE to quickly add or change requirements—sometimes within weeks.
- **Closer relationship.** M&O contracts and DOE management practices contribute to a closer relationship between M&O contractors and the government. M&O contractors often develop a vision and strategy for a site, according to DOE officials, and the agency uses contractors' internal audits and other contractor-generated information for oversight.

DOE also used M&O contractors for mission-support activities that accounted for a sizable portion of contractors' total costs in fiscal year 2015—generally about 25 to 50 percent. Mission support activities included managing infrastructure, facilities, and grounds; security; and the internal audit function. In addition, M&O contractors used subcontracts to acquire goods and services to perform both mission and mission-support activities. Subcontracts generally accounted for about 30 to 50 percent of contractors' total costs in fiscal year 2015.

During acquisition planning for its 22 M&O contracts in place at the end of 2015, DOE did not routinely consider alternatives beyond extending the current M&O contract and conducting a competition for a similar scope of work. Planning documents for 6 M&O contracts discuss broader alternatives, including using separate non-M&O contracts for some activities. For 16 M&O contracts, DOE did not consider broader alternatives, and these contracts represented about \$13.9 billion in fiscal year 2015 spending, about 70 percent of total M&O contract spending. Federal acquisition regulations and DOE policy call for M&O acquisition planning teams to consider broader alternatives. Without doing so, DOE cannot ensure that it has selected the most effective contract alternative, raising risks for contract competition, performance, and costs. In addition, DOE has experience with a variety of alternatives to using a single M&O contract for all activities at a site—such as using multiple contracts for a site or consolidating contracts—but has not fully analyzed these experiences to identify lessons learned. Federal acquisition regulations underscore the importance of analyzing lessons learned, which could be applied during planning for future M&O acquisitions.

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Abbreviations

CAS	contractor assurance system
DEAR	Department of Energy Acquisition Regulation
DOD	Department of Defense
DOE	Department of Energy
EM	Office of Environmental Management
FAR	Federal Acquisition Regulation
FFRDC	federally funded research and development center
ICR	Institutional Cost Reporting
M&O	management and operating
NASA	National Aeronautics and Space Administration
NNSA	National Nuclear Security Administration
OMB	Office of Management and Budget

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August 9, 2016

The Honorable Claire McCaskill
Ranking Member
Permanent Subcommittee on Investigations
Committee on Homeland Security and Governmental Affairs
United States Senate

Dear Senator McCaskill:

In fiscal year 2015, the federal government spent almost \$19 billion on 22 Department of Energy (DOE) management and operating (M&O) contracts—a form of contract that traces its origins to the Manhattan Project during World War II.¹ This represents almost three-quarters of DOE's \$25 billion in total contract and noncontract spending that year.² DOE is the largest civilian contracting agency in the federal government and, according to DOE, is the only agency using M&O contracts. DOE relies extensively on M&O contracts to manage and operate many of its government-owned, contractor-operated sites to carry out DOE's diverse missions, including developing, maintaining, and securing the nation's nuclear weapons capability and conducting basic energy and science research and development. DOE's history of inadequate management and oversight of its contractors led us, since 1990, to designate aspects

¹The amount spent generally includes funds from DOE as well as non-DOE customers. Work for non-DOE customers averages about \$3 billion per year, according to DOE. M&O contracts are agreements under which the government contracts for the operation, maintenance, or support, on its behalf, of a government-owned or government-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. Federal Acquisition Regulation § 17.601.

²We use the term spending throughout this report to refer to expenditures or the outlay of federal funds.

of DOE's contract management as a high-risk area vulnerable to fraud, waste, abuse, and mismanagement.³

The Federal Acquisition Regulation (FAR) requires agencies to perform acquisition planning activities for all acquisitions to ensure that the government meets its needs in the most effective, economical, and timely manner possible.⁴ The FAR recognizes the role of M&O contracts and outlines specific policies and procedures for the award, renewal, and extension of these contracts.⁵ Specifically, the FAR provides that only heads of agencies with the requisite statutory authority may authorize the use of an M&O contract and that this authority cannot be delegated.⁶ The FAR also provides that replacement of an incumbent M&O contractor is usually based largely upon the expectation of meaningful improvement in performance or cost and that contracting officers should take extraordinary steps before award to assure themselves that, among other things, the prospective contractor's technical and managerial capacity are sufficient. DOE's procedures for implementing these specific policies set forth unique acquisition planning and approval requirements associated with the M&O form of contract.⁷

DOE has begun or will soon begin acquisition planning for its 10 M&O contracts that expire by the end of 2020, although the contracts can be

³GAO, *Government Financial Vulnerability: 14 Areas Needing Special Review*, [GAO/OCG-90-1](#) (Washington, D.C.: Jan. 23, 1990). In January 2009, to recognize progress made at DOE's Office of Science, we narrowed the focus of the department's high-risk designation to two DOE program elements: the National Nuclear Security Administration and the Office of Environmental Management. (GAO, *High-Risk Series: An Update*, [GAO-09-271](#) (Washington, D.C.: January 2009).) In 2013, we further narrowed the focus of DOE's high-risk designation to major contracts and projects, those with values of at least \$750 million, to acknowledge progress made in managing smaller value efforts. (GAO, *High-Risk Series: An Update*, [GAO-13-283](#) (Washington, D.C.: February 2013).)

⁴The FAR defines acquisition planning as the process by which the efforts of all personnel responsible for an acquisition are coordinated and integrated through a comprehensive plan for fulfilling the agency need in a timely manner and at a reasonable cost. It includes developing the overall strategy for managing the acquisition. FAR § 2.101.

⁵FAR § 17.605.

⁶FAR § 17.602.

⁷Department of Energy, "Acquisition Planning in the M&O Environment," Ch. 7.3 of *Acquisition Guide* (September 2013).

extended.⁸ The replacements for these 10 contracts could represent over \$120 billion in spending.⁹ Our prior work across the federal government has found that some acquisitions have been plagued by inadequate acquisition planning, which can increase the risk that the government may receive services that cost more than anticipated, are delivered late, and are of unacceptable quality.¹⁰

You asked us to review DOE's use of M&O contracts. This report examines (1) why DOE uses M&O contracts, and key attributes associated with M&O contracts and the agency's approach to managing them; (2) the extent to which M&O contractors performed mission-support activities and used subcontracts in fiscal year 2015; and (3) the extent to which DOE considered alternatives during acquisition planning for its M&O contracts.

To inform all of our work, we reviewed the FAR, DOE acquisition regulations and procedures, DOE documentation, and our past reports. We also interviewed DOE program, acquisitions, and site office officials such as site managers and contracting officers.¹¹ To examine why DOE uses M&O contracts, and key attributes associated with M&O contracts and the agency's approach to managing them, we also obtained information from DOE on the 22 M&O contracts in place at the end of fiscal year 2015.¹² To provide perspective on M&O contracts and DOE's approach to managing them, we also interviewed officials from the Office

⁸The other 12 contracts also currently expire by the end of 2020, but the contracts include provisions that may result in contracts being extended through option periods, where DOE can extend the period of performance of the contract at its discretion, or award term incentives, where a contractor may earn additional period of performance if the contractor's performance meets criteria outlined in the contract. Nearly all of DOE's M&O contracts will expire by the end of 2026, taking into account all possible extensions.

⁹This amount was calculated based on fiscal year 2015 spending through these 10 contracts and average M&O contract length.

¹⁰GAO, *Acquisition Planning: Opportunities to Build Strong Foundations for Better Services Contracts*, [GAO-11-672](#) (Washington, D.C.: Aug. 9, 2011).

¹¹We use the term site office to refer broadly to federal offices located at M&O sites, which are also sometimes called field offices.

¹²In addition to contracts, DOE pursues its missions with a variety of other mechanisms, such as cooperative agreements, and direct DOE activities. Comparing DOE's M&O contracts to these other mechanisms was beyond the scope of this engagement.

of Management and Budget (OMB), Department of Defense (DOD), and the National Aeronautics and Space Administration (NASA). We selected these agencies because of their perspectives on contracting practices across the federal government or their management of two non-M&O contracts that officials suggested as potential examples of alternative approaches to managing government-owned, contractor-operated laboratories—NASA’s Jet Propulsion Laboratory and DOD’s Lincoln Laboratory.¹³

To examine the extent to which M&O contractors performed mission-support activities and used subcontracts in fiscal year 2015, the most recent year for which such data are available, we analyzed DOE data, including those from DOE’s Institutional Cost Reporting (ICR) initiative.¹⁴ We also used data from one of DOE’s strategic sourcing initiatives to describe the types of goods and services subcontracted by M&O contractors. We assessed the reliability of these data by reviewing available documentation and interviewing agency officials. We have previously reported that ICR data may be an improvement over previous DOE efforts to monitor M&O contractor costs.¹⁵ However, DOE officials told us that ICR data for detailed activities may not be fully comparable across contractors or over time in part because of differences and changes in how costs are identified and reported. For these reasons, we use ICR data to provide information about broad categories of activities

¹³These two contracts are not M&O contracts, and NASA and DOD officials said that their agencies do not have statutory authority to use M&O contracts under FAR § 17.6. NASA’s Jet Propulsion Laboratory, operated by the California Institute of Technology, is the leading U.S. center for robotic exploration of the solar system and has 19 spacecraft and 10 major instruments carrying out planetary, Earth science, and space-based astronomy missions. DOD’s Lincoln Laboratory, operated by the Massachusetts Institute of Technology, applies advanced technology to problems of national security with research and development activities focused on long-term technology development and rapid system prototyping and demonstration.

¹⁴According to DOE’s ICR guidance, the purpose of the ICR initiative is to collect high-level cost information from DOE’s M&O contractors using specific cost categories, including numerous mission-support cost categories. It was designed to balance DOE’s requirement for aggregate cost information against the cost data M&O contractors can provide readily, to use M&O contractors’ existing accounting and cost classification system to the extent possible, and to align with standard government cost calculations.

¹⁵GAO, *National Nuclear Security Administration: Laboratories’ Indirect Cost Management Has Improved, but Additional Opportunities Exist*, [GAO-13-534](#) (Washington, D.C.: June 28, 2013).

across M&O contractors (e.g., broad administrative activities rather than more specific details, such as legal costs), and we provide additional detail for one site as an example. We found these data to be sufficiently reliable for describing broad categories of activities performed under M&O contracts and the types of goods and services subcontracted by M&O contractors.

To examine the extent to which DOE considered alternatives during acquisition planning for its M&O contracts, we examined key acquisition planning documents for the M&O contracts in place at the end of fiscal year 2015, including acquisition plans and acquisition alternatives packages where available. DOE requires that acquisition planning documents include a discussion of acquisition alternatives, and we examined the alternatives considered in these planning documents though we did not assess the quality of DOE's consideration of alternatives because it was outside the scope of this review. We also reviewed DOE documentation of its experience with M&O contracts and how costs and performance were affected by changes in M&O contracting. Appendix I provides additional information on our scope and methodology.

We conducted this performance audit from June 2015 to August 2016 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

This section describes DOE's M&O contracts, challenges involving DOE's M&O contracts, and acquisition planning.

DOE M&O Contracts

Since the Manhattan Project produced the first atomic bomb during World War II, DOE and its predecessor agencies have depended on the expertise of private firms, universities, and others with the scientific, manufacturing, and engineering expertise needed to carry out research and development work and manage the government-owned, contractor-operated facilities where the bulk of the department's mission activities are carried out. DOE relies on contracts in general, and M&O contracts in particular, to do this work. In a December 2014 report, we found that about 90 percent of DOE's total obligations in fiscal year 2013, or \$24

billion of \$26.4 billion, was obligated on contracts, and of the \$24 billion of DOE contract obligations, about 71 percent (\$17.1 billion) was on M&O contracts.¹⁶

DOE oversees its M&O contractors' activities through its headquarters program offices—primarily the National Nuclear Security Administration (NNSA), the Office of Science, and the Office of Environmental Management (EM)—and site offices collocated at each site. NNSA was established in 2000 as a separately organized agency within DOE and is responsible for maintaining and enhancing the safety, reliability, and performance of the nation's nuclear weapons stockpile; promoting international nuclear safety and nonproliferation; and supporting U.S. leadership in science and technology, among other things.¹⁷ The Office of Science supports scientific research for energy and the physical sciences both by directly supporting such research and by supporting the development, construction, and operation of scientific user facilities. EM is responsible for decontaminating and decommissioning facilities and sites that are contaminated from decades of nuclear weapons production and nuclear energy research.

¹⁶GAO, *Improper Payments: DOE's Risk Assessments Should Be Strengthened*, [GAO-15-36](#) (Washington, D.C.: Dec. 23, 2014).

¹⁷Pub. L. No. 106-65, § 3211(b) (1999).

Management and Operating (M&O) Contracts in the Federal Acquisition Regulation (FAR)

The FAR defines M&O contracts as agreements under which the government contracts for the operation, maintenance, or support, on its behalf, of a government-owned or government-controlled research, development, special production, or testing establishment, wholly or principally devoted to one or more major programs of the contracting agency.

According to the FAR, an M&O contract is characterized both by its purpose and by the special relationship it creates between the government and contractor. The FAR lists the following characteristics of M&O contracts:

- Government-owned or government-controlled facilities must be used.
- The government must maintain a special, close relationship with the contractor and the contractor's personnel.
- The conduct of the work is wholly or at least substantially separate from the contractor's other business, if any.
- The work is closely related to the agency's mission and is of a long-term or continuing nature, and there is a need to ensure its continuity and for protection covering the orderly transition of personnel and work in the event of a change in contractors.

Source: Federal Acquisition Regulation. | GAO-16-529

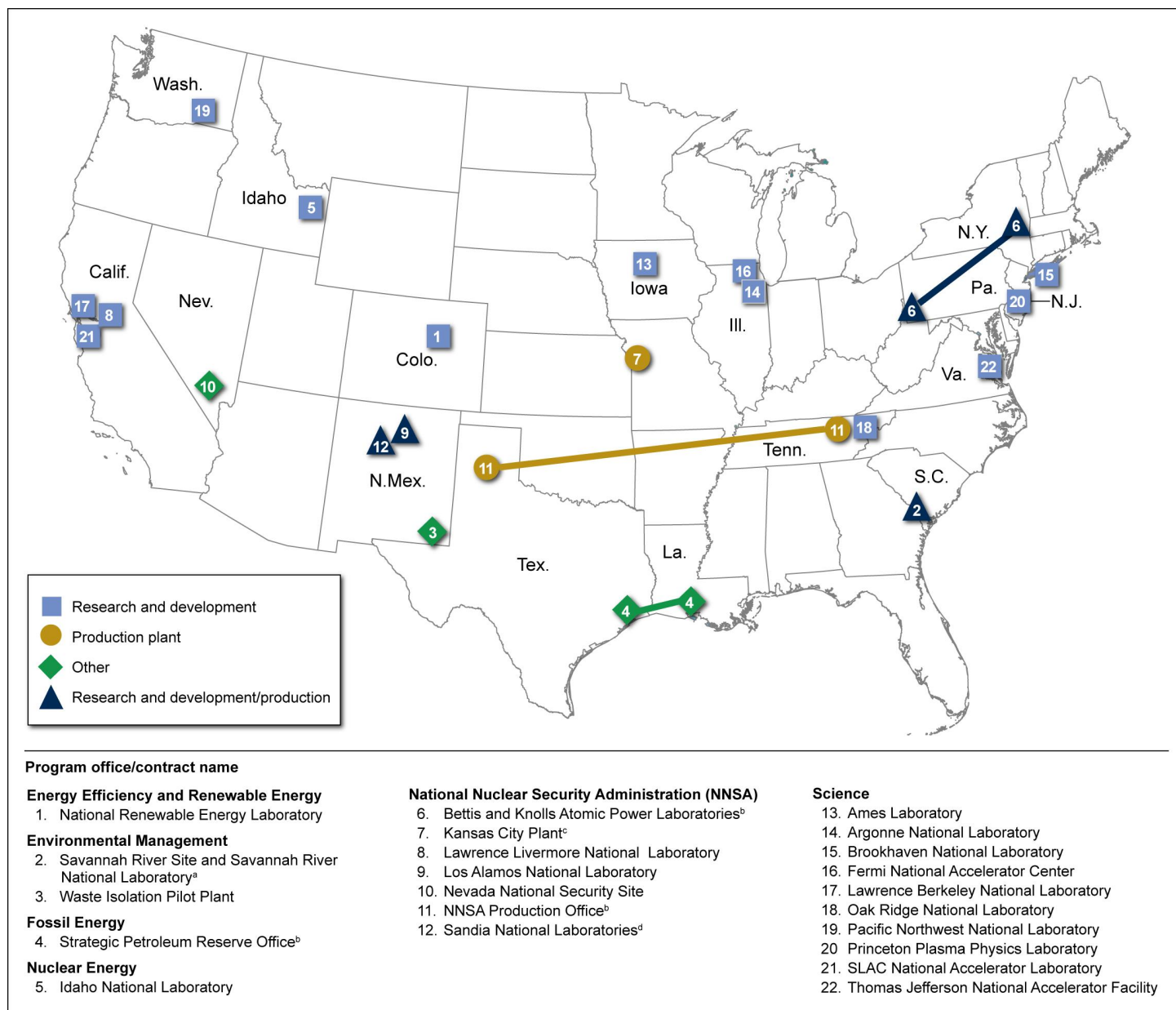
DOE uses M&O contracts to carry out its research and development, nuclear weapons production, and other missions. Specifically:

- **Research and development.** DOE is the nation's single largest funding source for basic physical sciences research, supporting research in energy sciences, advanced scientific computing, physics, and other fields. In addition, NNSA laboratories help support understanding of the physics associated with the safety, security, and reliability of nuclear weapons and maintain core competencies in nuclear weapons science, technology, and engineering.
- **Weapons production.** NNSA uses production sites to maintain, evaluate, repair, and dismantle both the nuclear and nonnuclear components for nuclear weapons; to manufacture weapons components; and to process tritium, a key isotope used to enhance the power of nuclear weapons. To ensure the continued safety, reliability, and performance of the aging nuclear stockpile, NNSA undertakes efforts to refurbish or replace nuclear weapons' aging components. As we found in a March 2016 report, NNSA estimated that it will need \$297.6 billion over the next 25 years for efforts related to the modernization of the nuclear weapons stockpile.¹⁸
- **Other missions.** DOE also uses M&O contracts for sites dedicated to other types of missions, including nuclear waste disposal and testing in support of NNSA and DOD. For example, DOE uses an M&O contract for the Strategic Petroleum Reserve, which is an emergency stockpile of oil stored in underground salt caverns along the Gulf Coast in Louisiana and Texas that can be released to the market during supply disruptions.

Figure 1 and appendix II provide additional information on DOE's M&O contracts.

¹⁸GAO, *Modernizing the Nuclear Security Enterprise: NNSA's Budget Estimates Increased but May Not Align with All Anticipated Costs*, GAO-16-290 (Washington, D.C.: Mar. 4, 2016).

Figure 1: Department of Energy Management and Operating Contract Sites by Program Office



Sources: Department of Energy; Map Resources (map). | GAO-16-529

^aThree contracts include operations at multiple sites: the Strategic Petroleum Reserve Office includes sites in Louisiana and Texas; one contract includes the Bettis Atomic Power Laboratory (West Mifflin, Pennsylvania) and the Knolls Atomic Power Laboratory (Niskayuna and West Milton, New York); and the NNSA Production Office includes the Y-12 (Oak Ridge, Tennessee) and Pantex (Amarillo, Texas) sites.

^bThe Kansas City Plant has been renamed the National Security Complex.

^cSandia National Laboratories has other secondary locations, including at Livermore, California.

Sixteen of DOE's 22 M&O contracts are for federally funded research and development centers (FFRDC). FFRDCs are intended to meet special, long-term research or development needs that are integral to agency missions and cannot be met as effectively by existing federal or non-FFRDC contractor resources.¹⁹ Through FFRDCs, agencies draw on academic and private sector resources to accomplish tasks that are integral to the missions and operations of the sponsoring agencies. Generally, DOE's FFRDCs are operated either directly by universities or by limited liability corporations, each of which includes a university or nonprofit partner; NNSA's FFRDCs are operated via contracts with limited liability corporations that generally include for-profit companies (see fig. 1). Across the federal government, 43 FFRDCs are working on research and development, including military space programs, nanotechnology, biodefense countermeasures, and high-energy particle physics. Other federal agencies use non-M&O contracts and cooperative agreements for their FFRDCs.²⁰ According to the DOE Acquisition Regulation (DEAR), all DOE-sponsored FFRDCs are operated using M&O contracts.²¹

DOE's remaining 6 M&O contracts are not FFRDCs (see fig. 1). Four of these are NNSA contracts (Bettis and Knolls Atomic Power Laboratories;

¹⁹FAR § 35.017(a)(2). For more information on FFRDCs, see GAO, *Federally Funded Research Centers: Agency Reviews of Employee Compensation and Center Performance*, [GAO-14-593](#) (Washington, D.C.: Aug. 11, 2014).

²⁰Federal grants and cooperative agreements are forms of assistance in which a federal agency transfers something of value, such as money or property, to a party for a purpose, undertaking, or activity of the grantee that the government has chosen to assist. Federal contracts are mutually binding legal relationships obligating the seller to furnish the supplies or services, and the buyer, in this case the government, to pay for them. The federal government typically uses contracts (rather than grants) as a mechanism when the principle purpose of the funded activity is to provide something for the direct benefit of the federal government.

²¹48 C.F.R. § 970.3501-3.

Kansas City Plant;²² Nevada National Security Site; and the NNSA Production Office, which includes the Y-12 (Oak Ridge, Tennessee) and Pantex (Amarillo, Texas) sites). One contract is an EM contract (Waste Isolation Pilot Plant), and the other is an Office of Fossil Energy contract (Strategic Petroleum Reserve Office).

All of DOE's M&O contracts are cost-reimbursement contracts, generally with award or incentive fees. Cost-reimbursement contracts allow the agency to contract for work where circumstances do not allow the agency to define its requirements, or estimate its costs, sufficiently to allow for a fixed-price contract. Under cost-reimbursement contracts, the government reimburses a contractor for allowable costs incurred, to the extent prescribed by the contract, and also pays a fee that is either fixed at the outset of the contract or adjustable based on objective or subjective performance criteria set out in the contract. In September 2009, we found that cost-reimbursement contracts are considered high risk for the government because of the potential for cost escalation and because the government pays a contractor's costs of performance regardless of whether the work is completed.²³ As such, cost-reimbursement contracts are suitable only when the cost of the work to be done cannot be estimated with sufficient accuracy, or where circumstances do not allow the agency to define its requirements sufficiently, to use a fixed-price contract. One major reason for the inability to accurately estimate costs is the lack of knowledge of the work needed to meet the requirements of the contract, for example, under research contracts, which necessarily involve substantial uncertainties. Under the FAR, cost-reimbursement contracts may include incentives, award fees, or other arrangements in order to motivate contractor efforts and discourage contractor inefficiency

²²The Kansas City Plant has been renamed the National Security Complex.

²³For comparison, under a firm-fixed-price contract, the contractor assumes most of the cost risk; by accepting responsibility for completing a specified amount of work for a fixed price, the contractor earns a profit if the total costs it incurs in performing the contract are less than the contract price, but loses money if its total costs exceed the contract price. See GAO, *Contract Management: Extent of Federal Spending under Cost-Reimbursement Contracts Unclear and Key Controls Not Always Used*, [GAO-09-921](#) (Washington, D.C.: Sept. 30, 2009).

and waste.²⁴ The DEAR states that cost-plus-award-fee contracts are generally the appropriate contract type for M&O contracts, though the DEAR also states that the agency can choose among a number of different contract types for its M&O contracts, including fixed-price and cost-reimbursement contracts or combinations of these.²⁵

DOE's use of M&O contracts has changed over time. Beginning in the 1990s, DOE undertook multiple initiatives to improve its management and oversight of M&O contracts. For example, DOE's *Acquisition Guide* states that the agency began assessing the appropriateness of the M&O contract model when awarding some contracts within the nuclear security enterprise. Specifically, DOE undertook a detailed review of the then existing M&O contracts to determine if the mission requirements remained appropriate for use of an M&O contract. As a result of that review, DOE reduced the number of M&O contracts from approximately 52 contracts to 29. DOE has continued to use M&O contracts for its FFRDCs and transitioned some of its others to non-M&O contracts. EM, for example, transitioned from 12 M&O contracts in the 1990s to 2 M&O contracts by 2013—in some instances, by dividing a single M&O contract into multiple non-M&O contracts for discrete work. According to congressional testimony in June 2013, EM made these transitions to drive performance and allow for the hiring of contractors with specific expertise to perform discrete scopes of work.

²⁴FAR § 16.401(a)(2). DOE also uses award term incentives in its M&O contracts. According to DOE's *Acquisition Guide*, no government-wide regulation or guidance currently addresses award term incentives. DOE's *Acquisition Guide* provides that an award term incentive has similarities to an award fee, with the major difference being that the contractor earns additional periods of performance instead of an award fee. The cumulative length of the contract's base term and all possible award terms shall not exceed 20 years or the approved length of the M&O form of contract or FFRDC if less than 20 years. The guide states further that award term incentives may only be used in contracts that have been awarded pursuant to full and open competition for the basic contract award and provides that award term incentives may not be used in conjunction with contract options to extend the contract period of performance. The guide provides that award term incentives may only be used in M&O contracts for DOE laboratories and then only with the approval of the DOE Senior Procurement Executive or NNSA Senior Procurement Executive, as appropriate. (See Department of Energy, "M&O Contractor Incentives – Fee, Rollover of Performance Fee, and Award Term," Ch. 70.15 of *Acquisition Guide* (September 2008).)

²⁵48 C.F.R. § 970.1504-1-4(c). DOE officials also stated that M&O contractors often use fixed-price subcontracts for their subcontracts, including for major construction projects, such as the building of facilities.

In addition to M&O contracts, DOE uses a variety of other mechanisms to pursue its missions. For example, to conduct research and development, DOE also uses grants and cooperative agreements and directly operates facilities. DOE has 28 scientific user facilities—federally sponsored research facilities used to advance scientific or technical knowledge. While most of these are operated by M&O contractors, DOE has a cooperative agreement with Michigan State University to build and operate the Facility for Rare Isotope Beams.²⁶ In addition, DOE employees operate the National Energy Technology Laboratory, which is part of DOE's national laboratory system and which has expertise in coal, natural gas, and oil technologies.

Recent Reviews Identified Challenges Involving DOE's M&O Contracts

Recently, a number of commissions, task forces, and other outside groups have identified challenges involving DOE's M&O contracts. For example, in 2015, the Commission to Review the Effectiveness of the National Energy Laboratories highlighted that the national laboratories provide critical capabilities for the nation and called on M&O contractors, in conjunction with DOE, to improve management in areas including overhead costs, facilities and infrastructure, and project and program management.²⁷ The commission found that the relationship between DOE and many of the laboratories had eroded and that DOE and the laboratories must work to restore trust and accountability. For example, the commission recommended that DOE delegate more authority and flexibility to the laboratories on how to perform their research and hold them accountable for their actions and results. In 2014, a congressional advisory panel described a dysfunctional relationship between NNSA and its M&O contractors, reporting that the trust required for the M&O contracting model has been weakened by unclear accountability for risk and a fee structure and contract approach that invite detailed, tactical

²⁶The Facility for Rare Isotope Beams will be a facility for the study of nuclear matter, providing intense beams of rare isotopes for a wide variety of studies in nuclear structure, nuclear astrophysics, and fundamental symmetries.

²⁷Commission to Review the Effectiveness of the National Energy Laboratories, *Securing America's Future: Realizing the Potential of the Department of Energy's National Laboratories, Volume 1: Executive Report* (Oct. 28, 2015).

oversight rather than a more strategic approach with performance-based standards.²⁸

Since 2010, we have identified a variety of problems at sites where DOE has M&O contracts, including the following:

- In May 2015, we reported on NNSA's use of contractor assurance systems to conduct oversight and evaluate the performance of M&O contractors.²⁹ Contractor assurance systems are designed and used by M&O contractors to oversee their own performance and to self-identify and correct potential problems. We found that NNSA had not fully established policies or guidance for using information from these systems to conduct oversight of M&O contractors and that NNSA therefore did not have standards for ensuring that contractors are overseen consistently. We recommended that NNSA establish policies and guidance for using information from contractor assurance systems for the oversight of M&O contractors; NNSA concurred with our recommendation and stated that it would establish such a policy.
- In October 2014, we reported on actions taken to address challenges with the Uranium Processing Facility under construction at the NNSA Production Office (specifically at the Y-12 site), which is managed by the M&O contractor at that site.³⁰ The key challenge with this facility was that in July 2012 the M&O contractor concluded that required equipment would not fit into the facility as designed, and that addressing this issue would cost an additional \$540 million. NNSA's analysis of the factors that contributed to this issue identified four causes, including project oversight—specifically, ensuring that requests and directives from NNSA to the contractor were implemented.³¹

²⁸Congressional Advisory Panel on the Governance of the Nuclear Security Enterprise, *A New Foundation for the Nuclear Enterprise* (Washington, D.C.: November 2014).

²⁹GAO, *National Nuclear Security Administration: Actions Needed to Clarify Use of Contractor Assurance Systems for Oversight and Performance Evaluation*, [GAO-15-216](#) (Washington, D.C.: May 22, 2015).

³⁰GAO, *Nuclear Weapons: Some Actions Have Been Taken to Address Challenges with the Uranium Processing Facility Design*, [GAO-15-126](#) (Washington, D.C.: Oct. 10, 2014).

³¹We did not make recommendations in this report. We also found that NNSA had taken some steps to improve its oversight of the contractor, including adding federal staff. According to NNSA officials, these additional staff enabled more robust oversight.

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- In October 2013, we reported on DOE's oversight of work performed at its national laboratories for non-DOE customers, called Strategic Partnership Projects.³² We found that DOE officials did not ensure that these partnerships complied with DOE guidance regarding their approval, cost recovery from non-DOE customers, and annual reporting. We made six recommendations to improve DOE's oversight of Strategic Partnership Projects, including that DOE take steps to ensure compliance with project approval requirements and that DOE require laboratories to develop written procedures for cost recovery from non-DOE customers. DOE concurred with the recommendations and planned actions to address them.
 - In June 2013, we reported on indirect cost management at M&O sites.³³ Indirect costs, also known as mission-support costs, are costs that cannot be identified with a specific program or project but that indirectly support multiple programs or projects, such as management or facilities maintenance. We found that DOE was taking steps to standardize the reporting of certain indirect costs by collecting ICR data from M&O contractors, but that DOE's efforts may provide only limited improvements. We recommended that DOE clarify how ICR data will be used, and DOE concurred with the recommendation. In its comments on a draft of the report, DOE stated that it determined that the data are aggregated at such a high level that they cannot be used to compare detailed contractor costs. As a result, we expressed concern that DOE may be limited in its ability to effectively oversee contractor costs.
 - Since 2005, during various reviews we have found that cost accounting practices used by NNSA's M&O contractors have varied, making it difficult for NNSA to compare costs across its sites or

³²Work for non-DOE customers was previously called Work for Others. See: GAO, *National Laboratories: DOE Needs to Improve Oversight of Work Performed for Non-DOE Entities*, [GAO-14-78](#) (Washington, D.C.: Oct. 25, 2013). Sixteen of DOE's 17 national laboratories are managed by M&O contractors and such partnerships at those 16 laboratories accounted for more than 99 percent of the work for non-DOE customers in fiscal year 2012. The National Energy Technology Laboratory is managed directly by DOE and its mission is carried out by DOE employees.

³³[GAO-13-534](#).

accurately identify the total costs across its enterprise.³⁴ Accordingly, in June 2010, we recommended that NNSA develop guidance for the consistent collection of information on the total costs to operate and maintain weapons activities facilities and infrastructure.³⁵ NNSA generally agreed with the recommendation and developed guidance to help collect consistent information from M&O contractors about their total costs. In 2013, Congress required that NNSA develop a plan to improve and integrate the financial management of the national security enterprise, including its contractors, and directed us to review the adequacy of NNSA's plan and to offer recommendations for improvement. NNSA submitted its plan to Congress in February 2016, and our review of the plan is ongoing.

Acquisition Planning

In a November 2011 report, we found that the acquisition planning phase is the first, and perhaps best, opportunity to reduce acquisition risk and generate savings.³⁶ During this phase, critical decisions are made that have significant implications for the cost and overall success of an acquisition. The appropriate amount of early planning and preparation helps to minimize risks and improve outcomes in both product and service acquisitions. DOE's Office of Acquisition Management, Office of Policy establishes policies and procedures for DOE acquisitions, including maintaining the agency's *Acquisition Guide*, which identifies internal standard operating procedures and is also intended to be a repository of best practices for acquisitions.

According to DOE's *Acquisition Guide*, acquisition planning for M&O contracts begins at least 2 years before the expiration of the current

³⁴For example, see GAO, *Department of Energy: Additional Opportunities Exist for Reducing Laboratory Contractors' Support Costs*, [GAO-05-897](#) (Washington, D.C.: Sept. 9, 2005); *Modernizing the Nuclear Security Enterprise: The National Nuclear Security Administration's Proposed Acquisition Strategy Needs Further Clarification and Assessment*, [GAO-11-848](#) (Washington, D.C.: Sept. 20, 2011); and *Department of Energy: Observations on DOE's Management Challenges and Steps Taken to Address Them*, [GAO-13-767T](#) (Washington, D.C.: July 24, 2013).

³⁵GAO, *Nuclear Weapons: Actions Needed to Identify Total Costs of Weapons Complex Infrastructure and Research and Production Capabilities*, [GAO-10-582](#) (Washington, D.C.: June 21, 2010).

³⁶GAO, *Federal Contracting: OMB's Acquisition Savings Initiative Had Results, but Improvements Needed*, [GAO-12-57](#) (Washington, D.C.: Nov. 15, 2011).

contract. Contracting officials must complete an acquisition plan, which includes the incumbent's performance history, principal issues and significant changes to be addressed in the next contract, and a discussion of whether it is likely that qualified offerors would compete for the contract, as well as a summary of the acquisition alternative approved by the Secretary. Acquisition planning teams prepare an acquisition alternatives package before the acquisition plan is finalized. According to the Acquisition Guide, the package must include a discussion of acquisition alternatives, including a recommended alternative with supporting rationale.³⁷ The guide emphasizes two acquisition alternatives—extending or competing M&O the contract. The acquisition alternatives package is not required to include a discussion or assessment of acquisition experiences at other DOE sites or with other contracts. In preparing the acquisition alternatives package, planning teams may conduct market research, define requirements in a document such as a statement of work, and develop cost estimates. Once prepared, the package is revised and reviewed throughout DOE, but the Secretary is ultimately responsible for the decision. Once the Secretary approves the acquisition alternative, the agency either issues a competitive solicitation—a request for proposals from contractors—or noncompetitively awards a contract.

The FAR and DOE regulations require that DOE review and authorize each FFRDC and M&O form of contract at least every 5 years. DOE has a review process that requires DOE sponsors to assess the use and continued need for the FFRDC. We found in an October 2008 report that DOE relies on information developed as part of its annual performance reviews as well as information developed through the contractor's internal audit process to make this determination.³⁸ These reviews include an examination of the performance of the FFRDC; mission needs; and a consideration of alternative sources, if any, to meet those needs. The continued need for the M&O form of contract must similarly be reviewed

³⁷Department of Energy, "Acquisition Planning in the M&O Environment," Ch. 7.3 in *Acquisition Guide* (September 2013). The FAR requires that "feasible alternatives" be considered (FAR 7.105(a)).

³⁸GAO, *Federal Research: Opportunities Exist to Improve the Management and Oversight of Federally Funded Research and Development Centers*, [GAO-09-15](#) (Washington, D.C.: Oct. 8, 2008).

at least every 5 years, and the Secretary must make each FFRDC and M&O determination.

DOE Identified Reasons for Using M&O Contracts, Which Are Associated with a Limited Competitive Environment and Broad Scopes of Work, among Other Things

According to DOE officials, the agency uses M&O contracts, in part, because of the complex and unique nature of its missions and because officials feel M&O contracts are less burdensome to manage than other types of federal contracts. Key attributes associated with DOE's use of M&O contracts and the agency's approach to managing those contracts include a limited competitive environment resulting, in part, from less frequently competed contracts and the nature of the work performed; broadly written scopes of work; and a closer relationship between the contractor and the agency than with other contracts.

DOE Officials Said the Agency Uses M&O Contracts in Part Because of Its Complex Missions and Because These Contracts Are Less Burdensome to Manage

DOE officials cited a number of reasons the agency uses M&O contracts, including the complex and unique nature of DOE's missions and officials' belief that the contracts are less burdensome for DOE to manage. The history of scientific and other accomplishments at sites managed by M&O contractors indicates that M&O contracts work well for DOE, according to several officials. Specifically:

- **Complex and unique nature of work.** DOE officials said that the unique nature of the missions being carried out at M&O sites, in particular the complex, high-risk nature of the work, makes M&O contracts a good fit and is the main reason M&O contracts are used. For example, DOE's M&O contractors manage most of the agency's national laboratories, have designed and produced every nuclear warhead in the U.S. arsenal, and play critical roles in nonproliferation and international nuclear safety. According to these officials, such complex and high-risk work could not be carried out under a non-M&O contract where there was not such a close relationship between the

contractor and government.³⁹ These officials stated that the agency works collaboratively with its M&O contractors as a group and that this is facilitated by M&O contracts, which require contractors to collaborate with each other and with DOE. For example, some research requires collaboration by multiple M&O contractors, which would be more difficult to do if the contractors were more direct competitors, according to DOE officials. While other federal agencies also operate FFRDCs with long-term relationships tackling complex, unique issues and do not use M&O contracts to do so, DOE officials stated that M&O contracts were developed specifically for some of its M&O sites and that the contracts have been tailored over decades to support the long-term relationships envisioned by FFRDCs.

- **Less burdensome to manage.** Several DOE officials told us that M&O contracts are generally less resource intensive for DOE to manage than non-M&O contracts. Less frequently competed contracts, broadly written scopes of work, and other attributes of M&O contracts make them easier to manage with fewer DOE personnel, according to these officials (these attributes are discussed in further detail below). To illustrate the personnel challenge facing DOE, officials pointed out that in fiscal year 2014 the agency had about 13,000 federal employees and a contractor workforce of about 94,000. These officials said that the situation is most stark with respect to procurement employees responsible for many contract management functions; a 2013 study found that on average each NNSA M&O procurement employee was associated with about \$287 million in contract spending, compared with a federal government average of \$9 million per procurement employee.⁴⁰ Though they may be less burdensome to administer, we and others have highlighted numerous challenges involving DOE's oversight of M&O contracts, as discussed previously.

³⁹Representatives from some M&O contractors suggested that DOE's indemnification of contractors with respect to nuclear accident risks was an important attribute of M&O contracts. However, DOE is required by the Price-Anderson Amendments Act of 1988 to indemnify any contractor in this way, including M&O and non-M&O contractors. 42 U.S.C. § 2210(d).

⁴⁰The study cited NNSA data presenting a metric of annual spending per procurement employee, which is a comparative metric for contracting organizations. The federal government average comparison excludes DOD and DOE. See Golden Key Group, LLC, *Department of Energy: DOE Acquisition Human Capital Staffing Model* (July 18, 2013).

M&O Contracts and DOE's Approach to Managing Them Have Three Key Attributes

We identified three key attributes associated with DOE's M&O contracts and the agency's approach to managing them: (1) a limited competitive environment resulting, in part, from less frequently competed contracts and the nature of the work performed; (2) broadly written scopes of work; and (3) a closer relationship between the contractor and the agency. To varying extents, these differences stem from requirements in the FAR, requirements and contract clauses in the DEAR, and how DOE writes and manages these contracts.

Limited Competitive Environment

DOE's M&O contracts are associated with a limited competitive environment resulting from three factors: (1) contracts that are awarded noncompetitively or receive only one offer, (2) contracts that are less frequently competed because of long contract terms, (3) and the nature of the work performed. First, in fiscal year 2015,⁴¹ about half of DOE's M&O contract spending was on contracts that DOE awarded noncompetitively or that received only one offer when they were most recently competed (see fig. 2 and app. II for additional details).⁴² Specifically, 5 of the 22 M&O contracts in place in fiscal year 2015 were awarded noncompetitively: the contract for SLAC National Accelerator Laboratory was established in 1962 and has been noncompetitively extended since its creation, and contracts for the Kansas City Plant, Oak Ridge National Laboratory, Pacific Northwest National Laboratory, and

⁴¹Two contracts were awarded during fiscal year 2015, and for the purposes of this analysis, we used the competition obtained for the newly awarded contract or the prior contract, depending on when the contract was awarded. The contract for the Brookhaven National Laboratory was awarded in December 2014, and we considered this new contract, where one offer was received. In contrast, the contract for the Kansas City Plant was awarded in July 2015, and since, according to DOE officials, there was no spending during fiscal year 2015 under the new contract, we present fiscal year 2015 spending under the prior contract, which was noncompetitively extended.

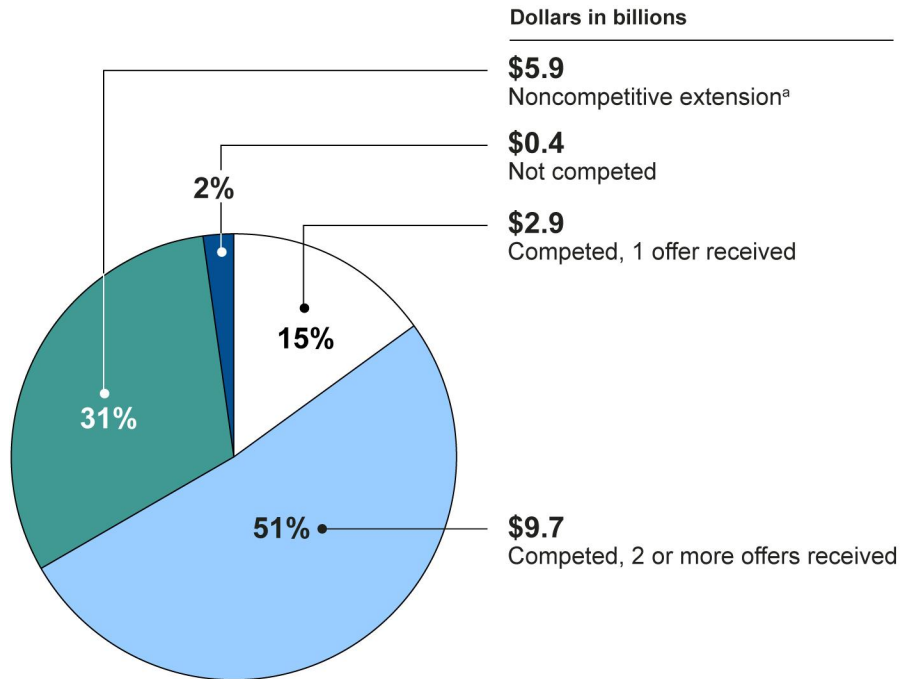
⁴²In May 2015, we found that almost 51 percent of DOD's contract obligations in fiscal year 2014 were for contracts that were competed and received two or more offers using data from the Federal Procurement Data System-Next Generation. (See GAO, *Defense Contracting: DOD's Use of Competitive Procedures*, [GAO-15-484R](#) (Washington, D.C.: May 1, 2015).) However, the data presented above on M&O contract competitions were obtained from DOE and, in several instances, differed from those in the Federal Procurement Data System for the same contract. In particular, competitions for several contracts that were noncompetitively extended after initially being awarded through open competitions were coded in the Federal Procurement Data System under the initial competition rather than the noncompetitive extension. If this coding practice is also prevalent in the non-DOE data, competition rates on a comparable metric as presented here for DOE could be lower.

Sandia National Laboratories were noncompetitively extended after initially being awarded through a full and open competition.⁴³ These 5 contracts accounted for over 30 percent (\$6.4 billion) of DOE's M&O spending in fiscal year 2015. In addition, DOE received few offers when it competed some M&O contracts. For example, DOE received only one offer for 7 of the 17 contracts that it competed, and these accounted for about 15 percent (\$2.9 billion) of fiscal year 2015 spending. In a 2009 memorandum, OMB identified these two situations—contracts awarded noncompetitively and contracts that are competed but that only receive one offer—as high-risk contracting activities.⁴⁴ The remaining 10 M&O contracts that were competed received at least two offers, and these accounted for about half of M&O contract spending in fiscal year 2015.

⁴³We did not consider option periods or award term incentives to be noncompetitive extensions as these are provided for in the contract. "SLAC" is not an acronym. Specifically, the Kansas City Plant contract was competed in 2000, the contract for the Oak Ridge National Laboratory was competed in 1999, the contract for Sandia National Laboratories was competed in 1993, and the contract for the Pacific Northwest National Laboratory was initially competed in 1964. Following the expiration of all option and incentive periods, these contracts have been noncompetitively extended.

⁴⁴Office of Management and Budget, *Improving Government Acquisition*, OMB Memorandum M-09-25 (Washington, D.C.: July 29, 2009).

Figure 2: Department of Energy Fiscal Year 2015 Spending on Management and Operating Contracts by Extent Completed



Source: GAO analysis of Department of Energy data. | GAO-16-529

Notes: Numbers do not add to 100 because of rounding. Two contracts were awarded during the fiscal year, and we considered the new or prior contract in this number, depending on when the contract was awarded. The contract for the Brookhaven National Laboratory was awarded in December 2014, and spending is presented for this new competition where one offer was received. In contrast, the contract for the Kansas City Plant was awarded in July 2015, but according to Department of Energy officials, all fiscal year 2015 spending was under the prior contract, which was noncompetitively extended.

^aNoncompetitive extensions refer to the contracts for the Kansas City Plant, Oak Ridge National Laboratory, Sandia National Laboratories, and Pacific Northwest National Laboratory that were noncompetitively extended after initially being awarded through open competitions.

The noncompetitive awards and extensions that contribute to a limited competitive environment for M&O contracts are, in part, the result of different considerations for competing or renewing M&O contracts. Federal laws and regulations generally require agencies to obtain full and open competition when awarding government contracts but with certain exceptions, such as if the contractor is the only source capable of performing the requirement, when there is unusual or compelling urgency,

or to establish or maintain essential research or development capabilities to be provided by an FFRDC.⁴⁵ While these requirements and exceptions generally apply to DOE contracts, the FAR provides additional considerations before replacing an existing M&O contractor. Specifically, the FAR states that federal agencies should consider whether meaningful improvement in performance or cost might reasonably be achieved, and replacing an incumbent M&O contractor is usually based largely on an expectation of meaningful improvement in performance or cost.⁴⁶

Second, DOE's M&O contracts are competed less frequently because they have longer contract terms. According to DOE data, the agency's 22 M&O contracts had an average length of almost 13 years as of November 2015, ranging from about 5 years for 5 contracts—NNSA Production Office (Y-12 and Pantex), Kansas City Plant, Strategic Petroleum Reserve, and Brookhaven National Laboratory—to almost 55 years for the SLAC National Accelerator Laboratory (see fig. 3).⁴⁷ Many DOE M&O contracts include provisions that may result in contracts being extended beyond the end of the current contract period through option periods—where DOE can extend the period of performance of the contract at its discretion—or award term incentives. When remaining option periods and award terms are included in the contract term, the average potential length of DOE's M&O contracts was 17 years as of November 2015. For M&O contracts, the FAR requires that the contracting officer review the contract, following agency procedures, at appropriate intervals and at least once every 5 years.⁴⁸ For comparison, the FAR generally limits the total of the basic and option periods of other types of federal contracts to 5 years, unless otherwise approved in accordance with agency

⁴⁵41 U.S.C. § 253, FAR Part 6.

⁴⁶According to a 2009 DOE policy statement, DOE recognizes a preference for full and open competition for M&O contracts and exercises, on a case-by-case basis, the authorities available to it to noncompetitively extend an M&O contract when the extension is justified. See Department of Energy, *U.S. Department of Energy Policy Regarding the Competition of Contracts to Manage and Operate its National Laboratories* (Washington, D.C.: Dec. 22, 2009).

⁴⁷This is the length of time from when the contract was awarded to the end of the current contract period as of November 2015 and includes any option periods and award term incentives that had been exercised as of that date. See fig. 1 and app. II for additional information on these contracts.

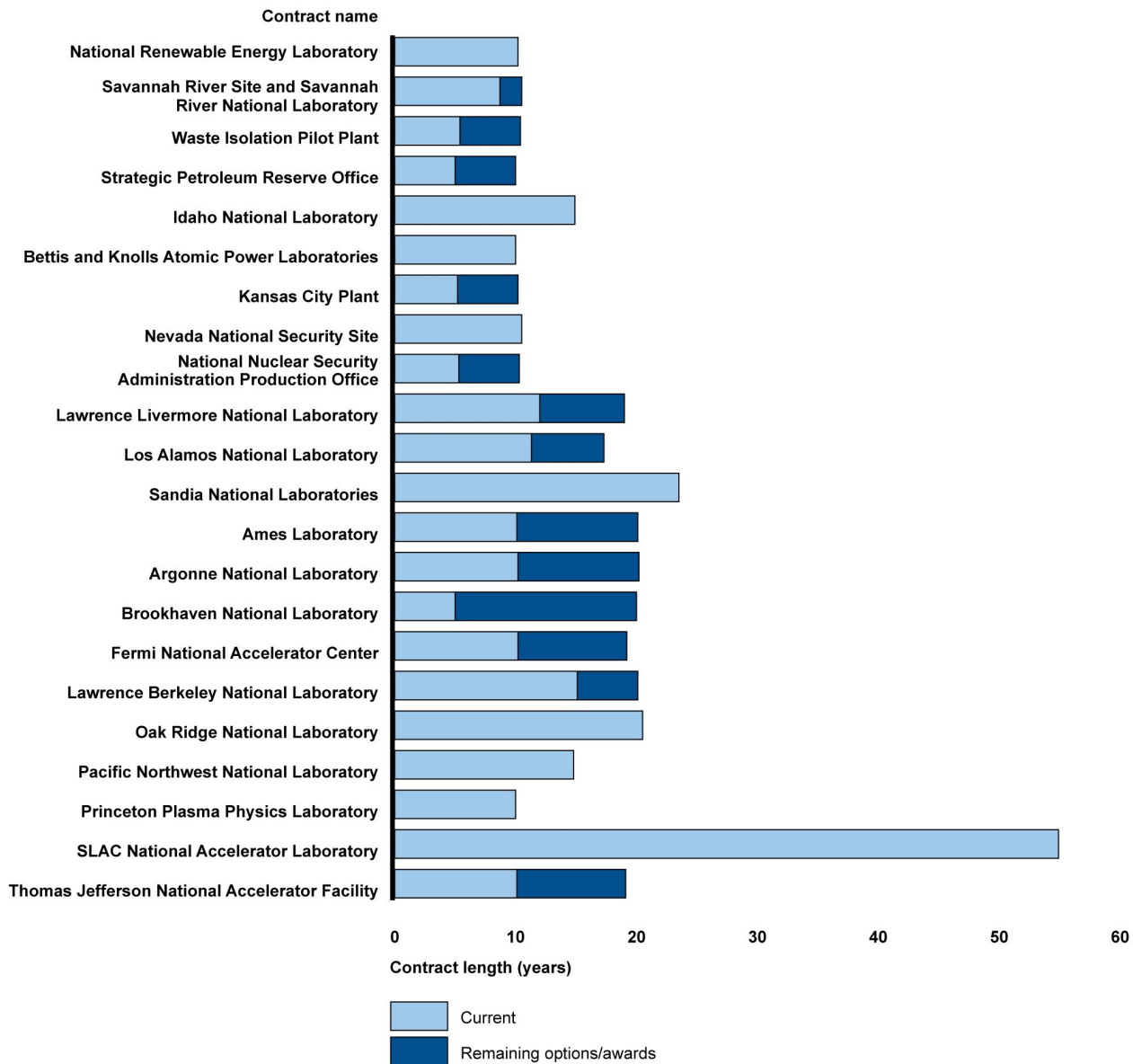
⁴⁸FAR § 17.605(b).

procedures.⁴⁹ DOE's non-M&O contracts for major sites averaged 7.4 years and 8.2 years when option and award terms were included. In addition, NASA's contract for the Jet Propulsion Laboratory has a 5-year term and DOD's contract for Lincoln Laboratory has a 5-year term with an additional 5-year option. Both of these FFRDCs have been extended noncompetitively since they were established.⁵⁰ In part because of the long contract terms, M&O contracts represent significant government expenditures. For example, the total estimated cost for the Sandia National Laboratories contract is over \$49 billion from 1993 through 2017.

⁴⁹FAR § 17.204(e).

⁵⁰The California Institute of Technology has operated the Jet Propulsion Laboratory since NASA was created in 1958 and conducted work at the same site for other federal entities as early as the 1930s, and the Massachusetts Institute of Technology has operated the Lincoln Laboratory since it was established in 1951.

Figure 3: Current and Potential Lengths of the Department of Energy’s Management and Operating Contracts (as of November 2015)



Source: GAO analysis of Department of Energy data. | GAO-16-529

Notes: Current contract length is the time from when the contract was awarded to the end of the current contract period as of November 2015. Remaining options and awards includes additional time that may be added to the current contract end date as a result of the government exercising available option periods—where the Department of Energy can extend the period of performance of the contract at its discretion—and award term incentives where a contractor may earn additional period of performance if the contractor’s performance meets criteria outlined in the contract. “SLAC” is not an acronym.

The FAR and DOE acquisition regulations permit DOE to have longer term contracts for its M&O contracts, as provided in DOE procedures, though longer contract terms are not required by either the FAR or DOE acquisition regulations. While the FAR M&O provisions do not address the maximum contract period of an M&O contract, DOE acquisition regulations provide that M&O contracts' basic contract terms are not to exceed 5 years and total terms, including any options, are not exceed 10 years. However, as previously discussed, according to DOE procedures, M&O contracts for national laboratories can include award term incentives—where a contractor may earn additional period of performance if the contractor's performance meets criteria outlined in the contract—which can lead to such contracts reaching 20 years.⁵¹ Some DOE officials told us that the longer terms of M&O contracts are important to provide contractors with an incentive for the long-term stewardship of each site. For example, officials said that with shorter contracts, contractors may not have sufficient incentives to make investments, for example, in staff development and training. DOE officials said that award terms have been used to make M&O contracts more attractive to potential offerors to increase the number of offers that may be received when contracts are competed. Lengthening contracts also decreases how often the contracts are competed. DOE's Acquisition Guide states that there is a need to balance the benefits of competition with benefits of relatively long-term M&O contract relationships.⁵²

Third, the nature of the work performed under DOE's M&O contracts also limits the competitive environment. The FAR recognizes that the government is often limited in its ability to generate competition or replace M&O contractors, and DOE and OMB officials identified several reasons for this. According to DOE officials, there are few contractors able to perform the highly technical and broad-ranging work that is done under M&O contracts. In addition, competitors may be dissuaded from developing offers because of the long-term relationship between the agency and the incumbent contractors. Some of the incumbent contractors have held the contracts for many decades, and when the incumbent has been performing well, there can be a perception that the incumbent enjoys a competitive advantage. Contributing to this

⁵¹Department of Energy, *Acquisition Guide*, Chapter 70.15.

⁵²Department of Energy, *Acquisition Guide*, Chapter 7.3.

perception is that some M&O sites are on land owned by the incumbent contractors, for example, the SLAC National Accelerator Laboratory at Stanford University and Ames Laboratory at Iowa State University. DOE and OMB officials said that potential competitors could be dissuaded from submitting offers in these situations because of the need to work with the incumbent on infrastructure and access issues, among other reasons. Further, DOE officials said that M&O contracts involve lower fees than other types of contracts and may require relatively large investments to prepare an offer. Other officials and representatives of an M&O contractor highlighted that while fees may be low as a percentage of the contracted amount, M&O contracts often require less financial investment and risk for contractors and so may nevertheless be attractive for contractors. In a 2009 memorandum, DOE stated that contractors regularly reported that preparing offers in response to a DOE M&O competition costs from \$3 million to \$5 million.

Broad Scopes of Work

M&O contracts contain broadly written scopes of work and are managed using a work authorization system that allows DOE to respond to changing needs and unforeseen developments, according to DOE officials. Specifically, DOE officials said that M&O contracts have relatively short scopes of work. For example, the contract for the Lawrence Berkeley National Laboratory, which spent about \$810 million in fiscal year 2015, has a scope of work that is 18 pages long. In contrast, under a more typical government contract, agencies attempt to specify as precisely as feasible the desired outcomes and deliverables, and scopes of work can therefore be lengthy, sometimes longer than 100 pages. The broadly written scope of an M&O contract allows DOE to change tasks or requirements without having to negotiate a contract modification with the contractor.

With broad scopes of work, DOE controls work using what it calls a work authorization system, which DOE acquisition regulations require for its M&O contracts. Under this system, M&O contractors are not allowed to perform work until it has been authorized and funds have been approved. At any given time, there may be hundreds of work authorizations in place for an M&O contract, according to DOE officials. DOE can unilaterally assign work and may, without advance notice, direct the M&O contractor to stop work or otherwise issue changes to work authorizations that are within the overall scope of the contract. Non-M&O contracts typically

require formal modification, negotiations, and sometimes fee adjustments when there is more than a minor change in the work required.⁵³ DOE site officials told us that contract modifications can be time and resource intensive for non-M&O contracts, but that similar changes can be easily handled using M&O work authorizations. For example, with the work authorization process, Office of Science officials told us that they were able to put in place a research program to support nuclear arms negotiations with Iran within weeks with an M&O contract. DOE officials said that broad scopes of work and the work authorization system provide flexibility to quickly change requirements in response to changing agency needs and unforeseen developments. The use of a broad scope of work involves tradeoffs between the benefits and the risks of a flexible approach.⁵⁴ Assessing the extent to which DOE appropriately balanced the benefits and risks of flexibility for its M&O contractors overall and the programs and projects they implement was beyond the scope of this engagement.

⁵³The work authorization system is similar to the non-M&O task order contracts used by NASA at the Jet Propulsion Laboratory and by DOD at the Lincoln Laboratory, both FFRDCs. However, DOE officials said that the work authorization process is less burdensome to manage than task orders, which are typically managed as unique acquisitions subject to a prescribed procurement process. In contrast, a work authorization can be processed with fewer constraints on when and how they can be modified.

⁵⁴Our body of work has shown that positive acquisition outcomes for DOD major weapon system acquisitions require the use of a knowledge-based approach to product development that demonstrates high levels of knowledge before significant commitments are made. In our past work examining weapon acquisition and best practices for product development, we have found that leading commercial firms and successful DOD programs pursue an acquisition approach that is anchored in knowledge, whereby high levels of product knowledge are demonstrated at critical points in the acquisition process. (See, for example, GAO, *Defense Acquisitions: Assessments of Selected Weapon Programs*, [GAO-16-329SP](#) (Washington, D.C.: Mar. 31, 2016).) For example, our work has shown that commercial firms seek to ensure that requirements are well understood before system development starts, and that increased risks to the government can occur when the government enters into contracts to develop complex systems before performing thorough requirements analysis to ensure that specific requirements can be met. In March 2008, we found that DOD acquisition programs where requirements changed after system development began experienced cost increases of 72 percent, while costs grew by 11 percent among those programs that did not change requirements. See GAO, *Defense Acquisitions: Assessments of Selected Weapon Programs*, [GAO-08-467SP](#) (Washington, D.C.: Mar. 31, 2008).

Closer Relationship between the Contractor and Government

M&O contracts and DOE management practices contribute to a closer relationship between M&O contractors and the government. The FAR recognizes that because of the nature of M&O contract work, or because it is to be performed in government facilities, the government must maintain special, close relationships with its M&O contractors and the contractors' personnel in various important areas (e.g., safety, security, cost control, and site conditions). As such, the FAR requires that M&O contracts grant the government broad and continuing rights to involve itself, if necessary, in the contractors' technical and managerial decision making. Several attributes of DOE's M&O contracts and the agency's approach to managing them contribute to this close relationship; some are unique to M&O contracts, while others are more widely shared.

- **Payment and financial integration.** M&O contractors are generally more integrated with DOE in how they are paid and in their accounting systems than other types of contractors. Regarding payment, for its other types of contracts, DOE relies on traditional bill payment methods—which include receipt of an invoice, payment approval and authorization, and disbursement of funds. In contrast, for its M&O contracts, DOE does not require contractors to submit invoices before receiving payment; instead, the agency requires “letter of credit financing,” which is the authority for contractors to draw funds directly from federal accounts to pay for contract performance. This payment method is not unique to M&O contracts—DOE had almost 6,700 non-M&O contracts in fiscal year 2015 and 7 of these non-M&O contracts also had letter of credit financing. Similarly, the non-M&O contracts for both NASA's Jet Propulsion Laboratory and DOD's Lincoln Laboratory have letter of credit financing or some form of advance payment, according to NASA and DOD officials.⁵⁵ Regarding accounting systems, DOE officials said that most non-M&O federal contracts place few requirements on a contractor's internal accounting systems; however, DOE requires M&O contractors to follow DOE's *Accounting Handbook* and integrate their costs and liabilities in DOE's accounts each month. DOE officials said that this provides visibility into

⁵⁵According to DOD officials, DOD's Lincoln Laboratory has an advance pay pool, where DOD deposits funds in advance of contract performance into an account. The contractor is able to draw from this account to pay for expenses as they occur while it awaits payment from DOD on invoiced work. DOD's invoice payments replenish the pay pool. This system ensures that the contractor does not have to finance its own payroll or other expenses as it waits for invoice payments, similar to letter of credit financing.

contractor accounts and allows DOE to monitor the appropriateness of the contractors' withdrawal of funds in near real time.⁵⁶ According to DOE officials, in part because of the need to follow DOE accounting requirements, DOE regulations remove an M&O contractor's liability for not following federal Cost Accounting Standards if the contractor's lack of compliance is caused by its following DOE accounting requirements.⁵⁷ These accounting characteristics are not used for all M&O contracts—the M&O contract for the Thomas Jefferson National Accelerator Facility does not have integrated accounts—and they are also not unique to M&O contracts, as DOE has 2 non-M&O contracts with integrated accounts.

- **Partnership with contractors for audit oversight.** DOE relies on a partnership with M&O contractors' internal audit groups to provide audit oversight of M&O contractors. Federal agencies generally employ a variety of financial and auditing oversight mechanisms to ensure that costs paid by the government to a contractor are reasonable and allowable under the provisions of a contract. Rather than third-party monitoring, for its M&O contracts, DOE uses a process known as the Cooperative Audit Strategy, under which DOE's Inspector General partners with contractors' internal audit groups to perform audit work aimed at ensuring that contractor accounting systems are adequate and that contractors are charging DOE for only

⁵⁶Evaluating the extent to which DOE monitors the appropriateness of contractor withdrawals was beyond the scope of this engagement, but we have ongoing work examining DOE's approach to managing its risk of fraud and other improper payments.

⁵⁷M&O and non-M&O contractors are generally subject to federal Cost Accounting Standards that provide direction for the consistent and equitable distribution of contractors' costs to help federal agencies more accurately determine the actual costs of its contracts. For M&O contractors, liability for increased costs resulting from not following Cost Accounting Standards is removed if failure to comply is caused by the contractor's compliance with published DOE financial management policies and procedures or other requirements established by the department's Chief Financial Officer or Procurement Executive. 48 C.F.R. § 970.5232-5.

those costs that are allowable under the contracts.⁵⁸ In 1993, shortly after DOE adopted this strategy, we examined aspects of DOE's oversight of M&O contractors and found that DOE's Inspector General had taken steps aimed at ensuring quality audits, but we noted that DOE must be sensitive to the appearance of conflicts of interest in using internal auditors to review costs.⁵⁹ The Cooperative Audit Strategy is not implemented in the same way across M&O contracts. Contract officials with the Bettis and Knolls Atomic Power Laboratories contract said that their audit coverage is unique among DOE's M&Os in two ways: (1) the M&O contractor's internal audit function is subcontracted to an outside party, and hence is more independent; and (2) the laboratories have a more robust on-site federal audit presence than at other sites. DOE's non-M&O contracts rely on third-party monitoring. Similarly, DOD and NASA officials told us that they generally rely on audits performed by the Defense Contract Audit Agency, a third party, though their Lincoln Laboratories and Jet Propulsion Lab contractors usually perform some degree of internal audit or review as part of their own overall management activity.⁶⁰

- **Reliance on contractor for oversight and planning.** DOE relies to a great extent on M&O contractors for oversight and planning, whereas other types of contractors more typically implement a set of tasks identified by the agency. DOE uses information from contractors for oversight purposes, including information from contractor assurance

⁵⁸Specifically, the M&O internal audit organization is responsible for performing operational and financial audits, assessing the adequacy of management control systems, and conducting an annual audit of the M&O contractors' incurred cost statements. According to DOE's *Financial Management Handbook*, under the Cooperative Audit Strategy, DOE's Inspector General is required to annually perform an assessment of these statements for the 10 M&O contractors that incurred and claimed the most costs annually. For the remaining M&O contractors, the Inspector General is to perform assessments on a rotational basis, meaning the Inspector General reviews a few each year until it completes all of the remaining ones and then starts over again.

⁵⁹GAO, *Financial Management: Energy's Material Financial Management Weaknesses Require Corrective Action*, [GAO/AIMD-93-29](#) (Washington, D.C.: Sept. 30, 1993).

⁶⁰DOE traditionally uses the Defense Contract Audit Agency as the primary auditor for its non-M&O contractors, and the DOE Inspector General has reported that auditors have been unable to perform many non-M&O audits on a timely basis, reporting delays of 1 year to more than 8 years. See Department of Energy, Office of Inspector General, *Special Report: Incurred Cost Audit Coverage of Non-Management and Operating Contractors*, DOE/IG-0934 (Washington, D.C.: Feb. 3, 2015).

systems (CAS), which are systems designed and used by contractors to assure their own performance.⁶¹ For example, to monitor whether a contractor's operations are adequately protecting human health and safety, DOE could rely on contractor reports of work-related accidents rather than conducting on-site inspections. However, in our May 2015 report, we found that NNSA had not fully established policy or guidance for using CAS information for oversight and may overrely on contractor information.⁶² For example, DOE's accident investigation board assessing a 2014 nuclear waste accident at DOE's Waste Isolation Pilot Plant in New Mexico reported that NNSA overrelied on contractor-generated information instead of directly conducting assessments. In our 2015 report, we recommended that NNSA develop guidance on using CAS information to oversee M&O contractors, among other things. NNSA agreed and stated that it will issue a new comprehensive policy for contractor oversight. DOE also relies on contractors for planning. DOE officials and contractor personnel told us that the M&O contractor is often responsible for developing a vision and strategy for a site. In addition, DOE has used information from contractors in developing budget estimates. In a July 2012 report, we concluded that NNSA's process for developing budget estimates relied heavily on its M&O contractors to develop budget estimates without an effective, thorough review of the validity of those estimates.⁶³ In that report, NNSA officials stated that the need for a formal review of M&O contractor-developed budget estimates was minimized, in part, because of the "inherent trust" between NNSA and its M&O contractors that results from its contracting strategy with them.⁶⁴

⁶¹DOE's oversight policy requires a CAS for each M&O contract, and these systems may also be used for other types of contracts. See Department of Energy, *Implementation of Department of Energy Oversight Policy*, Order (O) 226.1B (Apr. 25, 2011).

⁶²[GAO-15-216](#).

⁶³GAO, *Modernizing the Nuclear Security Enterprise: NNSA's Reviews of Budget Estimates and Decisions on Resource Trade-offs Need Strengthening*, [GAO-12-806](#) (Washington, D.C.: July 31, 2012).

⁶⁴We recommended that among other things, DOE update the departmental order for budget reviews and improve the formal process for reviewing budget estimates. The agency agreed in principle with these recommendations, but as of May 2016, the agency had not updated the departmental order. In addition, NNSA has suspended the budget validation process since our report was issued and lacks even a procedural check on budget estimates.

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- **Reimbursement for providing information to Congress.** DOE's M&O contractors have a greater ability to have DOE reimburse costs involved with providing information to Congress than other contractors. All contractors, including M&O contractors, are generally prohibited from using federal funds to pay for influencing or attempting to influence the executive or legislative branch with respect to certain activities, including federal contracts.⁶⁵ However, costs associated with providing advice and information of a more technical nature are allowable under conditions outlined in the FAR and, for DOE's M&O contractors, in the DEAR. DOE's M&O contractors have a greater ability to have DOE reimburse these types of costs in three ways. First, costs for non-M&O contractors for transportation, lodging, or meals are not allowable unless they are incurred for the purpose of offering congressional testimony at a regularly scheduled hearing pursuant to a written request by the chairman or ranking member of the committee or subcommittee. These costs are reimbursable for DOE M&O contractors when advising Congress more broadly, provided the information or advice is requested in a prior written request signed by a member of Congress. Second, the FAR limits reimbursable costs for non-M&O contractors for other activities to those "in response to a documented request," whereas under the DEAR, DOE's M&O contractors can be reimbursed for costs incurred in response to "a request (written or oral, prior or contemporaneous)." Third, M&O contractors can be reimbursed for costs related to a wider range of topics. The FAR allows costs to be reimbursed when these are related to a "topic directly related to the performance of a contract," although under the DEAR, M&O contractors can also be reimbursed for costs related to "proposed legislation."⁶⁶ DOE is required by statute to include these broader allowable cost provisions

⁶⁵31 U.S.C. § 1352.

⁶⁶See FAR § 31.205-22(b) and 48 C.F.R. § 970.3102-05-22(b)). Specifically, M&O contractors may provide "information or expert advice of a factual, technical, or scientific nature, with respect to topics directly related to the performance of the contract or proposed legislation."

for any contractor—M&O or non-M&O—obligating funds appropriated for national security programs.⁶⁷

- **Labor issues.** DOE is involved in M&O contractor labor issues, including through the stewardship of M&O contractor pension and postretirement medical benefits—by reviewing contractor executive compensation—and generally oversees security, health, and safety at the sites.⁶⁸ In addition, outside of key management personnel, who may change along with a change in contractor, a site’s workforce usually remains because of provisions in M&O contracts that generally require a successor contractor to hire most, if not all of the incumbent workforce.

As discussed above, not all of these attributes are unique to M&O contracts, but they contribute to a close relationship where M&O contractors are more like extensions of DOE, according to DOE and OMB officials. FFRDCs involve a close relationship between the contractors and government in some of the same ways an M&O contract does. Like M&O contractors, FFRDCs are not arm’s length—by virtue of their access to government data, employees, and facilities, FFRDCs are said to have a “special relationship” with the government.⁶⁹ For example, both M&O and FFRDC contracts are to contain provisions designed to ensure that contractor personnel are free from conflicts of interest and do not compete with the private sector for work.

⁶⁷50 U.S.C. § 2781(b)(2). This provision applies to contracts of more than \$100,000 obligating funds for national security programs. (50 U.S.C. § 2781(c).) In issuing regulations in 1987 to implement this authority, DOE required that the broader allowable cost provisions be included in all M&O contracts. (52 Fed. Reg. 1602 (1987).) This included five M&O contracts that did not receive national security-related appropriations in fiscal year 2015. Consequently, DOE may be reimbursing these contractors for costs that it is not required by statute to reimburse. The President’s Fiscal Year 2017 Budget included a legislative proposal to remove the statutory requirement for DOE to include broader allowable cost provisions for contractors obligating funds appropriated for national security programs.

⁶⁸For more information on DOE’s role overseeing contractor postretirement benefits, see GAO, *Department of Energy: Progress Made Overseeing the Costs of Contractor Postretirement Benefits, but Additional Actions Could Help Address Challenges*, [GAO-11-378](#) (Washington, D.C.: Apr. 29, 2011).

⁶⁹FAR § 35.017(a)(2).

Mission-Support Activities and Subcontracts Accounted for Sizable Portions of DOE's M&O Contractor Costs in Fiscal Year 2015

DOE's M&O contractors' mission-support activities accounted for a sizable portion of costs at DOE sites with M&O contracts in fiscal year 2015. M&O contractors also used subcontracts to acquire goods and services needed to perform a sizable portion of mission and mission-support activities.

Mission-Support Activities Accounted for a Sizable Portion of M&O Costs in Fiscal Year 2015

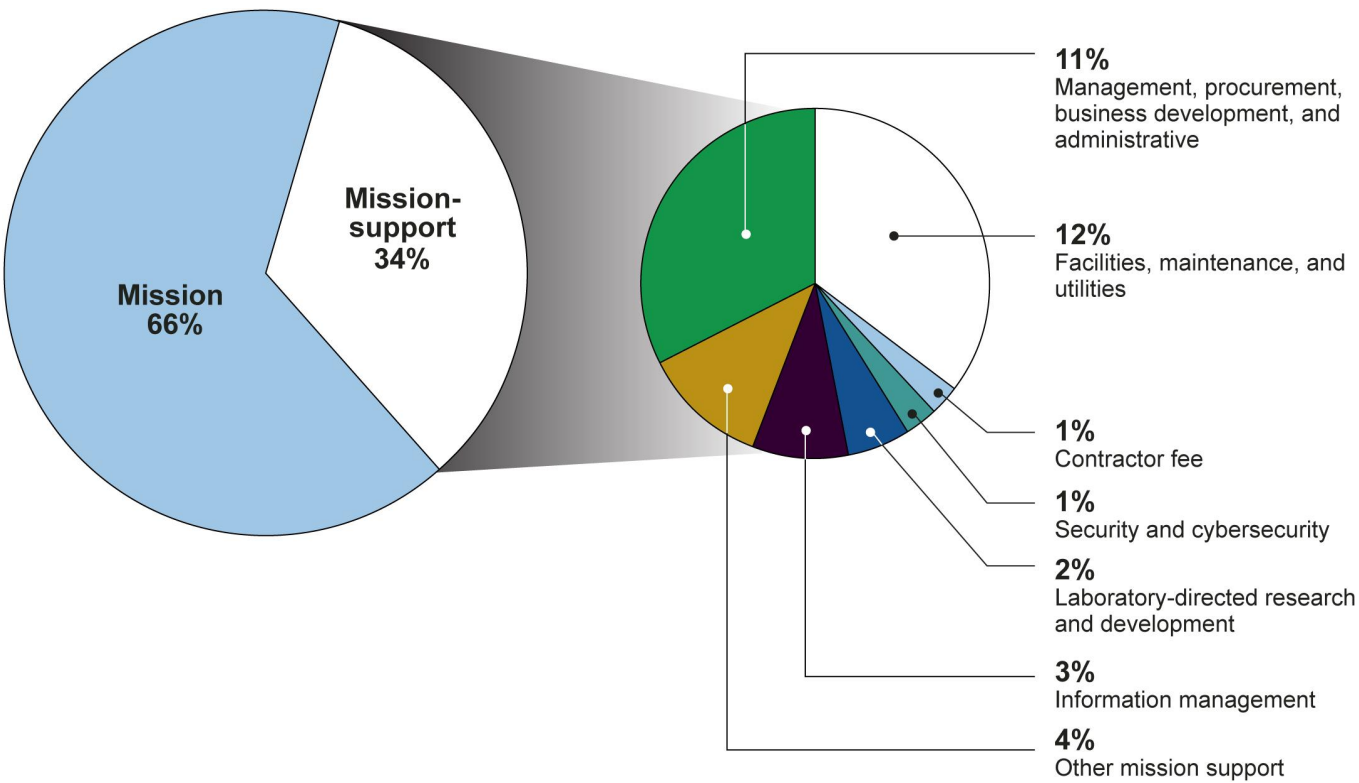
DOE's data suggest that generally about 25 to 50 percent of M&O contractor costs in fiscal year 2015 were for mission-support activities.⁷⁰ Mission-support activities include managing infrastructure, facilities, and grounds; security; human resources; and the internal audit function. For example, the mission-support costs for six of NNSA's M&O contracts averaged 40 percent in fiscal year 2015, totaling about \$3.8 billion across the contracts.⁷¹ As part of their mission-support activities, M&O contractors can be responsible for significant acreage and facilities. For example, according to its 2015 Laboratory Plan, Oak Ridge National Laboratory has about 4,400 acres and 195 buildings that host about 6,500 people on a daily basis. In addition to managing physical infrastructure, M&O contractors for national laboratories are required to provide strategic direction to ensure that laboratories evolve to address future challenges.

⁷⁰These data are from DOE's ICR initiative, and we found these data to be sufficiently reliable for the purpose of providing a general sense of the magnitude of mission-support activities of M&O contractors. However, as previously discussed, DOE officials told us that ICR data for detailed activities may not be fully comparable across contractors in part because of differences in how costs are identified and reported. As such, we use ICR data to provide general information about broad categories of activities across M&O contractors, and we provide additional detail for one site.

⁷¹The six NNSA contracts are for the Kansas City Plant, Los Alamos National Laboratory, Lawrence Livermore National Laboratory, Nevada National Security Site, Sandia National Laboratories, and NNSA Production Office (Y-12 and Pantex). The Bettis and Knolls Atomic Power Laboratories program is a joint DOE-Navy program and was therefore not included in this calculation.

Figure 4 shows an example of fiscal year 2015 mission and mission-support costs for a national laboratory that is supporting multiple DOE programs.⁷²

Figure 4: Example of Mission and Mission-Support Costs for a Management and Operating Contract at a Multiprogram National Laboratory, Fiscal Year 2015



Source: GAO analysis of Department of Energy data. | GAO-16-529

Notes: These data are presented as an example and are not representative of costs at other M&O sites.

Management, procurement, business development, and administrative includes executive salaries, human resources activities, the office of the Chief Financial Officer, the internal audit function, procurement and acquisitions, legal and administrative support, quality assurance, and business development activities. Other mission-support activities include environmental activities, health and safety, technology transfer, and taxes. Laboratory-directed research and development is a pool of money that the contractor can direct to worthy research projects without direct Department Energy oversight and is generally used for higher-risk, early-stage research.

⁷²These data are presented as an example and are not representative of costs at other M&O sites.

As discussed previously, DOE officials said they use M&O contracts in part because of the complex, unique nature of the work, but M&O contracts generally also include mission-support activities that are not complex or unique, such as landscaping, road maintenance, routine facilities maintenance, and security. Across the government, such mission-support activities are routinely contracted using non-M&O contracts. At DOE, 19 of 22 M&O contractors are responsible for ensuring all or part of the security of their sites. In contrast, the Department of Homeland Security's Federal Protective Service hires contractors to provide guard services at about 5,500 federal facilities nationwide, using non-M&O contracts or blanket purchase agreements.

In addition to M&O contracts, DOE also used supplemental non-M&O contracts to carry out mission-support activities at some M&O sites. For example, at three sites—the Savannah River Site, Nevada National Security Site, and Oak Ridge National Laboratory—all or part of site security is procured by a separate contract between DOE and a non-M&O contractor. In addition, at the Nevada National Security Site, DOE is using a non-M&O contract to identify and describe the types of legacy waste on the site in preparation for later cleanup.

Several contracting officers at DOE site offices told us that it is easier to coordinate activities on a site if one M&O contractor manages all functions, even if some activities are subcontracted, rather than having multiple contractors working directly for DOE. For example, two contracting officers noted that communication breakdowns are more likely to occur if multiple contractors work directly for DOE. A DOE Inspector General report on a 2012 security breach at Y-12 identified separate lines of responsibility and accountability between contractors as a contributing factor to the breach.⁷³ Specifically, the M&O contractor was responsible for physical security systems, and DOE had a separate non-M&O contract for security personnel. However, DOE contracting officers from two sites with multiple DOE contracts said that effective coordination between contractors can be prioritized to prevent disruptions. For

⁷³Other contributing factors included failure to respond to alarms and maintain critical equipment, misunderstanding of security protocols, and poor communications. See Department of Energy, Office of Inspector General, *Inquiry into the Security Breach at the National Nuclear Security Administration's Y-12 National Security Complex*, DOE/IG-0868 (August 2012).

example, at one site with four DOE contractors, including one M&O contractor, DOE has a project team that reviews requests from one contractor to another and ensures that contractors' responses to coordination issues are satisfactory.

DOE's M&O Contractors Used Subcontracts to Perform a Sizable Portion of Mission and Mission-Support Activities

To perform mission and mission-support activities, DOE's M&O contractors subcontracted for goods and services, which generally accounted for about 30 percent to 50 percent of total M&O contractor costs,⁷⁴ according to DOE ICR data from fiscal year 2015.⁷⁵ Detailed, comparable DOE-wide data on the activities that M&O contractors subcontract for are not available. However, NNSA has a strategic sourcing initiative that collects data on subcontracting from six of NNSA's M&O contractors.⁷⁶ These data include about \$2.8 billion in subcontracting activity for fiscal year 2015, which represents over 80 percent of these six M&O contractors' procurements.⁷⁷ According to these data, the top types of goods acquired in fiscal year 2015, based on dollars spent, across these six contracts include approximately:

⁷⁴In addition to the costs of subcontracted goods and services themselves, M&O contractors incur costs associated with managing subcontracts, such as those for providing direction and oversight to subcontractors, managing subcontract competitions, and contract closeout.

⁷⁵The Consolidated Appropriations Act, 2014, provided that first-tier subcontracts awarded by DOE's M&O contractors to small businesses (and certain socioeconomic groups) be considered toward the annually established agency and government-wide goals for procurement contracts awarded. Pub. L. No. 113-76, div. D, tit. III, § 318 (2014).

⁷⁶Data from the strategic sourcing initiative cover the following six NNSA contracts: Kansas City Plant, Los Alamos National Laboratory, Lawrence Livermore National Laboratory, Nevada National Security Site, Sandia National Laboratories, and NNSA Production Office (Y-12 and Pantex).

⁷⁷NNSA's strategic sourcing data do not include all subcontracts across NNSA sites. Specifically, according to officials responsible for these data, classified purchases are not included in the data. In addition, the data include acquisitions made through purchase cards for all sites except Sandia National Laboratories, meaning that some spending from this site is not included. Finally, these data only include purchases made under commercial contracts, meaning any purchases made through agreements with foreign governments, state or local governments, or other parts of the federal government are also not included. See app. I for more details on our assessment of the reliability of these data.

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- \$400 million for information technology broadcasting and telecommunications (such as computer equipment and software);
 - \$290 million for machinery, construction, and manufacturing supplies; and
 - \$160 million for laboratory, measuring, observing, and testing equipment.

The top types of services acquired, based on dollars spent, across these six M&O contracts were approximately:

- \$525 million for engineering, research, and technology-based services;
- \$390 million for management and business professionals and administrative services;
- \$200 million for building, construction, and maintenance services; and
- \$95 million for national defense, public order, and security and safety services.

There is variability across M&O contractors with respect to how much subcontracting is competed. For example, in fiscal year 2015, DOE documents show that Argonne National Laboratory competed 65 percent of subcontracting dollars for procurements greater than \$150,000, while Lawrence Berkeley National Laboratory competed about 48 percent of such procurements. M&O contractors are not required by federal or DOE acquisition regulations to compete their subcontracts.⁷⁸ However, DOE policy requires that M&O contracts include a clause requiring M&O contractors to select subcontractors on a competitive basis to the maximum extent practicable. Several DOE contracting officers told us that subcontracts are not competed in cases where a needed technology or item is proprietary or available from only one supplier. In addition, subcontractors named in offers submitted during competitions for M&O contracts are not required to be competed. For example, the M&O contractor for the NNSA Production Office (Y-12 and Pantex), Consolidated Nuclear Security, LLC, is using a sole-source contract with Bechtel—with NNSA approval—to construct the Uranium Processing

⁷⁸However, these regulations contain policies and procedures concerning the purchasing systems and activities of contractors, including M&O contractors. See FAR Part 44 and 48 C.F.R. Subpart 970.44.

Facility because this was included as part of the company's offer for the M&O contract for the NNSA Production Office (Y-12 and Pantex).⁷⁹

DOE Did Not Routinely Consider Alternatives beyond Extending or Competing Its M&O Contracts

During acquisition planning for its M&O contracts, DOE did not routinely consider alternatives beyond extending the current M&O contract and conducting a competition for the same M&O contract requirement, although considering broader alternatives is called for in the FAR and DOE policy. In addition, DOE has experience with a variety of alternatives to using a single M&O contract to carry out all activities at a site, but the agency did not fully analyze these experiences to identify and apply lessons learned that could inform future acquisitions.

DOE Often Considered a Limited Range of Alternatives during Acquisition Planning for Its M&O Contracts

During acquisition planning for its 22 M&O contracts, DOE often considered a limited range of alternatives—typically extending the current contract and conducting a competition for a similar scope of work—based on our review of acquisition planning documents.⁸⁰ For 16 of its 22 M&O contracts, DOE did not consider alternatives beyond extending or competing the M&O contract (see table 1). These 16 M&O contracts represented about \$13.9 billion in fiscal year 2015 spending. Planning documents for 7 of the 22 M&O contracts discuss the extension and competition of the M&O contract as the only alternatives. For 9 M&O contracts, DOE did not consider any alternatives, as the agency decided to compete the M&O contracts. DOE officials said this occurred in part because of legislation passed in 2003 directing DOE to use competitive procedures for M&O contracts at five national laboratories that had not

⁷⁹Consolidated Nuclear Security, LLC comprises member companies Bechtel National, Inc.; Lockheed Martin Services, Inc.; ATK Launch Systems Inc.; and SOC LLC, with Booz Allen Hamilton, Inc., as a teaming subcontractor.

⁸⁰We reviewed the 22 contracts that were in place at the end of fiscal year 2015 and their associated acquisition planning documents. DOE was in the process of acquisition planning for three sites during the course of our review—Nevada National Security Site, National Renewable Energy Laboratory, and Sandia National Laboratories. Since planning documentation for these forthcoming acquisitions was in various stages of development, we analyzed planning documents for the contracts in place. As previously discussed, DOE had reduced its number of M&O contracts beginning in the 1990s, and examining DOE's decision making at that time was beyond the scope of this review.

been competed in the prior 50 years.⁸¹ Planning documents for 6 contracts discuss alternatives beyond extending the current contract or competing a similar contract.

Table 1: Alternatives Considered during Acquisition Planning for Department of Energy Management and Operating (M&O) Contracts

	Contract	Spending in fiscal year 2015 (dollars in billions)	Alternatives considered	Number of offers received for contract
Office of Energy Efficiency and Renewable Energy	National Renewable Energy Laboratory	0.38	Alternatives not considered, competed M&O contract	2
Office of Environmental Management	Savannah River Site and Savannah River National Laboratory ^a	0.99	Alternatives beyond extending or competing M&O contract	2
Office of Fossil Energy	Waste Isolation Pilot Plant	0.22	Alternatives beyond extending or competing M&O contract	4
	Strategic Petroleum Reserve Office	0.14	Alternatives beyond extending or competing M&O contract	5
Office of Nuclear Energy	Idaho National Laboratory	0.90	Alternatives beyond extending or competing M&O contract	4
National Nuclear Security Administration (NNSA)	Bettis and Knolls Atomic Power Laboratories	1.11 ^b	Alternatives beyond extending or competing M&O contract	3
	Kansas City Plant	0.70 ^c	Extending M&O contract and competing M&O contract ^c	2 ^c
	Nevada National Security Site	0.52	Extending M&O contract and competing M&O contract	3
	NNSA Production Office (Y-12 and Pantex)	1.67	Alternatives beyond extending or competing M&O contract	3
	Lawrence Livermore National Laboratory	1.53	Alternatives not considered, competed M&O contract	3
	Los Alamos National Laboratory	2.25	Alternatives not considered, competed M&O contract	3

⁸¹The Energy and Water Development Appropriations Act for fiscal year 2004 prohibited DOE from using appropriated funds to pay M&O contractors unless the Secretary of Energy provided notice of a decision to use competitive procedures for the award of certain contracts when the current contracts expired. The act specified five laboratories: Ames Laboratory, Argonne National Laboratory, Lawrence Berkeley National Laboratory, Lawrence Livermore National Laboratory, and Los Alamos National Laboratory. Pub. L. No. 108-137, § 301 (2003).

	Contract	Spending in fiscal year 2015 (dollars in billions)	Alternatives considered	Number of offers received for contract
	Sandia National Laboratories	2.81	Extending M&O contract and competing M&O contract	Noncompetitive extension
Office of Science	Ames Laboratory	0.06	Alternatives not considered, competed M&O contract	1
	Argonne National Laboratory	0.75	Alternatives not considered, competed M&O contract	1
	Brookhaven National Laboratory	0.59	Extending M&O contract and competing M&O contract	1
	Fermi National Accelerator Center	0.41	Alternatives not considered, competed M&O contract	1
	Lawrence Berkeley National Laboratory	0.81	Alternatives not considered, competed M&O contract	1
	Oak Ridge National Laboratory	1.46	Extending M&O contract and competing M&O contract	Noncompetitive extension
	Pacific Northwest National Laboratory	0.95	Extending M&O contract and competing M&O contract	Noncompetitive extension
	Princeton Plasma Physics Laboratory	0.12	Alternatives not considered, competed M&O contract	1
	SLAC National Accelerator Laboratory	0.43	Extending M&O contract and competing M&O contract	Never competed
	Thomas Jefferson National Accelerator Facility	0.16	Alternatives not considered, competed M&O contract	1

Source: GAO analysis of Department of Energy information. | GAO-16-529

Note: This table reflects the 22 M&O contracts in place as of the end of fiscal year 2015. Spending in fiscal year 2015 generally includes spending from the Department of Energy and other sources.

^aNNSA also manages the Savannah River Site and Savannah River National Laboratory contract.

^bThis amount does not include spending from Department of Navy appropriations.

^cThe contract for the Kansas City Plant was awarded in July 2015. Spending presented for the Kansas City Plant reflects spending under the prior contract because, according to agency officials, there was no spending in fiscal year 2015 under the new contract. The number of offers received and alternatives considered, however, refers to the contract awarded in 2015.

Based on our review of acquisition planning documents, DOE's consideration of alternatives, including alternatives beyond extending the current contract or competing a similar contract, varied across program offices.

- **Office of Science.** DOE did not consider alternatives beyond extending the current contract or competing a similar contract for any of its 10 M&O contracts under the Office of Science, all of which are FFRDCs. Instead, following the 2003 legislation requiring DOE to compete some of its contracts, DOE competed 6 contracts managed

by the Office of Science and did not consider an alternative other than an M&O contract. For 3 of these contracts, acquisition planning documents stated that there were no feasible alternatives to consider. For example, one acquisition plan cited the inability of the current federal workforce to run the site as evidence that there were no alternatives, although federalization is not the only potential alternative nor would federalization have to be limited to the current workforce. For 4 of the 10 Office of Science M&O contracts, DOE considered extending or competing the M&O contracts. In addition, DOE considered another alternative for one site outside the acquisition planning process. Specifically, DOE established a working group to examine the advantages and disadvantages of using an M&O contract or a cooperative agreement for the operation of the SLAC National Accelerator Laboratory. DOE officials told us that the process allowed them think through the strengths and weaknesses of an alternative approach. The working group concluded that an M&O contract was better than a cooperative agreement for the site and stated that a critical reason for this conclusion was the desire to continue to offer indemnification for nuclear accidents, which would involve uncertainties and legal risk under a cooperative agreement.

- **EM.** DOE considered alternatives beyond extending the current contract or competing a similar contract for each of the 2 EM M&O contracts, resulting in a change of the contract approach for one them. Specifically, for EM's Savannah River Site contract, DOE had a single M&O contractor managing activities, including a research laboratory, tritium operations, and liquid waste processing.⁸² During acquisition planning, DOE considered the status quo as well as an alternative to separately contract for some of these activities—having a limited M&O contract to manage the research laboratory and tritium operations at the site and several non-M&O contracts to manage the site's other activities, such as liquid waste processing. The Savannah River Site acquisition plan noted that having a separate contract for liquid waste processing would increase DOE's ability to focus the contractor on completing that work, potentially increase the field of competition, and permit the selection of a company with the specialized capabilities necessary to complete the work. DOE selected the separate contracts alternative and now has multiple contracts for the site. In addition, in

⁸²Tritium is a vital component of nuclear weapons. The tritium operations at the Savannah River Site continually replenish tritium required by the nuclear weapons stockpile.

its acquisition plan for the Waste Isolation Pilot Plant, DOE considered using a non-M&O contract, though the M&O contract alternative was selected. Contracting officials indicated in the plan that a non-M&O performance-based contract would not provide for flexibility or integrated site management and operations.

- **NNSA.** For 2 of its 7 M&O contracts, NNSA considered alternatives beyond extending the current contract or competing a similar contract, and both times this resulted in the combination of formerly separate sites into one M&O contract. NNSA combined the Bettis and Knolls Atomic Power Laboratories and the Y-12 and Pantex sites each under a new M&O contract. In addition, separate from the acquisition planning process for any specific contract, in 2009 an NNSA team analyzed alternatives beyond extending or competing M&O contracts for six sites, some of which did not have a contract near expiration at the time.⁸³ In this analysis, the study team examined contract consolidation as a potential strategy to improve performance and reduce costs, focusing on nine contract options. Seven options involved combining various production missions under a single M&O contract. Another option looked at combining functional areas, such as construction management and information technology, at multiple sites under a single non-M&O contract. After this analysis was complete, NNSA decided to conduct a contract competition for a single M&O contract consolidating the Y-12 and Pantex sites under a single contract, with the potential to later add tritium operations at the Savannah River Site. The resulting contract consolidated the sites into what is now known as the NNSA Production Office, awarded in

⁸³Y-12, Pantex, and the Kansas City Plant were addressed in the report along with portions of three other sites—Savannah River Site's tritium operations and production at Sandia National Laboratories and Los Alamos National Laboratory. See National Nuclear Security Administration, NNSA Acquisition Strategy Team, *NNSA Nuclear Security Enterprise Acquisition Strategy* (Washington, D.C.: Apr. 30, 2009).

January 2013.⁸⁴ NNSA did not consider alternatives beyond extending the current contract or competing a similar contract for three NNSA contracts in which acquisition planning preceded the 2009 study, and also did not consider such alternatives in 2014 acquisition planning documents for the Kansas City Plant contract or in 2015 planning documents for the Sandia National Laboratories contract. Yet NNSA's 2009 study had recommended two contracting alternatives relevant for these contracts: a separate non-M&O contract for construction and the consolidation of nonnuclear production functions.

- **Other offices.** For the 3 M&O contracts managed by other DOE program offices, the consideration of alternatives during acquisition planning varied. DOE considered alternatives beyond extending the current contract or competing a similar contract for the Idaho National Laboratory and the Strategic Petroleum Reserve Office contracts. For the Strategic Petroleum Reserve Office contract, DOE identified a number of reasons an M&O contract was preferred over a non-M&O contract for the site, including that the M&O contract readily supports the swift implementation of changing requirements, national priorities, and initiatives. According to DOE, "under a non-M&O contract, work is required to be performed with minimal government involvement and direction." DOE stated that extensive government involvement was necessary for the contract. In particular, "because a drawdown [from the reserve] is, by definition, an emergency, it is expected that there will be changes in schedules and difficulties with estimating costs. Additionally, due to frequent budgetary and funding fluctuations, additional government involvement will be required." Acquisition planning documents for the National Renewable Energy Laboratory contract did not consider an alternative other than an M&O contract, and the capacity of its current federal workforce was cited as the reason other alternatives were not considered.

⁸⁴As we reported in September 2011, NNSA officials told us that NNSA rejected the acquisition team's proposal to include the Los Alamos National Laboratory's production mission as a future option in the consolidated M&O contract on the grounds that the laboratory's research and development mission was too diverse and complex to separate from the production mission. The agency also decided not to pursue a proposal to consolidate the nonnuclear production carried out by the Kansas City Plant and Sandia National Laboratories. See [GAO-11-848](#). As we reported in March 2015, NNSA officials told us that the agency has no current plans to consolidate additional M&O contracts. See GAO, *National Nuclear Security Administration: Reports on the Benefits and Costs of Competing Management and Operating Contracts Need to Be Clearer and More Complete*, [GAO-15-331](#) (Washington, D.C.: Mar. 23, 2015).

The FAR and DOE policy call for M&O acquisition planning teams to consider broader alternatives than extending an M&O contract or conducting a competition for the same M&O contract requirement. Broader alternatives could include consolidating contracts, moving activities or functions to less risky fixed-price contracts or line items under the same contract, using cooperative agreements or grants to fund scientific research, and even moving some functions into the federal government. The FAR requires the Secretary of Energy to authorize the M&O form of contract, and DOE's policy, outlined in its *Acquisition Guide*, which is maintained by the Office of Acquisition Management, Office of Policy, sets out the acquisition planning and approval requirements associated with the M&O form of contract.⁸⁵ Specifically, the FAR provides that the Secretary must authorize, in writing, the use of the M&O form of contract, and the Acquisition Guide provides that this authorization must occur in conjunction with a decision to renew or extend an M&O contract. This authorization, which under the FAR may not be delegated, is made based on the acquisition alternatives package presented to the Secretary. However, when the acquisition alternatives presented to the Secretary are limited to extending the current M&O contract or conducting a new competition for the same M&O contract requirement, as DOE has often done, it significantly limits the information and alternatives available to inform the Secretary's determination.⁸⁶

Without consistently considering a broader range of alternatives as part of its acquisition planning process for M&O contracts, DOE cannot ensure that it is selecting the most effective contract alternative, raising risks for

⁸⁵Department of Energy, *Acquisition Guide*, Chapter 7.3. The consideration of alternatives is also required in the FAR. FAR § 7.105(a). The FAR provides that an agency that has a detailed acquisition planning system in place that generally meets the requirements of FAR sections 7.104 and 7.105 need not revise its system to specifically meet all of the FAR acquisition planning requirements. FAR § 7.102(b).

⁸⁶According to OMB, considering broader alternatives can improve government acquisitions. In its 2009 memorandum on improving government acquisitions, OMB identified several actions that agencies can take to manage risks associated with high-risk contract types, like cost-reimbursement type contracts and contracts that receive only one offer. One action OMB identified was for agencies to assess whether other contract types might be better suited for the work and whether federalization—that is, converting to having federal employees perform the work—might save costs. Office of Management and Budget, *Improving Government Acquisition*, OMB Memorandum M-09-25 (Washington, D.C.: July 29, 2009).

contract competition, performance, and costs.⁸⁷ As we found in an October 2015 report, competition has generally been associated with achieving more favorable prices.⁸⁸ As previously discussed, DOE has not generated competition when it recently requested proposals for some M&O contracts. However, when DOE acquisition planners have considered a broader range of alternatives than simply the existing M&O model, the agency has sometimes seen an increase in the level of competition for these requirements.⁸⁹ For example, DOE's experience at the Hanford and Savannah River Sites suggests that severing smaller components from single-site contracts can increase competition. Specifically, DOE received one offer for its 1989 M&O contract for the Savannah River Site. Subsequently, DOE severed the liquid waste functions from the M&O contract and received two offers for each contract in 2006. As a result, DOE did not have to accept the only offer received.⁹⁰ When planning teams consider a narrow range of alternatives, the optimal alternative could be overlooked, raising cost and performance risks.⁹¹

⁸⁷The DEAR affirms that DOE's policy is to provide for full and open competition in the award of contracts for management and operation of its facilities and sites. 48 C.F.R. § 917.602.

⁸⁸GAO, *Sole Source Contracting: Defining and Tracking Bridge Contracts Would Help Agencies Manage Their Use*, [GAO-16-15](#) (Washington, D.C.: Oct. 14, 2015).

⁸⁹The FAR provides that agencies shall perform acquisition planning and conduct market research for all acquisitions in order to promote and provide for full and open competition or, when full and open competition is not required, to obtain competition to the maximum extent practicable. FAR § 7.102 (a)(2). In addition, the FAR requires that the acquisition plan describe how competition will be sought, promoted, and sustained, and requires a discussion of breakout plans for major components or subsystems and how competition will be achieved for these components or subsystems. FAR § 7.105(b)(2).

⁹⁰Similarly, DOE transitioned from a single M&O contractor at the Hanford Site to multiple, smaller contracts in 2009. The single M&O contractor approach had generated three offers when that contract was competed in 1996, but for the new mission support contract that followed, there were five offers. There were at least two offers received for other aspects of the Hanford work.

⁹¹The FAR provides that agencies should ensure that acquisition planners, to the maximum extent practicable, avoid unnecessary and unjustified bundling of requirements that precludes small business participation as contractors. FAR § 7.103(u).

DOE Has Not Fully Analyzed Its Experience with Alternative Contracting Approaches

DOE has experience with a variety of alternatives to the single M&O contract approach but has not fully analyzed these experiences to identify lessons learned, which can be applied to future acquisitions. As previously discussed, DOE uses various approaches, ranging from using non-M&O contracts for security at several sites with M&O contracts to using cooperative agreements and federal employees to perform research and development. The FAR underscores the importance of analyzing and incorporating lessons learned in acquisition planning, requiring agency heads to prescribe procedures to ensure that knowledge gained from prior acquisitions is used to further refine requirements and acquisition strategies.⁹²

According to DOE officials, the agency assesses its M&O contractors through annual performance reviews focused on accomplishments to determine annual performance fees. These analyses do not provide a complete picture of how, if at all, costs or performance were affected by changes in contract approaches, as seen in the following examples:

- DOE did not conduct any analyses of the changes in contract approach at the Savannah River Site.
- After the Y-12 and Pantex sites were combined under one contract, officials documented cost savings because of workforce reductions and the standardization of employee benefits, but this was not a full cost analysis and did not include changes in costs in other areas, such as merging operations for enriched uranium, nuclear weapon assembly, and tritium supply management, where improvements were originally expected.
- DOE conducted an analysis of its change in contract approach at the Hanford Site, but this analysis is incomplete. DOE transitioned from a single M&O contract to multiple smaller, non-M&O contracts at the Hanford Site. According to DOE, the contracting strategy involved creating a separate mission-support contract for the site to provide infrastructure and service delivery (e.g., electrical, water, and crane and heavy equipment services), and has been successful and contributed to savings of about 15 percent (\$615 million). But this analysis is incomplete for purposes of informing acquisition planning and assessing the potential effect of changes in the contract approach

⁹²FAR § 7.103(t).

because DOE did not examine whether similar savings were achieved at other sites without a change in contract. Therefore, the identified savings cannot necessarily be attributed to the change in contract approach.

- Views among contractors and DOE officials differed on the cost and performance effects of obtaining services through M&O contracts or through direct contracts to DOE, and without a complete analysis, DOE cannot know the effect of such contract changes. Representatives from one contractor told us that it can be more cost-effective for DOE to contract directly for services that are subcontracted by M&O contractors. These representatives stated that adding the M&O management's layer to the subcontractor's management can make it costlier for DOE than using a separate contract directly with DOE. On the other hand, DOE officials said that in general costs are not different when services are directly contracted. Specifically, officials provided a contractor's analysis that anticipated no change in overall costs at Y-12 when the protective forces contract, which had been directly contracted to DOE, was brought under the M&O contract. However, that analysis was performed a month after the contract change and as such did not examine how costs were actually affected by the change.

DOE officials told us that the agency is not required to conduct a formal analysis of its experiences and emphasized that the agency encourages dialogue among contracting officials to identify and share lessons learned. For example, DOE officials stated that contracting officials in the Office of Nuclear Energy may contact those in the Office of Science or the Office of Energy Efficiency and Renewable Energy for information on acquisition planning and history, though we did not identify any requirement to do so. By periodically analyzing experiences at sites that led to cost or performance changes, DOE may be able to more readily apply lessons learned to replicate positive changes and avoid repeating any negative changes at other sites. Periodically analyzing its experiences could also help DOE identify and apply lessons learned during acquisition planning, helping to ensure that DOE selects the most effective contract alternatives and thereby increases competition, improves performance, and reduces costs.

Conclusions

DOE and its predecessor agencies have relied on M&O contracts since World War II. DOE officials said that the M&O contract's flexibility and the close relationship between agency and contractor that it enables are well suited to the complex, sometimes high-risk nature of DOE's mission work.

At the same time, since 1990 we have designated aspects of DOE's contract management as a high-risk area vulnerable to fraud, waste, and abuse. Furthermore, a sizable portion of M&O activities are mission-support activities that may not be complex or unique, and a sizable portion of these activities are performed by subcontractors.

DOE's ability to meet its many missions—from modernizing the nuclear weapons complex to advancing energy research and development—is affected by decisions made during the acquisition planning process for its 22 M&O contracts. Since 10 of these contracts will expire by the end of 2020 and nearly all will expire by 2026, DOE will be deciding on acquisition alternatives for contracts costing taxpayers almost \$19 billion annually and representing almost three-quarters of the agency's annual spending. The limited competitive environment and long duration of M&O contracts underscore the importance of planning for each M&O acquisition—a single contract can amount to \$49 billion over its lifetime.

DOE did not consider acquisition alternatives beyond continuing its long-standing M&O contract approach for 16 of its 22 M&O contracts, representing about \$13.9 billion in fiscal year 2015 spending. Broader alternatives could include consolidating contracts, moving activities or functions to less risky fixed-price contracts or line items under the same contract, using cooperative agreements or grants to fund scientific research, and even moving some functions into the federal government. When acquisition planning teams do not consider alternatives beyond essentially the incumbent contract approach, they miss an important step in ensuring that their recommended alternatives will meet the government's needs in the most effective, economical, and timely manner possible. Without considering broader alternatives, DOE cannot ensure that it is selecting the most effective scope and form of contract, raising cost and performance risks. Every dollar spent inefficiently through these contracts is then unavailable for DOE's other priorities.

Additionally, DOE has experience with a number of alternatives to its approach of using a single M&O contract for nearly all activities at a site but has not analyzed them thoroughly. By periodically analyzing the extent to which experiences at sites may have led to cost or performance changes, DOE may be able to identify and apply lessons learned to make more informed acquisition decisions during acquisition planning for M&O contracts.

Recommendations for Executive Action

To strengthen acquisition planning for M&O contract acquisitions, we recommend that the Secretary of Energy direct the Office of Acquisition Management, Office of Policy to take the following two actions:

- Require that acquisition planning documents for M&O contracts discuss alternatives beyond extending the M&O contract or conducting a competition for essentially the same scope of work.
- Establish a process to periodically analyze DOE's experience with alternatives to the single M&O contract approach to identify and apply lessons learned during acquisition planning for M&O contracts.

Agency Comments and Our Evaluation

We provided drafts of this report to DOE, OMB, DOD, and NASA for review and comment. DOE provided us with written comments, and OMB staff provided oral comments. All four agencies provided technical comments, which we incorporated as appropriate. In its written comments, reproduced in appendix III, DOE generally concurred with our recommendations. DOE stated that it will amend existing or issue new policy or guidance, as appropriate, to require acquisition planning documents to discuss broader alternatives, and to require that programs periodically analyze their experiences with alternatives to the single M&O contract approach. DOE further stated that given the diverse mission of the department, department elements with M&O contracts are in the best position to develop processes to analyze their experiences. OMB staff said that they generally concurred with our findings.

As agreed with your office, 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 appropriate congressional committees, the Secretary of Energy, Director of OMB, Secretary of Defense, Administrator of NASA, 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 members who made key contributions to this report are listed in appendix IV.

Sincerely yours,

A handwritten signature in black ink, reading "David C. Trimble". The signature is written in a cursive style with a large, stylized 'D' and 'T'.

David Trimble
Director, Natural Resources and Environment

Appendix I: Scope and Methodology

This report reviews the Department of Energy's (DOE) use of management and operating (M&O) contracts. Specifically, it examines (1) why DOE uses M&O contracts, and key attributes associated with M&O contracts and the agency's approach to managing them; (2) the extent to which M&O contractors performed mission-support activities and used subcontracts in fiscal year 2015; and (3) the extent to which DOE considered alternatives during acquisition planning for its M&O contracts.

To address all our objectives, we reviewed the Federal Acquisition Regulation, DOE acquisition regulations, DOE's acquisition procedures, DOE budget documents, and past GAO reports. We also interviewed DOE program and acquisitions officials as well as site office officials, such as site or field office managers and contracting officers, responsible for overseeing the 22 DOE M&O contracts in place at the end of fiscal year 2015. We also interviewed site office officials and contracting officers overseeing non-M&O contracts at several DOE sites. In addition, we interviewed officials from several M&O contractors and subcontractors to gain insight into M&O contracts from a contractor perspective. We selected contractors that work with different DOE offices, manage large and small M&O sites, manage facilities with different kinds of missions, and have different corporate structures. Because this was a nongeneralizable sample, information from interviews with contractor officials is not generalizable to all M&O and non-M&O contractors but instead provides examples of a range of views.

To examine why DOE uses M&O contracts, and key attributes associated with M&O contracts and the agency's approach to managing them, we also obtained information from DOE on the 22 M&O contracts in place at the end of fiscal year 2015.¹ To provide perspective, we also interviewed officials from the Office of Management and Budget, the Department of Defense (DOD), and the National Aeronautics and Space Administration (NASA). We selected these agencies because of their knowledge of contracting practices across the federal government or their management of two non-M&O contracts that officials suggested as potential examples of alternative approaches to managing government-owned, contractor-

¹In addition to contracts, DOE pursues its missions with a variety of other mechanisms, such as cooperative agreements and direct DOE activities. Comparing DOE's M&O contracts to these other mechanisms was beyond the scope of this engagement.

operated laboratories—NASA’s Jet Propulsion Laboratory and DOD’s Lincoln Laboratory.

To describe the extent to which M&O contractors performed mission-support activities and used subcontracts in fiscal year 2015, the most recent year for which such data are available, we reviewed the “scope of work” sections in DOE’s M&O contracts and examined available data about M&O activities. Specifically, we assessed the reliability of two data sources and found them to be sufficiently reliable for our purposes:

- **DOE’s Institutional Cost Reporting (ICR) initiative.** We used ICR data to describe total fiscal year 2015 spending through individual M&O sites as well as groups of M&O sites. In addition, we provided general information on the percentage of direct and indirect costs at M&O sites and the percentage of total costs that were subcontracted at M&O sites. We assessed the reliability of this data set by reviewing available documentation, including guidance used by M&O contractors to develop their ICR submissions, and by interviewing DOE officials. We have previously reported that ICR data may be an improvement over previous DOE efforts to monitor M&O contractor costs.² However, DOE officials told us that ICR data may not be comparable across M&O contractors in part because of differences in how costs are identified and reported. As such, we use ICR data to provide information on the range of direct and indirect costs across M&O contractors, and we provide additional detail for one site.
- **The National Nuclear Security Administration’s (NNSA) strategic sourcing initiative.** We use these NNSA data to provide information about the types of goods and services that six NNSA M&O contractors acquire through subcontracts. These data are collected to provide NNSA-wide information on subcontracting to identify opportunities to save money by buying in bulk. The data set includes about 80 percent of the total amount of subcontracting dollars for the six NNSA sites. Specifically, according to officials responsible for these data, classified purchases are not included. In addition, the data include acquisitions made through purchase cards for all sites except Sandia National Laboratories, meaning that some spending from this

²GAO, *National Nuclear Security Administration: Laboratories’ Indirect Cost Management Has Improved, but Additional Opportunities Exist*, [GAO-13-534](#) (Washington, D.C.: June 28, 2013).

site is not included. These data only include purchases made under commercial contracts, meaning any purchases made through agreements with foreign governments, state or local governments, or other parts of the federal government are also not included. We assessed the reliability of these data by reviewing available documentation and interviewing the officials responsible for managing the data.

To examine the extent to which DOE considered alternatives during acquisition planning for its M&O contracts, we examined key acquisition planning documents for the M&O contracts in place as of the end of fiscal year 2015, including acquisition plans and acquisition alternatives packages. DOE requires that acquisition planning documents include a discussion of acquisition alternatives, and we examined these planning documents to determine how many considered an alternative of any kind and how many considered any alternatives beyond an extension or competition of the current contract (e.g., severing a portion of the M&O contract into its own contract, combining two sites' contracts into a single contract, using a non-M&O contract). We did not assess the quality of DOE's consideration of these alternatives, as this was outside the scope of this review.

We received and reviewed 21 acquisition plans; we did not receive an acquisition plan for the Nevada National Security Site. We also received and reviewed nine acquisition alternatives packages (also called extend-compete packages in some cases). We did not receive acquisition alternatives packages for the remaining 13 M&O contracts. DOE was in the process of acquisition planning for three sites during the course of our review—Nevada National Security Site, National Renewable Energy Laboratory, and Sandia National Laboratories—and planning documentation for these forthcoming acquisitions was in various stages of development. We use their previous acquisitions in our analysis. When available, we also reviewed DOE documentation of its experience with M&O contracts and how costs and performance were affected by changes in M&O contracting.

We conducted this performance audit from June 2015 to August 2016 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.

Appendix II: Additional Information on the Department of Energy's Management and Operating Contracts

Table 2 provides additional information on the Department of Energy's 22 management and operating contracts, contractors, and contract award and end years, and table 3 provides additional information on federal spending through these contracts and the extent to which they were competed.

Table 2: Department of Energy Management and Operating Contracts

	Contract name	Mission type	Mission/work performed	Contractor (composition of contractor)	Award year	Current end year (potential end year with all options/award terms)^a
Office of Energy Efficiency and Renewable Energy	<i>National Renewable Energy Laboratory</i>	<i>Research and development</i>	<i>Conducts research in renewable energy and energy efficiency.</i>	<i>Alliance for Sustainable Energy LLC (Battelle Memorial Institute, MRIGlobal)</i>	2008	2018 (2018)
Office of Environmental Management	<i>Savannah River Site and Savannah River National Laboratory^b</i>	<i>Research and development Production</i>	<i>Conducts research in environmental stewardship, national and homeland security, and clean energy. Conducts tritium processing, research, and development.</i>	<i>Savannah River Nuclear Solutions LLC (Fluor Corporation, Newport News Nuclear, Honeywell International Inc.)</i>	2008	2016 (2018)
	Waste Isolation Pilot Plant	Waste disposal	Manages an underground cavern for the permanent disposal of nuclear waste.	Nuclear Waste Partnership LLC (AECOM, BWXT Technical Services Group)	2012	2017 (2022)
Office of Fossil Energy	Strategic Petroleum Reserve Office	Energy security	Manages emergency stockpile of oil stored in underground salt caverns.	Fluor Federal Petroleum Operations	2014	2019 (2024)
Office of Nuclear Energy	<i>Idaho National Laboratory</i>	<i>Research and development</i>	<i>Conducts research in sustainable energy and national and homeland security.</i>	<i>Battelle Energy Alliance LLC (Battelle Memorial Institute)</i>	2005	2019 (2019)
National Nuclear Security Administration (NNSA)	Bettis and Knolls Atomic Power Laboratories	Research and development Production	Conducts research, design, construction, testing, operation, maintenance, and ultimate disposition of naval nuclear propulsion plants.	Bechtel Marine Propulsion Corporation (Bechtel National Inc.)	2008	2018 (2018)

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Contract name	Mission type	Mission/work performed	Contractor (composition of contractor)	Award year	Current end year (potential end year with all options/award terms)^a
Kansas City Plant ^c	Production	Produces nonnuclear components for nuclear weapons.	Honeywell Federal Manufacturing & Technologies LLC (Honeywell International Inc.)	2015	2020 (2025)
Nevada National Security Site	Testing	Conducts high-hazard operations, testing, and training in support of NNSA, the Department of Defense, and other agencies.	National Security Technologies, Inc. (Northrup Grumman, CH2M Hill, AECOM, Babcock & Wilcox Company)	2006	2016 (2016)
NNSA Production Office (Y-12 and Pantex)	Production	Produces nuclear and nonnuclear components for weapons and evaluates, repairs, and dismantles nuclear weapons at the Y-12 (Oak Ridge, TN) and Pantex (Amarillo, TX) sites.	Consolidated Nuclear Security LLC (Bechtel National Inc., Lockheed Martin Services Inc., ATK Launch Systems Inc., SOC LLC)	2014	2019 (2024)
Lawrence Livermore National Laboratory	Research and development	Conducts research in national defense, nuclear weapons stockpile stewardship, weapons of mass destruction, and nuclear nonproliferation.	Lawrence Livermore National Security, LLC (Bechtel National Inc., University of California, Babcock & Wilcox Company, URS Corporation)	2007	2019 (2026)
Los Alamos National Laboratory	Research and development Production	Conducts research in national defense, nuclear weapons stockpile stewardship, weapons of mass destruction, and nuclear nonproliferation. Produces certain fuel and detonators.	Los Alamos National Security, LLC (University of California, Bechtel National, Babcock & Wilcox Technical Services, URS Corporation)	2006	2017 (2023)
Sandia National Laboratories	Research and development Production	Conducts research in national defense, weapons of mass destruction, transportation, energy, telecommunications and financial networks, and environmental stewardship. Engineers and produces nonnuclear components for weapons.	Sandia Corporation (Lockheed Martin Corporation)	1994	2017 (2017)

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	Contract name	Mission type	Mission/work performed	Contractor (composition of contractor)	Award year	Current end year (potential end year with all options/award terms)^a
Office of Science	<i>Ames Laboratory</i>	<i>Research and development</i>	<i>Conducts research in rare earths and other critical materials, applied energy, fossil energy, and nonproliferation programs.</i>	<i>Iowa State University</i>	<i>2006</i>	<i>2016 (2026)</i>
	<i>Argonne National Laboratory</i>	<i>Research and development</i>	<i>Conducts research in energy innovation and sustainable energy.</i>	<i>UChicago Argonne LLC (University of Chicago)</i>	<i>2006</i>	<i>2016 (2026)</i>
	<i>Brookhaven National Laboratory</i>	<i>Research and development</i>	<i>Conducts research in physical, energy, environmental, and life sciences; energy technologies; and national security.</i>	<i>Brookhaven Science Associates, LLC (Battelle Memorial Institute, The Research Foundation for the State University of New York Stony Brook University)</i>	<i>2014</i>	<i>2020 (2035)</i>
	<i>Fermi National Accelerator Center</i>	<i>Research and development</i>	<i>Conducts research in experimental and theoretical particle physics, astrophysics, and accelerator science.</i>	<i>Fermi Research Alliance, LLC (University of Chicago, Universities Research Association, Inc.)</i>	<i>2006</i>	<i>2016 (2025)</i>
	<i>Lawrence Berkeley National Laboratory</i>	<i>Research and development</i>	<i>Conducts research in particle and nuclear physics and in physical, chemical, computational, biological, and environmental systems.</i>	<i>The Regents of the University of California (University of California)</i>	<i>2005</i>	<i>2020 (2025)</i>
	<i>Oak Ridge National Laboratory</i>	<i>Research and development</i>	<i>Conducts research in neutron scattering, advanced materials, high-performance computing, and nuclear science and engineering.</i>	<i>UT-Battelle, LLC (University of Tennessee, Battelle Memorial Institute)</i>	<i>1999</i>	<i>2020 (2020)</i>
	<i>Pacific Northwest National Laboratory</i>	<i>Research and development</i>	<i>Conducts research in electricity management, sustainability, threat detection and reduction, in situ chemical imaging and analysis, simulation, and analytics.</i>	<i>Battelle Memorial Institute</i>	<i>2002</i>	<i>2017 (2017)</i>
	<i>Princeton Plasma Physics Laboratory</i>	<i>Research and development</i>	<i>Conducts research in plasma and fusion energy sciences.</i>	<i>The Trustees of Princeton University (Princeton University)</i>	<i>2009</i>	<i>2019 (2019)</i>

**Appendix II: Additional Information on the
Department of Energy's Management and
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Contract name	Mission type	Mission/work performed	Contractor (composition of contractor)	Award year	Current end year (potential end year with all options/award terms)^a
<i>SLAC National Accelerator Laboratory</i>	<i>Research and development</i>	<i>Conducts research in materials, chemical and energy science, structural biology, and particle physics and astrophysics.</i>	<i>Stanford University</i>	1962	2017 (2017)
<i>Thomas Jefferson National Accelerator Facility</i>	<i>Research and development</i>	<i>Conducts research in fundamental nature of particles and superconducting radio-frequency technology.</i>	<i>Jefferson Science Associates, LLC (Southeastern Universities Research Association Inc., Pacific Architects and Engineers Applied Technologies, LLC)</i>	2006	2016 (2025)

Source: Department of Energy. | GAO-16-529

Note: Use of italics indicates a federally funded research and development center. A federally funded research and development center is intended to meet special, long-term research or development needs that are integral to agency missions.

^aPotential end year is the contract end year assuming all possible extensions occur, through option periods—where the agency can extend the period of performance by exercising an option at its discretion—and award term incentives, where a contractor may earn additional period of performance if the contractor's performance meets criteria outlined in the contract. Current and potential end year is as of November 2015.

^bNNSA also manages the Savannah River Site and Savannah River National Laboratory contract.

^cThe Kansas City Plant has been renamed the National Security Complex.

Table 3: Department of Energy Management and Operating Contract Spending in Fiscal Year 2015 and Extent Contracts Were Completed

	Contract name	Spending in fiscal year 2015 (billion dollars)	Extent contract competed
Office of Energy Efficiency and Renewable Energy	<i>National Renewable Energy Laboratory</i>	0.38	Competed, 2 offers received
Office of Environmental Management	<i>Savannah River Site and Savannah River National Laboratory^a</i>	0.99	Competed, 2 offers received
	Waste Isolation Pilot Plant	0.22	Competed, 4 offers received
Office of Fossil Energy	Strategic Petroleum Reserve Office	0.14	Competed, 5 offers received
Office of Nuclear Energy	<i>Idaho National Laboratory</i>	0.90	Competed, 4 offers received
National Nuclear Security Administration (NNSA)	Bettis and Knolls Atomic Power Laboratories	1.11 ^b	Competed, 3 offers received
	Kansas City Plant	0.70 ^c	Noncompetitive extension of a competed contract ^c
	Nevada National Security Site	0.52	Competed, 3 offers received
	NNSA Production Office (Y-12 and Pantex)	1.67	Competed, 3 offers received

Appendix II: Additional Information on the
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		Spending in fiscal year 2015 (billion dollars)	Extent contract competed
Contract name			
Office of Science	<i>Lawrence Livermore National Laboratory</i>	1.53	<i>Competed, 3 offers received</i>
	<i>Los Alamos National Laboratory</i>	2.25	<i>Competed, 3 offers received</i>
	<i>Sandia National Laboratories</i>	2.81	<i>Noncompetitive extension of a competed contract</i>
	<i>Ames Laboratory</i>	0.06	<i>Competed, 1 offer received</i>
	<i>Argonne National Laboratory</i>	0.75	<i>Competed, 1 offer received</i>
	<i>Brookhaven National Laboratory</i>	0.59	<i>Competed, 1 offer received</i>
	<i>Fermi National Accelerator Center</i>	0.41	<i>Competed, 1 offer received</i>
	<i>Lawrence Berkeley National Laboratory</i>	0.81	<i>Competed, 1 offer received</i>
	<i>Oak Ridge National Laboratory</i>	1.46	<i>Noncompetitive extension of a competed contract</i>
	<i>Pacific Northwest National Laboratory</i>	0.95	<i>Noncompetitive extension of a competed contract</i>
	<i>Princeton Plasma Physics Laboratory</i>	0.12	<i>Competed, 1 offer received</i>
	<i>SLAC National Accelerator Laboratory</i>	0.43	<i>Not competed</i>
	<i>Thomas Jefferson National Accelerator Facility</i>	0.16	<i>Competed, 1 offer received</i>

Source: Department of Energy. | GAO-16-529

Notes: This table reflects the 22 M&O contracts in place as of the end of fiscal year 2015. Spending in fiscal year 2015 generally includes spending from the Department of Energy and other sources. The use of italics indicates a federally funded research and development center. A federally funded research and development center is intended to meet special, long-term research or development needs that are integral to agency missions.

^aNNSA also manages the Savannah River Site and Savannah River National Laboratory contract.

^bThis amount does not include spending from Department of Navy appropriations.

^cThe contract for the Kansas City Plant was awarded in July 2015. Spending and competition presented for the Kansas City Plant contract reflect the prior contract because, according to agency officials, there was no spending in fiscal year 2015 under the new contract. The contract awarded in 2015 was awarded after a competition for which DOE received two offers.

Appendix III: Comments from the Department of Energy



Department of Energy
Washington, DC 20585

July 19, 2016

Mr. David Trimble
Director
Natural Resources and Environment
United States Government Accountability Office
441 G. Street, NW
Washington, D.C. 20648

Dear Mr. Trimble:

The Department of Energy (DOE) would like to thank you for the opportunity to review and comment on the Government Accountability Office (GAO) draft report titled *Department of Energy: Actions Needed to Strengthen Acquisition Planning for Management and Operating Contracts* (GAO-16-529, July 2016). DOE's response to the GAO's report recommendations and DOE's general comments on the draft report are enclosed.

The draft report recommends the Secretary of Energy direct the Office of Procurement and Assistance Policy to improve the acquisition planning process for the Department's management and operating contracts. The Department concurs with the first recommendation, and concurs in principle with the second recommendation.

If you have any questions, please contact Jason Taylor at (202) 287-1560 or jason.taylor@hq.doe.gov.

Sincerely,

A handwritten signature in black ink, appearing to read "Ingrid Kolb", is written over the typed name.

Ingrid Kolb
Director
Office of Management

Enclosure



Response to Report Recommendations

Recommendation 1: To strengthen acquisition planning for M&O contract acquisitions, we recommend that the Secretary of Energy direct the Office of Procurement and Assistance Policy to require that acquisition planning documents for M&O contracts discuss alternatives beyond extending the M&O contract or conducting a competition for essentially the same scope of work.

Management Response: Concur.

The Office of Management will amend existing or issue new policy or guidance, as appropriate, to require acquisition planning documents to contain a discussion of alternatives beyond simply extension or re-competition of the existing scope of work. The estimated completion date is January 15, 2017.

Recommendation 2: To strengthen acquisition planning for M&O contract acquisitions, we recommend that the Secretary of Energy direct the Office of Procurement and Assistance Policy to establish a process to periodically analyze DOE's experience with alternatives to the single M&O contract approach to identify and apply lessons learned during acquisition planning for M&O contracts.

Management Response: Concur in principle.

The Office of Management will amend existing or issue new policy or guidance, as appropriate, to require programs to periodically analyze their experiences with alternatives to the single M&O contract approach in order to identify and apply lessons learned during acquisition planning for M&O contracts. Given the diverse mission of the department, the departmental elements with M&O contracts are in the best position to develop a process to analyze their experiences with those contracts. The estimated completion date is July 15, 2017.

Appendix IV: GAO Contact and Staff Acknowledgments

GAO Contact

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

Staff Acknowledgments

In addition to the contact named above, Hilary Benedict (Assistant Director), Allison Bawden, Richard Burkard, Ashley Chaifetz, Quindi Franco, Cindy Gilbert, Michael Kendix, Caryn Kuebler, Armetha Liles, Michele Mackin, Alison O'Neil, Janice Poling, Kiki Theodoropoulos, and William Woods made key contributions to this report.

Appendix V: Accessible Data

Agency Comment Letter

Text of Appendix III:
Comments from the
Department of Energy

Page 1

Department of Energy

Washington, DC 20585

July 19, 2016

Mr. David Trimble

Director

Natural Resources and Environment

United States Government Accountability Office

441 G. Street, NW

Washington, D.C. 20648

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Sincerely,

Ingrid Kolb

Director

Office of Management

Enclosure

Page 2

Response to Report Recommendations

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Management Response: Concur.

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Recommendation 2: To strengthen acquisition planning for M&O contract acquisitions, we recommend that the Secretary of Energy direct the Office of Procurement and Assistance Policy to establish a process to periodically analyze DOE's experience with alternatives to the single M&O contract approach to identify and apply lessons learned during acquisition planning for M&O contracts.

Management Response: Concur in principle.

The Office of Management will amend existing or issue new policy or guidance, as appropriate, to require programs to periodically analyze their experiences with alternatives to the single M&O contract approach in order to identify and apply lessons learned during acquisition planning for

M&O contracts. Given the diverse mission of the department, the departmental elements with M&O contracts are in the best position to develop a process to analyze their experiences with those contracts. The estimated completion date is July 15, 2017.

Data Tables

Data Table for Figure 2: Department of Energy Fiscal Year 2015 Spending on Management and Operating Contracts by Extent Completed

Dollars in billions	Percentage
\$2.9	
Competed, 1 offer received	15%
\$9.7	
Competed, 2 or more offers received	51%
\$5.9	
Noncompetitive extension ^a	31%
\$0.4	
Not competed	2%

Data Table for Figure 3: Current and Potential Lengths of the Department of Energy's Management and Operating Contracts (as of November 2015)

Contract name	Contract length (years)	
	Current	Remaining options/award
National Renewable Energy Laboratory	10.2	0
Savannah River Site and Savannah River National Laboratory	8.7	1.8
Waste Isolation Pilot Plant	5.4	5
Strategic Petroleum Reserve Office	5	5
Idaho National Laboratory	14.9	0
Bettis and Knolls Atomic Power Laboratories	10	0
Kansas City Plant	5.2	5
Nevada National Security Site	10.5	0
National Nuclear Security Administration Production Office	5.3	5
Lawrence Livermore National Laboratory	12	7
Los Alamos National Laboratory	11.3	6
Sandia National Laboratories	23.5	0

Contract name	Contract length (years)	
	Current	Remaining options/award
Ames Laboratory	10.1	10
Argonne National Laboratory	10.2	10
Brookhaven National Laboratory	5	15
Fermi National Accelerator Center	10.2	9
Lawrence Berkeley National Laboratory	15.1	5
Oak Ridge National Laboratory	20.5	0
Pacific Northwest National Laboratory	14.8	0
Princeton Plasma Physics Laboratory	10	0
SLAC National Accelerator Laboratory	54.9	0
Thomas Jefferson National Accelerator Facility	10.1	9

Data Table for Figure 4: Example of Mission and Mission-Support Costs for a Management and Operating Contract at a Multiprogram National Laboratory, Fiscal Year 2015

Category	Percentage
Mission	66%
Mission-support	34%

Out of 34% of mission-support:

Category	Percentage
Facilities, maintenance, and utilities	12%
Contractor fee	1%
Security and cybersecurity	1%
Laboratory-directed research and development	2%
Information management	3%
Other mission support	4%
Management, procurement, business development, and administrative	11%

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