

National Nuclear Security Administration: Better Performance Tracking and Documentation Needed for Minor Construction Projects

GAO-24-105848 (Accessible Version)
Q&A Report to Congressional Committees

January 25, 2024

Why This Matters

The National Nuclear Security Administration (NNSA)—a separately organized agency within the Department of Energy (DOE)—carries out over 100 minor construction projects each year at its eight nuclear security enterprise sites, which include national laboratories and production sites. These projects include additions, new or replacement facilities, and installations or upgrades that do not change a facility's footprint.

The minor construction threshold—currently \$30 million—limits what NNSA can spend on these projects. NNSA must identify projects with estimated costs above the threshold as specific line items in its budget for congressional authorization and appropriation. In contrast, NNSA is authorized to carry out projects with estimated costs below the threshold without identifying them as specific line items. A 2022 NNSA report recommended that the agency ask Congress to raise the minor construction threshold to \$50 million or \$100 million.¹

Senate Report 117-39, which accompanied the Senate bill for the National Defense Authorization Act (NDAA) for fiscal year 2022,² includes a provision for GAO to review the minor construction threshold in the context of NNSA's overall construction activities and evaluate the potential effects of raising the threshold.³ We are providing information on how NNSA manages minor construction projects, the number of projects NNSA has undertaken and planned, and our analysis of the potential effects of raising the threshold.

Key Takeaways

- Congress has raised the minor construction threshold numerous times, from \$5 million originally set in fiscal year 2003 to \$30 million in fiscal year 2023. Had Congress tied the minor construction threshold to inflation or a construction-specific economic indicator when first setting it at \$5 million in fiscal year 2003, the threshold would have been between \$8 million and \$12 million in fiscal year 2022.
- Further increasing the minor construction threshold could provide NNSA with the ability to address emerging issues more quickly without having to seek specific congressional authorization and appropriations for these projects, according to NNSA officials. However, it could limit congressional and departmental insight into the performance of some construction projects.
- From fiscal year 2019 through July 2023, NNSA program offices undertook 414 minor construction projects that cost an estimated total of about \$3 billion. The majority of these projects met or are expected to meet their cost targets. However, we could not assess the schedule performance for some of these projects because the agency's offices did not collect project data in a consistent manner. The offices also have not documented, in a formal and comprehensive manner, their project management processes and related requirements.
- We recommend that NNSA (1) consistently collect and track information on the cost and schedule performance of minor construction projects; and (2) document, in a

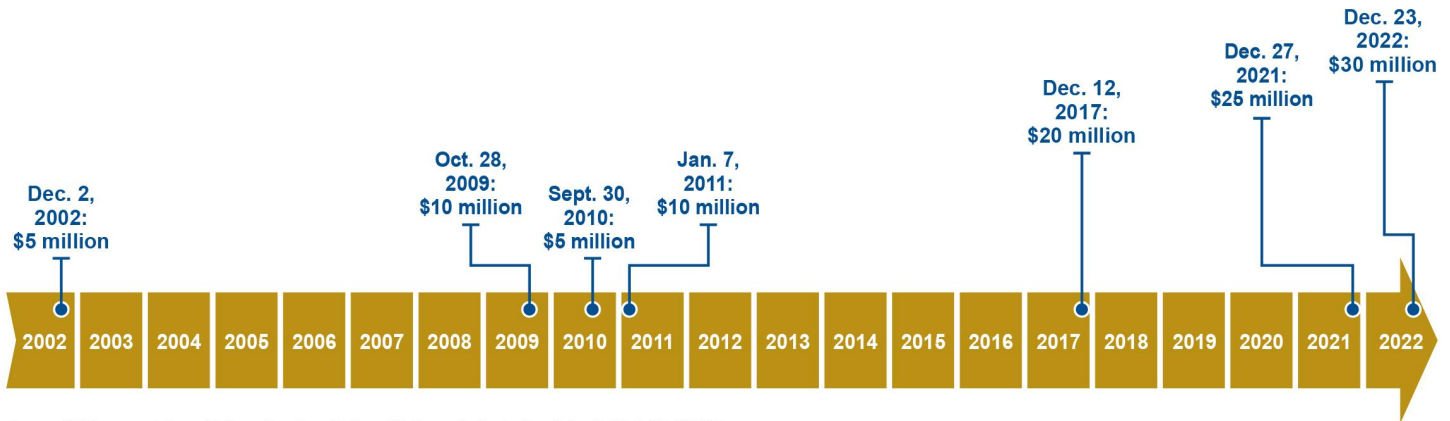
formal and comprehensive manner, its processes and related requirements for managing these projects. Doing so will enable NNSA management to better manage and assess project performance and ensure they follow DOE management principles. NNSA concurred with both recommendations.

How has the minor construction threshold changed over time compared with economic conditions?

Since first establishing NNSA’s minor construction threshold in fiscal year 2003, Congress has modified it numerous times. The threshold is more than double what it would have been if it had originally been tied to inflation or another economic indicator.

Figure 1 shows the modifications Congress has made to the threshold over the last 20 years. The NDAA for fiscal year 2023 set the threshold at \$30 million.⁴ NNSA may adjust that figure, subject to certain conditions.⁵

Figure 1: Congressional Revisions to NNSA’s Minor Construction Threshold



Source: GAO presentation of information from National Defense Authorization Acts. | GAO-24-105848

Accessible Text for Figure 1: Congressional Revisions to NNSA’s Minor Construction Threshold

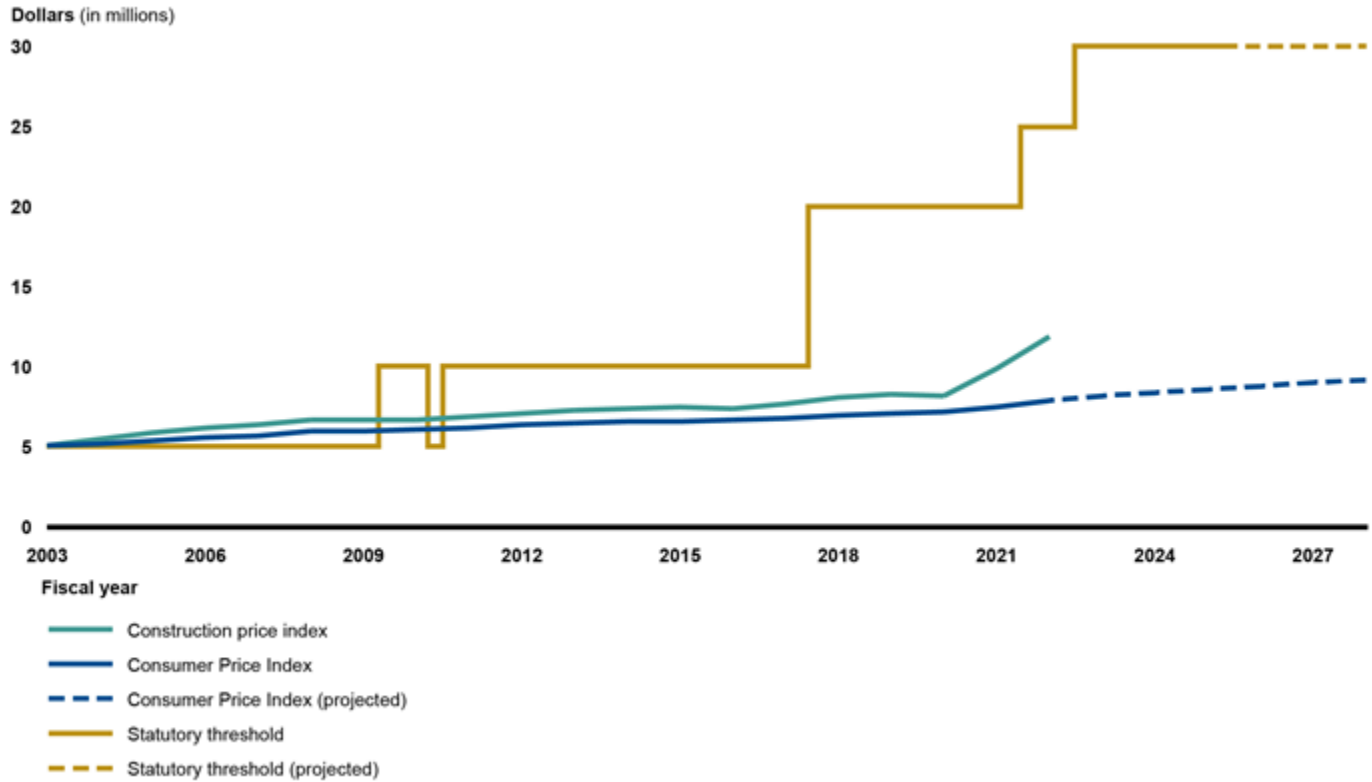
| Date | Amount |
|--------------------|------------|
| December 2, 2002 | 5 million |
| October 28, 2009 | 10 million |
| September 30, 2010 | 5 million |
| January 7, 2011 | 10 million |
| December 12, 2017 | 20 million |
| December 27, 2021 | 25 million |
| December 23, 2022 | 30 million |

Source: GAO presentation of information from National Defense Authorization Acts. | GAO-24-105848

Note: The minor construction threshold is currently \$30 million. The National Nuclear Security Administration (NNSA) may adjust that figure, however, based on “fiscal year 2022 constant dollars.” The adjusted amount must be published in the *Federal Register*. As of January 2024, the Administrator has not published an adjusted amount.

If Congress had linked the minor construction threshold to inflation when first establishing it in fiscal year 2003, the threshold would have been approximately \$8 million in fiscal year 2022 and would be approximately \$9.2 million by fiscal year 2028, according to our projections. Alternatively, if Congress had linked the threshold to a construction sector-specific price index, the threshold would have been approximately \$12 million in fiscal year 2022.⁶ Figure 2 shows the actual statutory threshold over time compared with what it would have been each year if linked either to inflation or to a construction price index.

Figure 2: Projected NNSA Minor Construction Threshold if Linked to Inflation or Construction Price Indices, Fiscal Years 2003–2028



Sources: GAO analysis of the minor construction threshold legislative history, Consumer Price Index, and construction indices from the Bureau of Labor Statistics (BLS). | GAO-24-105848

Accessible Text for Figure 2: Projected NNSA Minor Construction Threshold if Linked to Inflation or Construction Price Indices, Fiscal Years 2003–2028

| Fiscal year | Consumer Price Index | Construction price index |
|-------------|----------------------|--------------------------|
| 2003 | 5.1 | 5.1 |
| 2004 | 5.2 | 5.5 |
| 2005 | 5.4 | 5.9 |
| 2006 | 5.6 | 6.2 |
| 2007 | 5.7 | 6.4 |
| 2008 | 6.0 | 6.7 |
| 2009 | 6.0 | 6.7 |
| 2010 | 6.1 | 6.7 |
| 2011 | 6.2 | 6.9 |
| 2012 | 6.4 | 7.1 |
| 2013 | 6.5 | 7.3 |
| 2014 | 6.6 | 7.4 |
| 2015 | 6.6 | 7.5 |
| 2016 | 6.7 | 7.4 |
| 2017 | 6.8 | 7.7 |
| 2018 | 6.98 | 8.1 |
| 2019 | 7.1 | 8.3 |
| 2020 | 7.2 | 8.2 |
| 2021 | 7.5 | 9.9 |
| 2022 | 7.9 | 11.9 |

| Fiscal year | Consumer Price Index | Construction price index |
|-------------|----------------------|--------------------------|
| 2023 | 8.2 | |
| 2024 | 8.4 | |
| 2025 | 8.6 | |
| 2026 | 8.8 | |
| 2027 | 9.04 | |
| 2028 | 9.2 | |

Sources: GAO analysis of the minor construction threshold legislative history, Consumer Price Index, and construction indices from the Bureau of Labor Statistics (BLS). | GAO-24-105848

Note: The Consumer Price Index is a common indicator for inflation. In this figure, the dotted lines represent projections extending to fiscal year 2028 and are from the Congressional Budget Office, *The Budget and Economic Outlook: 2022 to 2032* (Washington, D.C.: May 2022). For the construction index, we used the *Producer Price Index by Commodity: Special Indexes: Construction Materials* from BLS, which measures average changes in prices received by domestic producers for their output. Though the index does not necessarily reflect changes in the cost of materials, labor, equipment, or other input costs associated with generating output, producers do consider these factors when they set their selling prices. This index does not account for specialized equipment costs or labor-intensive, site-specific costs that may be incurred on National Nuclear Security Administration (NNSA) construction projects.

How does NNSA budget for minor construction projects compared with line-item construction projects?

NNSA budgets for minor construction projects differently than it budgets for line-item construction projects in two ways. First, the funds for its minor construction projects are to come from general funds (such as operations and maintenance funds) that are available within a program office's budget rather than from funds authorized by Congress for specific line-item construction projects. NNSA program offices that manage minor construction projects include the Office of Infrastructure, Office of Defense Programs, and several other offices.⁷

Although NNSA is not required to seek congressional authorization before starting minor construction projects, it must report annually to the congressional defense committees on the original and current estimates for total project costs and completion dates, among other information, for all minor construction projects.⁸ In addition, it must meet various requirements if these projects have certain characteristics:

- **Over \$5 million in estimated construction design costs.** NNSA must seek congressional authorization.⁹
- **Over \$5 million in total estimated costs.** NNSA must provide notification to the congressional defense committees 15 days prior to initiating any new minor construction project.¹⁰
- **Over \$10 million in total estimated costs.** NNSA is directed to provide semiannual progress updates to the congressional armed services committees.¹¹ This direction includes projects that were initially estimated to cost below \$10 million but have since exceeded that amount.
- **Projects exceeding the minor construction threshold.** For any project with a cost increase over the minor construction threshold, NNSA must submit a report to the congressional defense committees explaining the reasons for the project cost variation.¹²

Second, NNSA provides high-level information on minor construction projects that cost more than \$5 million as part of its budget justification. This information includes the project's title, a brief project description, the construction design cost estimate, and the requested amount of funding for that year's appropriation. Information on a single minor construction project may be submitted multiple times to Congress through annual budget submissions and semiannual progress updates.

In contrast, NNSA must identify projects with estimated costs above the minor construction threshold as specific line items in its congressional budget justification for congressional authorization and appropriation before work may begin. NNSA must

include information on these projects in a project data sheet, which is updated with detailed cost, schedule, and scope information in each budget justification for which NNSA is requesting project funds.

While minor construction projects may involve multiple updates to the Congress, the information provided is less detailed than what is included in a project data sheet. For example, project data sheets include critical milestone history, cost history, a justification, key performance parameters, and a financial schedule.

In addition, NNSA officials reported that they have more flexibility to start new minor construction projects compared with line-item construction projects under a continuing resolution. Specifically, NNSA officials told us that they may use amounts appropriated under a continuing resolution to initiate minor construction project activities, whereas they may not do so for line-item construction projects.

The officials also explained that agencies have the authority under most continuing resolutions to engage in programs, projects, or activities, such as minor construction, for which the agency had authority under the previous fiscal year’s appropriation. In contrast, new line-item construction projects have not been previously funded and so cannot be initiated during a continuing resolution.

NNSA’s ability to initiate new minor construction projects while operating under a continuing resolution has been especially relevant in recent decades. As we have previously reported, Congress enacted an average of three continuing resolutions per fiscal year in the period between fiscal years 1996 and 2021.¹³ In this report, we found that the duration of continuing resolutions increased substantially after fiscal year 2000. We also found that DOE has operated under a continuing resolution for an average of 93 days each fiscal year, beginning in 2000.

What minor construction projects has NNSA undertaken at its sites since fiscal year 2019?

Since the beginning of fiscal year 2019, NNSA’s program offices have undertaken 414 minor construction projects, with an average cost of \$7.3 million per project, according to data we reviewed (see table 1).¹⁴

Table 1: NNSA Minor Construction Projects, Fiscal Years 2019-2023

| NNSA program offices | Number of projects | Range of costs (in millions) ^a | Average project cost (in millions) | Total estimated costs (in millions) |
|-------------------------------|--------------------|---|------------------------------------|-------------------------------------|
| Infrastructure | 259 | \$0 - 29 | \$7 | \$1,814 |
| Defense Programs ^b | 84 | \$0 - 29 | \$8 | \$666 |
| Other ^c | 71 | \$0 - 25 | \$9.47 | \$540 |
| Total | 414 | \$0 - 29 | \$7 | \$3,020 |

Source: GAO analysis of National Nuclear Security Administration (NNSA) data. | GAO-24-105848

Note: Data include minor construction projects that were active from fiscal years 2019 to 2023, including projects that started before fiscal year 2019 but were active during this time. NNSA program offices provided these data to GAO between May 10, 2023, and July 28, 2023, and data for fiscal year 2023 is partial. Data do not include indirect-funded minor construction projects, the costs of which cannot be assigned to a particular program.

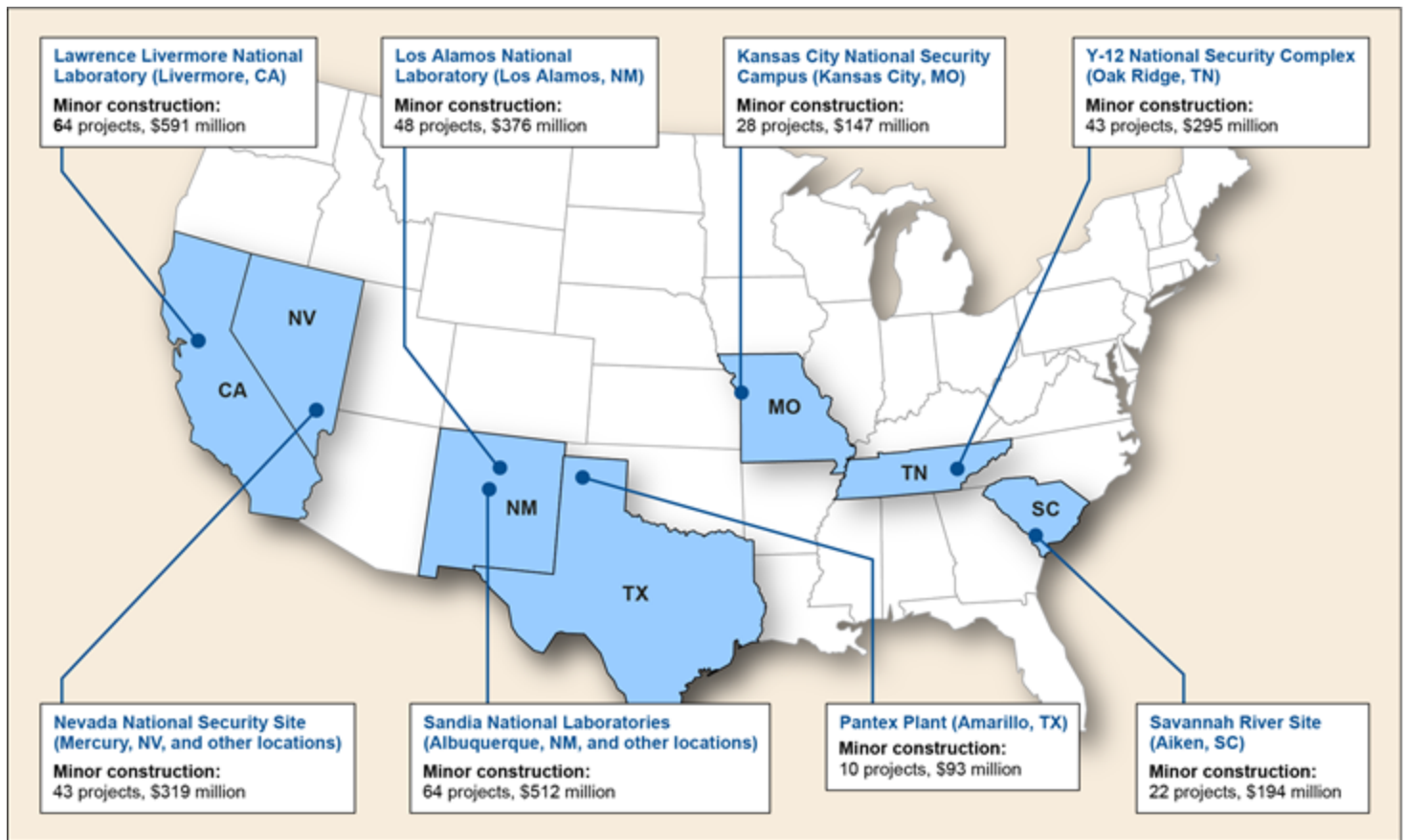
^aProjects with costs under \$500,000 were rounded down to \$0 for the purposes of this table.

^bData exclude the Zeus Test Bed Facilities Improvement project, which was started as minor construction but will be a line-item project starting in fiscal year 2024.

^c“Other” includes data from the following NNSA program offices: Counterterrorism and Counterproliferation, Defense Nuclear Nonproliferation, Defense Nuclear Security, and Naval Reactors.

NNSA’s program offices carried out minor construction projects across all eight sites of the nuclear security enterprise (see fig. 3).

Figure 3: Location of NNSA’s Minor Construction Projects across the Nuclear Security Enterprise, Fiscal Years 2019-2023



Sources: GAO analysis of National Nuclear Security Administration (NNSA) data; Map Resources (map). | GAO-24-105848

Accessible Text for Figure 3: Location of NNSA’s Minor Construction Projects across the Nuclear Security Enterprise, Fiscal Years 2019-2023

| Site | Project type | Number of projects | Total project costs (USD millions) |
|---|--------------------|--------------------|------------------------------------|
| Kansas City National Security Campus (KCNSC) | Minor construction | 28 | 147 |
| Lawrence Livermore National Laboratory (LLNL) | Minor construction | 64 | 591 |
| Los Alamos National Laboratories (LANL) | Minor construction | 48 | 376 |
| Nevada National Security Site (NNS) | Minor construction | 43 | 319 |
| Pantex (PX) | Minor construction | 10 | 93 |
| Sandia National Laboratory (SNL) | Minor construction | 64 | 512 |
| Savannah River Site | Minor construction | 22 | 194 |
| Y-12 National Security Complex | Minor construction | 43 | 294 |

Sources: GAO analysis of National Nuclear Security Administration (NNSA) data; Map Resources (map). | GAO-24-105848

Note: Data include minor construction projects that were active from fiscal years 2019 to 2023, including projects that started before fiscal year 2019 but were active during this time. NNSA program offices provided these data to GAO between May 10, 2023, and July 28, 2023, and data for fiscal year 2023 is partial. Data do not include 112 projects carried out at locations outside the eight nuclear security enterprise sites. Data for the Office of Defense Programs exclude the Zeus Test Bed Facilities Improvement project, which was started as minor construction but will be a line-item project starting in fiscal year 2024. Data do not include indirect-funded minor construction projects, the costs of which cannot be assigned to a particular program.

According to data we reviewed, work conducted as minor construction projects included installations, upgrades, or conversions for existing facilities. For example, some projects

replaced gas lines or oil storage tanks or upgraded electrical systems. Minor construction projects also included construction of new facilities, such as the build-out of new infrastructure that could be used to replace aging infrastructure needed to support NNSA's mission. For example, some projects installed a fabrication facility, an operations center building, or storage areas. In general, according to officials, minor construction projects do not involve activities that handle special nuclear material.

In some cases, NNSA also identified projects by the primary systems and assemblies associated with facility construction. For example, the minor construction projects undertaken by the Office of Infrastructure since fiscal year 2019 included categories such as plumbing; heating, ventilation, and air conditioning; electrical system; and fire protection upgrades.

For comparison, since fiscal year 2019, NNSA has undertaken 26 line-item construction projects under \$100 million, with an average cost of approximately \$38 million. These include projects from the Office of Defense Programs, Office of Defense Nuclear Security, Office of Infrastructure, and Naval Reactors. Examples of these projects include an emergency operations center and a special materials facility.

How have these construction projects performed?

Based on data provided by NNSA's program offices, we found that the majority of minor construction projects NNSA undertook from fiscal years 2019 to 2023 met or are expected to meet their cost targets. However, we were unable to assess the extent to which many of these projects met their intended schedule because NNSA did not provide us with sufficient information to assess schedule performance for these projects, largely due to a lack of consistency in the data each office collects.

Cost. We assessed cost performance by comparing a project's baseline cost estimate with its actual cost or current cost estimate.¹⁵ Table 2 provides an overview of the cost performance for these projects. For example, 53 percent of the completed projects met or underran their cost targets (by an average of \$0.7 million, or 20 percent, below the target), while 47 percent exceeded their cost targets (by an average of \$1.5 million, or 51 percent, above the target).

Table 2: Cost Performance of NNSA's Minor Construction Projects, Fiscal Years 2019-2023

| Category | Category total |
|--|---------------------|
| Completed projects | 234 |
| Projects at or below cost targets ^a (% of completed projects) | 124 (53%) |
| Average amount below cost targets (average % below targets) | \$0.7 million (20%) |
| Projects exceeding cost targets ^a (% of completed projects) | 110 (47%) |
| Average amount above cost targets (average % above targets) | \$1.5 million (51%) |
| Ongoing projects | 180 |
| Projects at or below cost targets ^a (% of ongoing projects) | 115 (64%) |
| Average amount below cost targets (average % below targets) | \$0.5 million (4%) |
| Projects exceeding cost targets ^a (% of ongoing projects) | 65 (36%) |
| Average amount above cost targets (average % above targets) | \$4.5 million (59%) |
| Total | 414 |

Source: GAO analysis of National Nuclear Security Administration (NNSA) data. | GAO-24-105848

Note: Data include minor construction projects that were active from fiscal years 2019 to 2023, including projects that started before fiscal year 2019 but were active during this time. NNSA program offices provided these data to GAO between May 10, 2023, and July 28, 2023, and data for fiscal year 2023 is partial. Data do not include the Zeus Test Bed Facilities Improvement project, which was started as minor construction but will be a line-item project starting in fiscal year 2024. Data do not include indirect-funded minor construction projects, the costs of which cannot be assigned to a particular program.

^aWe calculated cost performance for a project by comparing its baseline cost estimate with its current or actual cost estimate. Minor construction projects typically establish cost baselines when projects are selected to be funded, according to officials. We used the third quarter of fiscal year 2023 as the cut-off for project completion dates to determine which projects were completed versus those ongoing.

However, on a portfolio level, the cost performance of these minor construction projects appears more negative. Specifically, NNSA's estimate of the total cost for all 414 projects is approximately \$3 billion, which is about \$300 million (or 11 percent) higher than the collective cost baseline of \$2.7 billion. According to NNSA officials from the Office of Infrastructure, all minor construction projects initiated after March 2020, or that were active after that time, were affected by the COVID-19 pandemic, resulting in cost overruns and schedule delays.

Schedule. We attempted to assess schedule performance by comparing a project's baseline completion date with its actual completion date or current estimate for completion.¹⁶ However, some NNSA offices did not collect sufficient data on their projects' completion dates. For example, the Office of Defense Programs provided quarters of fiscal years, rather than specific dates, for its completion date estimates. The Office of Defense Nuclear Nonproliferation also provided fiscal years, rather than specific dates or quarters, for some projects. As a result, we could not assess the schedule performance of all 414 minor construction projects NNSA has undertaken since fiscal year 2019.

However, as an example, the Office of Infrastructure—which oversaw the largest number of minor construction projects—provided us with sufficient data to assess schedule performance for its projects. These projects accounted for approximately 60 percent of minor construction projects undertaken since fiscal year 2019. On the basis of the office's data, we found that 117 (or 68 percent) of its 172 completed projects exceeded their schedule targets (by an average of about 8 months). According to officials, projects faced cost overruns and schedule delays because of the COVID-19 pandemic.

Overall, we found inconsistencies in how NNSA's offices collect information on minor construction projects. For example, some offices, such as the Office of Infrastructure and the Office of Naval Reactors, provided us with more detailed data on cost, schedule, project type, and other related information. Other offices, such as the Office of Defense Programs and the Office of Defense Nuclear Nonproliferation, did not track the same information on project type and provided us with less detailed data on project schedule. In addition, several offices provided initial data that had gaps, such as missing cost and schedule information.

According to NNSA officials, there is no requirement that program offices have access to a system that tracks minor construction projects for project management purposes. Officials stated that they take a risk-based approach to tracking project cost and schedule and that sending data calls to management and operating contractors at the sites where projects are being carried out can increase workload.

According to federal standards for internal control, management should use quality information to achieve objectives.¹⁷ Quality information is appropriate, current, complete, accurate, accessible, and provided on a timely basis. Without collecting and tracking information—including information related to performance—on minor construction projects in a consistent manner, NNSA may not be able to ensure that management has the quality information they need to manage and assess the performance of these projects. This is especially important because cost overruns on minor construction projects may be significant in the aggregate. For example, cost overruns for minor construction projects managed by the Office of Infrastructure and the Office of Defense Programs totaled nearly \$149 million for projects completed over the approximately 5-year period we reviewed.

How does NNSA manage minor construction projects compared with line-item construction projects?

NNSA program offices use different processes from one another to manage their minor construction projects, but they generally have not documented these project management processes and related requirements in a formal and comprehensive manner. In addition, these processes and requirements are less prescriptive than those DOE requires to be used to manage line-item construction projects over \$50 million.¹⁸

According to NNSA officials, contractors that manage and operate NNSA laboratories, sites, and plants are responsible for managing minor construction projects on a day-to-day basis at their sites as part of their overall scope of work. NNSA program officials

conduct a variety of activities to oversee the work of their contractors. For example, according to NNSA officials within the Office of Infrastructure, contractors report cost and schedule data monthly to NNSA, and NNSA officials from this office review monthly project reports.

Overall, we found that the processes used by NNSA program offices to oversee the work of contractors varied from office to office.¹⁹ For example, NNSA's Office of Infrastructure uses a formal project management system to store and track information related to its minor construction projects. According to officials, this system provides "cradle to grave" management for these projects.

In contrast, suboffices within the Office of Defense Programs used different processes to track information related to their minor construction projects. For example, officials from one suboffice stated that they use an Excel spreadsheet and periodic updates from the contractor to track their minor construction projects. Officials from another suboffice stated that they do not use a system to track their minor construction projects. Instead, they said that contractors provide them with regular briefings, as well as a summary of projects, on a quarterly basis.

However, we found that NNSA's program offices generally have not documented, in a formal and comprehensive manner, the processes and related requirements they use to manage minor construction projects. For example:

- Officials from the Office of Infrastructure told us that the minor construction projects funded through their office's budget generally follow the principles outlined in DOE's project management order, which applies to line-item construction projects with an estimated cost of \$50 million or more. In addition, they stated that a 2021 program management plan contains other guidance related to managing minor construction projects.²⁰ Moreover, they said that minor construction projects are typically managed as part of a larger program, which is subject to NNSA's policy on program management.²¹
- Officials from the Office of Defense Programs also told us that the minor construction projects they manage follow the principles outlined in DOE's project management order. They also stated that their programs may apply other directives, such as the Office of Defense Program's program execution instruction,²² to minor construction projects. In addition, some officials reported that a formal document does not exist describing NNSA's policies and procedures for managing minor construction projects.

We found that none of these documents—including DOE's project management order, the Office of Infrastructure's program management plan, and the Office of Defense Programs' program execution instruction—describe, in a formal and comprehensive manner, NNSA's processes and related requirements for managing its minor construction projects.

According to federal standards for internal control, management should implement control activities through policies.²³ For example, management may document policies related to each unit's responsibilities. In addition, according to DOE's project management order, one of the principles of project management is having well-defined and documented project requirements. By formally and comprehensively documenting its project management processes and related requirements for minor construction projects, NNSA could have greater assurance that its minor construction projects follow the principles outlined in DOE's project management order and that contractors leading these projects are applying these principles consistently.

In addition, as shown in table 3, we found that NNSA's processes and requirements for managing minor construction projects are generally less prescriptive than the processes and requirements it uses to manage line-item construction projects with estimated costs of \$50 million or more. According to NNSA officials, this is because these projects are less complex and lower risk compared with more complex and higher-cost line-item projects. Moreover, according to NNSA officials, some offices, such as the Office of Infrastructure, conduct some activities (such as monthly cost reviews) even though they are not required to do so.

Table 3: Comparison of Selected NNSA and DOE Project Management Processes and Requirements for NNSA Construction Projects

| Topic | Processes and requirements for minor construction projects | Processes and requirements for line-item construction projects costing \$50 million or more |
|------------------------------------|---|---|
| NNSA project managers ^b | Not required | NNSA assigns a federal project manager to oversee project activities, which are managed on a day-to-day basis by contractors. |
| NNSA senior management reviews | Not required ^c | NNSA project and program officials, with an advisory board of subject matter experts, conduct reviews at five major milestones. These reviews assess a project's readiness on whether to proceed to the next project phase. |
| NNSA cost reviews | Not required ^d | A DOE team reviews costs as part of an independent project review for projects under \$100 million or conducts an independent cost review for projects over \$100 million. |
| Performance baselines | Contractors generally develop the performance baseline—including cost, completion date, and scope—and document it in a project execution plan, according to NNSA officials. | The NNSA project manager develops the performance baseline, including cost, completion date, and scope. NNSA senior management documents approval of the performance baseline, including key components of scope. |
| Performance reporting | Contractors generally report cost and schedule data monthly to NNSA, according to NNSA officials. NNSA program and field office officials review monthly project reports. | Contractors report cost and schedule data, including earned value management data, monthly into DOE's Project Assessment and Report System. NNSA project managers and program officials conduct monthly reviews of project information and performance. |

Source: GAO analysis of Department of Energy (DOE) and National Nuclear Security Administration (NNSA) directives and responses from DOE and NNSA officials. | GAO-23-105848

^aProcesses and requirements related to these projects are found in Department of Energy, Order 413.3B, *Program and Project Management for the Acquisition of Capital Assets* (Washington, D.C.: June 21, 2023).

^bNNSA refers to these project managers as federal project directors.

^cAccording to NNSA officials, they review minor construction projects for funding determinations and to ensure compliance with statutes and policies throughout project execution.

^dNNSA program officials may conduct a limited review of contractor cost estimates as part of the contract award process, according to NNSA officials.

What minor construction projects is NNSA planning to begin between fiscal years 2024 and 2028?

For fiscal years 2024 to 2028, NNSA program offices plan to undertake 437 minor construction projects, with an average cost of about \$11 million per project, according to data we reviewed (see table 4).²⁴

Table 4: NNSA's Planned Minor Construction Projects, Fiscal Years 2024-2028

| NNSA program offices | Number of projects | Range of costs (in millions) ^a | Average project cost (in millions) | Total estimated costs (in millions) |
|----------------------|--------------------|---|------------------------------------|-------------------------------------|
| Infrastructure | 307 | \$0 – 30 | \$12 | \$3,645 |
| Defense Programs | 60 | \$0 – 30 | \$10 | \$572 |
| Other ^b | 70 | \$0 – 27 | \$9 | \$638 |
| Total | 437 | \$0 – 30 | \$11 | \$4,855 |

Source: GAO analysis of National Nuclear Security Administration (NNSA) data. | GAO-24-105848

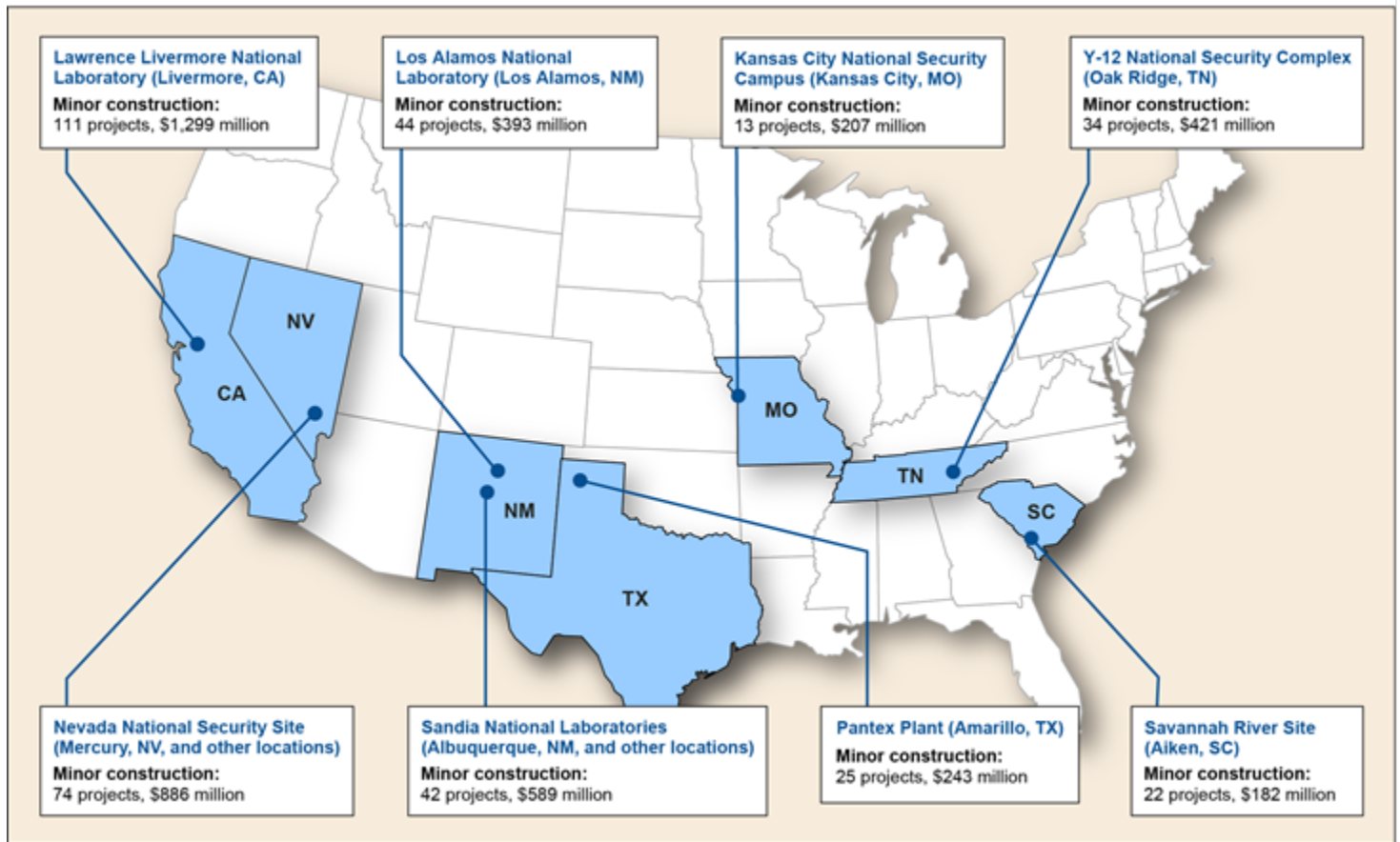
Note: Data include minor construction projects planned for fiscal years 2024 to 2028 that may be in various stages of development, including projects initially proposed to start in fiscal year 2023 that were determined to need more planning or were reprioritized for upcoming budget cycles. Data also include projects that may ultimately not be submitted for funding consideration by the earliest identified start date or which have \$0 in total costs listed as a placeholder, according to officials. NNSA program offices provided these data to GAO between May 10, 2023, and July 28, 2023. Data do not include indirect-funded minor construction projects, the costs of which cannot be assigned to a particular program.

^aProjects with costs under \$500,000 were rounded down to \$0 for the purposes of this table.

^b“Other” includes data from the following NNSA program offices: Counterterrorism and Counterproliferation, Defense Nuclear Nonproliferation, Defense Nuclear Security, Emergency Operations, and Naval Reactors.

NNSA program offices plan to carry out minor construction projects across all eight sites of the nuclear security enterprise, as figure 4 shows.

Figure 4: Location of NNSA’s Planned Minor Construction Projects across the Nuclear Security Enterprise, Fiscal Years 2024-2028



Sources: GAO analysis of National Nuclear Security Administration (NNSA) data; Map Resources (map). | GAO-24-105848

Accessible Text for Figure 4: Location of NNSA’s Planned Minor Construction Projects across the Nuclear Security Enterprise, Fiscal Years 2024-2028

| Site | Number of projects | Total project costs (USD millions) |
|---|--------------------|------------------------------------|
| Kansas City National Security Campus (KCNSC) | 13 | 207 |
| Lawrence Livermore National Laboratory (LLNL) | 111 | 1,299 |
| Los Alamos National Laboratories (LANL) | 44 | 393 |
| Nevada National Security Site (NNSS) | 74 | 886 |
| Pantex (PX) | 25 | 243 |
| Sandia National Laboratory (SNL) | 42 | 589 |
| Savannah River Site | 22 | 181 |

| Site | Number of projects | Total project costs (USD millions) |
|--------------------------------|--------------------|------------------------------------|
| Y-12 National Security Complex | 34 | 421 |

Sources: GAO analysis of National Nuclear Security Administration (NNSA) data; Map Resources (map). | GAO-24-105848

Note: Data include minor construction projects planned for fiscal years 2024 through 2028 that may be in various stages of development, including projects initially proposed to start in fiscal year 2023 that were determined to need more planning or were reprioritized for upcoming budget cycles. Data also include projects that may ultimately not be submitted for funding consideration by the earliest identified start date or that have \$0 in total costs listed as a placeholder, according to officials. NNSA program offices provided these data to GAO from May 10, 2023, and July 28, 2023. Data do not include 87 projects planned for locations outside the eight nuclear security enterprise sites. Data also do not include indirect-funded minor construction projects, the costs of which cannot be assigned to a particular program.

For comparison, NNSA plans to fund 13 line-item construction projects under \$100 million for fiscal years 2024 through 2028, with an average cost of about \$50 million, according to data we reviewed. These include projects from the Office of Infrastructure and Naval Reactors. Examples of these projects include a plutonium engineering support facility and an analytical gas laboratory.

What effect could raising the minor construction threshold have on how NNSA budgets for and manages its construction projects?

Further raising the minor construction threshold beyond \$30 million could have several effects on how NNSA budgets for and manages its construction projects. For example, regarding NNSA's budgeting process:

- NNSA could have more flexibility to address emerging issues.** According to NNSA officials, raising the threshold could provide NNSA with the ability to address emerging issues more quickly without having to go through the process to seek specific congressional authorization and appropriation for these projects. For example, NNSA officials told us that they could initiate new minor construction projects under a continuing resolution but cannot do so for line-item construction projects. According to NNSA officials, raising the threshold could also result in additional minor construction project proposals being submitted for consideration, which could provide the agency with an opportunity to accelerate delivery of projects in the coming years.
- Congress could receive less detailed project information in annual budget requests.** Because some budgetary notification and reporting requirements are tied to the minor construction threshold, a higher threshold could reduce the amount of information that NNSA reports to Congress. For example, if the threshold were raised to \$50 million, 10 of NNSA's 13 planned line-item construction projects under \$100 million for fiscal years 2024 through 2028 would not be required to provide project data sheets to Congress as part of the agency's budget justification prior to initiating the projects. If the threshold were raised to \$100 million, none of these 13 projects would be required to provide project data sheets. As a result, Congress could lose some visibility into the estimated costs, schedules, and performance associated with some more costly and potentially more complex projects.
- DOE could have less insight into NNSA's performance.** Raising the minor construction threshold would affect the department's insight into the performance of NNSA's construction projects, according to officials from DOE's Office of Project Management. This office is responsible for providing leadership and assistance in developing and implementing DOE-wide policies, procedures, programs, and management systems pertaining to project management. Specifically, these officials said they use NNSA project data sheets to help them track project funding and budgetary needs. Raising the minor construction threshold to \$50 million or more could reduce the number of project data sheets DOE has available to maintain insight into these projects, according to these officials.

Further raising the minor construction threshold over \$50 million could also affect NNSA's management of its construction projects. Specifically, if such an increase was coupled with an increase in the threshold for the applicability of DOE's project management order, which officials told us DOE is considering, it would reduce the number of projects that must follow DOE's more prescriptive project management requirements.

NNSA applies a less prescriptive set of project management requirements to manage its minor construction projects than it applies to line-item construction projects with total estimated costs over \$50 million. However, NNSA issued a directive in September 2023 to streamline project management requirements for noncomplex, nonnuclear construction projects with costs above the minor construction threshold and below \$100 million.²⁵ As a result, further raising the minor construction threshold may reduce the number of projects required to follow the streamlined procedures intended for noncomplex, nonnuclear construction projects in the future.

Conclusions

Some NNSA program offices did not collect consistent or comprehensive project data on minor construction projects. This limited our ability to assess performance for some of the 414 minor construction projects that NNSA undertook in the past 5 fiscal years. Without collecting and tracking information on its minor construction projects in a consistent manner, NNSA officials may not have quality information they need to manage and assess project performance, particularly at the portfolio level. This is important because NNSA plans to initiate 437 minor construction projects over the next 5 fiscal years totaling about \$5 billion, and cost overruns could be significant in aggregate.

In addition, NNSA's program offices use varying processes, some of which generally follow the principles in DOE's project management order, to manage their minor construction projects. However, neither NNSA nor its offices have documented, in a formal and comprehensive manner, these processes and related requirements that offices should use to manage these projects. By doing so, NNSA would better ensure that its minor construction projects follow the principles in DOE's project management order.

Recommendations for Executive Action

- (1) The NNSA Administrator should collect and track, in a consistent manner, quality information on cost and schedule performance for minor construction projects.
- (2) The NNSA Administrator should document, in a formal and comprehensive manner, NNSA's processes and related requirements for managing minor construction projects.

Agency Comments

We provided a draft of this report to DOE and NNSA for review and comment. NNSA provided written comments, which are summarized in Appendix I below. NNSA agreed with our recommendations. NNSA also provided technical comments, which we incorporated as appropriate.

How GAO Did This Study

We analyzed agency data for

- minor construction projects NNSA undertook between October 2018 and July 2023 that were attributed to specific program offices;
- construction projects NNSA has planned, as of July 2023, for fiscal years 2024 through 2028 and that would be attributed to specific program offices; and
- construction projects with total estimated costs above the minor construction threshold but under \$100 million, for comparison purposes.

We analyzed these data to determine the total number of projects; the total costs associated with those projects; project cost and schedule performance, as appropriate; and any trends in the data, including project locations. We chose fiscal year 2019 as the starting point for our analysis because, during that year, NNSA initiated a pilot program

for construction projects with costs above the minor construction threshold but under \$50 million. We took steps to assess the reliability of the data, including testing for missing data or other errors, reviewing related documents, and interviewing knowledgeable officials. We found the data to be sufficiently reliable for our purposes.

We also analyzed economic indicators of inflation—specifically the consumer price index—and construction indices from the Bureau of Labor Statistics to determine the extent to which adjustments to the threshold have kept pace with current economic conditions. We took steps to assess data reliability by reviewing documents regarding the use of these indicators.

We interviewed knowledgeable officials from DOE's Office of Project Management, NNSA's Office of Infrastructure, NNSA's Office of Defense Programs, and selected NNSA field offices. Specifically, we selected two of the eight NNSA sites with a significant number of minor construction projects and that represent both laboratory and production sites. Findings from the two selected sites cannot be generalized to all NNSA sites. We interviewed NNSA field office officials and contractor representatives who oversee minor construction projects at these sites.

We also reviewed relevant DOE and NNSA directives, along with other NNSA documents. We analyzed and synthesized NNSA's project management requirements for construction projects and asked DOE and NNSA officials to validate our summary of these requirements.

We conducted this performance audit from March 2022 to January 2024 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.

Comments from the Department of Energy



Department of Energy
Under Secretary for Nuclear Security
Administrator, National Nuclear Security Administration
Washington, DC 20585



December 14, 2023

Ms. Allison B. Bawden
Director, Natural Resources
and Environment
U.S. Government Accountability Office
Washington, DC 20548

Dear Ms. Bawden:

Thank you for the opportunity to review the Government Accountability Office (GAO) draft report "National Nuclear Security Administration: Better Performance Tracking and Documentation Needed for Minor Construction Projects" (GAO-24-105848). The Department of Energy's National Nuclear Security Administration appreciates GAO's review of our minor construction projects and the auditors' observations on the potential effects of raising the minor construction threshold. We agree with the report's recommendations for enhancing our collection and tracking of minor construction project data and for better documenting our processes and related requirements for overseeing these projects, as outlined in the enclosed Management Decision.

Our subject matter experts have also provided technical and general comments under separate cover for your consideration to enhance the clarity and accuracy of the report. If you have any questions about this response, please contact Dean Childs, Director, Audits and Internal Affairs, at (202) 836-3327.

Sincerely,

Jill Hruby

Enclosure

NATIONAL NUCLEAR SECURITY ADMINISTRATION
Management Decision

"National Nuclear Security Administration: Better Performance Tracking and Documentation Needed for Minor Construction Projects" (GAO-24-105848)

The Government Accountability Office (GAO) recommends the Department of Energy's National Nuclear Security Administration (DOE/NNSA):

Recommendation 1: Collect and track quality information on cost and schedule performance for minor construction projects in a consistent manner.

Management Response: Concur. NNSA will assess GAO's observations contained in the report and determine the best approach for consistent collection and tracking of information on cost and schedule performance for minor construction projects. The initial target for completing this assessment is June 30, 2024.

Recommendation 2: Document, in a formal and comprehensive manner, NNSA's processes and related requirements for managing minor construction projects.

Management Response: Concur. NNSA will assess GAO's observations contained in the report and determine the best approach for formally documenting its processes and related requirements for ensuring that minor construction projects apply the DOE Order project management principles for successful project execution. The initial target for completing this assessment is June 30, 2024.

Accessible Text for Comments from the Department of Energy

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Director, Natural Resources and Environment
U.S. Government Accountability Office
Washington, DC 20548

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List of Addressees

The Honorable Jack Reed
Chairman
The Honorable Roger Wicker
Ranking Member
Committee on Armed Services
United States Senate
The Honorable Mike Rogers
Chairman
The Honorable Adam Smith
Ranking Member
Committee on Armed Services
House of Representatives

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Endnotes

¹National Nuclear Security Administration, *Evolving the Nuclear Security Enterprise: A Report of the Enhanced Mission Delivery Initiative* (Washington, D.C.: September 2022).

²National Defense Authorization Act for Fiscal Year 2022, Pub. L. No. 117-81, 135 Stat. 1541 (2021).

³S. Rep. No. 117-39, at 365 (2021).

⁴James M. Inhofe National Defense Authorization Act for Fiscal Year 2023, Pub. L. No. 117-263, 136 Stat. 2395 (2022).

⁵50 U.S.C. § 2741 (as most recently amended by National Defense Authorization Act for Fiscal Year 2024, Pub. L. No. 118-31, div. C, title XXXII, § 3120, 137 Stat. 136, 787 (2023)).

⁶We used a construction producer price index from the Bureau of Labor Statistics. "Producer Price Index by Commodity: Special Indexes: Construction Materials," Federal Reserve Bank of St. Louis, accessed February 1, 2023, <https://fred.stlouisfed.org/series/WPUSI012011>.

⁷NNSA has seven program offices, which are headquarters-based offices responsible for managing mission-related activities and integrating these activities across the multiple sites performing the work. NNSA's program offices include the Offices of Defense Programs, Defense Nuclear Nonproliferation, Naval Reactors, Emergency Operations, Defense Nuclear Security, Counterterrorism and Counterproliferation, and Infrastructure.

⁸50 U.S.C. § 2743(b).

⁹50 U.S.C. § 2746(b).

¹⁰50 U.S.C. § 2743(d).

¹¹H.R. Rep. No. 115-404, at 1093 (2017) (Conf. Rep.), accompanying H.R. 2810, National Defense Authorization Act for Fiscal Year 2018.

¹²50 U.S.C. § 2743(c).

¹³GAO, *Financial Management: DOE and NNSA Have Opportunities to Improve Management of Carryover Balances*, [GAO-22-104541](#) (Washington, D.C.: July 25, 2022).

¹⁴For the purposes of this report, we included direct-funded minor construction projects and excluded indirect-funded ones in our data. NNSA's management and operating contractors classify costs as either direct or indirect. Direct costs are assigned to the benefitting program or programs. Indirect costs—costs that cannot be assigned to a particular program, such as costs for administration and site support—are grouped by contractors into indirect-cost pools. In addition, for the purposes of this report, we included both completed and ongoing minor construction projects that were active during the indicated periods. According to NNSA officials and documentation we reviewed, these data may not match the data provided by NNSA in congressional budget justifications due to differences in how the data were compiled.

¹⁵According to NNSA officials, minor construction projects establish their cost baselines when projects are selected to be funded.

¹⁶According to NNSA officials, minor construction projects establish schedule baselines when the projects receive funding to initiate design. Projects can submit a rebaseline upon construction contract award.

¹⁷GAO, *Standards for Internal Control in the Federal Government*, [GAO-14-704G](#) (Washington, D.C.: September 2014).

¹⁸DOE's project management order applies to projects with estimated costs of \$50 million or greater. See Department of Energy, Order 413.3B, *Program and Project Management for the Acquisition of Capital Assets* (Washington, D.C.: Jan. 12, 2021).

¹⁹We analyzed project management practices used by NNSA's Office of Infrastructure and Office of Defense Programs because they accounted for nearly 80 percent of all minor construction projects NNSA funded from fiscal year 2019 through July 2023.

²⁰See National Nuclear Security Administration, Office of Safety, Infrastructure, and Operations, *Program Management Plan* (Washington, D.C.: Sept. 27, 2021).

²¹National Nuclear Security Administration, *NNSA Program Management Policy, NAP 413.2* (Washington, D.C.: February 2019).

²²Department of Energy, National Nuclear Security Administration, Office of Defense Programs, *DP Program Execution Instruction* (Sept. 23, 2021).

²³GAO-14-704G.

²⁴For the purposes of this report, we included direct-funded minor construction projects and excluded indirect-funded ones in our data.

²⁵National Nuclear Security Administration, *Project Management for Non-Nuclear, Non-Complex Capital Asset Acquisition*, SD 413.3-7 (Sept. 8, 2023).