

441 G St. N.W.
Washington, DC 20548**Comptroller General
of the United States**

June 23, 2021

The Honorable Jennifer M. Granholm
Secretary
U.S. Department of Energy
1000 Independence Ave., SW
Washington, D.C. 20585**Priority Open Recommendations: Department of Energy**

Dear Secretary Granholm:

I appreciated our recent meeting and look forward to a constructive working relationship between our two institutions. As we discussed, the purpose of this letter is to provide an update on the overall status of the Department of Energy's (DOE) implementation of GAO's recommendations and to call your personal attention to areas where open recommendations should be given high priority.¹ In November 2020, we reported that on a government-wide basis, 77 percent of our recommendations made 4 years ago were implemented.² DOE's recommendation implementation rate was 79 percent. As of April 2021, DOE had 209 open recommendations. Fully implementing these open recommendations could significantly improve agency operations.

Since our April 2020 letter, DOE implemented four of our 20 open priority recommendations by taking the following actions:

- In May 2020, the National Nuclear Security Administration (NNSA) issued guidance directing management and operating (M&O) contractors to provide financial data to NNSA using a common work breakdown structure beginning in fiscal year 2021, as we recommended in January 2019.³ We believe this action will help NNSA better collect standardized financial data from its programs and contractors to allow the agency to compare costs, and provide better information to Congress about the total cost of its programs.

¹Priority recommendations are those that GAO believes warrant priority attention from heads of key departments or agencies. They are highlighted because, upon implementation, they may significantly improve government operations, for example, by realizing large dollar savings; eliminating mismanagement, fraud, and abuse; or making progress toward addressing a high-risk or duplication issue.

²GAO, *Performance and Accountability Report: Fiscal Year 2020*, [GAO-21-4SP](#) (Washington, D.C.: Nov. 16, 2020).

³GAO, *National Nuclear Security Administration: Additional Actions Needed to Collect Common Financial Data*, [GAO-19-101](#) (Washington, D.C.: Jan. 31, 2019).

- NNSA developed a form that outlines the responsibilities of contract oversight staff, as we recommended in September 2019.⁴ This form also contains a section highlighting the need to ensure that contractors are not performing inherently governmental functions in violation of the law. NNSA also modified another form to include an oversight plan to avoid contractor performance of inherently governmental functions, and it also provides links to relevant policy documents. We believe these actions will enable NNSA to better ensure that appropriate planned oversight steps continue, even if the contracting officer or other oversight official changes during the term of the contract.
- As of June 2020, DOE enhanced oversight of subcontractors by improving peer review efforts in its Procurement Evaluation and Re-Engineering Team (PERT) Program in response to our March 2019 recommendation.⁵ The PERT Risk Assessment Tool Manual and appendixes now contain guidance for contracting officers to review contractors' auditing of their subcontracts as part of their annual assessment. We believe these actions enable DOE to better ensure that subcontract audits are conducted so that it can recover unallowable costs within the Contract Disputes Act 6-year limitation period.
- In December 2020, DOE completed a charter that expanded the responsibilities of its Department Internal Control and Assessment Review Council in response to our March 2017 recommendation.⁶ For example, the charter requires the council to take on roles of the designated entity, including overseeing fraud risk management activities, with support from the Office of the Chief Financial Officer. In May 2021, the council met to review DOE's fiscal year 2021 Consolidated Risk Profile and Management Priorities, a key task of the designated entity. We believe these actions will help DOE take a more strategic approach to managing improper payments and risk, including fraud risk.

We ask your attention to the remaining priority recommendations. We are also adding nine new recommendations related to project and program management, contract management, financial and cost information, DOE's environmental liability, worker protections, and electricity grid resilience. These recommendations bring the total number of priority recommendations to 25. (See enc. for the list of recommendations.)

The 25 priority recommendations fall into the following nine major areas.

Project and Program Management. We have identified six priority recommendations that would help improve DOE's management of its major projects and programs. DOE historically has struggled with managing programs and projects, including mitigating the risks of uncontrolled changes to scope, cost and schedule overruns, failure to meet goals, and increasing environmental liabilities.

In June 2014, we recommended that DOE take steps to reduce uncertainty about the expected cost and schedule of the U.S. share of the International Thermonuclear Experimental Reactor

⁴GAO, *Support Service Contracts: NNSA Could Better Manage Potential Risks of Contractors Performing Inherently Governmental Functions*, [GAO-19-608](#) (Washington, D.C.: Sept. 26, 2019).

⁵GAO, *Department of Energy Contracting: Actions Needed to Strengthen Subcontract Oversight*, [GAO-19-107](#) (Washington, D.C.: Mar. 12, 2019).

⁶GAO, *Department of Energy: Use of Leading Practices Could Help Manage the Risk of Fraud and Other Improper Payments*, [GAO-17-235](#) (Washington, D.C.: Mar. 30, 2017).

(ITER) Project and its potential impact on the U.S. fusion program. DOE agreed with our recommendation and took actions, including approving a performance baseline for a portion of the project in January 2017. In the explanatory statement to the fiscal year 2021 appropriations act for DOE, Congress directed the department to set a performance baseline for the entire U.S. ITER Project by no later than June 2021. As of June 2021, DOE stated that its response to Congress that would address the department's strategy for setting baselines for two phases of the project was pending the Secretary's approval. We will assess that response when it is available. To fully address our recommendation, DOE should approve a performance baseline for the entire project and communicate information on that baseline to Congress.

In November 2016, we recommended that DOE establish a program management policy that addresses the responsibilities and authorities of program managers and leading program management practices, such as developing program plans. DOE did not comment on our recommendation. After our report, DOE stated that it would address our recommendation as part of its effort to meet the requirements of the Program Management Improvement Accountability Act of 2016. In implementing the requirements of the act, DOE developed a draft policy (Policy 410.3) to establish expectations for program management within the department. In December 2020, DOE officials stated that the draft policy was under review. To fully address our recommendation, DOE needs to finalize and issue its program management policy.

In February 2019, we made two recommendations for DOE's Office of Environmental Management (EM) to review and revise its cleanup policy to include project and program management leading practices related to scope, cost, schedule performance, and independent reviews. DOE agreed with our recommendations and has made some progress to address them. In November 2020, EM issued a Program Management Protocol to replace its former cleanup policy. This protocol discusses some of the key elements of leading practices for program and project management that we identified in our report but does not include all of the leading practices that we identified. While DOE considers its actions sufficient to close these recommendations, to fully address our recommendation, DOE should revise its cleanup policy to include all of the project and program management leading practices that our report identified.

In May 2020, we recommended that EM ensure that its final analysis of alternatives (AOA) for high-level waste pretreatment at the Hanford site includes a definition of mission need and life-cycle cost estimates for the baseline or status quo alternative, as called for in GAO's best practices for an AOA process and in DOE guidance.⁷ DOE agreed with our recommendation, in principle. In December 2020, EM officials told us that EM's final AOA would include life-cycle cost estimates consistent with best practices and DOE guidance, but officials did not provide an expected date for its completion. To fully address this recommendation, EM should follow through in implementing these AOA best practices.

In September 2020, we recommended that NNSA direct the Office of Defense Programs to revise its program execution instruction to require that design studies for warhead life extension and replacement programs, such as the planned W87-1 warhead program, follow AOA best practices. We also recommended that when best practices are not followed, deviations be justified and documented. NNSA generally agreed with our recommendation but stated that the baseline design for the W87-1 had multiple features and components that would be

⁷Department of Energy, *Analysis of Alternatives Guide*, DOE G 413.3-22 (Washington, D.C.: June 6, 2018); and GAO, *Cost Estimating and Assessment Guide: Best Practices for Developing and Managing Program Costs*, [GAO-20-195G](#) (Washington, D.C.: March 2020).

subsequently selected to meet objective safety and surety requirements. It also stated that selecting those features and components did not require a formal AOA. We believe that, to fully address this recommendation, NNSA should revise the program execution instruction to require that design studies follow AOA best practices or document any deviations from those best practices. Doing so would provide NNSA with better assurance that such programs apply consistent, reliable, and objective approaches to assessing the best options to meet mission needs.

Contract Management. We have identified three priority recommendations that would help improve DOE's oversight and management of contractors. Contract management is one of the highest risks facing the government, and aspects of DOE's contract management and administration have appeared on GAO's [High-Risk List](#) since its inception in 1990.

In May 2015, we recommended that NNSA establish comprehensive policies and guidance, beyond a general framework, for using information from contractor assurance systems to conduct oversight of M&O contractors. DOE agreed with our recommendation. NNSA indicated that it directed its field offices to modify local policies and procedures as necessary to accommodate the corporate site governance policy that NNSA approved in 2016 and revised in October 2019. However, the policy is still a general framework, and NNSA has not established associated implementing guidance. While DOE considers its actions sufficient to close this recommendation, additional actions are needed. To fully address our recommendation, these procedures and guidance should specify how to use information from contractor assurance systems and appropriately balance use of information from those systems with other, more direct activities to oversee M&O contractors.

In March 2019, we recommended that the Office of Acquisition Management require local officials to independently review subcontractor ownership information as part of DOE consent reviews and assess potential conflicts of interest to ensure that contractors are mitigating them. We found that while DOE's local officials could independently review ownership information, they generally did not because there was no requirement to do so. DOE did not concur with our recommendation. However, in July 2020, DOE issued guidance summarizing and reiterating existing regulations, policy, and procedures that require DOE contracting officers to perform independent analyses when reviewing subcontract consent packages, contractor purchasing systems, and potential organizational conflicts of interest. While DOE considers its actions sufficient to close this recommendation, additional actions are needed because the July 2020 guidance is the same as previous guidance. To fully address our recommendation, the guidance needs to include direction for officials to independently review subcontract ownership information.

In January 2021, we recommended that DOE's Office of the Chief Financial Officer expand its methodology for developing its agency-wide fraud risk assessment to ensure that all inherent contracting fraud risks—not only top fraud risks—are fully assessed and documented in accordance with leading practices. DOE agreed with our recommendation. In response, DOE stated that its guidance requires that every risk identified be assessed for risk of fraud. It also stated that the agency's actions to implement our recommendation were complete. However, our analysis showed that DOE's methodology did not capture information on actual fraud incidents that had occurred, resulting in an incomplete accounting of fraud risks on DOE's risk profiles. To fully address our recommendation, DOE needs to take additional action—such as expanding its methodology to capture fraud risks missing from its risk profile—to assess its full range of contracting fraud risks.

Financial and Cost Information. We identified one priority recommendation that would help DOE improve the quality of its financial and cost information.

In June 2020, we recommended that DOE's Office of the Chief Financial Officer track information on the year the payment occurred for all improper payments, regardless of when they are identified, and determine and disclose in DOE's Agency Financial Report whether the department's total annual improper payments exceeded \$100 million in any given year. DOE agreed with our recommendation. In its response to our report, DOE stated that it planned to complete actions by December 2021 to address our recommendation. DOE stated that it would conduct annual look-back analyses to the extent possible to determine if prior-year reporting exceeded the \$100 million threshold and therefore could be subject to additional reporting requirements. To fully address our recommendation, DOE should complete these planned actions and determine and disclose in its Agency Financial Report whether the department's total improper payments exceeded the threshold in any given year.

Planning for the Future of the Strategic Petroleum Reserve. We identified three priority recommendations that would help DOE plan for the future of the Strategic Petroleum Reserve (SPR). As of May 2021, the SPR was valued at about \$41 billion on the basis of 632 million barrels of crude oil. Since the SPR was created 4 decades ago, its structure generally has not changed, even as markets for crude oil and petroleum products have changed significantly.

In May 2018, we recommended that DOE (1) conduct periodic strategic reviews of the SPR that take into account changes in crude oil and petroleum product market conditions and the costs and benefits of a wide range of SPR sizes, (2) conduct or complete studies on the costs and benefits of regional petroleum product reserves, and (3) consider a full range of options for handling potentially excess assets. DOE agreed with the first and third recommendations but disagreed with the second.

DOE plans to complete its next strategic review of the SPR by the end of fiscal year 2021. To fully address the first recommendation, DOE should take steps to ensure that it undertakes a strategic review of the SPR on a periodic basis going forward. To fully address the second recommendation, we continue to believe that completing studies on the costs and benefits of regional reserves would provide Congress with information it needs to make decisions about these reserves. In response to our third recommendation, DOE plans to incorporate information from two ongoing studies into a single document suited as a strategic review of the SPR by the end of fiscal year 2021. To fully address the third recommendation, DOE should complete the studies and provide the results to Congress.

Nuclear Modernization Challenges. We identified one priority recommendation that would help address challenges to NNSA's ambitious, decades-long, and costly effort to modernize the nation's nuclear security enterprise.

In April 2017, we recommended that NNSA include an assessment of the affordability of its portfolio of nuclear modernization programs in future versions of its *Stockpile Stewardship and Management Plan*. NNSA did not explicitly agree or disagree with our recommendation. NNSA updated the section about its analysis of the affordability of its weapons modernization plans in its fiscal year 2021 *Stockpile Stewardship and Management Plan*. However, NNSA did not include in this section details about, or an assessment of, the options NNSA might have to take in the future to address an apparent misalignment between its estimated funding needs for its portfolio and its projections for future budgets.

While DOE considers its actions sufficient to close this recommendation, additional actions are needed. To fully address our recommendation, NNSA should take actions to include in its *Stockpile Stewardship and Management Plan* an assessment of the affordability of NNSA's modernization programs. This assessment should include a prioritization of programs, to provide NNSA options for bringing its plans and estimated funding needs for its portfolio into alignment with projections for future budgets.

DOE's Environmental Liability. We identified four priority recommendations that could reduce cleanup costs that contribute to DOE's environmental liability. The federal government's environmental liability has been growing for the past 20 years and is likely to continue to increase. As such, we added the federal government's environmental liability to our [High-Risk List](#) in February 2017. DOE is responsible for the largest share of this liability—\$512 billion of \$603 billion reported in fiscal year 2020. In addition, we have reported that DOE has not consistently taken a risk-informed approach to decision-making for environmental cleanup and, therefore, may be missing opportunities to reduce costs while also more quickly reducing environmental risks.

In May 2017, we recommended that DOE develop updated information on the effectiveness of treating and disposing of all the different portions of Hanford's supplemental low-activity waste with alternate methods or at alternate disposal sites. Based on this information, DOE should identify potential treatment and disposal options for each portion of the waste, taking into consideration the risks the waste poses.

DOE agreed with our recommendation and has worked with Savannah River National Laboratory and the National Academies of Sciences, Engineering, and Medicine on studies to evaluate viable treatment options for the waste. The William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021 requires DOE to contract with a federally funded research and development center to conduct follow-on analysis of Savannah River's evaluation, including information allowing for direct comparison of treatment and disposal options. DOE is required to have this analysis peer-reviewed by the National Academies. Furthermore, according to DOE officials, DOE plans to decide by 2026 how it will treat supplemental low-activity waste. While DOE considers its actions sufficient to close this recommendation, additional actions are needed. To fully address our recommendation, DOE should (1) develop updated information that reflects what is now known about alternate treatment and disposal methods and (2) take steps to identify potential treatment and disposal options for each portion of Hanford's supplemental low-activity waste.

In January 2019, we recommended that the Secretary of Energy direct EM to develop a program-wide strategy that outlines how DOE will direct available resources to address human health and environmental risks across and within sites undergoing cleanup efforts. This recommendation was intended to address the growing gap between the costs of cleanup and available funds, as well as the need to balance risks and priorities in a cost-effective manner. DOE agreed with our recommendation. In June 2020, DOE officials told us that EM is developing a strategy that analyzes current cleanup approaches and other recently identified opportunities in an effort to reduce risk and life-cycle costs. While DOE considers its actions sufficient to close this recommendation, additional actions are needed. To fully address our recommendation, the agency needs to complete the rollout of the new strategy.

In November 2020, we recommended that EM develop a plan for mitigating the potential impacts of the risks that an interruption to waste disposal operations at the Waste Isolation Pilot Plant (WIPP) could pose to DOE's transuranic waste cleanup program. DOE agreed with our

recommendation. In comments on our draft report, DOE stated that the National Transuranic Program would collaborate with DOE waste generator sites to prepare a plan to mitigate potential impacts of such an interruption. DOE noted that this planning process would consider lessons learned from the interruption that occurred at WIPP between 2014 and 2017. To fully address our recommendation, EM should develop this plan.

In January 2021, we recommended that EM obtain the assistance of an independent, third-party mediator to help reach agreement with the state of Washington's Department of Ecology on a process for assessing contaminated soil around Hanford site's waste tanks and the role the Nuclear Regulatory Commission should play in this process. DOE agreed with our recommendation. In its written response to our report, DOE stated that it had engaged in mediated negotiations with the Environmental Protection Agency and the state of Washington's Department of Ecology since June 2020 and that these actions satisfy our recommendation. DOE also stated that the soil is managed under existing laws.

We do not believe that DOE has satisfied this recommendation. DOE officials told us, as of October 2020, that the initial set of broad topics agreed upon for negotiations did not include addressing contaminated soil or the Nuclear Regulatory Commission's role. DOE still must resolve the significant disagreement with the state of Washington's Department of Ecology regarding how to address soil contamination under the Tri-Party Agreement. This resolution should include the role the Nuclear Regulatory Commission is to play, regardless of the process DOE must follow under existing laws.

Cybersecurity. We identified three priority recommendations to improve DOE's efforts to manage cybersecurity.

In February 2018, we recommended that the Secretary of Energy take steps to consult with respective sector partners, such as the sector coordinating council, Department of Homeland Security (DHS), and National Institute of Standards and Technology (NIST), as appropriate, to develop methods for determining the level and type of NIST cybersecurity framework adoption by entities across their respective sector. DOE did not explicitly agree or disagree with our recommendation. In May 2021, officials stated that they were in the process of updating the Cybersecurity Capability Maturity Model and mapping it to the framework. DOE expects this step to be completed in August 2021. Officials also stated that once the mapping was complete, they would evaluate it for inclusion in DOE's guidance for implementing the energy sector cybersecurity framework. While DOE considers its actions sufficient to close this recommendation, additional actions are needed. To fully address our recommendation, DOE should develop methods to determine the level and type of framework adoption by entities across its sector. By doing so, DOE will gain a more comprehensive understanding of these entities' use of the framework.

In July 2019, we recommended that DOE develop a cybersecurity risk management strategy that includes key elements such as risk tolerance and risk mitigation strategies. DOE agreed with our recommendation. As of March 2021, DOE stated that it was developing a department-wide risk management plan—which is to include a risk management strategy—and estimated the plan would be completed by summer 2021. To fully address this recommendation, DOE should develop a cybersecurity risk management strategy that includes the key elements we identified in our report.

In August 2019, we recommended that DOE develop a plan for implementing the federal cybersecurity strategy for the electric grid. DOE agreed with our recommendation. DOE

developed plans and an assessment for confronting cyber threats to the grid. However, those documents do not fully address all of the key characteristics needed to implement a national strategy, such as fully assessing cybersecurity risks to the electricity grid. While DOE considers its actions sufficient to close this recommendation, additional actions are needed. To fully address our recommendation, DOE should revise its plan to address all the key characteristics of a national strategy and coordinate that plan with DHS and other relevant stakeholders.

Worker Protections. We identified two priority recommendations related to protections for DOE and contract workers.

In July 2016, we recommended that DOE revise its safety management policy and guidance to (1) clarify what constitutes evidence of a chilled work environment (i.e., an environment in which employees do not raise safety concerns due to fear of retaliation) and (2) define the appropriate steps DOE should take to hold contractors accountable for unlawful retaliation against whistleblowers or creating a chilled work environment. DOE agreed with our recommendation and in January 2018 issued a revised safety management policy. The update to the policy is a positive step, but it is only a general policy statement. While DOE considers its actions sufficient to close this recommendation, additional actions are needed. DOE should revise its safety management guidance to include the elements we recommended. By doing so, DOE will be better able to hold contractors accountable for addressing chilled work environments and increase contractor employee confidence in the mechanisms for raising safety concerns.

In April 2021, we recommended that DOE fully implement plans to address the department's Equal Employment Opportunity (EEO) program deficiencies relevant to sexual harassment and work with NNSA to fully implement plans to address them. DOE and NNSA jointly concurred with our recommendation. In its written comments on our report, NNSA stated that it had broadened its response to our recommendation to include all federal and contractor employees across NNSA. NNSA also stated that DOE has completed actions to address two of the 10 issues that the U.S. Equal Employment Opportunity Commission identified in its July 2020 Technical Assistance Letter and has demonstrated progress on the remaining eight issues. NNSA also stated that it would continue to work with DOE to address issues and further strengthen NNSA's practices. NNSA estimated that they would complete work to address the recommendation by September 2022. To address our recommendation, DOE should fully implement its plans to address its EEO program deficiencies relevant to sexual harassment and work with NNSA to fully implement these plans.

Electricity Grid Resilience. We made two priority recommendations related to electricity grid resilience.

In March 2021, we recommended that DOE establish a plan, including time frames, as appropriate, to guide the agency's efforts to develop tools for resilience planning. These tools include performance measures for resilience, a framework for resilience planning, and additional information on the cost of long-term power outages. DOE agreed with our recommendation, in principle. In its response to our report, DOE stated that it had recently formed an Energy Resilience Division dedicated to incorporating resilience concerns into DOE's work. DOE also stated that the division had begun to compile a catalogue of existing resilience tools and models to better understand existing energy resilience planning capabilities and to identify gaps. We are encouraged by these efforts but continue to believe that, to fully address our recommendation, DOE needs to establish a plan to guide its efforts to further develop and operationalize these resilience planning tools. Such a plan would enable DOE to support the grid resilience efforts of utilities and other stakeholders.

Also in March 2021, we recommended that DOE develop and implement a department-wide strategy that defines goals and measures progress to enhance the resilience of the electricity grid to the risks of climate change. DOE agreed with our recommendation. In its June 2021 management decision letter to congressional committees, DOE stated that it developed a grid resilience strategy in December 2020, which includes an all-hazards approach to characterize and implement system resilience but does not prioritize climate change over other threats. DOE expects to update the strategy by April 2022, which will serve as a framework for the department-wide strategy we recommended. To fully address our recommendation, DOE's strategy should define goals and measure progress to enhance the resilience of the electricity grid to the risks of climate change.

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In March 2021 we issued our biennial update to our [High-Risk List](#), which identifies government operations with greater vulnerabilities to fraud, waste, abuse, and mismanagement or the need for transformation to address economy, efficiency, or effectiveness challenges.⁸ One of our high-risk areas—[DOE's contract and project management for NNSA and the Office of Environmental Management](#)—centers directly on DOE. One additional high-risk area—[addressing the U.S. government's environmental liability](#)—is shared among multiple agencies, including DOE.

Several other government-wide high-risk areas also have direct implications for DOE and its operations. These include (1) [improving the management of IT acquisitions and operations](#), (2) [improving strategic human capital management](#), (3) [managing federal real property](#), (4) [ensuring the cybersecurity of the nation](#),⁹ and (5) [government-wide personnel security clearance process](#). We urge your attention to the DOE, shared, and government-wide high-risk issues as they relate to DOE. Progress on high-risk issues has been possible through the concerted actions and efforts of Congress; OMB; and the leadership and staff in agencies, including within DOE.

Copies of this report are being sent to the Director of the Office of Management and Budget and appropriate congressional committees, including the Committees on Appropriations, Budget, Homeland Security and Governmental Affairs, and Energy and Natural Resources, United States Senate, and the Committees on Appropriations, Budget, Oversight and Reform, and Energy and Commerce, House of Representatives. In addition, the report will be available on the GAO website at <http://www.gao.gov>.

I appreciate DOE's commitment to these important issues. If you have any questions or would like to discuss any of the issues outlined in this letter, please do not hesitate to contact me or Mark Gaffigan, Managing Director, Natural Resources and Environment, at 202-512-3841 or gaffiganm@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. Our teams will continue to coordinate with your staff on all of the 209 open recommendations, as well as those additional

⁸GAO, *High-Risk Series: Dedicated Leadership Needed to Address Limited Progress in Most High-Risk Areas*, [GAO-21-119SP](#) (Washington, D.C.: Mar. 2, 2021).

⁹With regard to cybersecurity, we also urge you to use foundational information and communications technology supply chain risk management practices set forth in our December 2020 report: GAO, *Information Technology: Federal Agencies Need to Take Urgent Action to Manage Supply Chain Risks*, [GAO-21-171](#) (Washington, D.C.: Dec. 15, 2020).

recommendations in the high-risk areas for which DOE has a leading role. Thank you for your attention to these matters.

Sincerely yours,

A handwritten signature in black ink that reads "Gene L. Dodaro". The signature is written in a cursive style with a large, prominent "D" and a long horizontal flourish extending to the right.

Gene L. Dodaro
Comptroller General
of the United States

Enclosure – 1

cc: The Honorable Dr. Charles P. Verdon, Acting Administrator, National Nuclear Security Administration
The Honorable Shalanda Young, Acting Director, Office of Management and Budget

Enclosure: 1

Priority Open Recommendations to the Department of Energy (DOE)

Project and Program Management

Fusion Energy: Actions Needed to Finalize Cost and Schedule Estimates for U.S. Contributions to an International Experimental Reactor. [GAO-14-499](#). Washington, D.C.: June 5, 2014.

Recommendation: To reduce uncertainty about the expected cost and schedule of the International Thermonuclear Experimental Reactor (ITER) Project and its potential impact on the U.S. fusion program, once the ITER Organization completes its reassessment of the international project schedule, the Secretary of Energy should direct the Associate Director of the Office of Fusion Energy Sciences to use that schedule, if reliable, to propose a final, stable funding plan for the U.S. ITER Project, approve a performance baseline with finalized cost and schedule estimates, and communicate this information to Congress.

Action Needed: DOE agreed with our recommendation. In January 2017, DOE approved a performance baseline for the first plasma portion of the U.S. ITER Project and communicated that performance baseline to Congress. However, the performance baseline did not include the post-first plasma portion of the U.S. ITER Project. In the explanatory statement to the fiscal year 2021 appropriations act for DOE, Congress directed the department to set a performance baseline for the entire U.S. ITER Project, including the post-first plasma phase, by no later than June 2021. As of June 2021, DOE stated that its response to Congress that would address the department's strategy for rebaselining the first plasma phase and setting a baseline for the post-first plasma phase of the project was pending the Secretary's approval. We will assess that response when it is available. To fully address our recommendation, DOE should approve a performance baseline for the entire project and communicate information on that baseline to Congress.

Director: Frank Rusco, Natural Resources and Environment

Contact information: ruscof@gao.gov or (202) 512-3841

Program Management: DOE Needs to Develop a Comprehensive Policy and Training Program. [GAO-17-51](#). Washington, D.C.: November 21, 2016.

Recommendation: To help ensure that NNSA effectively manages the performance of its programs, the Secretary of Energy should establish a program management policy that (1) assigns responsibilities and delegates authority to program managers and establishes expectations of competence for them, in accordance with federal internal control standards; and (2) addresses leading program management practices, such as developing program plans.

Action Needed: DOE did not comment on our recommendation. Subsequently, DOE stated that it would address our recommendation as part of its effort to meet the requirements of the Program Management Improvement Accountability Act of 2016. In June 2018, the Office of Management and Budget (OMB) issued guidance on implementing the act that directed federal agencies to submit an implementation plan in 2019, among other actions. In November 2018, DOE submitted a draft implementation plan to OMB that described DOE's strategy for developing a DOE program management policy. In particular, its draft plan stated that DOE had established a working group to help develop the department's program management policy. In implementing the requirements of the act, DOE developed a draft policy (Policy 410.3) to

establish expectations for program management within the department. In December 2020, DOE officials stated that the draft policy was under review. To fully address our recommendation, DOE should finalize and issue its program management policy.

High-Risk Area: [DOE's Contract and Project Management for NNSA and Office of Environmental Management](#)

Director: Allison B. Bawden, Natural Resources and Environment

Contact information: bawdena@gao.gov or (202) 512-3841

Nuclear Waste Cleanup: DOE Could Improve Program and Project Management by Better Classifying Work and Following Leading Practices. [GAO-19-223](#). Washington, D.C.: February 19, 2019.

Recommendations: The Secretary of Energy should

- direct the Assistant Secretary of the Office of Environmental Management (EM) to review and revise EM's 2017 cleanup policy to include program management leading practices related to scope, cost, schedule performance, and independent reviews; and
- direct the Assistant Secretary of the Office of EM to review and revise EM's 2017 cleanup policy to include project management leading practices related to scope, cost, schedule performance, and independent reviews.

Action Needed: DOE agreed with our recommendations. In August 2019, DOE stated that EM was in the process of reviewing its cleanup policy for necessary updates, revisions, and modifications. In November 2020, EM issued a Program Management Protocol to replace its former cleanup policy; this protocol discusses some of the key elements of leading practices for program and project management that we identified in our report but does not include all of the leading practices that we identified in our report.

Until EM revises its cleanup policies to include (1) project management leading practices that also apply to the management of operations activities and EM projects other than capital asset projects, and (2) program management leading practices that apply to the EM program as a whole, the EM program is at risk of experiencing uncontrolled changes to scope, exceeding its cost estimates and schedules, failing to meet its goals, and increasing DOE's environmental liabilities. While DOE considers its actions sufficient to close these recommendations, we believe additional actions are needed. To fully address these recommendations, EM should ensure its new cleanup policy includes all of the project and program management leading practices that also apply to the management of operations activities and to the EM program as a whole.

High-Risk Area: [U.S. Government's Environmental Liability](#)

Director: Nathan J. Anderson, Natural Resources and Environment

Contact information: andersonn@gao.gov or (202) 512-3841

Hanford Waste Treatment Plant: DOE Is Pursuing Pretreatment Alternatives, but Its Strategy Is Unclear While Costs Continue to Rise. [GAO-20-363](#). Washington, D.C.: May 12, 2020.

Recommendation: The Secretary of Energy should direct the Assistant Secretary of EM to ensure that EM's final analysis of alternatives (AOA) for high-level waste pretreatment

at the Hanford site includes a definition of mission need and life-cycle cost estimates for the baseline or status quo alternative, as called for in the best practices for an AOA process we have identified and DOE guidance.

Action Needed: DOE agreed with our recommendation, in principle. At the time of our report, DOE outlined a plan to address the recommendation by September 2020. In December 2020, EM officials told us that EM’s final AOA “will include life-cycle cost estimates consistent with” GAO’s best practices and DOE guidance, but officials did not provide an expected date for its completion. We will continue to monitor the AOA process and evaluate the extent to which EM follows through with its commitment. To fully address this recommendation, DOE should finalize its AOA for high-level waste pretreatment at the Hanford site and ensure that it includes a definition of mission need and life-cycle cost estimates for the baseline or status quo alternative, as called for in best practices and DOE guidance.

High-Risk Areas: [DOE’s Contract and Project Management for NNSA and Office of Environmental Management](#) and [U.S. Government’s Environmental Liability](#)

Director: Nathan J. Anderson, Natural Resources and Environment

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Nuclear Weapons: NNSA Should Further Develop Cost, Schedule, and Risk Information for the W87-1 Warhead Program. [GAO-20-703](#). Washington, D.C.: September 9, 2020.

Recommendation: The NNSA Administrator should direct the Office of Defense Programs to revise its program execution instruction to require that design studies for warhead life extension and replacement programs follow AOA best practices, such as by having a study plan, or to justify and document deviations from best practices.

Action Needed: NNSA generally agreed with our recommendation and stated at the time that the baseline design for the W87-1 had multiple features and components that would be subsequently selected to meet objective safety and surety requirements. NNSA further stated that selecting those features and components did not require a formal AOA. However, revising the program execution instruction to require that design studies follow AOA best practices, such as by having a study plan, would provide NNSA with better assurance that such programs apply consistent, reliable, and objective approaches to assessing the best options to meet mission needs. To fully address this recommendation, NNSA should revise its program execution instruction to require that design studies for warhead life extension and replacement programs, like the W87-1, follow AOA best practices or to justify and document deviations from those best practices.

High-Risk Area: [DOE’s Contract and Project Management for NNSA and Office of Environmental Management](#)

Director: Allison B. Bawden, Natural Resources and Environment

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Contract Management

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.

Recommendation: To improve the internal control environment for oversight using information from contractor assurance systems (CAS) and develop a consistent approach to the use of information from CAS in management and operating (M&O) contractor oversight and performance evaluation across the nuclear security enterprise, the Administrator of the National Nuclear Security Administration (NNSA) should establish comprehensive NNSA policies and guidance, beyond a general framework as included in NNSA Policy-21, for using information from CAS to conduct oversight of M&O contractors, clarifying whether CAS is to cover mission-related activities and describing how to conduct assessments of risk, CAS maturity, and the level of the contractor's past performance.

Action Needed: NNSA agreed with our recommendation. In August 2016, NNSA approved a revised corporate site governance policy, Supplemental Directive 226.1B, that improves on the agency's prior policy by clarifying that CAS is to cover mission-related activities—an element from our recommendation. Furthermore, in October 2019, NNSA again revised its site governance policy, Supplemental Directive 226.1C, that clarifies some aspects of NNSA governance. In addition, NNSA has since indicated that it has directed its field offices to modify local policies and procedures, as necessary, to accommodate the new policy. However, the policy is still a general framework, and NNSA has not established associated implementing guidance. While DOE considers its actions sufficient to close this recommendation, additional actions are needed. To fully address our recommendation, these procedures and guidance should specify how to use information from CAS and appropriately balance use of information from those systems CAS with other, more direct activities to oversee M&O contractors.

High-Risk Area: [DOE's Contract and Project Management for NNSA and Office of Environmental Management](#)

Director: Allison B. Bawden, Natural Resources and Environment

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Department of Energy Contracting: Actions Needed to Strengthen Subcontract Oversight. [GAO-19-107](#). Washington, D.C.: March 12, 2019.

Recommendation: The Director of DOE's Office of Acquisition Management should require local officials to independently review subcontractor ownership information as part of DOE consent reviews and assess potential conflicts of interest to ensure contractors are mitigating them.

Action Needed: DOE did not concur with our recommendation. We found that while DOE's local officials could independently review ownership information, they generally did not because there was no requirement to do so. Instead of requiring local officials to independently review subcontractor ownership information, DOE reported in December 2019 that it would issue guidance reemphasizing the importance of contracting officers reviewing, and providing independent analyses of, contractors' disclosures as well as addressing issues potentially created by close working relationships, conflicts of interest, or ownership affiliations between contractors and subcontractors regarding consent to subcontract.

In July 2020, DOE issued guidance summarizing and reiterating existing regulations, policy, and procedures that require DOE contracting officers to perform independent analyses when reviewing subcontract consent packages, contractor purchasing systems, and potential organizational conflicts of interest. However, this is the same as previous guidance and does not include direction to review subcontract ownership information. While DOE considers its actions sufficient to close this recommendation, additional actions are needed. We believe that

the actions called for in our recommendation remain valid and that DOE could more efficiently address this issue by implementing the recommended actions. To fully address our recommendation, the guidance needs to include direction for local officials to independently review subcontractor ownership information.

High-Risk Area: [DOE's Contract and Project Management for NNSA and Office of Environmental Management](#)

Director: Allison B. Bawden, Natural Resources and Environment

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Department of Energy Contracting: Improvements Needed to Ensure DOE Assesses Its Full Range of Contracting Fraud Risks. [GAO-21-44](#). Washington, D.C.: January 13, 2021.

Recommendation: The Office of the Chief Financial Officer should expand its methodology for developing its agency-wide fraud risk assessment to ensure that all inherent fraud risks—not limited to top fraud risks—facing DOE programs are fully assessed and documented in accordance with leading practices.

Action Needed: DOE agreed with our recommendation. In its written response to our report, DOE stated that it considers its actions to implement our recommendation to be complete. As part of its response, DOE stated that its Internal Control Evaluations Guidance requires that every risk identified in a reporting entity's risk profile be assessed to determine if there is a risk of fraud. We acknowledged this guidance. However, our analysis showed that DOE's methods for gathering information on the fraud risks it faces did not capture information on the risks associated with actual fraud incidents that occurred at DOE, resulting in an incomplete accounting of fraud risks on DOE's risk profiles. Without addressing our recommendation, DOE will continue to have an incomplete assessment of the fraud risks it faces. To fully address our recommendation, DOE needs to take additional action—such as expanding its methodology to capture fraud risks missing from its risk profile—to assess its full range of contracting fraud risks.

High-Risk Area: [DOE's Contract and Project Management for NNSA and Office of Environmental Management](#)

Directors: Rebecca Shea, Forensic Audits and Investigative Services; and Allison B. Bawden, Natural Resources and Environment

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Financial and Cost Information

Improper Payments: Improvements Needed to Ensure Reliability and Accuracy in DOE's Risk Assessments and Reporting. [GAO-20-442](#). Washington, D.C.: June 17, 2020.

Recommendation: The Office of the Chief Financial Officer should track information on the year the payment occurred for all improper payments, regardless of when they are identified, and determine and disclose in DOE's Agency Financial Report whether the department's total annual improper payments exceeded \$100 million in any given year.

Actions Needed: DOE agreed with our recommendation. In its response to our report, DOE stated that it planned to complete actions by December 2021 to address our recommendation. DOE stated that it would conduct annual look-back analyses to the extent possible to determine

if prior year reporting exceeded the \$100 million threshold and, therefore, could be subject to additional reporting requirements. We will continue to monitor DOE's progress in implementing these actions. To fully address our recommendation, DOE should complete these planned actions and determine and disclose in DOE's Agency Financial Report whether the department's total improper payments exceeded the threshold in any given year.

High-Risk Area: [DOE's Contract and Project Management for NNSA and Office of Environmental Management](#)

Directors: Allison B. Bawden, Natural Resources and Environment; and Beryl H. Davis, Financial Management and Assurance

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Planning for the Future of the Strategic Petroleum Reserve

Strategic Petroleum Reserve: DOE Needs to Strengthen Its Approach to Planning the Future of the Emergency Stockpile. [GAO-18-477](#). Washington, D.C.: May 30, 2018.

Recommendations: The Secretary of Energy should

- take actions to ensure that the agency periodically conducts and provides to Congress a strategic review of the Strategic Petroleum Reserve (SPR) that, among other things, takes into account changes in crude oil and petroleum product market conditions and contains additional analysis, such as the costs and benefits of a wide range of different SPR sizes;
- conduct or complete studies on the costs and benefits of regional petroleum product reserves for all U.S. regions that have been identified as vulnerable to fuel supply disruptions, and the Secretary should report the results to Congress; and
- in completing DOE's ongoing study on the effects of congressionally mandated sales, consider a full range of options for handling potentially excess assets and, if needed, request congressional authority for the disposition of these assets.

Actions Needed: DOE agreed with our recommendation to periodically conduct strategic reviews. As of March 2021, DOE continued to believe that a 5-year time interval between reviews is an appropriate time frame and allows current strategic plans to be implemented and assessed. Given that the agency completed the SPR Long-Term Strategic Review in 2016 as the first of such strategic plans, the next strategic review of the SPR should be completed by the end of fiscal year 2021. To fully address this recommendation, DOE should take steps to ensure that it undertakes a strategic review on a periodic basis going forward.

DOE disagreed with our recommendation to conduct or complete studies on the costs and benefits of regional petroleum product reserves because the agency's position is that government-owned and -operated regional petroleum product reserves are an inefficient and expensive solution to respond to regional fuel supply disruptions. In March 2021, DOE continued to believe that, given the inefficient and expensive nature of storing refined petroleum products in above-ground tanks, it would be an inappropriate use of taxpayer funds to conduct any additional studies on the use of federal government-owned storage of refined petroleum products. However, the Quadrennial Energy Review of 2015 recommended that similar analyses be completed for other areas that DOE deemed to be vulnerable to fuel supply

disruptions. Therefore, we continue to believe that conducting these analyses, as recommended in the Quadrennial Energy Review of 2015, will provide Congress with information needed to make decisions about regional product reserves.

DOE agreed with our recommendation to consider a full range of options for handling potentially excess assets and has taken steps to implement it. DOE plans to incorporate information from two ongoing studies into a single document suited as a strategic review of the SPR by the end of fiscal year 2021, DOE officials told us in February 2021. In addition, in March 2020, Australia reached an agreement with DOE to lease SPR storage space to meet Australia's international obligations. To fully address this recommendation, DOE should complete the studies and provide the results to Congress.

Director: Frank Rusco, Natural Resources and Environment

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Nuclear Modernization Challenges

National Nuclear Security Administration: Action Needed to Address Affordability of Nuclear Modernization Programs. [GAO-17-341](#). Washington, D.C.: April 26, 2017.

Recommendation: To help NNSA put forth more credible modernization plans, the NNSA Administrator should include an assessment of the affordability of NNSA's portfolio of modernization programs in future versions of the *Stockpile Stewardship and Management Plan*—for example, by presenting options NNSA could consider to bring its estimates of modernization funding needs into alignment with potential future budgets, such as potentially deferring the start of or canceling specific modernization programs.

Actions Needed: NNSA did not explicitly agree or disagree with our recommendation. NNSA included a new section in the fiscal year 2020 *Stockpile Stewardship and Management Plan* about its analysis of the affordability of its weapons modernization plans and updated this section in the fiscal year 2021 publication. However, NNSA did not include in this section details about, or an assessment of, the options NNSA might have to take in the future to address an apparent misalignment between its estimated funding needs for its portfolio and its projections for future budgets. While DOE considers its actions sufficient to close this recommendation, additional actions are needed. To fully address our recommendation, NNSA should take actions to include in its *Stockpile Stewardship and Management Plan* an assessment of the affordability of NNSA's modernization programs. This assessment should include a prioritization of programs, to provide NNSA options for bringing its plans and estimated funding needs for its portfolio into alignment with projections for future budgets. We will continue to review future *Stockpile Stewardship and Management Plans* to assess whether NNSA has included additional information or an assessment consistent with this recommendation.

Director: Allison B. Bawden, Natural Resources and Environment

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DOE's Environmental Liability

Nuclear Waste: Opportunities Exist to Reduce Risks and Costs by Evaluating Different Waste Treatment Approaches at Hanford. [GAO-17-306](#). Washington, D.C.: May 3, 2017.

Recommendation: To help ensure that DOE's treatment of Hanford's supplemental low-activity waste is risk based and cost effective, the Secretary of Energy should develop

updated information on the effectiveness of treating and disposing of all the different portions of Hanford's supplemental low-activity waste with alternate methods or at alternate disposal sites and, based on this information, identify potential treatment and disposal pathways for different portions of Hanford's supplemental low-activity waste, considering the risks posed by the low-activity waste. In implementing this recommendation, DOE should take into account the results of the analysis required by Section 3134 of the National Defense Authorization Act for Fiscal Year 2017.

Actions Needed: DOE agreed with our recommendation. According to DOE officials, reports issued by the Savannah River National Laboratory and the National Academies of Sciences, Engineering, and Medicine in 2019 and 2020, respectively, include information on viable treatment options DOE might be able to use in making a decision about treating supplemental low-activity waste. DOE told us they planned to use the studies as scoping documents as they move forward with the decision process. The William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021 requires DOE to contract with a federally funded research and development center to conduct follow-on analysis of Savannah River's evaluation, including information allowing for direct comparison of treatment and disposal options (Pub. L. No. 116-283, 134 Stat. 3388 (Jan. 1, 2021)). DOE is required to have this analysis peer-reviewed by the National Academies.

According to DOE officials, as of January 2020, DOE plans to decide by 2026 how it will treat supplemental low-activity waste. While DOE considers its actions sufficient to close this recommendation, additional actions are needed. To fully address our recommendation, DOE should (1) develop updated information that reflects what is now known about alternate treatment and disposal methods; and (2) take steps to identify potential treatment and disposal options for each portion of Hanford's supplemental low-activity waste, considering the risks posed by the low-activity waste.

High-Risk Area: [U.S. Government's Environmental Liability](#)

Director: Nathan J. Anderson, Natural Resources and Environment

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Department of Energy: Program-Wide Strategy and Better Reporting Needed to Address Growing Environmental Cleanup Liability. GAO-19-28. Washington, D.C.: January 29, 2019.

Recommendation: The Secretary of Energy should direct DOE's Office of EM to develop a program-wide strategy that outlines how DOE will direct available resources to address human health and environmental risks across and within sites.

Actions Needed: DOE agreed with our recommendation. In its written response to our report, DOE stated that it was identifying and evaluating opportunities across the complex to reduce risk and life-cycle costs through more efficient and innovative approaches. We and others have previously recommended that DOE direct its resources to address the greatest risks by developing national cleanup priorities and directing funding to high-risk activities that threaten human health and safety or the environment. EM has tried at various times to develop and implement a program-wide strategy that balances the costs of cleanup actions with the level of health and environmental risks they are designed to address, but EM does not currently have such a strategy. In June 2020, DOE officials told us that EM is developing a strategy that analyzes cleanup approaches and other recently identified opportunities across the complex in an effort to reduce risk and life-cycle costs. While DOE considers its actions sufficient to close

this recommendation, additional actions are needed. To fully address our recommendation, the agency needs to complete the analysis and rollout of the new strategy.

High-Risk Area: [U.S. Government's Environmental Liability](#)

Director: Nathan J. Anderson, Natural Resources and Environment

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Nuclear Waste Disposal: Better Planning Needed to Avoid Potential Disruptions at Waste Isolation Pilot Plant. [GAO-21-48](#). Washington, D.C.: November 19, 2020.

Recommendation: The Assistant Secretary for EM should develop a plan for mitigating the potential impacts of the risks to DOE's transuranic waste cleanup program posed by a potential interruption to waste disposal operations at the Waste Isolation Pilot Plant (WIPP).

Actions Needed: DOE agreed with our recommendation. In an October 2020 signed letter from the Senior Advisor for EM that provided comments on our draft report, DOE stated that the National Transuranic Program would prepare a plan in collaboration with DOE waste generator sites to mitigate potential impacts to an interruption to waste disposal operations at WIPP. DOE noted that this planning process would consider lessons learned from the interruption that occurred at WIPP between 2014 and 2017. To fully address our recommendation, EM should develop a plan for mitigating the potential impacts of the risks to DOE's transuranic waste cleanup program posed by potential interruptions at WIPP.

High-Risk Area: [U.S. Government's Environmental Liability](#)

Director: Allison B. Bawden, Natural Resources and Environment

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Hanford Cleanup: DOE's Efforts to Close Tank Farms Would Benefit from Clearer Legal Authorities and Communication. [GAO-21-73](#). Washington, D.C.: January 7, 2021.

Recommendation: The Secretary of Energy should direct the Assistant Secretary of the Office of EM to obtain the assistance of an independent, third-party mediator to help reach agreement with the state of Washington's Department of Ecology on a process for assessing the contaminated soil and what role the Nuclear Regulatory Commission should play in this process.

Actions Needed: DOE agreed with our recommendation. In its written response to our report, DOE stated that it had engaged in mediated negotiations with the Environmental Protection Agency and the state of Washington's Department of Ecology since June 2020 and that these actions satisfy our recommendation. DOE also stated that the soil is managed under the Comprehensive Environmental Response, Compensation, and Liability Act and the Resource Conservation and Recovery Act. However, we believe that DOE has not yet satisfied this recommendation. DOE officials told us during our review that, as of October 2020, the initial set of broad topics agreed upon for negotiations did not include addressing contaminated soil or the role the Nuclear Regulatory Commission is to play. DOE still must resolve the significant disagreement with the state of Washington's Department of Ecology regarding how to address contamination in the soil under the Tri-Party Agreement. This should include what role the Nuclear Regulatory Commission should play, regardless of the process DOE must follow under the Comprehensive Environmental Response, Compensation, and Liability Act.

Director: Nathan J. Anderson, Natural Resources and Environment

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Cybersecurity

Critical Infrastructure Protection: Additional Actions Are Essential for Assessing Cybersecurity Framework Adoption. [GAO-18-211](#). Washington, D.C.: February 15, 2018.

Recommendation: The Secretary of Energy should take steps to consult with respective sector partner(s), such as the sector coordinating council, Department of Homeland Security (DHS), and National Institute of Standards and Technology (NIST), as appropriate, to develop methods for determining the level and type of framework adoption by entities across their respective sector.

Action Needed: DOE did not explicitly agree or disagree with our recommendation. In August 2018, DOE held a meeting of its Cybersecurity Capability Maturity Model (C2M2) Working Group, which includes industry partners from the electricity, oil, and natural gas subsectors; DHS; and NIST. DOE stated that it worked with stakeholders to better align the C2M2, which is to evaluate and improve cybersecurity practices across the energy sector, with the updated NIST cybersecurity framework but did not provide specific information regarding the adoption or use of the framework. Officials from the DOE's Office of Cybersecurity, Energy Security, and Emergency Response stated that the voluntary nature of the framework made it difficult to determine the level and type of framework adoption. However, in May 2021, officials stated that they were in the process of updating the C2M2 and mapping it to the framework, which DOE expects to be completed in August 2021. Officials also stated they would evaluate the mapping for inclusion in the implementation guidance for the energy sector's cybersecurity framework once the mapping has been completed. While DOE considers its actions sufficient to close this recommendation, additional actions are needed. To fully address our recommendation, DOE should have a more comprehensive understanding of the framework's use by developing methods for determining the level and type of framework adoption by entities across its sector.

High-Risk Area: [Ensuring the Cybersecurity of the Nation](#)

Director: Vijay A. D'Souza, Information Technology and Cybersecurity

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Cybersecurity: Agencies Need to Fully Establish Risk Management Programs and Address Challenges. [GAO-19-384](#). Washington, D.C.: July 25, 2019.

Recommendation: The Secretary of Energy should develop a cybersecurity risk management strategy that includes the key elements identified in this report.

Action Needed: DOE agreed with our recommendation. DOE acknowledged that it had not developed a cybersecurity risk management strategy that includes key elements such as risk tolerance and risk mitigation strategies, among other things. According to agency officials, this was due to the federated nature of the agency and difficulty in establishing an agency-wide understanding of risk tolerance, among other factors. Further, these officials stated that they intended to develop such a strategy or were considering doing so. As of March 2021, DOE stated that it was developing a department-wide risk management plan, to include a risk management strategy, which DOE estimated would be completed by summer 2021. To fully address this recommendation, DOE should develop a cybersecurity risk management strategy that includes the key elements we identified in our report.

High-Risk Area: [Ensuring the Cybersecurity of the Nation](#)

Director: Jennifer R. Franks, Information Technology and Cybersecurity

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Critical Infrastructure Protection: Actions Needed to Address Significant Cybersecurity Risks Facing the Electric Grid. [GAO-19-332](#). Washington, D.C.: August 26, 2019.

Recommendation: The Secretary of Energy, in coordination with DHS and other relevant stakeholders, should develop a plan aimed at implementing the federal cybersecurity strategy for the electric grid and ensure that the plan addresses the key characteristics of a national strategy, including a full assessment of cybersecurity risks to the grid.

Actions Needed: DOE agreed with our recommendation. In its response to our report, DOE stated that it was working through an interagency process to develop a *National Cyber Strategy Implementation Plan* that would consider DOE's *Multiyear Plan for Energy Sector Cybersecurity*. However, those documents do not fully address all of the key characteristics needed to implement a national strategy, such as fully assessing cybersecurity risks to the electricity grid. While DOE considers its actions sufficient to close this recommendation, additional actions are needed. To fully address our recommendation, DOE should develop a plan for implementing the federal cybersecurity strategy for the electric grid, ensure the plan addresses the key characteristics of a national strategy, and coordinate that plan with DHS and other relevant stakeholders.

High-Risk Area: [Ensuring the Cybersecurity of the Nation](#)

Directors: Frank Rusco, Natural Resources and Environment; and Nick Marinos, Information Technology and Cybersecurity

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Worker Protections

Department of Energy: Whistleblower Protections Need Strengthening. [GAO-16-618](#). Washington, D.C.: July 11, 2016.

Recommendation: To help improve DOE's ability to take enforcement actions against unlawful retaliation, when appropriate, and take action against contractors that create a chilled work environment, the Secretary of Energy should revise DOE's Integrated Safety Management policy and guidance to clarify what constitutes evidence of a chilled work environment and define the appropriate steps DOE should take to hold contractors accountable for creating a chilled work environment.

Actions Needed: DOE agreed with our recommendation. In January 2018, DOE issued a revision to DOE Policy 450.4A. The revised policy states that organizations should foster a culture that allows employees to "feel free to raise safety concerns to management without fear of retaliation ... and supporting a questioning attitude concerning safety by all employees." However, the policy does not define the appropriate steps DOE should take to hold contractors accountable for creating a chilled work environment. While DOE considers its actions sufficient to close this recommendation, additional actions are needed. To fully address our recommendation, DOE should revise its safety management guidance to include the elements we recommended. By doing so, DOE will be better able

to hold contractors accountable for addressing chilled work environments and increase contractor employee confidence in the mechanisms for raising safety concerns.

Director: Allison B. Bawden, Natural Resources and Environment

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Sexual Harassment: NNSA Could Improve Prevention and Response Efforts in Its Nuclear Security Forces. [GAO-21-307](#). Washington, D.C.: April 19, 2021.

Recommendation: The Secretary of Energy should fully implement plans to address the department's Equal Employment Opportunity (EEO) program deficiencies relevant to sexual harassment and work with NNSA to fully implement plans to address the agency's EEO program deficiencies relevant to sexual harassment.

Actions Needed: DOE and NNSA jointly concurred with our recommendation. In its written comments, NNSA stated that it welcomes opportunities for continuous improvement and that it has broadened its response to our recommendation to include all federal and contractor employees across NNSA. NNSA stated that DOE has completed actions to address two of the 10 issues the U.S. Equal Employment Opportunity Commission identified in its July 2020 Technical Assistance Letter and has demonstrated progress on the remaining eight issues. NNSA stated that it will continue to work with DOE to address issues and further strengthen practices, and estimated they would complete work to address the recommendation by September 2022. To fully address our recommendation, DOE should fully implement its plans to address its EEO program deficiencies relevant to sexual harassment and work with NNSA to fully implement these plans.

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Electricity Grid Resilience

Electricity Grid: Opportunities Exist for DOE to Better Support Utilities in Improving Resilience to Hurricanes. [GAO-21-274](#). Washington, D.C.: March 5, 2021.

Recommendation: The Secretary of Energy should establish a plan, including time frames, as appropriate, to guide the agency's efforts to develop tools for resilience planning, such as performance measures for resilience, a framework for resilience planning, and additional information on the cost of long-term power outages.

Actions Needed: DOE agreed with our recommendation, in principle. In its response to our report, DOE stated that its Office of Electricity had recently formed an Energy Resilience Division dedicated to incorporating resilience concerns into DOE's work. This division has established a Resilience Community of Practice, which meets monthly to discuss DOE's ongoing energy resilience projects and other resilience-related efforts. To support ongoing resilience work, this division has also begun compiling a catalogue of existing resilience tools and models to better understand existing energy resilience planning capabilities and identify gaps.

We are encouraged by DOE's efforts to identify existing resilience planning tools and potential gaps. However, we continue to believe that DOE needs to establish a plan to guide efforts to further develop and operationalize these resilience planning tools so it can support the grid

resilience efforts of utilities and other stakeholders. To fully address our recommendation, DOE should establish a plan that includes time frames, as appropriate, to guide the agency's effort to develop tools for resilience planning.

Director: Frank Rusco, Natural Resources and Environment

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Electricity Grid Resilience: Climate Change Is Expected to Have Far-reaching Effects and DOE and FERC Should Take Actions. [GAO-21-346](#). Washington, D.C.: March 10, 2021.

Recommendation: The Secretary of Energy should develop and implement a department-wide strategy to coordinate its efforts that defines goals and measures progress to enhance the resilience of the electricity grid to the risks of climate change.

Actions Needed: DOE agreed with our recommendation. In its June 2021 management decision letter to congressional committees, DOE stated that it developed a grid resilience strategy under its Grid Modernization Initiative (GMI)—a collaborative partnership of five DOE offices: Fossil Energy, Nuclear Energy; Electricity; Energy Efficiency and Renewable Energy; and Cybersecurity, Energy Security, and Emergency Response. According to DOE, the GMI strategy, developed in December 2020, includes an all-hazards approach to characterize and implement system resilience but does not prioritize climate change over other threats. Nevertheless, DOE noted that the current strategy will be the framework for the Secretarially approved department-wide strategy contemplated in our report. DOE expects to update the strategy by April 2022. To fully address our recommendation, DOE's strategy should define goals and measure progress to enhance the resilience of the electricity grid to the risks of climate change.

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