U.S. GOVERNMENT ACCOUNTABILITY OFFICE

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Washington, DC 20548

Accessible Version

November 7, 2019

Congressional Committees

Nuclear Weapons Sustainment: Improvements Made to Budget Estimates in Fiscal Year 2019 Joint Report, but Opportunities Remain to Enhance Completeness

The Department of Defense (DOD) and the Department of Energy (DOE), through its National Nuclear Security Administration (NNSA), are undertaking an extensive, multifaceted effort to sustain and modernize U.S. nuclear weapons capabilities.[1] These capabilities include the nuclear weapons stockpile; the research and production infrastructure; delivery systems; and the nuclear command, control, and communications (NC3) system.[2] DOD and DOE estimates show that nuclear sustainment and modernization efforts are expected to cost hundreds of billions of dollars over the next decade.

Section 1043 of the National Defense Authorization Act for Fiscal Year 2012, as amended, requires the President, in consultation with the Secretary of Defense and the Secretary of Energy, to submit a report on the plan for the nuclear weapons stockpile, complex, delivery systems, and command and control system for each of fiscal years 2013 through 2023.[3] DOD and DOE develop this annual report, which we refer to as the joint report. The joint report is to include nuclear sustainment and modernization plans, as well as associated budget estimates for the 10 years following the date of the report and must include a detailed description of the costs the departments included in their budget estimates and the methodologies they used to develop the estimates.[4]

DOD and DOE submitted their fiscal year 2019 joint report to Congress on November 30, 2018.[5]

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[1]NNSA is a separately organized agency within DOE that is responsible for the management and security of DOE's nuclear weapons, nuclear nonproliferation, and naval reactor programs.

[2]The nuclear weapons stockpile consists of seven types of warheads and bombs. Nuclear delivery systems consist of a variety of platforms—including heavy bombers, air-launched cruise missiles, and ballistic missile submarines—operated by the Air Force and the Navy. The NC3 system consists of satellites, early warning radars, aircraft, communications networks, and other systems that are managed by the Air Force, the Navy, the Defense Information Systems Agency, and other organizations.

[3]*See* Pub. L. No. 112-81, § 1043(a) (2011), *amended by* the National Defense Authorization Act for Fiscal Year 2013, Pub. L. No. 112-239, § 1041 (2013), the National Defense Authorization Act for Fiscal Year 2014, Pub. L. No. 113-66, § 1054 (2013), the National Defense Authorization Act for Fiscal Year 2018, Pub. L. No. 115-91, § 1665 (2017), *and* the John S. McCain National Defense Authorization Act for Fiscal Year 2019, Pub. L. No. 115-232, § 1670 (2018). The report is to be transmitted to the congressional defense committees, the Senate Committee on Foreign Relations, and the House Committee on Foreign Affairs. § 1043(a)(1). The reporting function was delegated to the Secretary of Defense and Secretary of Energy in 2012. *See* 77 Fed. Reg. 12,721 (Mar. 2, 2012).

[4]*See* § 1043(a)(2), (3).

[5]Department of Defense and Department of Energy, *Fiscal Year 2019 Report on the Plan for the Nuclear Weapons Stockpile, Nuclear Weapons Complex, Nuclear Weapons Delivery Systems, and Nuclear Weapons Command and*

Section 1043 of the National Defense Authorization Act for fiscal year 2012, as amended, also includes a provision for us to review each joint report for accuracy and completeness with respect to the budget estimates and the methodologies the departments used to develop the estimates.[6] We most recently reported on the fiscal year 2018 joint report in November 2018.[7] In this report, we assess the extent to which the fiscal year 2019 joint report provides (1) budget estimates for nuclear sustainment and modernization that are consistent with DOD's and DOE's internal funding plans and long-term nuclear modernization plans and (2) complete and transparent information about the development of the nuclear sustainment and modernization budget estimates.[8] In May 2019, we provided a briefing to congressional committees on the results of our review. This report formally transmits the briefing we provided to congressional committees (see enclosure 1).

To address objective one, we obtained and analyzed the plans and estimates from the 2019 joint report and compared them with each department's funding plans, including DOD's Future Years Defense Program (FYDP) and DOE's Future Years Nuclear Security Program (FYNSP).[9] To assess the consistency (i.e., accuracy and completeness) of DOD's budget estimates beyond fiscal year 2023, we verified that the DOD inflation percentages identified in the fiscal year 2019 joint report corresponded to the estimates identified in the report and to the FYDP.[10] To assess the consistency of DOE's budget estimates beyond fiscal year 2023, we evaluated DOE's *FY 2019 Stockpile Stewardship and Management Plan* (SSMP), which is updated annually and includes DOE's budget estimates for nuclear weapons sustainment and modernization for the next 25 years.[11]

To address objective two, we compared the methodology information included in the fiscal year 2019 joint report to that included in prior joint reports. In particular, we drew on the work we had

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Control System Specified in Section 1043 of the National Defense Authorization Act for Fiscal Year 2012 (P.L. 112-81) (Washington, D.C.: Nov. 30, 2018).

[6]*See* § 1043(c) (added by Pub. L. No. 112-239, § 1041(a)(2)).

[7]GAO, *Nuclear Weapons Sustainment: Fiscal Year 2018 Nuclear Forces Budget Estimates*, GAO-19-127R (Washington, D.C.: Nov. 2, 2018).

[8]We refer to cost figures as "budget estimates" throughout this report.

[9]The Secretary of Defense submits annually to Congress, at or about the time the President's budget is submitted, a FYDP reflecting the estimated expenditures and proposed appropriations included in that budget. The FYDP is to cover the fiscal year for which the budget is submitted and at least 4 succeeding fiscal years. The FYDP consists of thousands of program elements, each of which generally represents an aggregation of organizational entities and related resources. The FYNSP is NNSA's 5-year funding plan, annually submitted to Congress, reflecting the estimated expenditures and proposed appropriations for programs for which NNSA is responsible: Weapons Activities, Defense Nuclear Nonproliferation, and Naval Reactors.

[10]For purposes of this report, if the budget estimates in the fiscal year 2019 joint report were consistent with the departments' funding plans, including the FYNSP and FYDP, then we deemed them to be sufficiently accurate and complete.

[11]The *Stockpile Stewardship and Management Plan* is NNSA's formal means for annually communicating to Congress the status of certain activities and its long-range plans and budget estimates for sustaining the stockpile and modernizing the nuclear security enterprise.

performed for our reviews of prior fiscal years' joint reports.[12] Additionally, we interviewed officials from various DOD and DOE offices.[13]

We conducted this performance audit from January 2019 to November 2019 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 the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

DOD's and DOE's Reported Budget Estimates Were Generally Consistent with Internal Funding Plans, but DOE Did Not Include 10 Years of Budget Data in the Joint Report

DOD's and DOE's reported budget estimates for nuclear weapons sustainment and modernization were generally consistent with internal funding plans; however, DOE did not include a full 10 years of budget data in the joint report as it had in most previous years.[14] DOD's fiscal year 2019 joint report budget estimates were higher than reported budget estimates in the fiscal year 2018 joint report. The increases were the result of the services and the DOD Chief Information Officer estimating additional budget requirements for procurement; equipment; and research, development, test, and evaluation.[15] In the fiscal year 2019 joint report, DOE presented specific budget estimates for the first 5 years of the reporting period, fiscal years 2019 through 2023.[16] These budget estimates were higher than the reported budget estimates in the fiscal year 2018 joint report. According to DOE, the primary drivers for the higher budget estimates in the fiscal year 2019 joint report include the W87-1 Modification Program; reestablishing certain strategic material processes; and programs to develop scientific tools for assessing and certifying the stockpile.

DOE did not present specific budget estimates for fiscal years 2024 through 2028 in the fiscal year 2019 joint report. Instead, for budget estimates beyond fiscal year 2023, DOE referred readers to the fiscal year 2019 SSMP. However, our analysis of the fiscal year 2019 SSMP determined that it cannot be readily used to obtain specific estimates for program costs for the

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[12]GAO, *Nuclear Weapons: Ten-Year Budget Estimates for Modernization Omit Key Efforts, and Assumptions and Limitations Are Not Fully Transparent,* GAO-14-373 (Washington, D.C.: June 10, 2014); *Nuclear Weapons Sustainment: Improvements Made to Budget Estimates, but Opportunities Exist to Further Enhance Transparency,* GAO-15-536 (Washington, D.C.: July 30, 2015); *Nuclear Weapons Sustainment: Improvements Made to Budget Estimates Report, but Opportunities Remain to Further Enhance Transparency,* GAO-16-23 (Washington, D.C.: Dec. 10, 2015); *Nuclear Weapons Sustainment: Budget Estimates Report Contains More Information than in Prior Fiscal Years, but Transparency Can Be Improved,* GAO-17-557 (Washington, D.C.: July 20, 2017); and Nuclear Weapons Sustainment: Fiscal Year 2018 Nuclear Forces Budget Estimates, GAO-19-127R (Washington, D.C.: Nov. 2, 2018).

[13]We conducted interviews with NNSA's Office of Defense Programs, the Office of the Under Secretary of Defense for Policy, the Office of the Under Secretary of Defense for Acquisition and Sustainment, the Office of Cost Assessment and Program Evaluation, the Navy, the Air Force, and the Office of the DOD Chief Information Officer National Leadership Command.

[14]DOE provided budget estimates for all 10 years in each of the joint reports published for fiscal years 2014 through 2017. DOE provided budget estimates for only 1 of 10 required years in the fiscal year 2018 joint report, given the timing of the issuance of the 2018 Nuclear Posture Review, which we reported affected future years' budget estimates.

[15]The dollar and percentage increases were reported to congressional committees on May 29, 2019 (see enclosure 1).

[16]The joint report also includes budget estimates specific to fiscal year 2018.

five years beyond fiscal year 2023.[17] Specifically, the fiscal year 2019 SSMP does not provide sufficient detail to identify specific estimates for fiscal years 2024 through 2028 and does not enable easy comparison to the information presented in the joint report. Figure 1 presents excerpts from the fiscal year 2019 joint report (showing a DOE table with specific year-by-year budget estimates for fiscal years 2018 through 2023) and the fiscal year 2019 SSMP (showing long-term budget estimates for DOE's weapons activities for fiscal years 2018 through 2043) for a comparison of the information presented in the two reports.

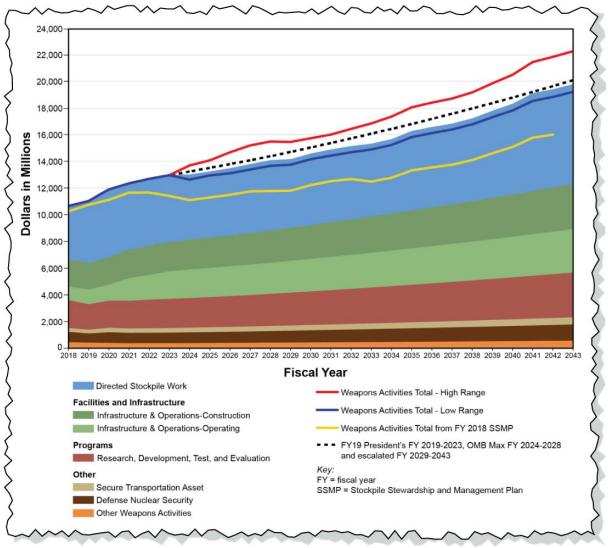
Figure 1: Comparison of Information in Fiscal Year 2019 Joint Report and Stockpile Stewardship and Management Plan

Fiscal Year 2019 Report on the Plan for the Nuclear Weapons Stockpile, Nuclear Weapons Complex, Nuclear Weapons Delivery Systems, and Nuclear Weapons Command and Control System
Department of Defense and Department of Energy

Activity	Fiscal Year (dollars in millions)					
	2018 Enacted	2019 Request	2020 Request	2021 Request	2022 Request	2023 Request
Directed Stockpile Work	4,009.4	4,666.2	5,097.9	5,412.2	5,635.3	5,838.4
Science Program	474.5	564.9	572.3	637.8	604.7	571.7
Engineering Program	183.1	211.4	226.5	235.9	245.9	255.7
Inertial Confinement Fusion Ignition and High Yield Program	544.9	418.9	428.0	437.5	447.2	457.0
Advanced Simulation and Computing Program	746.2	703.4	717.8	703.0	799.7	782.3
Advanced Manufacturing Development	85.5	96.8	105.1	117.6	119.6	123.2
Secure Transportation Asset	291.2	278.6	339.7	332.4	339.9	347.6
Infrastructure and Operations	3,117.8	3,002.7	3,233.6	3,343.0	3,357.6	3,440.7
Defense Nuclear Security	770.6	690.6	796.9	773.1	773.9	785.1
Information Technology and Cybersecurity	186.7	221.2	291.3	281.2	291.2	291.7
Legacy Contractor Pensions	232.1	162.3	72.8	63.8	59.5	55.3
Adjustments [b]	0	0	0	0	0	0
Weapons Activities Total	***10,642.1***	***11,017.1***	***11,881.9***	***12,337.5***	***12,674.6***	***12,948.6***

[a] Totals may not add because of rounding.
[b] Adjustments include rescissions and use of prior-year balances.

Fiscal Year 2019 Stockpile Stewardship and Management Plan
Department of Energy



Source: Department of Defense and Department of Energy. | GAO-20-37R

Note: Amounts for the Estimated Out-Year Budget Estimates for National Nuclear Security Administration Weapons Activities are presented in nominal dollars, which are not adjusted for the effects of inflation.

DOE officials stated that providing budget estimates beyond 2023 in a table would impute a false level of fidelity to these data. However, in most of the previous joint reports, DOE presented all 10 years of budget estimates in a table, noting limitations to the data. In April 2019, DOE officials stated that their approach to presenting the budget estimate information in the fiscal year 2019 joint report reflected efforts to streamline the reporting of the data. In May 2019, DOE officials stated that they were considering including a table showing 10 years of budget estimates in the fiscal year 2020 joint report to increase the report's transparency.

Section 1043 of the National Defense Authorization Act for Fiscal Year 2012, as amended, requires that the annual joint report include 10-year budget estimates related to sustaining and modernizing U.S. nuclear weapons, among several other elements.[18] In previous reviews of the joint report, we have referenced key principles that we derived from federal budgeting and cost-estimating guidance. These principles indicate that all relevant estimates should be included in

[17]DOE officials referred us to information in figures within the fiscal year 2019 SSMP: (1) a 25-year out-year estimate that includes budget estimates for all budget lines related to NNSA weapons activities, (2) a 25-year estimate of warhead-specific sustainment costs, and (3) a 25-year estimate of total projected costs for nuclear weapons life extensions.

[18]Pub. L. No. 112-81, § 1043(a)(2), *as amended*.

the report, even if they are preliminary, to assist decision makers in allocating resources, as well as to help decision makers anticipate changes to the Administration's planned requirements over the long term.[19] In addition, according to *Standards for Internal Control in the Federal Government*, management should use quality information, such as information that is complete and accurate, to achieve the entity's objectives.[20] Complete information is also important for decision makers who assess these estimates and consider the long-term affordability of the Administration's near-term programmatic decisions.

Without including 10 required years of data in one location and comparable format, the fiscal year 2019 joint report does not present all relevant estimates in a useful form or provide complete information, thereby limiting the utility of the joint report to congressional and other decision makers.

DOD and DOE Made Some Improvements in Documenting Budget Estimating Methodologies but Did Not Provide Complete Information in Some Areas

Both DOD and DOE took some steps to improve their descriptions of budget estimating methodologies in the joint report, but neither department has fully addressed our prior recommendations aimed at improving the completeness of information on the methodologies used to develop the estimates. Specifically,

- DOD provided more methodological information in the fiscal year 2019 joint report than it had in the fiscal year 2017 joint report.[21] For example, DOD presented comparative information related to the changes in cost estimates for NC3 systems, including descriptions of how these systems are accounted for in the budget estimates, as well as the proportion of a system's budget that is to fund either nuclear or conventional operations, before assigning an additional percentage for NC3 expenses. However, as we observed in previous reports, the methodology presented in the fiscal year 2019 joint report did not provide complete information on how budget estimates were determined for certain program elements when estimates for these program elements differed from estimates for the same program elements in the FYDP. In 2015, we recommended that DOD provide more thorough documentation of the methodologies it uses to develop the budget estimates, and DOD agreed and stated in its response that it would add additional information in subsequent joint reports.[22] We continue to believe that this recommendation is valid.
- DOE also provided more methodological information in the fiscal year 2019 joint report than it had in the fiscal year 2017 joint report.[23] In particular, DOE described the offices involved in developing the cost and budget estimates within the NNSA, as well as how

[19]GAO-14-373 and GAO-15-536.

[20]GAO, *Standards for Internal Control in the Federal Government*, GAO-14-704G, (Washington, D.C.: Sept. 10, 2014).

[21]DOD officials stated that they used the same methodological information in both the fiscal year 2018 and the fiscal year 2019 joint reports. Therefore, our review compared the methodological information from the fiscal year 2019 joint report to the methodological information from the fiscal year 2017 joint report.

[22]GAO-15-536.

[23]DOE officials stated that they used the same methodological information in both the fiscal year 2018 and 2019 joint reports. Therefore, our review compared the methodological information from the fiscal year 2019 joint report to the methodological information from the fiscal year 2017 joint report.

cost estimates were developed for major warhead and bomb refurbishment programs. However, DOE did not provide comparative information on changes in the budget estimates for other parts of the budget. In 2015, we recommended that DOE provide comparative information on changes in the budget estimates from the prior year and provide reasons for those changes.[24] We continue to believe that this recommendation is valid.

We will continue to evaluate any further actions that DOD and DOE take in response to our recommendations when we evaluate the fiscal year 2020 joint report.

Conclusion

The annual DOD and DOE joint report is one means by which Congress gathers the information it needs to understand the administration's plans to invest in nuclear deterrence capabilities over the long term. In order to assess the affordability of these efforts, it is important that Congress have complete and consistent budget estimates from both DOD and DOE in one location. If DOE were to provide detailed 10-year budget estimates in the joint report, as it has done in prior years, the utility of the joint report would be enhanced. Providing the estimates in one location and in a comparable format would better inform decision makers, who rely on complete information to review plans and estimates when considering the long-term affordability of the administration's near-term programmatic decisions. DOE could continue to identify limitations to the fidelity of the estimates beyond fiscal year 2023, as it has done in prior joint reports, thereby providing greater transparency to decision makers.

Recommendation for Executive Action

The NNSA Administrator should ensure that NNSA includes 10 years of budget estimates in one location and comparable format in future joint reports.

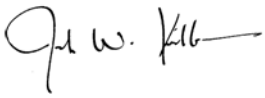
Agency Comments and Our Evaluation

We provided a draft of this report to DOE and DOD for review and comment. In its written comments, which are reproduced in enclosure II, DOE concurred with our recommendation. DOD did not comment on our findings or recommendation. Both departments provided technical comments, which we considered and incorporated as appropriate.

We are sending copies of this report to the appropriate congressional committees, the Secretaries of Defense and Energy, and the Administrator of NNSA. In addition, the report is available at no charge on the GAO website at https://www.gao.gov.

[24] GAO-15-536.

Should you or your staff have questions concerning this report, please contact Joseph Kirschbaum at (202) 512-9971 or KirschbaumJ@gao.gov or Allison Bawden at (202) 512-3841 or BawdenA@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. GAO staff who made key contributions to this report include Penney Harwell Caramia (Assistant Director); Jason Holliday (Assistant Director); Martin De Alteriis; Joanne Landesman; Amie Lesser; Regina Morrison; Emily Pinto (Analyst-in-Charge); Matthew Sakrekoff (Analyst-in-Charge); and Michael Shaughnessy.



Joseph W. Kirschbaum
Director, Defense Capabilities and Management

Allison Bawden
Director, Natural Resource and Environment

Enclosures – 2

List of Committees

The Honorable James M. Inhofe
Chairman
The Honorable Jack Reed
Ranking Member
Committee on Armed Services
United States Senate

The Honorable Richard Shelby
Chairman
The Honorable Dick Durbin
Ranking Member
Subcommittee on Defense
Committee on Appropriations
United States Senate

The Honorable Lamar Alexander
Chairman
The Honorable Dianne Feinstein
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Committee on Appropriations
United States Senate

The Honorable Adam Smith
Chairman
The Honorable Mac Thornberry
Ranking Member
Committee on Armed Services
House of Representatives

The Honorable Pete Visclosky
Chairman
The Honorable Ken Calvert
Ranking Member
Subcommittee on Defense
Committee on Appropriations
House of Representatives

The Honorable Marcy Kaptur
Chairwoman
The Honorable Mike Simpson
Ranking Member
Subcommittee on Energy and Water Development and Related Agencies
Committee on Appropriations
House of Representatives

(103288)

Enclosure I – GAO Nuclear Weapons Sustainment and Modernization, Fiscal Year 2019 Nuclear Forces Budget Estimates ,Briefing for Congressional Defense Committees , May 29, 2019

See attached 508 version of this presentation.

Enclosure II:

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

October 15, 2019

Ms. Allison 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 draft report, *Nuclear Weapons Sustainment: Improvements Made to Budget Estimates in Fiscal Year 2019 Joint Report, but Opportunities Remain to Enhance Completeness* (GAO-20-37C). We appreciate the auditors' recognition of the Department of Energy's National Nuclear Security Administration efforts to provide more transparent information on the development of cost and budget estimates contained in the fiscal year (FY) 2019 joint report. We also agree with the auditors' recommendation to enhance completeness and readability by reverting back to direct inclusion of the full 10 years of estimates in the FY 2020 joint report.

Technical comments have been provided under separate cover for your consideration to improve the context and accuracy of the report. If you have any questions about this response, please contact Dean Childs, Director, Audits and Internal Affairs, at (301) 903-1341.

Sincerely,

Lisa E. Gordon-Hagerty

Lisa E. Gordon-Hagerty

Text of Enclosure II, Dept of Energy comment letter

October 15, 2019

Ms. Allison 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 draft report, Nuclear Weapons Sustainment: Improvements Made to Budget Estimates in Fiscal Year 2019 Joint Report, but Opportunities Remain to Enhance Completeness

(GAO-20-37C). We appreciate the auditors' recognition of the Department of Energy's National Nuclear Security Administration efforts to provide more transparent information on the development of cost and budget estimates contained in the fiscal year (FY) 2019 joint report. We also agree with the auditors' recommendation to enhance completeness and readability by reverting back to direct inclusion of the full 10 years of estimates in the FY 2020 joint report.

Technical comments have been provided under separate cover for your consideration to improve the context and accuracy of the report. If you have any questions about this response, please contact Dean Childs, Director, Audits and Internal Affairs, at (301) 903- 1341.

Sincerely,

Lisa E. Gordon-Hagerty