

# Behind the Scenes: A Look at Recent GAO Cost Audits

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# Agenda

- **Background**
- **Audit Process**
- **Trends**
- **Case Studies**
  - **Space Command and Control: Improved Tracking and Reporting Would Clarify Progress amid Persistent Delays (GAO-23-105920)**
  - **IT Modernization: SBA Urgently Needs to Address Risks on Newly Deployed System (GAO-25-106963)**
  - **Naval Reactors: Independent Analyses of Cost, Schedule, and Quality of Work Needed for Spent Fuel Handling Facility Project (GAO-25-106997)**





# Background

# Overview: About GAO

- **GAO is an independent, nonpartisan agency serving the Congress to help improve the performance and ensure the accountability of the federal government.**
- **GAO's core values are Accountability, Integrity, and Reliability.**
- **To ensure independence, the Comptroller General (CG) is appointed to a 15-year term by the President. Other than the CG, there are no political appointees at GAO.**



Oversight, Insight, Foresight

# Overview: About GAO (Our Work)

- GAO work is primarily done at the request of congressional committees or subcommittees or is mandated by public laws or committee reports. We also undertake research under the authority of the Comptroller General.
- Some examples of our work include:
  - Auditing agency operations to determine whether federal funds are being spent efficiently and effectively
  - Investigating allegations of illegal and improper activities
  - **Reporting on how well government programs and policies are meeting their objectives**
  - **Performing policy analyses and outlining options for congressional consideration**
  - Issuing legal decisions and opinions, such as bid protest rulings and reports on agency rules
- In 2018, Congress directed the formation of the Science, Technology Assessment, and Analytics (STAA) team, recognizing that the accelerating pace of innovation has created a need for more and deeper analysis of science and technology.

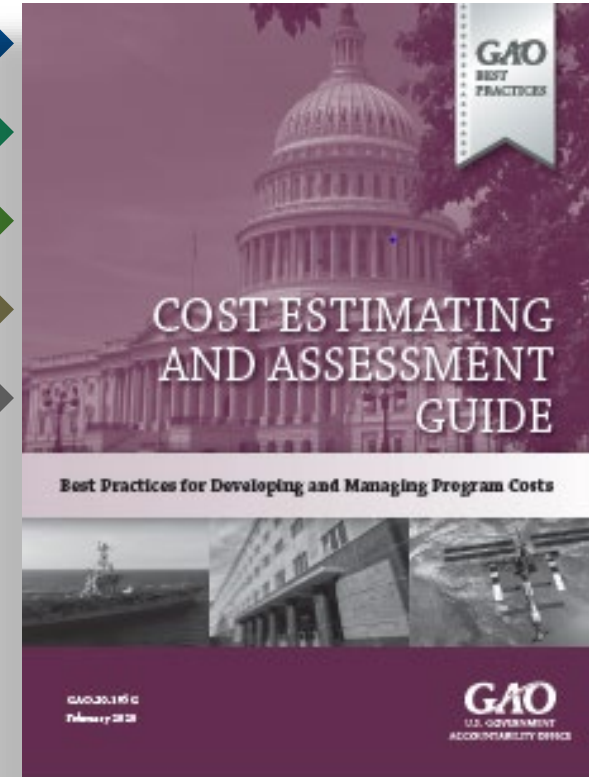
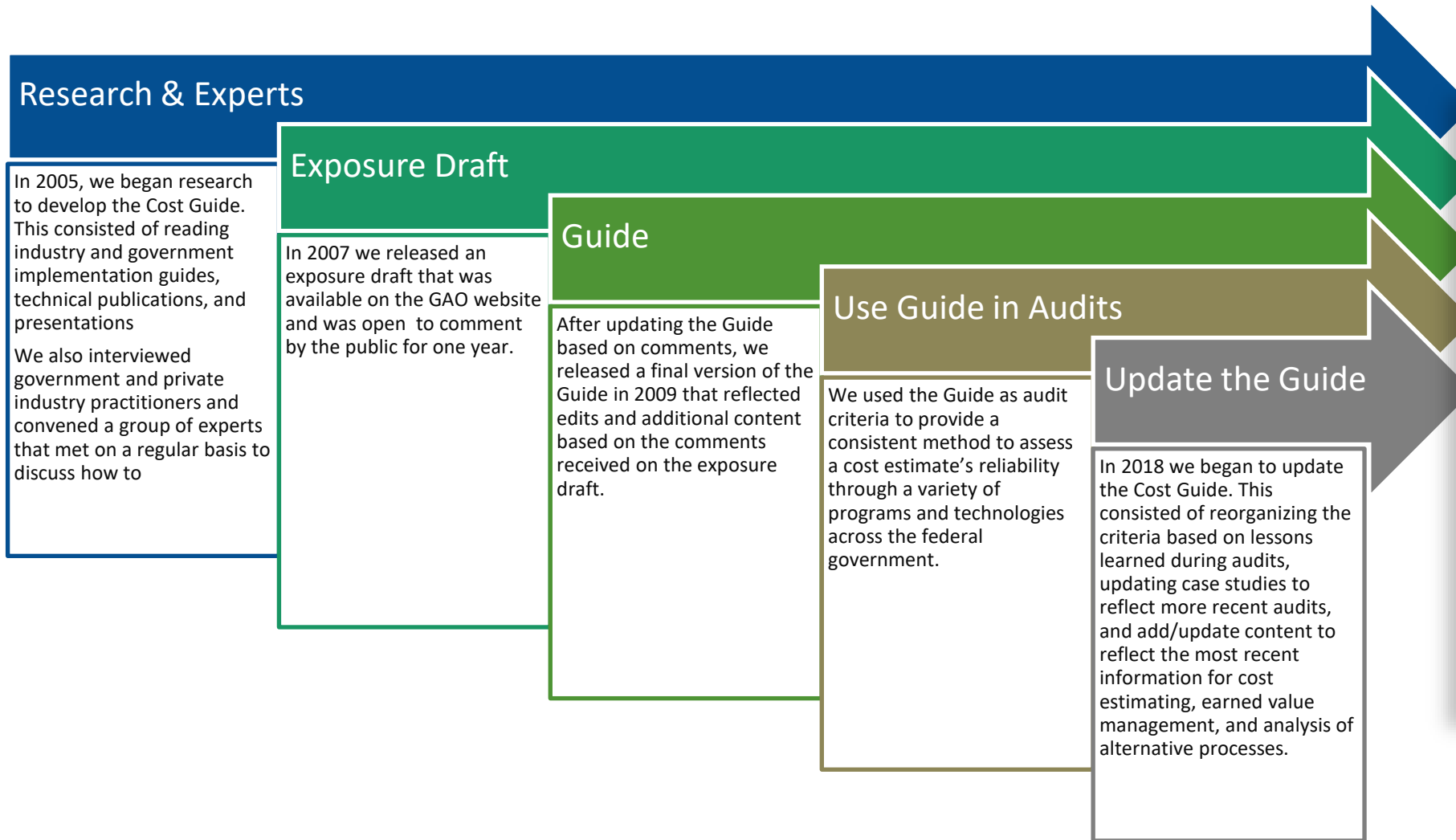
More information about GAO can be found at [www.gao.gov](http://www.gao.gov)

# Overview: Best Practice Guides

- **Cost Estimating and Assessment Guide**
  - Issued: March 2020, GAO-20-195G
- **Schedule Assessment Guide**
  - Issued: December 2015, GAO-16-89G
- **Technology Readiness Assessment Guide**
  - Issued: January 2020, GAO-20-48G
- **Agile Assessment Guide**
  - Issued: November 2023, GAO-24-105506



# Cost Guide Development & Update Process





# Audit Process

# Criteria: Cost Guide

## Cost Assessment

Assess reliability of program life cycle cost estimates

By determining the extent to which the estimates are:

Comprehensive

Well-documented

Accurate

Credible

Through application of 18 best practices

# Characteristics and Best Practices

## Comprehensive

- Includes all life cycle costs
- Based on a technical baseline description
- Documents cost-influencing ground rules and assumptions
- Based on a product oriented WBS

## Well-Documented

- Shows the source data used
- Describes step by step how the estimate was developed
- Discusses the technical baseline description
- Provides evidence that the cost estimate was reviewed and accepted

## Accurate

- Adjusted properly for inflation
- Based on a historical record
- Uses the best methodology from the data collected
- Contains few, if any, minor mistakes
- Documents and explains variances
- Regularly updated

## Credible

- Conduct sensitivity analysis
- Conduct risk and uncertainty analysis
- Perform cross checks
- Compare to an independent estimate

# Data Collection

## Documentation

- Technical baseline description
- Work breakdown structure and dictionary
- Estimating model in its native format (Excel, ACEiT, etc.)
- Estimate's supporting documentation (basis of estimate, methodology, data, risk inputs and results, etc.)
- Independent cost estimate (ICE) and related documentation
- Program management review briefings or similar
- Other data items that may be applicable to the agency or contract

## Interview

- We meet with programs to discuss their estimates to ensure that we understand the files collected and any context surrounding the analysis
- We have a standard set of interview questions that are tailored based on the data provided to help start a conversation
- Some example questions:
  - Is there a documented technical baseline description and does it reside in one location?
  - Is the rationale and historical data needed to supported the ground rules and assumptions documented?
  - Is the estimate updated to reflect changes in technical or programmatic assumptions and is how these changes affect the cost estimate documented?
  - Are major cost elements cross-checked to determine if results are similar?

# Record of Analysis

Once we have the data and have completed an interview with an agency, we develop a detailed write up, referred to as a record of analysis (ROA), to detail our assessment and findings.

The draft ROA is sent to the program for review and comment.

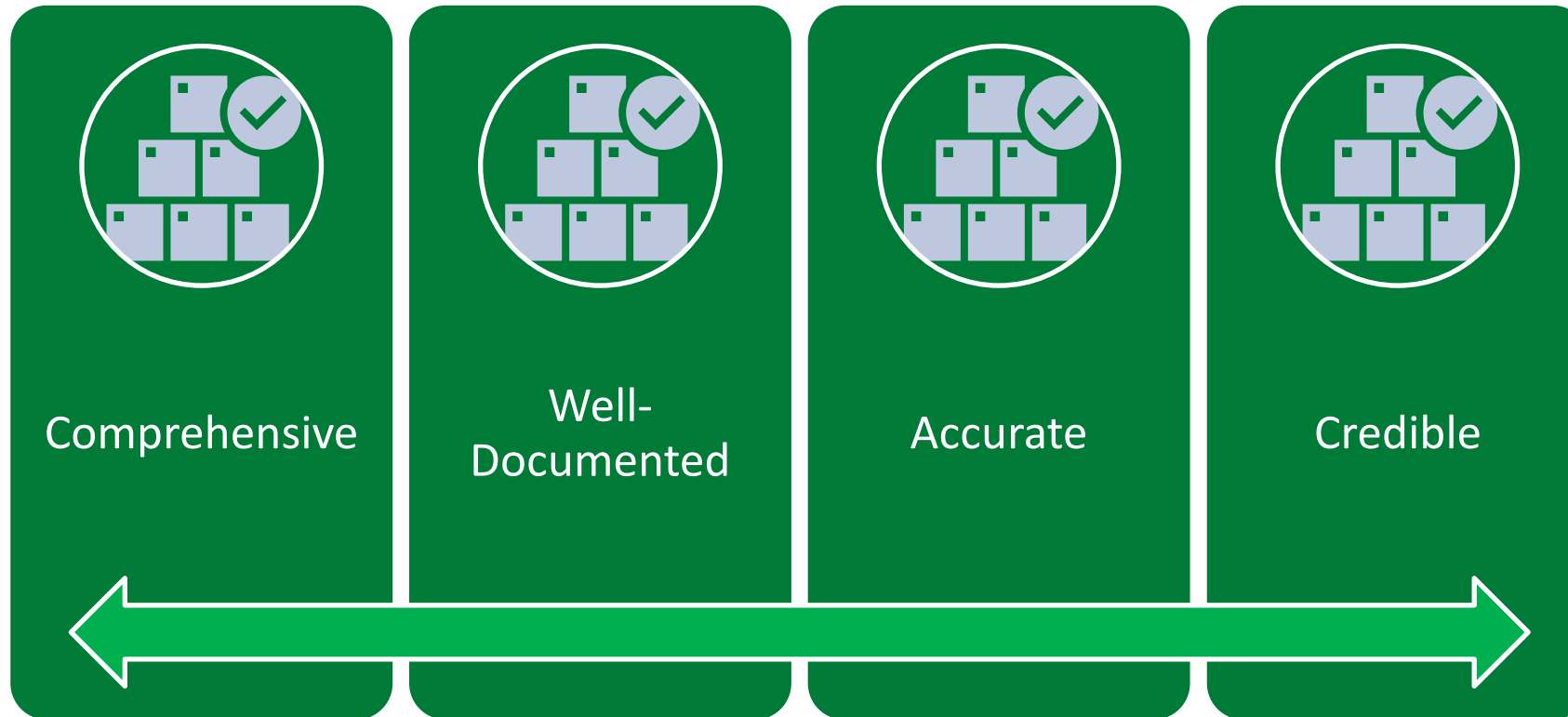
Often, we meet again to discuss the ROA with the agency and update the analysis based on any additional context provided. We may also update the scores for the best practices/characteristics based on additional documentation provided.

# Review Process: How Best Practices Are Scored

- Each best practice has associated criteria
- We assess evidence against these criteria to determine how well they were met
  - Criteria can be found at the end of each Step chapter in the Cost Guide
- We rate each best practice based on the fulfillment of its criteria
- We average the rating of each best practice to determine the score of the overall characteristic

| Survey of Step 4                             |  |
|--|--|
| Process Tasks                                | <ul style="list-style-type: none"> <li>• Define a work breakdown structure (WBS) that is standardized and product-oriented.</li> <li>• Ensure the cost estimate WBS matches the schedule and earned value management WBS, if applicable.</li> <li>• Describe each WBS element in a WBS dictionary.</li> <li>• Update the WBS as the program becomes better defined to reflect changes as they occur.</li> </ul>  |
| Best Practices                               | <p><b>The cost estimate WBS is product-oriented, traceable to the statement of work, and at an appropriate level of detail to ensure that cost elements are neither omitted nor double-counted.</b></p> <ul style="list-style-type: none"> <li>• The WBS clearly outlines the end product and major work of the program.</li> <li>• In addition to hardware and software elements, the WBS contains program management and other common elements to ensure that all work is covered.</li> <li>• The WBS contains at least 3 levels of indenture and the sum of the children elements equal their parent elements.</li> <li>• The cost estimate WBS matches the schedule WBS, as well as the earned value management WBS if applicable.</li> <li>• The WBS is standardized so that cost data can be collected and used for estimating future programs.</li> <li>• The WBS is updated as the program becomes better defined and to reflect changes as they occur.</li> </ul> <p>A WBS dictionary exists that defines what is included in each element and how it relates to others in the hierarchy.</p> |
| Likely Effects If Criteria Are Not Fully Met | <ul style="list-style-type: none"> <li>• Without a WBS, the program lacks a framework to develop a schedule and cost plan that can easily track technical accomplishments—in terms of resources spent in relation to the plan as well as completion of activities and tasks.</li> </ul>  |

# Conclusion: When is an Estimate Reliable?



- A cost estimate is considered reliable if the overall assessment ratings for each of the four characteristics are substantially or fully met.
- If any of the characteristics are not met, minimally met, or partially met, then the cost estimate does not fully reflect the characteristics of a high-quality estimate and cannot be considered reliable.

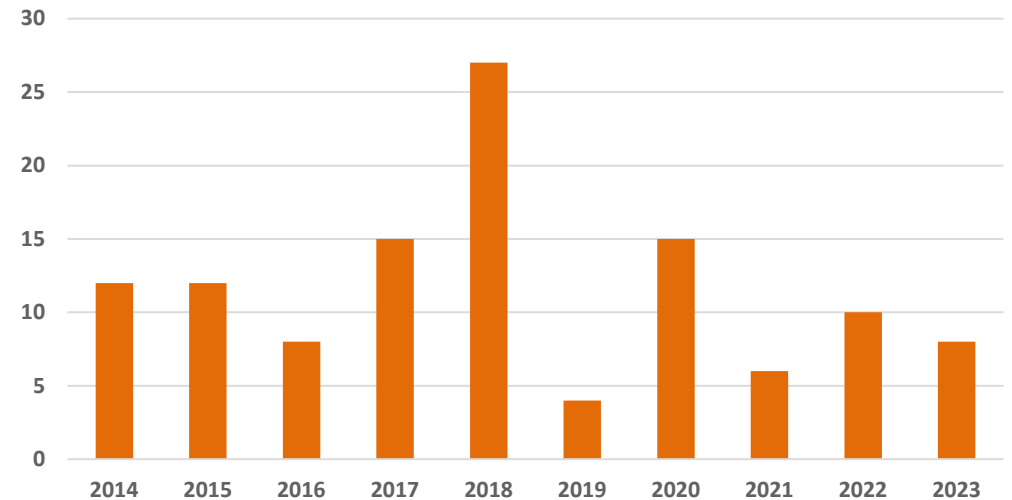


# Trends

# 10 Years of Assessments

- We performed cost estimate assessments for 117 programs across the federal government contributing to the publication of 75 GAO reports.
- Program selection is primarily done at the request of Congress.
- Often programs are selected due to risk level or existing performance issues.
- Majority of reports lead to recommendations for areas of improvement.
- When recommendations are addressed by the agency a follow up assessment is performed and a determination is made whether to close the recommendation.

Number of Reports Issued by Fiscal Year



# Who Have We Assessed



## U.S. Department of Homeland Security

- 5 Customs and Border Protection
- 4 Transportation Security Administration
- 4 U.S. Coast Guard
- 7 Other DHS Entities

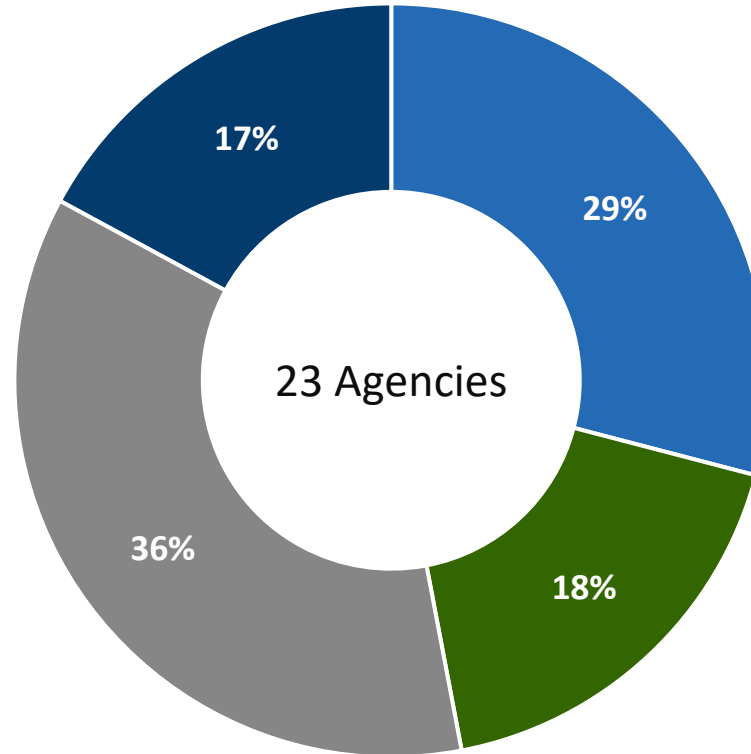


## U.S. Department of Defense

- 10 Air Force
- 6 Army
- 6 Navy
- 6 Marine Corps
- 6 Other DoD Entities

## Other Government Agencies

- 5 Housing and Urban Development
- 5 Veterans Affairs
- 3 Commerce
- 3 Agriculture
- 3 State
- 3 Administrative Office of the U.S. Courts
- 2 NASA
- 2 Labor
- 2 Treasury
- 2 General Services Administration
- 2 Architect of the Capitol
- 2 Library of Congress
- 8 Other Government Entities

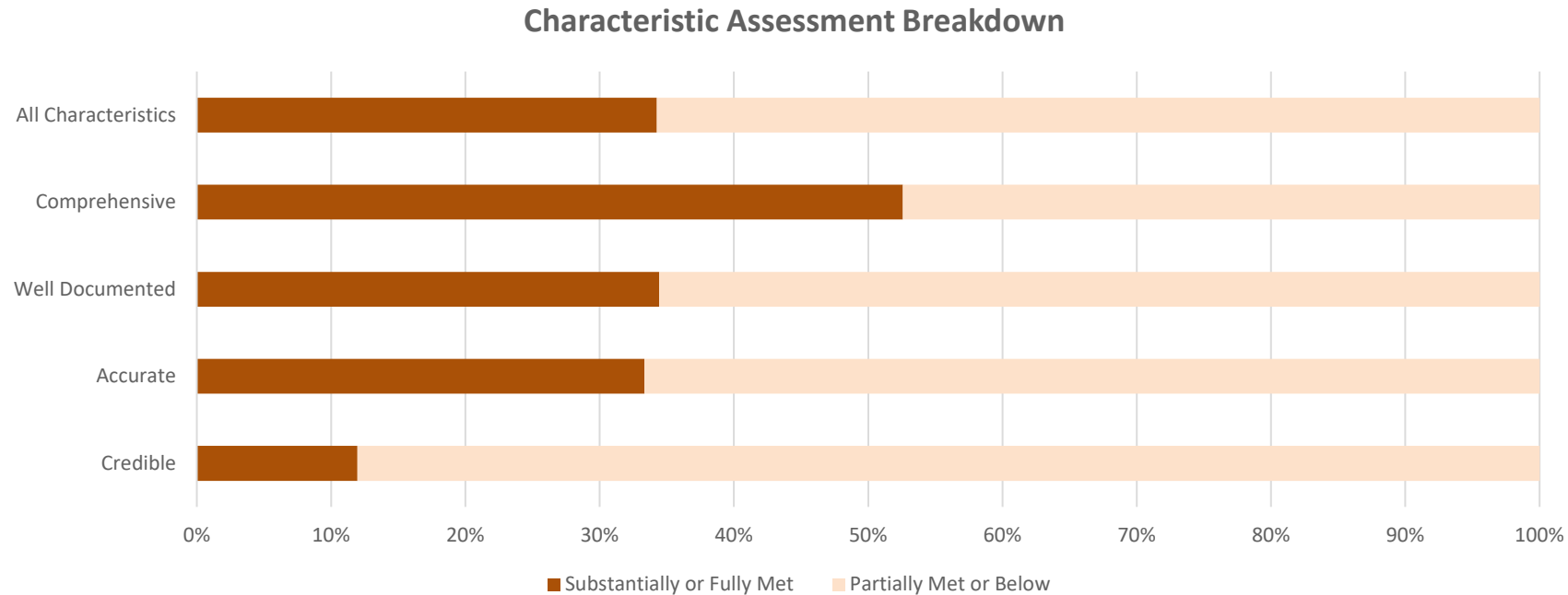


## U.S. DEPARTMENT OF ENERGY

- 10 National Nuclear Security Administration
- 5 Office of Environmental Management
- 6 Other DOE Entities

Cost Estimate Assessments 2014-2023

# An Overview of Gaps Found in GAO Assessments



- From 2014-2023 we looked at 88 full reliability assessments
  - 6 reliable estimates (7%)
  - 82 not reliable (93%)
- 20% of “not reliable” assessments missed by one characteristic
  - 15 Credible near miss (17%)
  - 2 Well-documented near miss (2%)
  - 1 Comprehensive near miss (1%)



# Case Studies

**Space Command and  
Control:  
Improved Tracking and  
Reporting Would  
Clarify Progress amid  
Persistent Delays  
(GAO-23-105920)**



# Space C2 Background (GAO-23-105920)

- Between 2000 and 2022, the Air Force spent over \$1.7B to replace its systems that track and control satellites. These systems are well beyond their expected service lives.
- The Space C2 program began in 2018 to improve space command and control activities.
- This report addresses:
  - Challenges to Space C2's development efforts and how the program is addressing them
  - The extent to which the Air Force's 2022 annual report included required elements and, with additional program reporting, provided information for oversight

As part of our work to address the first objective, we assessed Space C2's November 2021 cost estimate compared to GAO's cost estimating best practices

## Space C2 Findings (GAO-23-105920)

| Characteristic  | Finding       |
|-----------------|---------------|
| Comprehensive   | Minimally Met |
| Well-Documented | Partially Met |
| Accurate        | Partially Met |
| Credible        | Partially Met |

- The table shows results of our assessment of the Space C2 November 2021 estimate
- During our review, Space C2 provided its December 2022 estimate. We reviewed the documents and incorporated new information as appropriate
- We found that the November 2021 estimate was **not reliable**.

# Space C2 Recommendations (GAO-23-105920)

3 Recommendations in the report

While the estimate was not reliable, we did not include a recommendation regarding the cost estimate



Recommendation #3

To develop a prioritized program backlog to maintain traceability between develop activities and requirements

We believed that the backlog recommendation addressed the root cause of issues with the cost estimate



Concur

DOD concurred with our recommendation and is taking steps to develop a prioritized program backlog.

As of July 2024, DOD expects to have the backlog by August 2025



# IT Modernization: SBA Urgently Needs to Address Risks on Newly Deployed System (GAO-25-106963)



# SBA Background (GAO-25-106963)

- In FY2023, the federal government awarded \$178.6B in contracts to small businesses. The Small Business Administration (SBA) promotes small business participation in federal contracting through a variety of contracting assistance programs. These programs rely on multiple IT systems. However, SBA's past attempts to modernize its IT systems experienced challenges and did not deliver expected results.
- In 2023, SBA started the Unified Certification Platform project, intended to allow small businesses to more efficiently apply for and maintain certifications to SBA's contracting assistance programs (compared to legacy certification systems).
- This report
  - Describes the project's plans and status
  - Evaluates the extent SBA has adopted leading practices for risk management, cybersecurity, and schedule and cost estimation for the project

# SBA Findings (GAO-25-106963)

| Characteristic  | Finding       |
|-----------------|---------------|
| Comprehensive   | Partially Met |
| Well-Documented | Minimally Met |
| Accurate        | Partially Met |
| Credible        | Not Met       |

- We reviewed the May 2023 SBA Cost estimate
  - Approximately \$19M for its UCP projects
- The cost estimate did not include all life-cycle costs and relied heavily on expert judgement. Further the estimate did not include an estimate in base year dollars, sensitivity analysis, a risk/uncertainty analysis, or cross checks.
- We found that the estimate was **not reliable**.

# SBA Recommendations (GAO-25-106963)

## Recommendation

- GAO made 14 recommendations in this report. Rec #14 was a result of the assessment of the May 2023 cost estimate
- “The Administrator of SBA should direct the Chief Information Officer to establish and implement policies and procedures to ensure that cost estimates for IT modernization projects are developed using leading practices described in GAO’s Cost Estimating and Assessment Guide.”

## Policy Focus

- While we found SBA policies require a cost estimate for new acquisitions, it does not provide procedures and guidance on how to develop reliable cost estimates
- As a result, recommendation #14 was focused on cost estimating policy

## Agency Concurrence?

- SBA did not concur with recommendation #14
- SBA stated that its current policy references the GAO Cost Guide and that all IT modernization projects are required to follow SBA policies
- However, while their policy references the GAO Cost Guide, it does not require adherence to the cost estimating best practices described.
- Additionally, as previously discussed, the UCP May 2023 cost estimate had significant gaps compared to the GAO cost estimating best practices

The background of the slide is an aerial photograph of a large industrial facility, likely a spent fuel handling facility. The image shows a complex network of buildings, pipes, and structural elements. The sky is blue with scattered white clouds. The text is overlaid on a semi-transparent dark blue rectangular area.

# **Naval Reactors: Independent Analyses of Cost, Schedule, and Quality of Work Needed for Spent Fuel Handling Facility Project (GAO-25-106997)**

# Naval Reactors Background (GAO-25-106997)

- Naval Reactors, jointly managed by the Navy and Department of Energy's National Nuclear Security Administration (NNSA) is constructing a new facility to replace and upgrade the handling and processing of naval spent fuel.
- Naval Reactors has experienced challenges completing the project, resulting in schedule delays and a cost increase of more than \$2B. The program was initially baselined in September 2018 and revised in October 2019 (PBR-1), July 2021 (PBR-2), October 2022 (PBR-3), and is in the process of being revised (PBR-4).
- This report:
  - Describes Naval Reactors' plans for managing spent fuel
  - Assesses the extent to which cost and schedule estimates exhibit key characteristics of reliable estimates
  - Examines the extent to which Naval Reactors has analyzed the causes of cost and schedule increases and quality assurance problems.

# Naval Reactors Findings (GAO-25-106997)

| Characteristic  | Finding        |
|-----------------|----------------|
| Comprehensive   | Partially Met  |
| Well-Documented | Did not assess |
| Accurate        | Did not assess |
| Credible        | Partially Met  |

- Since the program office was in the process of a rebaseline (PBR-4), we examined the comprehensive and credible characteristics of the most recent, completed baseline (PBR-3)
- We found gaps in both characteristics examined. For example, the estimate did not include all costs or report costs using their work breakdown structure. Additionally, they did not develop an independent cost estimate or sensitivity analysis for PBR-3.
- We found that the estimate was **not reliable**.

# Naval Reactors Recommendations (GAO-25-106997)

## Recommendations

We made 6 recommendations in this report.  
Recommendation #1 resulted from the cost assessment on PBR-3

## Next Steps

Naval Reactors concurred with this recommendation and plans to have an updated estimate ~March 2025

# Thank you!

Guides Available Online and Downloadable in PDF:

GAO Cost Estimating and Assessment Guide:

<https://www.gao.gov/products/gao-20-195g>

GAO Schedule Assessment Guide:

<https://www.gao.gov/products/gao-16-89g>

GAO Technical Readiness Assessment Guide:

<https://www.gao.gov/products/gao-20-48g>

GAO Agile Assessment Guide:

<https://www.gao.gov/products/gao-24-105506>



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