

PROJECT AND PROGRAM MANAGEMENT

DOE Needs to Revise Requirements and Guidance for Cost Estimating and Related Reviews

Why GAO Did This Study

NNSA is responsible for the nation's nuclear security programs. These programs often include the design and construction of large projects to meet program needs. NNSA has a history of struggling to complete these and other projects and programs within cost estimates.

Senate Report 112-73 mandated that GAO report on NNSA's cost estimating practices. This report examines: (1) the extent to which DOE and NNSA cost estimating requirements and guidance for projects and programs reflect best practices and (2) the extent to which recent NNSA project and program reviews identified cost estimating weaknesses, and the extent to which the weaknesses can be attributed to not following best practices. GAO reviewed DOE and NNSA cost estimating practices and compared them to best practices, NNSA project and program reviews, and two programs selected among the largest and most complex NNSA programs. GAO also interviewed DOE and NNSA officials about requirements and guidance for cost estimates.

What GAO Recommends

GAO recommends that DOE, among other things, revise DOE requirements and guidance that apply to projects and programs to ensure: (1) the guidance is referenced in the project management order, (2) DOE and NNSA and its contractors develop cost estimates in accordance with the 12 best practices, (3) its cost estimating guide fully reflects best practices, and (4) independent reviews of programs are conducted periodically. DOE agreed with the report and its recommendations.

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What GAO Found

The Department of Energy's (DOE) and its National Nuclear Security Administration's (NNSA) cost estimating requirements and guidance for projects and programs do not fully reflect best practices for developing cost estimates. In regard to cost estimating requirements for projects, DOE's 2010 project management order requires 1 of the 12 cost estimating best practices—conducting an independent cost estimate—for larger projects at certain stages of development. In contrast, DOE's 2011 cost estimating guide describes recommended approaches for using 10 of 12 best practices and partially contains information about the other 2. Furthermore, because DOE's cost estimating guide was issued in 2011—after DOE's 2010 project order was issued—it is not referenced in the order. As a result, users of the order may not be aware of the guide's availability and may not benefit from its usefulness. In addition, although NNSA programs are required to follow DOE's budget formulation order and NNSA's budget process, both of which require the development of cost estimates, neither the order nor the process requires the use of best practices in developing the estimates. In February 2014, for example, GAO found that NNSA's lifecycle cost estimate for the Plutonium Disposition Program did not follow all key steps for developing high-quality cost estimates, in part because the agency did not have a requirement to develop a life-cycle cost estimate. In the absence of a requirement for using best practices, it is unlikely that DOE, NNSA, and their contractors will consistently develop reliable cost estimates.

NNSA's project and program reviews issued during fiscal year 2009 through March 2014 identified cost estimating weaknesses that can be attributed to not following best practices. DOE and NNSA require independent project reviews, including reviews of cost estimates at certain stages of development and at the discretion of project managers. Of the 50 reviews GAO analyzed, 39 identified a total of 113 cost estimating weaknesses. GAO determined that 71 of the 113 weaknesses—or about 63 percent—can be attributed to not following four best practices: (1) determining the estimating structure, (2) identifying ground rules and assumptions, (3) conducting risk and uncertainty analysis, and (4) documenting the estimate. Neither DOE nor NNSA, however, requires reviews of program cost estimates. Of the three program reviews conducted during fiscal years 2009 to 2013, two were of the B61 Life Extension Program, which is to extend the operational life of this nuclear weapon. Both reviews identified weaknesses in the cost estimates that can be attributed to not following three best practices: (1) determining the estimating structure, (2) defining program characteristics, and (3) obtaining data. In addition, a February 2014 GAO report on NNSA's program to dispose of weapons-grade plutonium found that NNSA did not follow several cost estimating best practices, such as conducting an independent cost estimate and as a result, the program cost estimate was not reliable. While the program reviews and GAO's February 2014 report indicate weaknesses in a few program cost estimates, the extent of program cost estimate weaknesses is largely unknown because neither DOE nor NNSA requires reviews of program cost estimates. Without a requirement for conducting independent program reviews, NNSA does not have the internal control necessary for assessing program performance over time.