



Highlights of [GAO-13-563T](#), a testimony before the Subcommittee on Strategic Forces, Committee on Armed Services, U.S. Senate

Why GAO Did This Study

Radio frequency spectrum is the resource that makes possible wireless communications. Balancing competing industry and government demands for a limited amount of spectrum is a challenging and complex task. In 2006, FCC completed an auction of spectrum licenses in the 1710-1755 MHz band that had previously been allocated for federal use. As part of an effort to make additional spectrum available for commercial use, DOD assessed the feasibility of relocating 11 major communication systems from the 1755-1850 MHz band. In September 2011, DOD found that it would cost about \$13 billion over 10 years to relocate most operations from the 1755-1850 MHz band.

GAO was asked to review the costs to relocate federal spectrum users and revenues from spectrum auctions. This testimony addresses our preliminary findings on (1) estimated and actual relocation costs and revenue from the previously auctioned 1710-1755 MHz band, (2) the extent to which DOD followed best practices to prepare its preliminary cost estimate for vacating the 1755-1850 MHz band, and (3) existing government or industry forecasts for revenue from an auction of the 1755-1850 MHz band. GAO reviewed relevant reports; interviewed DOD, FCC, NTIA, and Office of Management and Budget officials and industry stakeholders; and analyzed the extent to which DOD's preliminary cost estimate met best practices identified in GAO's *Cost Estimating and Assessment Guide (Cost Guide)*.

View [GAO-13-563T](#). For more information, contact Mark L. Goldstein at (202) 512-2834 or goldsteinm@gao.gov.

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SPECTRUM MANAGEMENT

Preliminary Findings on Federal Relocation Costs and Auction Revenues

What GAO Found

Actual costs to relocate federal users from the 1710-1755 megahertz (MHz) band have exceeded the original \$1 billion estimate by about \$474 million as of March 2013, although auction revenues appear to exceed relocation costs by over \$5 billion. Actual relocation costs exceed estimated costs for various reasons, including unforeseen challenges and some agencies not following the National Telecommunications and Information Administration's (NTIA) guidance for preparing the cost estimate. In contrast, the Department of Defense (DOD) expects to complete relocation for about \$275 million or approximately \$80 million less than its \$355 million estimate. According to DOD officials, the relocation of systems from this band has been less expensive than originally estimated because many systems were simply re-tuned to operate in the adjacent 1755-1850 MHz band. The auction of the 1710-1755 MHz band raised almost \$6.9 billion in gross winning bids. NTIA expects agencies to complete the relocation effort between 2013 and 2017; therefore, final net auction revenue (auction revenue less relocation costs) may change.

DOD's preliminary cost estimate for relocating systems from the 1755-1850 MHz band substantially or partially met GAO's best practices, but changes in key assumptions may affect future costs. Adherence with GAO's *Cost Guide* helps to minimize the risk of cost overruns, missed deadlines, and unmet performance targets. GAO found that DOD's estimate substantially met the comprehensive and well-documented best practices. For instance, it included complete information about systems' life cycles and documentation for the majority of systems was sufficient. However, not all programs had evidence of cost-influencing ground rules and assumptions, and some of the source data were insufficient. GAO also determined that DOD partially met the accurate and credible best practices. For example, DOD applied appropriate inflation rates and its estimated costs generally agreed with its 2001 cost estimate for this band. However, DOD did not develop a confidence level, making it difficult to determine if the costs considered are the most likely costs, and DOD only completed some sensitivity analyses and risk assessments at the program level for some programs. DOD officials said that changes to key assumptions could substantially change its costs. Most importantly, decisions about which spectrum band DOD would relocate to are still unresolved. Nevertheless, DOD's cost estimate was consistent with its purpose—informing the decision to make additional spectrum available for commercial wireless services.

No government revenue forecast has been prepared for a potential auction of licenses in the 1755-1850 MHz band, and a variety of factors could influence auction revenues. One private sector study in 2011 forecasted \$19.4 billion in auction revenue for licenses in this band, assuming that federal users would be cleared and the nationwide spectrum price from a previous auction, adjusted for inflation, would apply to this spectrum. The price of spectrum, and ultimately auction revenue, is determined by supply and demand. The Federal Communications Commission (FCC) and NTIA jointly influence the amount of spectrum allocated to federal and nonfederal users (the supply). The potential profitability of a spectrum license influences its demand. Several factors would influence profitability and demand, including whether the spectrum is cleared of federal users or must be shared.