Congressional Budget Office
Supplemental Cost Estimate

October 28, 2025

Public Law 119-21, to Provide for Reconciliation Pursuant to Title II of H. Con. Res. 14
Title IV, Committee on Commerce, Science, and Transportation
Section 40002, Spectrum Auctions

As enacted on July 4, 2025

By Fiscal Year, Billions of Dollars

	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2025-2030	2025-2034
Increases or Decreases (-) in Direct Spending												
Spectrum Auctions												
Budget Authority	0	-200	-200	-1,500	-5,800	-12,900	-19,800	-22,200	-16,000	-6,400	-20,600	-85,000
Estimated Outlays	0	-200	-200	-1,500	-5,800	-12,900	-19,800	-22,200	-16,000	-6,400	-20,600	-85,000
Spectrum Analysis												
Budget Authority	50	0	0	0	0	0	0	0	0	0	50	50
Estimated Outlays	*	4	7	7	7	7	6	6	3	3	32	50
Total												
Budget Authority	50	-200	-200	-1,500	-5,800	-12,900	-19,800	-22,200	-16,000	-6,400	-20,550	-84,950
Estimated Outlays	*	-196	-193	-1,493	-5,793	-12,893	-19,794	-22,194	-15,997	-6,397	-20,568	-84,950

Budget authority includes estimated and specified amounts.
* = between zero and $500,000.

As part of the reconciliation process that resulted in the enactment of the 2025 reconciliation act (Public Law 119-21), the House Committee on Energy and Commerce and the Senate Committee on Commerce, Science, and Transportation were instructed to recommend legislative changes that met specified budget targets over the 2025-2034 period. This document provides an explanation of CBO's estimate for the budgetary effects of title IV, Committee on Commerce, Science, and Transportation, section 40002, Spectrum Auctions, of P.L. 119-21, as enacted in July 2025. The amounts shown in the text and tables are the same as those that CBO estimated in July 2025.[1]

CBO estimates that implementing the provisions in section 40002 will reduce direct spending by $84.95 billion over the 2025-2034 period.

1. Congressional Budget Office, estimated budgetary effects of Public Law 119-21, to provide for reconciliation pursuant to title II of H. Con. Res. 14, relative to CBO's January 2025 Baseline (July 21, 2025), www.cbo.gov/publication/61570.

Basis of Estimate

This estimate covers the 2025-2034 period and is relative to the January 2025 baseline. Outlays of appropriated amounts were estimated using historical spending rates for similar programs.

CBO's estimate of the $85.0 billion reduction in direct spending over the 2025-2034 period accounts for offsetting receipts from auctions to allocate licenses to nonfederal entities for the right to use specific frequencies of electromagnetic spectrum. The estimate also reflects $50 million in direct appropriations for related federal analyses and reporting. Offsetting receipts are recorded in the budget as reductions in direct spending.

Background. In the context of the telecommunications industry, the term spectrum refers to the radio frequency subset of the electromagnetic spectrum that is used for wireless and satellite communications.

The electromagnetic spectrum is organized by frequency or wavelength. Frequency is measured in hertz (Hz), the unit that refers to the number of times in one second that the peak of a wave passes a fixed point. That unit often is used to identify both the location and the amount of specific subsets, or bands, of spectrum in a broad range of frequencies. The radio portion encompasses frequencies from roughly 30 Hz to 300 GHz (gigahertz), or nearly 300 GHz of bandwidth.

In the United States, the spectrum for radio is considered a public resource and is regulated jointly by the Federal Communications Commission (FCC) and the National Telecommunications and Information Administration (NTIA). Those agencies are charged with allocating spectrum to serve the public interest, to avoid interference among users, and to promote the most efficient use of spectrum. The FCC manages and allocates spectrum for nonfederal uses; the NTIA administers spectrum for federal uses.

In the Communications Act of 1934, the Congress authorized the FCC to conduct auctions until the end of 1998 to allocate licenses to nonfederal entities. Since then, the Congress has granted the FCC auction authority through several extensions of that general authority and, in some cases, has granted the FCC authority to auction specific bands of spectrum.

Spectrum Allocation. Currently, only the frequency bands between 8.3 kilohertz and 275 GHz have been allocated. The FCC tracks the entities that operate within that range and identifies uses as exclusive, shared, or unlicensed.[2] The largest swaths of exclusive federal operations occur in the bands from 225 to 399.9 MHz (megahertz) and from 7.125 to 8.4 GHz. Federal agencies can operate in some bands that are allocated for nonfederal use to perform coordinated operations with nonfederal entities or to use commercial services.

2. Federal Communications Commission, Engineering & Technology, Policy and Rules Division, Radio Spectrum Allocation "Table of Frequency Allocations Chart" (accessed October 27, 2025), https://tinyurl.com/2bt3h2hz.

Auction Formats. The FCC typically has used simultaneous multiple-round auctions in which bidding is conducted for one license at a time, but all licenses are available for bidding throughout an auction. Other formats can be used to accomplish specific goals.

License Characteristics. Spectrum licenses grant owners the right to use spectrum in a specific frequency, over a specific geographic area, and for a set period (with indefinite renewals). Licenses can be exclusive or shared, and they can include conditions regarding maximum power used for transmissions that can be designed to mitigate interference. For example, operations in the Citizens Broadband Radio Service band are restricted in proximity to specific geographic places, such as military installations, as well as through a tiered user system that protects higher-tier users from interference.

Auctions generally consist of relocation, pre-auction, bidding, and post-auction phases. Timelines can vary from months to years and often depend on how the relevant band is allocated prior to the auction process starting. Auctions that involve relocating federal agencies' use of one spectrum band to a different band tend to take significantly longer than auctions that do not require such relocation. The pre-auction process starts with planning and rulemaking, then moves through auction design, specification of procedures, and bidder applications. The bidding phase typically proceeds through several rounds and is conducted through the FCC's online system. At the end of the auction, the FCC reviews winning bidders for compliance and grants licenses. Auction receipts accrue to the Treasury after licenses are formally granted.

Spectrum Auction Authority. Section 40002 of the 2025 reconciliation act reinstated the FCC's general auction authority through September 30, 2034, for frequencies other than those from 3.1 to 3.45 GHz and from 7.4 to 8.4 GHz. That law requires the FCC to identify and auction at least 800 MHz of spectrum, subject to specified timelines and milestones, that must include 600 MHz from specified frequencies.

CBO estimates that implementing section 40002 will increase auction proceeds by $85.0 billion over the 2026-2034 period: $81.3 billion for the extension of the FCC's general auction authority and $3.7 billion for the incremental effect of prioritizing auctions for 600 MHz of the specified frequencies.

Proceeds Under the General Auction Authority. CBO estimated auction proceeds of $81.3 billion over the 2026-2034 period for the extension of general auction authority. CBO cannot predict which spectrum bands will be auctioned under the FCC's general auction authority or when those auctions will occur. Rather than estimating the value, timing, and probability of an auction happening for each specific band and then adding them together, CBO holistically analyzed the dynamics of the spectrum market to estimate auction proceeds of $81.3 billion over the 2026-2034 period for the general auction authority. CBO's analysis focused on the following four areas.

Band Characteristics. The analysis focused on the characteristics of different spectrum bands and their availability for auction. That work incorporated information from federal agencies and from current license holders as well as historical data on spectrum auctions to assess expected relocation costs, auction timelines, the amount of spectrum available, and the likelihood of successfully bringing each band to auction.

Potential Values. The analysis focused on the potential values for the specific bands of spectrum that CBO assessed could be auctioned. That work examined factors related to the demand that potential bidders, primarily telecommunications companies, might have for individual bands. CBO drew on industry information, consultations with people knowledgeable about spectrum and the telecommunications industry, and historical bidding data to identify both the expected needs of the industry and the range of potential values of spectrum within each band.

Auction Capacity. The analysis included projecting how many auctions might be held, how much spectrum could be auctioned from enactment through 2034 (a little more than nine years), and the effects of auction timing on the FCC's ability to meet its statutory responsibilities. CBO used information from the FCC and the NTIA, as well as information about the telecommunications market and trends in previous auctions.

Willingness to Pay. The analysis of how much bidders would be willing to pay was based on the demand that telecommunications companies might have in aggregate over the projection period. CBO evaluated recent auctions and transactions on the secondary market, as well as related private-sector cash flows and debt, to determine the market's capacity to absorb new offerings over the period. We also examined how the timing and sequence of auctions might affect potential bidders' willingness to pay.

Prioritizing Auctions for 600 MHz of Certain Frequencies. Section 40002 requires auctions of 100 MHz in the band between 3.98 and 4.2 GHz within two years of enactment; and 500 megahertz of federally allocated frequencies between 1.3 and 10.5 GHz within eight years of enactment. Most of the proceeds that CBO expects will come from specifying those frequencies is captured in CBO's estimate of general auction authority. Relative to our estimate of proceeds under general auction authority, CBO increased the probability of starting any given auction in the specified bands and changed the distribution of receipts over time to estimate the incremental effect of prioritizing those bands. On that basis, CBO estimated that prioritizing auctions for 600 MHz of specified frequencies would increase receipts by an additional $3.7 billion over the 2026-2034 period above the amount that we projected would be collected under the general auction authority ($81.3 billion), which includes those frequencies.

Additional Requirements and Presidential Determination. The 2025 reconciliation act requires the Assistant Secretary of Commerce for Communications and Information to consider the feasibility of reallocating spectrum with an aim to maximize potential net proceeds when determining which frequencies to reallocate for auction. The President is required to modify or withdraw any frequency proposed for reallocation if he deems that doing so is necessary to protect national security. CBO incorporated the expected effects of those provisions into its assessments of whether any particular auction might occur.

Spectrum Analysis. The 2025 reconciliation act provided a direct appropriation of $50 million for the Department of Commerce to study three bands of frequencies and to publish biennial reports on the value of spectrum used by federal entities; the final report must be published by the end of June 2034.

Based on spending patterns for similar activities, CBO estimates that enacting that provision will increase direct spending by $50 million over the 2026-2034 period.

Uncertainty

CBO's estimates of net receipts from spectrum auctions are subject to significant uncertainty because they depend on factors that are themselves uncertain:

- Variability in market conditions, technology, and market perceptions about the usefulness of different bands;
- The timing and sequence of auctions;
- The competitiveness of auctions and the financial and strategic interests of auction participants;
- The purposes for which spectrum would be used and the types of equipment that would be employed;
- The complexity of clearing or sharing encumbered bands (bands the federal agencies and others are currently using) and any barriers to or incentives for reallocation; and
- Policies that the FCC might adopt for auction procedures.

As a result, actual net receipts from spectrum auctions over the 2025-2034 period could be larger or smaller than CBO estimates.

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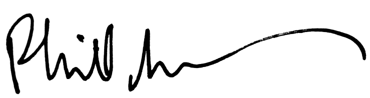

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