

S. 4592, Quantum Computing Cybersecurity Preparedness Act

As ordered reported by the Senate Committee on Homeland Security and Governmental on August 3, 2022

| By Fiscal Year, Millions of Dollars | 2022 | 2022-2027 | 2022-2032 |
|--|------------|-------------------------------------|---------------|
| Direct Spending (Outlays) | * | * | * |
| Revenues | 0 | 0 | 0 |
| Increase or Decrease (-) in the Deficit | * | * | * |
| Spending Subject to Appropriation (Outlays) | * | 1 | not estimated |
| Statutory pay-as-you-go procedures apply? | Yes | Mandate Effects | |
| Increases on-budget deficits in any of the four consecutive 10-year periods beginning in 2033? | No | Contains intergovernmental mandate? | No |
| | | Contains private-sector mandate? | No |
| * = between zero and \$500,000. | | | |

Quantum computers use advanced algorithms and subatomic particles to process complex problems significantly faster than traditional computers. While still in the early stages of development, quantum computers could allow malicious actors to decrypt classified information stored on federal networks. S. 4592 would require federal agencies to compile inventories of information systems that could be vulnerable to decryption by quantum computers. The bill also would require the Office of Management and Budget to issue guidance to agencies on the adoption of technology that is protected from decryption by quantum computing and to report to the Congress on the effectiveness of its efforts.

National Security Memorandum 10, Promoting United States Leadership in Quantum Computing While Mitigating Risks to Vulnerable Cryptographic Systems, issued on May 4, 2022, requires federal agencies to prepare for the future risks of quantum decryption. Thus, because most of the planning required under S. 4592 will be completed under current law, CBO expects that satisfying those requirements would not have significant costs. On the basis of similar reports to the Congress, CBO estimates that satisfying the reporting requirements would cost \$1 million over the 2022-2027 period. Such spending would be subject to the availability of appropriated funds.



Enacting S. 4592 could affect direct spending by some agencies that use fees, receipts from the sale of goods, and other collections to cover operating costs. CBO estimates that any net changes in direct spending would be negligible because most of those agencies can adjust amounts collected to accommodate changes in operating costs.

On June 7, 2022, CBO transmitted a [cost estimate for H.R. 7535](#), the Quantum Computing Cybersecurity Preparedness Act, as ordered reported by the House Committee on Oversight and Reform on May 11, 2022. The two bills are similar, and CBO's estimates of their costs are the same.

The CBO staff contact for this estimate is Aldo Prospero. The estimate was reviewed by Leo Lex, Deputy Director of Budget.