Congressional Budget Office
Cost Estimate

April 6, 2023

At a Glance

S. 917, Securing Open Source Software Act of 2023

As ordered reported by the Senate Committee on Homeland Security and Governmental Affairs on March 29, 2023

By Fiscal Year, Millions of Dollars	2023	2023-2028	2023-2033
Direct Spending (Outlays)	0	0	0
Revenues	0	0	0
Increase or Decrease (-) in the Deficit	0	0	0
Spending Subject to Appropriation (Outlays)	0	52	not estimated

Increases *net direct spending* in any of the four consecutive 10-year periods beginning in 2034?	No	Statutory pay-as-you-go procedures apply?	No
		Mandate Effects	
Increases *on-budget deficits* in any of the four consecutive 10-year periods beginning in 2034?	No	Contains intergovernmental mandate?	No
		Contains private-sector mandate?	No

The bill would

- Require assessments of open-source software used by federal agencies
- Establish a pilot program to assess open-source software security at federal agencies
- Direct the Cybersecurity and Infrastructure Security Agency to hire open-source software analysts
- Require several reports and studies about the effectiveness of open-source software assessments

Estimated budgetary effects would mainly stem from

- Testing information systems for open-source software vulnerabilities
- Assessing federal network security
- Hiring open-source software analysts

Areas of significant uncertainty include

- Predicting staffing requirements of federal open-source program offices
- Anticipating the contract costs of software assessments

Detailed estimate begins on the next page.

See also *CBO's Cost Estimates Explained*, www.cbo.gov/publication/54437;
How CBO Prepares Cost Estimates, www.cbo.gov/publication/53519; and *Glossary*, www.cbo.gov/publication/42904.

Bill Summary

S. 917 would authorize the Cybersecurity and Infrastructure Security Agency (CISA) to improve the security of open-source software, or computer code that is publicly available for anyone to use or modify. The bill would require the agency to identify and mitigate vulnerabilities in open-source software used by federal agencies. Under the bill, CISA would conduct annual assessments of the security of commonly used open-source software.

S. 917 also would establish a pilot program to study the operations of open-source software program offices within participating federal agencies. The bill would direct such agencies to develop policies for the safe deployment and management of open-source software on their information networks.

Estimated Federal Cost

The estimated budgetary effects of S. 917 are shown in Table 1.

Table 1.
Estimated Budgetary Effects of S. 917

	By Fiscal Year, Millions of Dollars						
	2023	2024	2025	2026	2027	2028	2023-2028
Open-Source Software Assessments							
Estimated Authorization	0	0	6	6	6	6	24
Estimated Outlays	0	0	6	6	6	6	24
CISA Open-Source Staff							
Estimated Authorization	0	2	4	4	4	4	18
Estimated Outlays	0	2	4	4	4	4	18
Open-Source Program Offices							
Estimated Authorization	0	1	3	3	3	0	10
Estimated Outlays	0	1	3	3	3	0	10
Total Changes							
Estimated Authorization	0	3	13	13	13	10	52
Estimated Outlays	0	3	13	13	13	10	52

Basis of Estimate

For this estimate, CBO assumes that S. 917 will be enacted in 2023 and that CISA would begin to implement most of the bill’s requirements in 2025.

CBO expects that the costs to implement S. 917 would include the salaries and benefits of additional federal staff and procurement of new software. Outlays are based on historical spending patterns for existing or similar programs.

Spending Subject to Appropriation

CBO estimates that implementing the bill would cost $52 million over the 2023-2028 period. Such spending would be subject to the availability of appropriated funds.

Open-Source Software Assessments. CISA currently operates programs to identify and mitigate threats to federal information systems. S. 917 would require CISA to assess open-source software used by the federal government for security vulnerabilities. Under the bill, CISA would review the supply chain histories of open-source applications to identify any potential cybersecurity vulnerabilities in the underlying code. CISA would be required to share its findings so that software users could remediate any weaknesses.

Using information from CISA, CBO expects that the agency would implement this program by procuring new software and tools capable of scanning for vulnerabilities in open-source code used by federal agencies. On the basis of similar acquisition programs, CBO estimates that the cost to acquire and annually update those tools would total $24 million over the 2023-2028 period.

CISA Open-Source Staff. S. 917 would require CISA to publish a framework for the secure adoption and management of open-source software in the information networks and devices of federal, state, and private-sector entities. CISA also would provide information about vulnerabilities in open-source software. CBO anticipates that the framework and vulnerability assessments would be updated annually. CBO expects that CISA would need 20 open-source software analysts beginning in 2024 at an average annual cost of about $175,000 per employee. On that basis and accounting for the effects of anticipated inflation, CBO estimates that salaries and benefits of those employees would total $18 million over the 2023-2028 period.

Open-Source Program Offices. S. 917 would require the Administration to establish a pilot program where up to five federal agencies would establish new offices to manage the use of secure open-source software. CBO expects that three agencies would participate in the pilot program and that participating agencies would each require on average five analysts to develop policies, share best practices, and monitor open-source applications. CBO estimates that compensation would average about $175,000 annually and that agencies would begin hiring those employees in 2024. Under the bill, the pilot program would terminate after four years. On that basis and accounting for the effects of anticipated inflation, CBO estimates that salaries and benefits of those employees would total $10 million over the 2023-2028 period.

Uncertainty

Areas of uncertainty in this estimate include predicting the acquisition timeline to support assessments at federal agencies and critical infrastructure operators. CBO anticipates that CISA would be able to procure and deploy the necessary software to assess federal open-source software in the 2023-2028 period. The budgetary effects of the bill could be millions of dollars higher or lower than CBO’s estimate if the time needed to deploy these tools differs from CBO’s estimate.

The budgetary effects of the bill also would depend on accurately predicting the number of additional employees that would be needed at CISA and other federal agencies to satisfy the requirements of the bill. Costs would be moderately larger or smaller than this estimate depending on how the number of hired analysts differs from CBO’s estimate.

Pay-As-You-Go Considerations: None.

Increase in Long-Term Net Direct Spending and Deficits: None.

Mandates: None.

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