

**S. 1284, TORNADO Act**

As ordered reported by the Senate Committee on Commerce, Science, and Transportation on May 10, 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	60	not estimated
Increases <i>net direct spending</i> in any of the four consecutive 10-year periods beginning in 2034?	No	Statutory pay-as-you-go procedures apply?	No
		<b>Mandate Effects</b>	
Increases <i>on-budget deficits</i> in any of the four consecutive 10-year periods beginning in 2034?	No	Contains intergovernmental mandate?	No
		Contains private-sector mandate?	No

S. 1284 would direct the National Oceanic and Atmospheric Administration (NOAA) to improve forecasting of and warnings about hazardous weather. The bill also would have NOAA initiate a pilot program for communicating tornado hazards. Finally, the bill would require the Government Accountability Office (GAO) to report on the National Weather Service’s information technology infrastructure.

In total, CBO estimates that implementing the bill would cost \$60 million over the 2023-2028 period, as described below.

**VORTEX-USA**

The bill would authorize the appropriation of \$11 million annually over the 2023-2030 period for VORTEX-USA (Verification of the Origins of Rotation in Tornadoes Experiment) to develop accurate and timely tornado forecasts, predictions, and warnings. For this estimate, CBO assumes that S. 1284 will be enacted near the end of fiscal year 2023 and that the authorized amounts will be provided in each year beginning in 2024. (In 2023, NOAA allocated \$12 million to the project; because funds have been allocated for VORTEX-USA in 2023, CBO estimates no budgetary effect for that year.) Based on historical spending patterns for VORTEX-USA, CBO estimates that implementing this provision would cost

See also

[CBO’s Cost Estimates Explained, CBO Describes Its Cost-Estimating Process, Glossary](#)



\$49 million over the 2023-2028 period and \$28 million after 2028, assuming appropriation of the authorized amounts.

**Other Activities**

Using information from NOAA, CBO estimates that the pilot program would require four full-time employees and one cooperative agreement with a research university at a total cost of \$11 million over the 2023-2028 period. Most of that cost would be for the cooperative agreement. CBO also estimates that the GAO report would cost less than \$500,000. Any spending would be subject to the availability of appropriated funds.

The costs of the legislation, detailed in Table 1, fall within budget function 300 (natural resources and environment).

<b>Table 1. Estimated Increases in Spending Subject to Appropriation Under S. 1284</b>							
	<b>By Fiscal Year, Millions of Dollars</b>						<b>2023-2028</b>
	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>	<b>2027</b>	<b>2028</b>	
<b>VORTEX-USA</b>							
Authorization	0	11	11	11	11	11	55
Estimated Outlays	0	7	9	11	11	11	49
<b>Other Activities</b>							
Estimated Authorization	0	2	2	2	2	3	11
Estimated Outlays	0	2	2	2	2	3	11
<b>Total Changes</b>							
Estimated Authorization	0	13	13	13	13	14	66
Estimated Outlays	0	9	11	13	13	14	60

VORTEX-USA = Verification of the Origins of Rotation in Tornadoes Experiment.

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