



**CONGRESSIONAL BUDGET OFFICE
COST ESTIMATE**

November 22, 2016

S. 2817

Space Weather Research and Forecasting Act

*As ordered reported by the Senate Committee on Commerce, Science, and Transportation
on April 27, 2016*

SUMMARY

S. 2817 would require the National Oceanic and Atmospheric Administration (NOAA) to capture imagery of coronal mass ejections (CMEs). A CME is the release of large quantities of matter and electromagnetic radiation from the sun. The bill also would largely codify existing multi-agency efforts under the National Space Weather Program.

Based on information provided by NOAA and assuming appropriation of the necessary amounts, CBO estimates that acquiring and launching into space the equipment necessary to capture imagery of CMEs would cost \$182 million over the 2017-2021 period.

Enacting S. 2817 would not affect direct spending or revenues; therefore, pay-as-you-go procedures do not apply. CBO estimates that enacting the legislation would not increase net direct spending or on-budget deficits in any of the four consecutive 10-year periods beginning in 2027.

S. 2817 contains no intergovernmental or private-sector mandates as defined in the Unfunded Mandates Reform Act (UMRA) and would impose no costs on state, local, or tribal governments.

ESTIMATED COST TO THE FEDERAL GOVERNMENT

The estimated budgetary effect of S. 2817 is shown in the following table. The costs of this legislation fall within budget function 300 (natural resources and environment).

	By Fiscal Year, in Millions of Dollars					2017- 2021
	2017	2018	2019	2020	2021	
INCREASES IN SPENDING SUBJECT TO APPROPRIATION						
Estimated Authorization Level	1	20	80	70	40	211
Estimated Outlays	1	8	45	70	58	182

BASIS OF ESTIMATE

For this estimate, CBO assumes that S. 2817 will be enacted by the end of 2016 and that the necessary amounts will be appropriated for each fiscal year.

Currently, the National Aeronautics and Space Administration (NASA) operates several spacecraft that provide imagery of CMEs; however, those vehicles are outdated. S. 2817 would require NOAA to assume that responsibility and ensure the United States continues to capture images of earth-directed CMEs. Based on an analysis of information provided by the agency and assuming appropriation of the necessary amounts, CBO estimates that securing that capability would cost \$182 million over the 2017-2021 period. Those amounts would be used to acquire a coronagraph, a spacecraft, and a launch vehicle by 2022. CBO expects that most of that spending would occur in the years leading up to the launch as NOAA would need to acquire and establish the flight and ground systems necessary to operate the spacecraft well in advance of the launch. Additional amounts would be necessary in 2022 and beyond in order to operate and maintain the spacecraft and coronagraph.

Other provisions in the bill would codify ongoing activities carried out by several agencies under the National Space Weather Program. In 2016, those agencies spent a combined \$160 million on activities related to space weather. Because the activities required under those provisions could be carried out at existing funding levels, CBO estimates that implementing those provisions would not affect the federal budget.

PAY-AS-YOU-GO CONSIDERATIONS: None.

INCREASE IN LONG-TERM DIRECT SPENDING AND DEFICITS

CBO estimates that enacting S. 2817 would not increase net direct spending or on-budget deficits in any of the four consecutive 10-year periods beginning in 2027.

INTERGOVERNMENTAL AND PRIVATE-SECTOR IMPACT

S. 2817 contains no intergovernmental or private-sector mandates as defined in UMRA and would impose no costs on state, local, or tribal governments.

ESTIMATE PREPARED BY:

Federal Costs: Jeff LaFave

Impact on State, Local, and Tribal Governments: Jon Sperl

Impact on the Private Sector: Amy Petz

ESTIMATE APPROVED BY:

H. Samuel Papenfuss

Deputy Assistant Director for Budget Analysis