

H.R. 5428, Grid Modernization Research and Development Act of 2019

As ordered reported by the House Committee on Science, Space, and Technology on February 12, 2020

By Fiscal Year, Millions of Dollars	2020	2020-2025	2020-2030
Direct Spending (Outlays)	0	0	0
Revenues	0	0	0
Increase or Decrease (-) in the Deficit	0	0	0
Spending Subject to Appropriation (Outlays)	37	1,223	not estimated
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 2031?	No	Contains intergovernmental mandate?	No
		Contains private-sector mandate?	No

H.R. 5428 would require the Department of Energy (DOE) to administer several research, development, and demonstration grant programs aimed at modernizing the electric grid, including smart grid modeling, developing hybrid energy systems, and technologies to integrate electric vehicles onto the electric grid. The bill also would require DOE to provide technical assistance to grant recipients, establish an advisory committee, and report to the Congress. CBO estimates that implementing H.R. 5428 would cost about \$1.2 billion over the 2020-2025 period.

For this estimate, CBO assumes that the bill will be enacted in fiscal year 2020 and that the authorized and estimated amounts will be appropriated each year. Estimated outlays are based on historical spending patterns for similar activities. The bill would authorize the appropriation of specific amounts each year over the 2020-2024 period for most of the activities in the bill, but does not specify an amount for section 4 for activities related to grid resilience. Using information from DOE, CBO estimates that the department allocated \$57 million in 2020 for research and development activities on grid resilience that are similar to the activities authorized under section 4. CBO estimates that the department would need about the same amount each year, adjusted for inflation, to continue grid resilience activities, over the 2021-2025 period.

The costs of the legislation (detailed in Table 1) fall under budget function 270 (energy).

**Table 1.
Estimated Increases in Spending Subject to Appropriation Under H.R. 5428**

	By Fiscal Year, Millions of Dollars						2020-2025
	2020	2021	2022	2023	2024	2025	
Grid Initiatives and R&D							
Authorization	170	175	180	185	190	0	900
Estimated Outlays	37	95	136	164	178	145	755
Hybrid Energy Systems							
Authorization ^a	0	21	22	23	24	0	90
Estimated Outlays	0	5	12	17	21	18	73
Grid Integration R&D							
Authorization ^a	0	53	55	58	61	0	227
Estimated Outlays	0	11	29	43	52	44	179
Grid Resilience R&D							
Estimated Authorization	0	59	62	64	66	69	320
Estimated Outlays	0	13	33	48	58	64	216
Total Changes							
Estimated Authorization	170	308	319	330	341	69	1,537
Estimated Outlays	37	124	210	272	309	271	1,223

Components may not sum totals because of rounding; R&D = Research and Development.

a. In 2020, H.R. 5428 would authorize the appropriation of \$20 million for hybrid energy systems programs and \$50 million for grid integration R&D programs. Using information from budget justification documents for the Department of Energy, CBO estimates that \$41 million and \$84 million, respectively, have already been allocated to similar activities under the 2020 annual appropriation. Because those amounts are greater than the amounts authorized in the bill, CBO does not show any authorization for those programs in 2020.

The CBO staff contact for this estimate is Sofia Guo. The estimate was reviewed by H. Samuel Papenfuss, Deputy Director of Budget Analysis.