

At a Glance

S. 1201, Enhancing Fossil Fuel Energy Carbon Technology Act of 2019

As ordered reported by the Senate Committee on Energy and Natural Resources on July 16, 2019

By Fiscal Year, Millions of Dollars	2020	2020-2024	2020-2029
Direct Spending (Outlays)	0	0	0
Revenues	0	0	0
Increase or Decrease (-) in the Deficit	0	0	0
Spending Subject to Appropriation (Outlays)	114	2,956	5,209
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 2030?	No	Contains intergovernmental mandate?	No
		Contains private-sector mandate?	No

The bill would

- Authorize appropriations totaling \$5.4 billion over the 2020-2024 period for the Department of Energy to carry out research, development, and demonstration programs for coal and natural gas technologies, carbon storage and sequestration, carbon utilization, and carbon removal

Estimated budgetary effects would primarily stem from

- Spending of appropriations authorized for the department

Detailed estimate begins on the next page.

Bill Summary

S. 1201 would authorize appropriations totaling \$5.4 billion over the 2020-2024 period for the Department of Energy to carry out research, development, and demonstration programs for coal and natural gas technologies, carbon storage and sequestration, carbon use, and carbon removal. The bill would recodify existing activities under DOE’s Office of Fossil Energy, and also would direct DOE to enter into an agreement with the National Academies to conduct a study on the barriers to and opportunities for commercializing carbon dioxide.

Estimated Federal Cost

The estimated budgetary effect of S. 1201 is shown in Table 1. The costs of the legislation fall within budget function 270 (energy).

Table 1.
Estimated Increases in Spending Subject to Appropriation Under S. 1201

	By Fiscal Year, Millions of Dollars										2020-2024	2020-2029
	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029		
Coal and Natural Gas												
Authorization	727	727	972	972	900	0	0	0	0	0	4,298	4,298
Estimated Outlays	88	291	503	673	805	763	519	301	168	64	2,360	4,175
Carbon Storage and Sequestration												
Authorization	105	110	116	122	128	0	0	0	0	0	580	580
Estimated Outlays	13	43	71	89	105	102	70	39	23	9	321	564
Carbon Use												
Authorization	25	26	28	29	30	0	0	0	0	0	138	138
Estimated Outlays	3	10	17	21	25	24	16	9	5	2	76	132
Carbon Removal												
Authorization	75	64	66	69	73	0	0	0	0	0	347	347
Estimated Outlays	9	29	45	53	62	59	40	22	13	5	198	337
National Academies Study												
Estimated Authorization	1	0	0	0	0	0	0	0	0	0	1	1
Estimated Outlays	1	0	0	0	0	0	0	0	0	0	1	1
Total Changes												
Estimated Authorization	933	927	1,181	1,192	1,131	0	0	0	0	0	5,364	5,364
Estimated Outlays	114	373	636	836	997	948	645	371	209	80	2,956	5,209

Components may not sum to totals because of rounding.

Basis of Estimate

For this estimate, CBO assumes the legislation will be enacted in early 2020 and that the authorized and necessary amounts will be provided. Estimated outlays are based on historical spending patterns for similar activities.

S. 1201 would authorize the appropriation of specific amounts totaling \$5.4 billion over the 2020-2024 period. CBO estimates that implementing the bill would cost \$3.0 billion over the same period and \$2.2 billion after 2024. In recent years, DOE has allocated between \$500 million and \$600 million annually for programs similar to those required under the bill.

Coal and Natural Gas

Section 2 of the bill would authorize appropriations totaling \$4.3 billion over the 2020-2024 period for DOE to carry out a program for coal and natural gas technologies. Specifically, the bill would authorize appropriations over the same period for the following activities:

- \$1.7 billion for related demonstration projects,
- \$1.5 billion for large-scale pilot projects to test new technologies,
- \$0.9 billion for a research and development program, and
- \$0.2 billion for front-end engineering and design, a planning and engineering process that accounts for technical issues, execution, and project costs up front.

CBO estimates that implementing section 2 would cost \$2.4 billion over the 2020-2024 period.

Carbon Storage and Sequestration

Section 3 of the bill would authorize appropriations totaling \$580 million over the 2020-2024 period for DOE to carry out a research and development program for carbon storage. The bill also would direct DOE to provide funding for large-scale carbon sequestration demonstration projects and would authorize DOE to transition those projects into carbon dioxide commercial storage complexes. CBO estimates that implementing section 3 would cost \$321 million over the 2020-2024 period.

Carbon Use

Section 4 of the bill would authorize appropriations totaling \$138 million over the 2020-2024 period for DOE to establish a program for research, development, and demonstration of ways to use carbon. Under the program, DOE would study potential uses for carbon, including the conversion of carbon oxides for use in commercial and industrial products. CBO estimates that implementing the program would cost \$76 million over the 2020-2024 period.

Carbon Removal

Section 5 of the bill would authorize appropriations totaling \$347 million over the 2020-2024 period for DOE to carry out a research, demonstration, and development program for carbon removal. The bill would direct DOE to establish a prize competition for carbon dioxide capture, and would require DOE to award grants for the operation of centers that provide testing capabilities for innovative direct air capture and storage technologies. CBO estimates that implementing section 5 would cost \$198 million over the 2020-2024 period.

National Academies Study

S. 1201 would direct DOE to enter into an agreement with the National Academies to conduct a study on the barriers to and opportunities for commercializing carbon dioxide. Based on the costs of similar tasks, CBO estimates that the study would cost \$1 million; such spending would be subject to the availability of appropriated funds.

Pay-As-You-Go Considerations: None.

Increase in Long-Term Deficits: None.

Mandates: None

Previous CBO Estimate

On October 4, 2019, CBO transmitted a cost estimate for [H.R. 3607](#), the Fossil Energy Research and Development Act of 2019, as ordered reported by the House Committee on Science, Space, and Technology on July 24, 2019. The two bills contain similar provisions, but would authorize the appropriation of different amounts for DOE's fossil energy programs. Accordingly, CBO's estimates of their budgetary effects differ.

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