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SENATE

{ REPORT
{ 116-74

RARE EARTH ELEMENT ADVANCED COAL TECHNOLOGIES ACT

AUGUST 16, 2019.—Ordered to be printed

Filed, under authority of the order of the Senate of August 1, 2019

Ms. MURKOWSKI, from the Committee on Energy and Natural
Resources, submitted the following

R E P O R T

[To accompany S. 1052]

[Including cost estimate of the Congressional Budget Office]

The Committee on Energy and Natural Resources, to which was referred the bill (S. 1052) to authorize the Office of Fossil Energy to develop advanced separation technologies for the extraction and recovery of rare earth elements and minerals from coal and coal by-products, and for other purposes, having considered the same, reports favorably thereon with an amendment in the nature of a substitute and recommends that the bill, as amended, do pass.

AMENDMENT

The amendment is as follows:

1. Strike all after the enacting clause and insert the following:

SECTION 1. SHORT TITLE.

This Act may be cited as the “Rare Earth Element Advanced Coal Technologies Act”.

SEC. 2. PROGRAM FOR EXTRACTION AND RECOVERY OF RARE EARTH ELEMENTS AND MINERALS FROM COAL AND COAL BYPRODUCTS.

(a) IN GENERAL.—The Secretary of Energy, acting through the Assistant Secretary for Fossil Energy (referred to in this Act as the “Secretary”), shall carry out a program under which the Secretary shall develop advanced separation technologies for the extraction and recovery of rare earth elements and minerals from coal and coal byproducts.

(b) AUTHORIZATION OF APPROPRIATIONS.—There is authorized to be appropriated to the Secretary to carry out the program described in subsection (a) \$23,000,000 for each of fiscal years 2020 through 2027.

SEC. 3. REPORT.

Not later than 1 year after the date of enactment of this Act, the Secretary shall submit to the Committee on Energy and Natural Resources of the Senate and the Committee on Energy and Commerce of the House of Representatives a report evaluating the development of advanced separation technologies for the extraction and recovery of rare earth elements and minerals from coal and coal byproducts, including acid mine drainage from coal mines.

PURPOSE

The purpose of S. 1052 is to authorize the Office of Fossil Energy to develop advanced separation technologies for the extraction and recovery of rare earth elements and minerals from coal and coal byproducts.

BACKGROUND AND NEED

Rare earth elements (REEs) are designated as a critical mineral by the Department of the Interior and are used in a range of products including cell phones, global positioning systems (GPS), medical equipment, and defense applications. The United States currently produces only a small amount of REEs, with the majority of the world production and processing occurring in China. Due to the reduction of Chinese exports of REEs in 2006, the average cost of imports from China increased 2,432 percent from 2002 to 2011, and by 723 percent in 2011 alone.

U.S. mineral import dependence and the concentration of mineral supply from certain countries are broadly recognized as growing threats to economic growth, competitiveness, and national security. The resulting price and supply chain volatility has prompted a greater focus on policies related to mineral security and “critical minerals” that are important in use, susceptible to supply disruption, and for which no substitutes are readily available.

According to the National Energy Technology Lab (NETL) and based on annual estimates, acid mine drainage sludge in West Virginia and Pennsylvania represents approximately 610 to 2,700 tons per year of REEs. NETL has been examining the concept of extracting REEs from coal and coal byproducts since 2010. Congress appropriated funding in 2014 for NETL to develop extraction technologies for REEs from coal byproducts. S. 1052 formally authorizes the program.

LEGISLATIVE HISTORY

S. 1052 was introduced by Senators Manchin, Murkowski, and Capito on April 4, 2019. The Committee on Energy and Natural Resources held a hearing to consider the bill on May 14, 2019.

In the 115th Congress, S. 1563, similar legislation, was introduced by Senator Manchin on July 13, 2017. On December 5, 2017, the Subcommittee on Energy held a legislative hearing on S. 1563. The Committee on Energy and Natural Resources met in open business session on March 8, 2018, and ordered S. 1563 favorably reported (S. Rept. 115–255).

The Senate Committee on Energy and Natural Resources met in open business session on July 16, 2019, and ordered S. 1052 favorably reported, as amended.

COMMITTEE RECOMMENDATION

The Senate Committee on Energy and Natural Resources, in open business session on July 16, 2019, by a majority voice vote of a quorum present, recommends that the Senate pass S. 1052, if amended as described herein. Senator Lee asked to be recorded as voting no.

COMMITTEE AMENDMENT

During its consideration of S. 1052, the Committee adopted an amendment in the nature of a substitute. The substitute amendment strikes section 2, which provided Congressional findings, and renumbers the sections accordingly.

Section 3 (as renumbered) is amended to: (1) strike the requirement for an assessment to be conducted; (2) strike the requirement that the Secretary of Energy (Secretary) write and submit the report in consultation with the Secretary of Defense; and (3) limit the scope of the reporting requirement to evaluate only the development of the advanced separation technologies.

SECTION-BY-SECTION ANALYSIS

Section 1. Short title

Section 1 contains the short title.

Sec. 2. Program for the extraction and recovery of rare earth elements and minerals from coal and coal byproducts

Section 2 requires the Secretary, acting through the Assistant Secretary for Fossil Energy, to carry out a program to develop advanced separation technologies for the extraction and recovery of REEs and minerals from coal and coal byproducts. Subsection (b) authorizes \$23 million for each of fiscal years 2020 through 2027.

Sec. 3. Report

Section 3 directs the Secretary, within one year of enactment, to provide a report to the Congressional committees of jurisdiction that evaluates the development of advanced separation technologies for the extraction and recovery of REEs and minerals from coal and coal byproducts.

COST AND BUDGETARY CONSIDERATIONS

The following estimate of the costs of this measure has been provided by the Congressional Budget Office:

Bill #, Rare Earth Element Advanced Coal Technologies Act			
As [Manager] on July 16, 2019			
By Fiscal Year, Millions of Dollars	2019	2019-2024	2019-2029
Direct Spending (Outlays)	0	0	0
Revenues	0	0	0
Increase or Decrease (-) in the Deficit	0	0	0
Spending Subject to Appropriation (Outlays)	0	66	165
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

S. 1052 would authorize the appropriation of \$23 million annually over the 2020–2027 period for the Department of Energy (DOE) to develop advanced technologies to extract rare earth elements and minerals from coal and coal byproducts. In 2019, DOE allocated \$18 million for such activities. The bill also would direct DOE to submit a report to the Congress on the development of such technologies.

Based on historical spending patterns for similar activities, and assuming appropriation of the authorized amounts, CBO estimates that implementing S. 1052 would cost \$66 million over the 2019–2024 period and \$165 million over the 2019–2029 period.

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

TABLE 1.—ESTIMATED INCREASES IN SPENDING SUBJECT TO APPROPRIATION UNDER S. 1052

	By fiscal year, millions of dollars—													
	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2019– 2024	2019– 2029	
Authorization	0	23	23	23	23	23	23	23	23	0	0	115	184	
Estimated Outlays	0	3	9	15	18	21	22	22	22	20	13	66	165	

The CBO staff contact for this estimate is Janani Shankaran. The estimate was reviewed by H. Samuel Papenfuss, Deputy Assistant Director for Budget Analysis.

REGULATORY IMPACT EVALUATION

In compliance with paragraph 11(b) of rule XXVI of the Standing Rules of the Senate, the Committee makes the following evaluation of the regulatory impact which would be incurred in carrying out S. 1052. The bill is not a regulatory measure in the sense of imposing Government-established standards or significant economic responsibilities on private individuals and businesses.

No personal information would be collected in administering the program. Therefore, there would be no impact on personal privacy.

Little, if any, additional paperwork would result from the enactment of S. 1052, as ordered reported.

CONGRESSIONALLY DIRECTED SPENDING

S. 1052, as ordered reported, does not contain any congressionally directed spending items, limited tax benefits, or limited tariff benefits as defined in rule XLIV of the Standing Rules of the Senate.

EXECUTIVE COMMUNICATIONS

Executive views on S. 1052 were requested, but have not been received. The testimony provided by the Department of Energy at the December 5, 2017, hearing on S. 1563, similar legislation, follows:

TESTIMONY OF UNDER SECRETARY MARK MENEZES, U.S.
DEPARTMENT OF ENERGY

S. 1563—Rare Earth Element Advanced Coal Technologies Act

It's likely the development of a domestic supply of rare earth elements (REEs) that is economically competitive will help fuel our nation's economic growth, secure our energy independence, and increase our national security. The bill appears to authorize \$20 million per year from 2018 through 2025 for the Department of Energy (specifically the Office of Fossil Energy) to develop advanced separation technologies for the extraction and recovery of REEs and minerals from coal and coal byproducts. It appears the bill also requests that DOE, in consultation with the Department of Defense, within 1 year after date of enactment, submit a report that assesses the importance of REEs to the United States, evaluates the development of new separation technologies, and analyzes the market impact of new technologies. Due to the complexities of the research and scope of the report, Congress may want to consider extending the due date of the initial assessment.

The bill appears to acknowledge the current ongoing efforts within DOE to advance separation technologies for the recovery of REEs. Thus, DOE appreciates the proposed legislation as it incorporates its ongoing R&D. DOE is developing technologies with the goal of enabling additional domestic supplies of REEs, reducing environmental impact of coal and REE production, and delivering technologies that can be manufactured within the United States. DOE has accomplished much in this area, including the evaluation of pilot-scale processing options, and the nature and distribution of REEs in U.S. coal deposits.

CHANGES IN EXISTING LAW

In compliance with paragraph 12 of rule XXVI of the Standing Rules of the Senate, the Committee notes that no changes in existing law are made by the bill as ordered reported.