119TH CONGRESS
1ST SESSION

S. _____

To establish a mineral and mining innovation program within the Department of Energy to advance domestic mineral resources, economic growth, and national security, and for other purposes.

IN THE SENATE OF THE UNITED STATES

Mr. HICKENLOOPER (for himself and Mr. TILLIS) introduced the following bill; which was read twice and referred to the Committee on _____

A BILL

To establish a mineral and mining innovation program within the Department of Energy to advance domestic mineral resources, economic growth, and national security, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the ''Unearth Innovation Act''.

SEC. 2. MINERAL AND MINING INNOVATION INITIATIVE.

(a) DEFINITIONS.—In this section:

(1) INDIAN TRIBE.—The term ''Indian Tribe'' has the meaning given the term in section 4 of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 5304).

(2) INITIATIVE.—The term ''initiative'' means the mineral and mining innovation initiative established under subsection (b).

(3) MINING UNIVERSITY.—The term ''mining university'' means an institution of higher education (as defined in section 101(a) of the Higher Education Act of 1965 (20 U.S.C. 1001(a))) with a mining, metallurgical, geological, or mineral engineering program accredited by the Accreditation Board for Engineering and Technology, Inc.

(4) SECRETARY.—The term ''Secretary'' means the Secretary of Energy.

(b) ESTABLISHMENT.—Not later than 180 days after the date of enactment of this Act, the Secretary shall establish an initiative within the Department of Energy, the purposes of which are—

(1) to support the research, development, deployment, and commercialization of emerging technologies and practices suitable for responsibly identifying, characterizing, mining, extracting, processing, recycling, and reprocessing the minerals required

across multiple industries in the United States to advance domestic mineral resources, circularity, economic growth, national security, and other goals, as determined by the Secretary;

(2) to accelerate the research, development, and integration of advanced technologies, data analytics, responsible mining and mineral recovery practices, advanced techniques for separation or processing facilities to minimize human impacts, and extractive processes intended to minimize environmental impact, increase per-unit productivity, optimize resource utilization, and promote technology adaptation, community engagement, and social acceptance of mining; and

(3) to coordinate with the National Institute of Occupational Safety and Health of the Centers for Disease Control and Prevention, the Office of Surface Mining Reclamation and Enforcement, and the Mine Safety and Health Administration of the Department of Labor on safety and mining innovation.

(c) DUTIES.—

(1) IN GENERAL.—In carrying out the initiative, the Secretary, in coordination with the Secretary of the Interior, shall identify, study, evaluate, test, and demonstrate hard rock mineral mining, un-

conventional mineral recovery, refining, and processing technologies and practices to improve—

(A) identification of new potential domestic mineral resources and trends;

(B) characterization and mapping of domestic mineral resources;

(C) statistical capabilities of the United States, with respect to domestic and global mineral resources;

(D) environmental performance of mining and mineral recovery, including—

(i) reducing air emissions and improving water management;

(ii) improving energy efficiency; and

(iii) minimizing tailings and other waste, mining footprint, and environmental impact;

(E) efficiency and productivity of mining, including co-mineral and byproduct recovery, mineral processing, and resource utilization;

(F) data collection, analytics, and sharing;

(G) mine safety;

(H) mine reclamation, remediation, and reuse;

(I) community engagement, consultation with Indian Tribes, and social perception of mining;

(J) emerging and new technologies for mineral recovery from unconventional sources;

(K) training and education for the mining workforce; and

(L) the usable lifespan of products containing critical minerals through reuse, repurposing, and repairability.

(2) RESEARCH AND DEVELOPMENT AREAS OF FOCUS.—In carrying out the initiative, the Secretary, in coordination with the Secretary of the Interior, shall focus research, development, deployment, and commercialization activities in areas related to—

(A) mineral exploration, discovery, and characterization science and technology, including—

(i) geophysical surveys;

(ii) geochemical surveys;

(iii) uncrewed survey platforms, including uncrewed aerial vehicles;

(iv) proximal sensing, including automatic spectroscopic scanning of drilling cores;

(v) characterizing mine waste, including mine-influenced water; and

(vi) other advanced technologies;

(B) mineral production and mine remediation and closure, including—

(i) advanced drilling, sampling, and extraction technologies;

(ii) mine design, including innovations that maximize resource use, environmental benefit, and end uses of land;

(iii) digital mining solutions;

(iv) in-situ mineral recovery and other advanced extraction techniques;

(v) processing techniques, including—

(I) geometallurgy;

(II) beneficiation;

(III) extraction from increasingly low-grade ores and deeper mines;

(IV) co-mineral and byproduct recovery;

(V) multimineral refining;

(VI) whole rock processing; and

(VII) greenhouse gas reduction and sequestration; and

(vi) remediation techniques, including—

(I) reclamation;

(II) tailings and waste management; and

(III) extraction and reprocessing of valued materials from waste on abandoned mine land and at active and inactive mine sites;

(C) critical mineral recycling technologies, including battery recycling;

(D) social acceptance of mining and mineral processes, technologies, and projects, including—

(i) research to identify perspectives and priorities of communities local to prospective mining sites;

(ii) research to identify strategies for community engagement and potential short-term and long-term benefits of mining for local communities;

(iii) research to provide socially-informed technology research, design, and development priorities;

(iv) best practices for developing community benefit agreements and plans that address community priorities and mitigate potential environmental and economic harm that may result from mining; and

(v) consultation and engagement with Indian Tribes; and

(E) other research areas, as determined by the Secretary, to support the program.

(3) AREAS OF FOCUS FOR REEVALUATION.—Not less frequently than once every 5 years, the Secretary, in carrying out the initiative in coordination with the Secretary of the Interior, shall consult with Indian Tribes, representatives from academic institutions (including mining universities), National Laboratories, and the mining industry—

(A) to reevaluate the status of, and opportunities for, mineral and mining research and development; and

(B) to revise the list of areas described in paragraph (2)(E).

(d) COORDINATION.—In carrying out this section, the Secretary shall coordinate with the Secretary of the Interior through, at a minimum—

(1) interagency activities associated with the research, development, deployment, and commercialization of hard rock mining and unconventional mineral recovery technologies;

(2) leveraging existing mineral research within Federal agencies;

(3) engagement with industry, academia, Indian Tribes, and nongovernmental entities to identify innovation gaps and opportunities related to minerals and mining;

(4) alignment of applied academic and Federal mineral and mining research and development with economic, energy, and national security needs; and

(5) certification or validation of emerging technologies or best practices that demonstrate significant economic, environmental, and security benefits, including resource optimization, environmental sustainability, community engagement, and workforce development; and

(e) COLLABORATION.—

(1) IN GENERAL.—In carrying out this section, the Secretary and the Secretary of the Interior may

enter into cooperative agreements, contracts, or other arrangements, including partnerships, with Indian Tribes and academic, public, private, and nongovernmental entities located in the United States, any territory or possession of the United States, or a country described in subparagraph (B) or (C) of section 12(3) of the Strategic and Critical Materials Stock Piling Act (50 U.S.C. 98h–3(3)).

(2) PRIORITIZATION.—In carrying out paragraph (1), the Secretary and the Secretary of the Interior shall, to the maximum extent practicable, prioritize entering into cooperative agreements, contracts, or other arrangements with academic institutions, including mining universities.

(f) REPORT.—Not later than 3 years after the date of enactment of this Act, the Secretary and the Secretary of the Interior shall submit to Congress a report describing the results of the duties carried out under subsection (c).

(g) AUTHORIZATION OF APPROPRIATIONS.—There is authorized to be appropriated to the Secretary to carry out this section $100,000,000 for each of fiscal years 2026 through 2035, to remain available until expended.