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110TH CONGRESS
1ST SESSION

H. R. 3877

To require the Director of the National Institute of Standards and Technology to establish an initiative to promote the research, development, and demonstration of miner tracking and communications systems and to promote the establishment of standards regarding underground communications to protect miners in the United States.

IN THE HOUSE OF REPRESENTATIVES

OCTOBER 17, 2007

Mr. MATHESON (for himself, Mr. GORDON of Tennessee, Mr. WHITFIELD, Mr. ROSS, Mr. DAVIS of Kentucky, Mr. YOUNG of Alaska, Mr. CANNON, Mr. BACHUS, and Mr. ROGERS of Kentucky) introduced the following bill; which was referred to the Committee on Science and Technology

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A BILL

To require the Director of the National Institute of Standards and Technology to establish an initiative to promote the research, development, and demonstration of miner tracking and communications systems and to promote the establishment of standards regarding underground communications to protect miners in the United States.

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 ''Mine Communications Technology Innovation Act''.

SEC. 2. FINDINGS.

Congress finds the following:

(1) The failure of miner tracking and communications devices or lack thereof in mines severely hampers rescue efforts in the event of emergencies.

(2) Mines, particularly underground mines, have properties that present unique technical challenges for the integration of currently available tracking and communications systems. These properties include the lack of a clear path or open air which is required for radio signals and WiFi. Additionally, because coal is an absorptive material, less than 10 percent of the radio spectrum that is used above ground can be used underground. A fraction of that (only about 1 percent) radio spectrum is actually allocated for commercial communications purposes. As a consequence, the availability of miner communication equipment is severely limited.

(3) Research and experience have shown that communications and tracking systems may not work equally well in every mine or in every emergency situation, and therefore several different systems may be necessary for development and integration.

(4) Because of the serious challenges of the mine environment and the limited market provided by the mining industry, much needed technology has

not yet been developed by the private sector or is not commercially available in the United States.

(5) Furthermore, due to the regulatory structure of the industry and the lengthy approval process for mine tracking and communications systems, research must be accelerated so that next generation technology can be quickly and efficiently integrated into mines to protect the safety of miners.

(6) The National Institute of Standards and Technology is well positioned to help accelerate the development of mining tracking and communications technology. The National Institute of Standards and Technology has a long history of working in conjunction with industry to invest in longer-term, high-risk research which yields national benefits far beyond private payoff. Further, the National Institute of Standards and Technology builds partnerships with industry to leverage existing research and development to drive next generation technology.

(7) The National Institute of Standards and Technology is well-positioned to draft mining communications standards given the extensive work that the organization has done in the field of emergency communications to develop standards and tech-

nologies for interoperable wireless telecommunications and information systems.

(8) In developing such standards, the National Institute of Standards and Technology should work in cooperation with the National Institute for Occupational Safety and Health and the Mine Safety and Health Administration to build on existing technology and knowledge regarding mine communications systems.

SEC. 3. MINE COMMUNICATIONS AND TRACKING RESEARCH AND DEVELOPMENT PROGRAM AUTHORIZATION.

(a) ESTABLISHMENT.—The Director of the National Institute of Standards and Technology shall provide for the establishment of a program of research, development, and demonstration, that includes the availability of grants where appropriate, to accelerate the development of next generation mine communications and tracking technology systems.

(b) COORDINATION.—In carrying out this section, the Director shall work with relevant Federal agencies and industry to evaluate areas of research and development that will be most promising in protecting miner safety.

(c) OPTIONAL FOCUS.—In establishing this program, the Director may focus on the following communications and tracking system characteristics:

(1) Systems that are likely to work in emergency situations.

(2) Systems that work in coal mines, with special attention paid to deep underground coal mines.

(3) Systems that provide coverage throughout all areas of the mine.

(4) Hybrid systems that use both wireless and infrastructure based systems.

(5) Functionality for 2-way and voice communications.

(6) Systems that serve emergency and routine communications needs.

(7) The ability to work with existing legacy systems and to be quickly integrated.

SEC. 4. STANDARDS REGARDING UNDERGROUND COMMUNICATIONS.

The Director of the National Institute of Standards and Technology shall work with industry and relevant Federal agencies to develop consensus industry standards and standard reference materials for wireless communications in underground mines. In their efforts to help de-

velop these standards and reference materials, the following issues should be addressed:

(1) The appropriate use of frequency bands and power levels.

(2) Matters related to interoperability of systems, applications, and devices.

(3) Technology to prevent interference.

SEC. 5. AUTHORIZATION OF APPROPRIATIONS.

There are authorized to be appropriated to the Director of the National Institute of Standards and Technology such sums as are necessary for carrying out this Act for fiscal years 2009 and 2010, to be derived from amounts authorized under section 3001 of the America COMPETES Act.

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