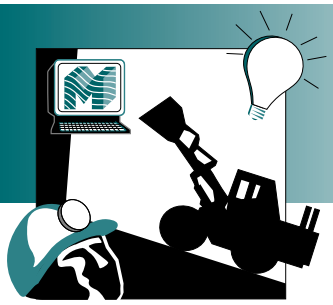
MINING

Project Fact Sheet



Wireless Telemetry Communications

Benefits

- Saves energy by increasing the safety and acceptability of coal mining as an energy source, thereby augmenting the energy supply
- Cost savings of up to 25% by eliminating the need to purchase, install, and maintain communications cables
- Improves safety by providing uninterrupted communications, especially in emergency situations
- Provides reliable service that is unaffected by falling debris and other hazards
- Increases communications capabilities both from the surface to the mining site and among personnel underground
- Offers greater flexibility and mobility in communications
- Allows for continued transmission of production data and environmental monitoring data

Applications

This invention was developed for the coal mining industry, but applies to all types of mining situations. It may have broader application to other types of underground work or situations where communications are required to pass through solid material.

Replacing communications cables with wireless telemetry improves the safety, efficiency, and cost of mining operations

The hard-wired systems currently used in mining to transmit production data, environmental monitoring data, and voice signals to the surface are not reliable in emergency situations or if damaged by shifting debris or other hazards. To solve these critical problems, a wireless, through-the-earth telemetry system is being developed that will eliminate the need for wire connections between the surface and mining sites underground.

In addition to improving safety for underground workers, such a system would be more reliable, useful, cost-effective, and flexible. For instance, if combined with a separate in-mine system, workers could communicate freely with other underground personnel, in addition to surface personnel. By using the wireless transmitters, mining operations would not need to invest in communications cables, or their installation and maintenance.

Wireless Telemetry

By replacing costly communications cables currently used in mining operations with wireless, through-the-earth telemetry to transmit data to the surface, miners can increase safety and reduce costs.

Project Description

Goal: The goal of this project is to develop to the demonstration phase a telemetry system that communicates through the earth using electromagnetic field forces.

Transtek, Inc. is developing this new technology with the help of a grant funded by the Inventions and Innovation Program through the Department of Energy's Office of Industrial Technologies.

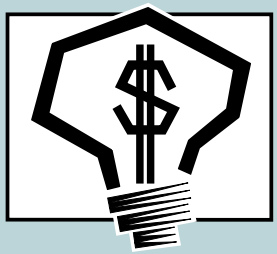
Progress and Milestones

- The invention is undergoing technical feasibility studies.
- The inventor has developed a computer model simulating characteristics that would be encountered in the operation of the invention.
- A prototype was developed and tested.

Industry of the Future—Mining

In mid-1998, the National Mining Association reached an agreement with the U.S. Department of Energy's Industries of the Future Program to join in creating research and development partnerships to develop and deploy new technologies that will improve environmental performance and enable the industry to meet increased global competition. The mining industry supplies the minerals and coal essential to the infrastructure of virtually the entire U.S. economy: glass, ceramics, metals, and cement for buildings, bridges, roads, and equipment, and coal or uranium to generate more than 70% of the nation's electricity.

OIT Mining Industry Team Leader: Toni Grobstein Maréchaux (202) 586-8501.



The Inventions and Innovation Program works with inventors of energy-related technologies to establish technical performance and conduct early development. Ideas that have significant energy savings impact and market potential are chosen for financial assistance through a competitive solicitation process. Technical guidance and commercialization support are also extended to successful applicants.

Project Partners

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