

## The Economics of Mining

According to the United States Geological Survey, mining accounts for more than \$488 billion of the U.S. economy, or about 19 percent of the GDP, yet employs only a small percentage of the total U.S. workforce. In order to increase productivity and capture a larger share of this growing industry, mines must employ technological innovations.

## U.S. Relies on Coal for Power

Electric utilities use more than 86 percent of the coal produced in the United States. Upon close examination, it is clear that price has been a major deciding factor in coal's increased use. More than 57 percent of the electricity generated in the United States comes from coal.

## Proven in the Most Hostile Environments

MOTOMESH Solo wireless meshed networks earned their stripes literally on the battlefield. Using technology originally developed for the U.S. Department of Defense, Defense Advanced Research Projects Agency (DARPA), MOTOMESH Solo radios are designed to provide reliable, high-speed mobile communications under battlefield conditions around the world. These networks have been battle tested, providing data links between troops, tanks and air support for the communication of critical information.

## MOTOROLA WIRELESS BROADBAND

Purpose-Built Networks



## Digging Deeper – The Business of Mining

Early mines have been found around the world, from Egypt to England, with some finds dating back more than six thousand years. The extraction of flint for weapons and cooking, rock for building materials and later metals for various uses may be as old as civilization itself. However, today's mining operations are much different and are under constant pressure to increase production of minerals and metals to satisfy the ever growing demand.

### Real-Time Mining

Mined materials are used in the construction of most everyday goods, including: hospitals, automobiles and houses, to name a few. These same materials also contribute to the overall structural composition of computers and satellites. With such a diverse array of raw materials being mined to manufacture a nearly endless list of finished goods, it seems almost counterintuitive that all mining operations share many common needs both at the business and at the operational level. One of the common needs all mines share is for a robust and reliable network to enable myriad of technologies to operate seamlessly.

MOTOMESH Solo is fundamentally different than standards-based 802.11a/b/g technology and has unique benefits. First, Dynamic Frequency Assignment enables the Solo network to use multiple channels across the 2.4GHz spectrum to communicate. Solo selects the best channel on a packet-by-packet basis to automatically avoid interference and congestion. Next, Solo offers Client Router Architecture, which extends and strengthens network coverage as each subscriber is a fully capable router/repeater. Remote equipment can hop through other subscribers to reach the network infrastructure. Finally, the MEA (Mobility Enabled Access) waveform is designed to handle the toughest RF environments through rapid resynchronization and a wide rake receiver window. MEA easily handles fast moving, high multipath environments.

Motorola, along with partner, 3D-P, has developed wireless networking solutions that support a wide array of industrial communication needs. MOTOMESH Solo provides the necessary bandwidth, coverage and reliability to work in the extremely harsh environmental conditions common to mining operations.

MOTOMESH Solo has been used successfully by many mining operators around the globe to meet a wide range of operational needs. Motorola's partner, 3D-P, has installed MOTOMESH Solo in multiple surface mines to monitor remotely the health of vehicles and other equipment and determine the location and status of the equipment, resulting in decreased downtime and constant connectivity to widely separated resources. 3-DP and Motorola also successfully deployed MOTOMESH Solo at a large copper mine as the communication backbone for an integrated CAES (Computer Aided Earth-moving System) used for precise computer guided mining. Prior to the Solo installation the system lacked connectivity between the guiding computers and the mining equipment. Finally, coal mines have used MOTOMESH Solo networks to target blast sites using GPS coordinate data, increasing production, efficiency and personnel safety.

The values of exports, employment rates, and everyday needs in society remain directly or indirectly dependent on some facet of the mining industry.

## The MOTOMESH Solo Purpose-Built Equipment Portfolio

Motorola's MOTOMESH Solo mesh network solution is powered by a purpose-built equipment portfolio that offers an exceptional combination of cost-effectiveness, ruggedness and reliability in challenging RF environments. The product line includes:

- IAP6300 Intelligent Access Point serves as a transition point from the wireless network to the wired world, or provides the functions of an enhanced wireless router by providing wireless network access to one or more IP devices via built-in Ethernet.
- MWR6300 Mesh Wireless Router provides extended network mobility and coverage in the 2.4 GHz frequency band.
- WSM6300 Wireless Serial Modem consists of a small compact router with a serial interface for machine-to-machine operations, such as remote sensor, controller or signal connectivity.
- VMM6300 Vehicle Mounted Modem supports 6 Mbps burst data rates at speeds in excess of 200 mph.
- WMC6300 Wireless Modem Card enables high-bandwidth data and video, position location and voice services from most devices with a PCM-CIA card slot.

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The products that heat the family home, as well as manufacturing and high tech sectors are all dependent, in some way, on the mining industry. By delivering the needed wireless communications infrastructure through MOTOMESH Solo solutions, increased efficiency and productivity is brought to this most vital part of the world's resource supply chain.

### About 3D-P

3D-P is the market leader for application agnostic, carrier-grade communications solutions and hardened computing platforms that provide intelligent in-pit wireless access to mobile equipment. The company's solutions provide application agnostic computing platforms that allow open pit and underground mines to easily integrate on-board applications with proximity detection for personnel safety. The company's products are in use worldwide with sales and support offices located in Scottsdale, Rapid City, Calgary, Brisbane, and Santiago. For more information, visit <http://www.3D-P.com>.



### About Motorola Wireless Broadband

Motorola's industry leading portfolio of reliable and cost effective wireless broadband solutions provide and extend coverage both indoors and outdoors. The Motorola Wireless Broadband portfolio offers high-speed connectivity systems that support voice, video and data solutions enabling a broad range of applications for both fixed and mobile public and private networks. With Motorola's One Point Wireless Suite of innovative software solutions, customers can now design, deploy and manage their broadband networks at lower installation costs that maximize up-time and reliability.



[www.motorola.com/wirelessbroadband](http://www.motorola.com/wirelessbroadband)

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