

ELECTRICAL SAFETY IN MINING

Brought to you by GE's Industrial Solutions business

Mining provides resources necessary for everyday commodities and future technologies. As mining grows, companies must protect employees from electrical hazards like arc flashes.

MINING IS GROWING

Countries that are projected to make the largest investment in the mining industry between 2013 and 2030: ¹

ARGENTINA

CANADA

CHILE

PERU

BRAZIL

AUSTRALIA



From 2006-2011 Australia's mining industry employment rose over ²

+75.5%



Experts predict the Canadian mining sector will create more than

6,000

jobs over the next 5 years.



U.S. mining supports nearly

2 Million Jobs

and generates revenues of more than

\$100 Billion/Year

MINCOM REPORTS WORKPLACE SAFETY IS A MAJOR CONCERN OF MORE THAN

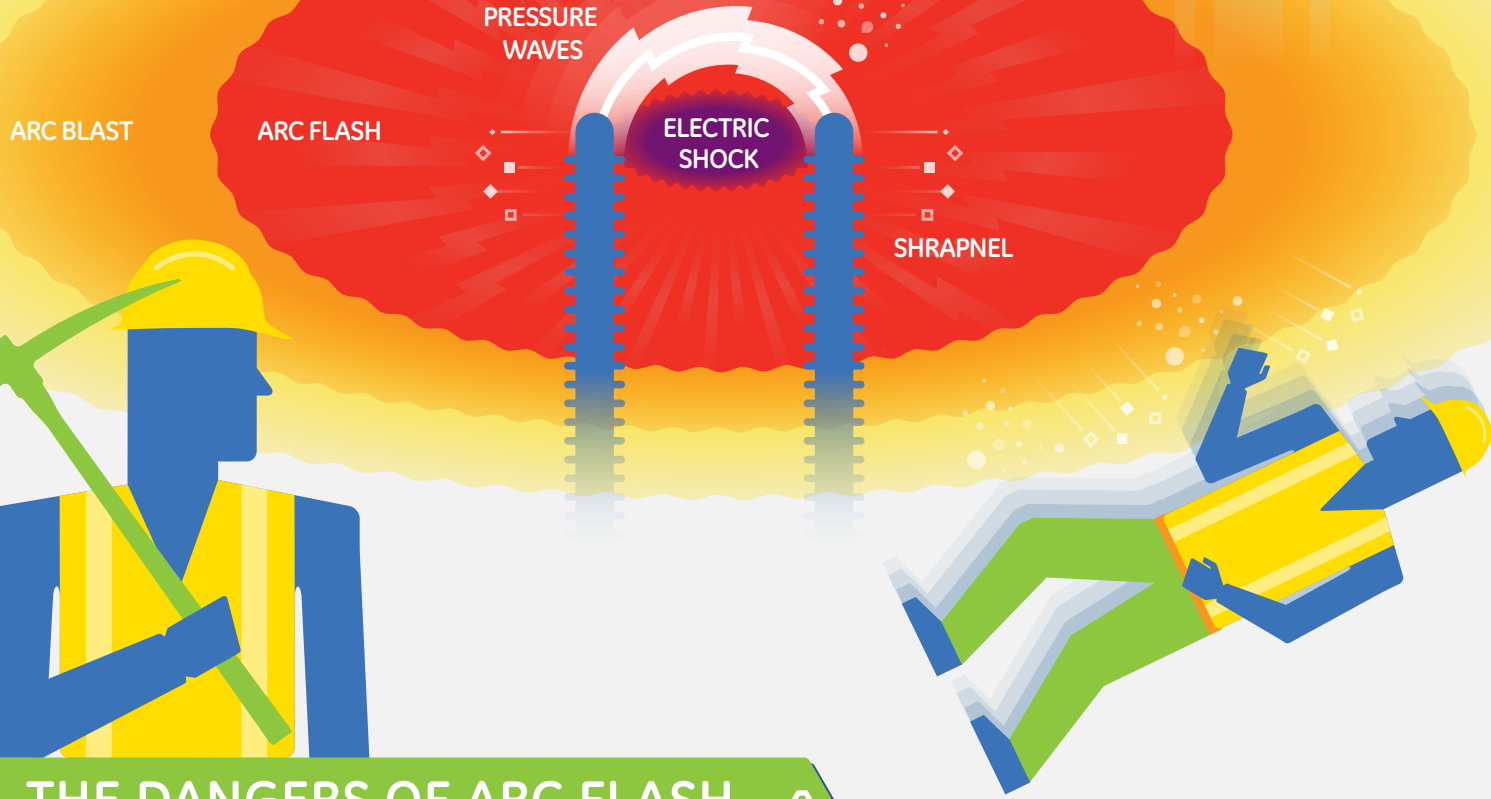
71% OF MINING EXECUTIVES⁵

Rapid industry growth puts extra importance on **protecting employees and equipment** from electric hazards like arc flashes.

WHAT IS AN ARC FLASH?

AN ARC FLASH IS A RELEASE OF HEAT ENERGY. THEY ARE OFTEN VIOLENT RESULTING IN SERIOUS INJURY AND EVEN DEATH.

THE BLAST RELEASES
MOLTEN METALS, HOT
METALLIC OXIDES AND
TOXIC BURNING SMOKE



THE DANGERS OF ARC FLASH

With a **700 mph**, projectile-producing pressure, the blast can throw a person across the room.



During a recent 12-year period in the mining industry,

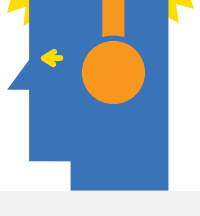
36,000+

lost work days recorded for all electrical injuries.



As loud as a jet engine.

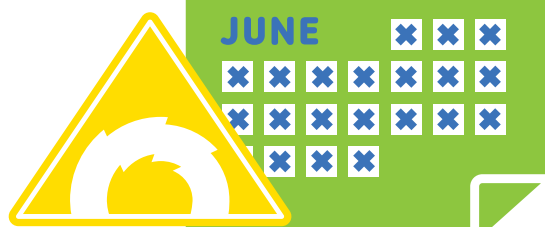
+140dB.



In the mining industry, electrical arc flash incidents are the most common cause of non-fatal electrical injuries.

DANGER

THE COST OF ARC FLASH



The average of lost work days at a mine site per arc flash incident was

21 days

Doctor's Bill

- \$\$\$ HEALTHCARE
- \$\$ WORKERS COMPENSATION
- \$\$ NEW EQUIPMENT
- \$ INCREASED INSURANCE PREMIUM
- \$ LOST PRODUCTION TIME

One arc flash can cost up to⁶

\$15 million

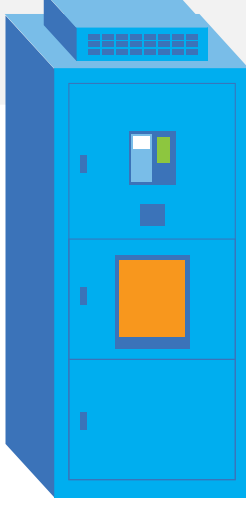


PREVENTING ARC FLASH INCIDENTS

GE'S SAFETY RECOMMENDATIONS:

PERFORM HAZARD ANALYSIS

- Evaluate your system for hazard locations
- Calculate incident energy exposure & arc flash boundaries
- Use labeling to indicate arc flash hazards



INTEGRATE ARC FLASH MITIGATION BY DESIGN

- Consider arc resistant equipment for new installations
- Install devices to deliver energy vs. contain energy
- Solutions for fast fault clearing

IS YOUR MINE PREPARED FOR ELECTRICAL SAFETY?

For more information on arc flash and electrical hazards, visit www.geindustrial.com/arcflash, and to learn how GE is working with customers in the mining industry to reduce their risk of arc flash, visit www.geindustrial.com/mining.

- Deloitte's Tracking the Trends 2013 report: <http://bit.ly/UifXMMy>
- Australian Jobs report for the Department of Education, Employment and Workplace Relations: <http://bit.ly/XiqGgA>
- The Mining Association of Canada: <http://bit.ly/WenPi6>
- National Mining Association: <http://bit.ly/VvCbym>
- The Mincom Annual Study: Mining Executive Insights: <http://bit.ly/UmndsE>
- Center for Disease Control and Prevention's "Reducing Non-contact Electric Arc Injuries: An Investigation of Behavioral and Organizational Issues" report: <http://1.usa.gov/UaiRss>
- GE Industrial Solutions' "Arc Flash: The Real Danger of Conducting Business" fact sheet
- A 1999 Electric Power Research Institute (EPRI) study pegged total direct and indirect costs of an arc flash incident