HELIUM BROMINE GOLD MERCURY ALUMINUM
NIOBIUM SILICON TANTALUM CADMIUM LEAD
WOLLASTONITE PEAT KYANITE GEMSTONES
LITHIUM ARSENIC TIN BERYLLIUM RHENIUM
THALLIUM BARITE TALC TITANIUM MICA CLAYS
STRONTIUM ANTIMONY ZINC BORON CHROMIUM
PLATINUM SELENIUM GERMANIUM ABRASIVES
MAGNESIUM SULFUR MOLYBDENUM VANADIUM


ALUMINUM BISMUTH DIATOMITE MANGANESE PUMICE LITHIUM
STONE STRONTIUM TIN RHENIUM LEAD GOLD SILICON ZEOLITES
THORIUM SODA ASH THALLIUM ZIRCONIUM PERLITE BAUXITE

SALT **MINERALS** ANTIMONY **BARITE** CEMENT **WOLLASTONITE**
ZINC **MAKE** FELDSPAR MAGNESIUM **VANADIUM** QUARTZ CRYSTAL
LIME **AMERICA** BROMINE **MICA** NICKEL **TALC** GEMSTONES

Minerals provide the foundation for the American way of life. They inspire the innovation of new technologies, feed U.S. manufacturing and are vital to our national security.

In 2011, $669 billion worth of processed mineral materials were used by sectors including construction, manufacturing and agriculture to add more than $2.2 trillion to the U.S. economy. Minerals were put to use in lifesaving medical devices, our nation's infrastructure, defense technologies, and the computers and communications systems that connect us to the world.

Though America is home to a wealth of mineral resources, our ability to secure these critical materials amid rising global competition is threatened by an outdated permitting process and regulations that delay mining projects for years—in some cases, up to a decade or more.

Our nation's lack of a coherent, forward-looking minerals policy has forced U.S. manufacturers to secure roughly half of their minerals from foreign countries in an increasingly competitive market. This import dependence subjects our minerals supply chain to disruptions, threatens our security and gives nations with established minerals policies a head start on economic growth.

Over the past year, I've traveled the country to learn more about how the absence of a minerals policy and the resulting deficiency in domestic production affects not just businesses, but also communities that stand to benefit from the good jobs and economic stimulus mining provides.

While there has been recent headway in Congress to address impediments to mining, still greater progress is needed before our nation can realize the full potential of U.S. minerals mining.

In the following pages, I invite you to learn more about what minerals mean to America, the challenges facing our supply chain, and solutions to ensuring our nation has access in the long term to the minerals that will define America's future. Thank you for your support and interest.

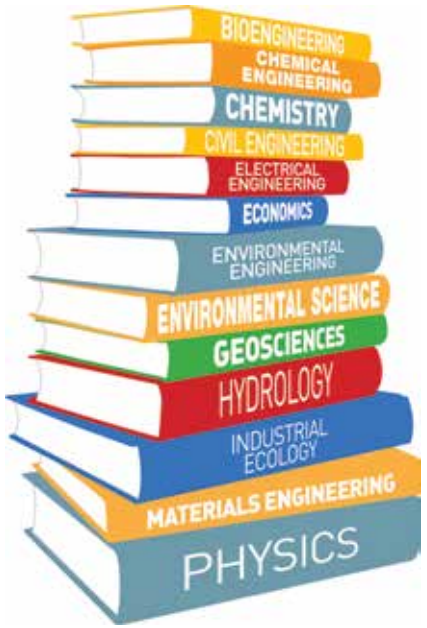
Best regards,

Hal Quinn
President and CEO
National Mining Association

PEAT **MINERALS** TUNGSTEN **BORON** GRAPHITE **VERMICULITE**
IRON **MAKE** PLATINUM FLUORSPAR **VANADIUM** **RARE EARTHS**
GOLD **GROWTH** KYANITE **POTASH** NIOBIUM **ARSENIC** IODINE

U.S. minerals mining supports more than 1.2 million jobs. A job in U.S. metal ore mining is one of the highest paying in the private sector, with an average salary registering $85,504 a year and often climbing above $100,000 for experienced workers.

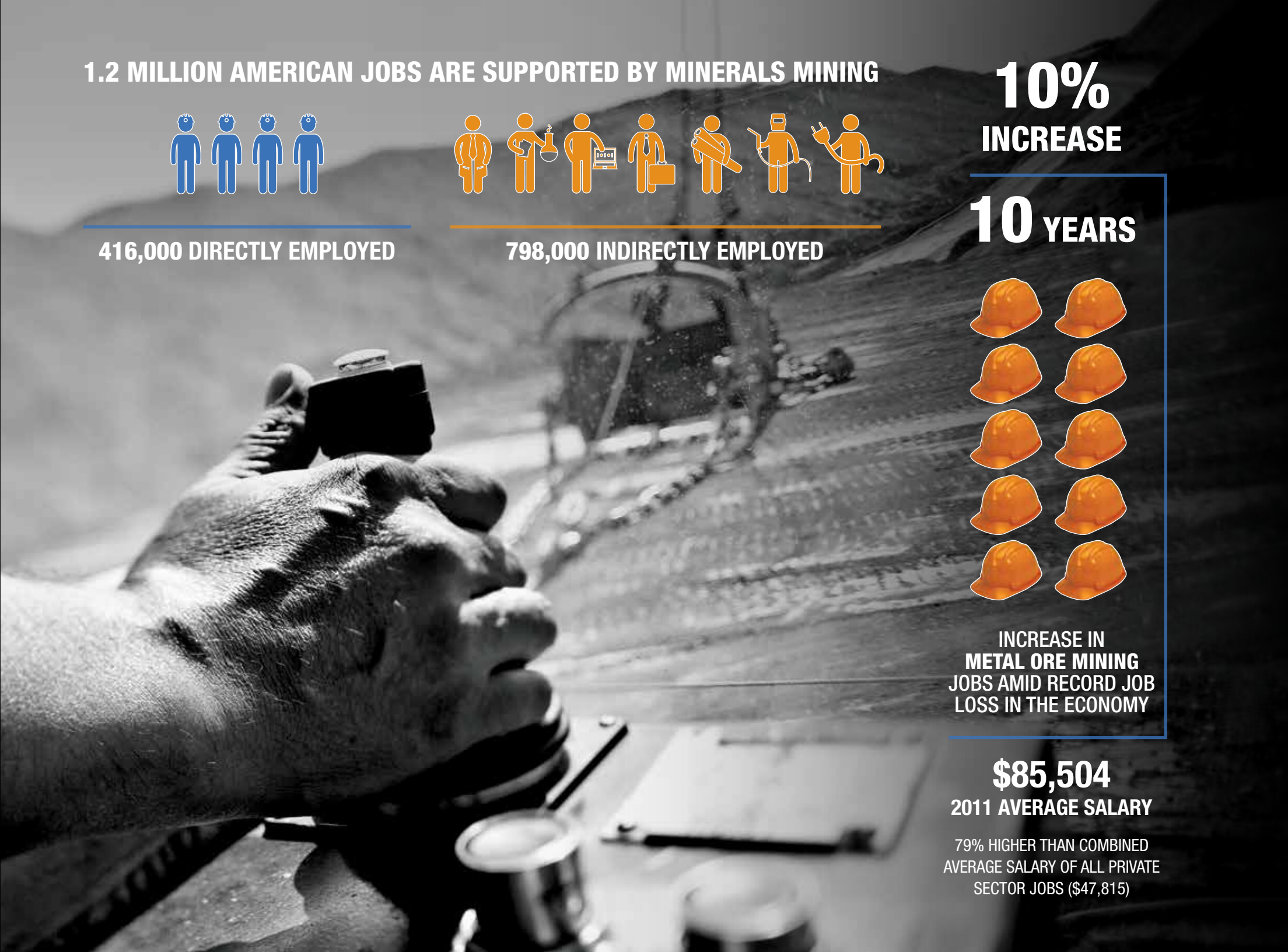
Prospects for those entering the field today are bright; not only have technological and advanced practices helped to make mining continually safer for workers, but mining is one of a handful of sectors that will add jobs at a fairly consistent rate over the next 20 years, adding between 11,000 and 13,000 jobs per year.



DISCIPLINES RELEVANT TO MINERALS MINING

"It's time other leaders made smart decisions that encourage domestic minerals development, and invest in the futures of young professionals like myself."

Grace Bernard
2012 Graduate
Colorado School of Mines



1.2 MILLION AMERICAN JOBS ARE SUPPORTED BY MINERALS MINING

416,000 DIRECTLY EMPLOYED

798,000 INDIRECTLY EMPLOYED

10%
INCREASE

10 YEARS

INCREASE IN
METAL ORE MINING
JOBS AMID RECORD JOB LOSS IN THE ECONOMY

$85,504
2011 AVERAGE SALARY

79% HIGHER THAN COMBINED AVERAGE SALARY OF ALL PRIVATE SECTOR JOBS ($47,815)

SALT **MINERALS** CESIUM **COPPER** TITANIUM **YTTRIUM** SCANDIUM
PEAT **MAKE** RUBIDIUM **HAFNIUM** VANADIUM **RARE EARTHS**
GOLD **MANUFACTURING** COBALT **POTASH** NIOBIUM **SULFUR**

Innovation and Production

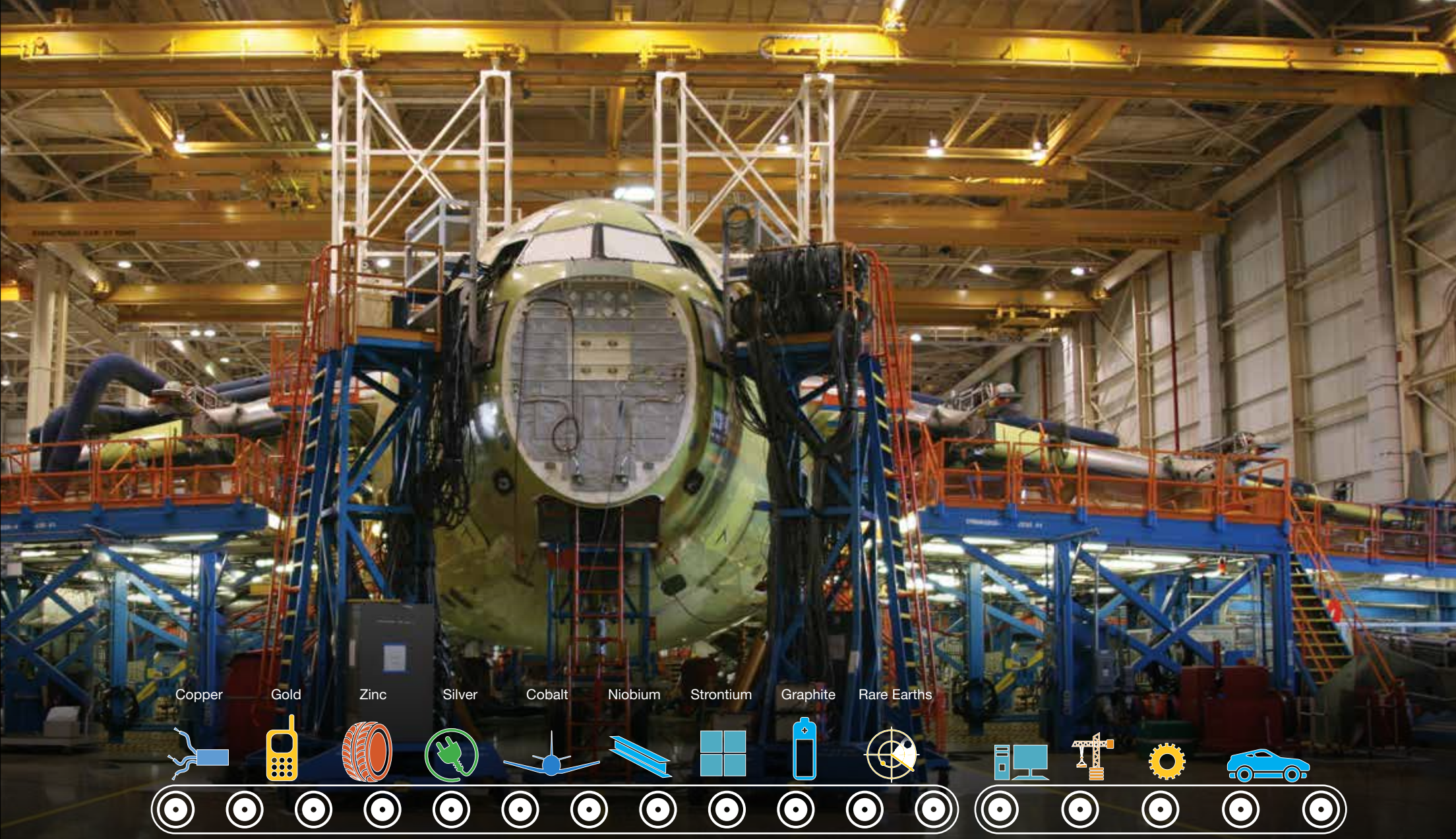
Minerals are critical to developing the technologies that will propel our economy, enable America to compete globally and improve the quality of our lives. They are the building blocks for the manufacturing, construction and automotive industries and are essential to growth in burgeoning fields such as advanced energy and health care.

The technologies that define innovation today all depend on a growing number of minerals. For example, in the 1980s, computer chips were made with a palette of 12 minerals. A decade later, 16 elements were used. Today, as many as 60 different minerals or their constituent elements are used in fabricating the high-speed, high-capacity integrated circuits that are crucial to this technology.

"When you're manufacturing anything, even if the work is done by robots and machines, there's an incredible value chain involved," Susan Hockfield, the president of M.I.T., says. "Manufacturing is simply this huge engine of job creation." For batteries, that value chain would include scientists researching improved materials to companies mining ores for metals; contractors building machines for factory work; and designers, engineers and machine operators doing the actual plant work.

"Does America Need Manufacturing?"
The New York Times Magazine, Aug. 24, 2011

Sources: U.S. Department of Defense; "Mineral Commodity Summaries 2012," U.S. Geological Survey, January 2012.



	Copper	Gold	Zinc	Silver	Cobalt	Niobium	Strontium	Graphite	Rare Earths
Value of Domestic Resources (2008)	$2.5 trillion	$831 billion	$720 billion	$295 billion	$37 billion	$5.8 billion	$95 million	$256 million	$112 million
Import Reliance (2011)	35%	36%	73%	75%	75%	100%	100%	100%	100%

Industries utilized minerals
TO ADD MORE THAN
$2 Trillion
TO U.S. GDP

ZINC **MINERALS** CESIUM **COPPER** GRAPHITE **GYPSUM** INDIUM
IRON **MAKE** SCANDIUM **TANTALUM** VANADIUM **ASBESTOS**
SAND **MANUFACTURING** **GRAVEL** NIOBIUM **SILVER** YTTRIUM

Supply Chain and Growing Demand

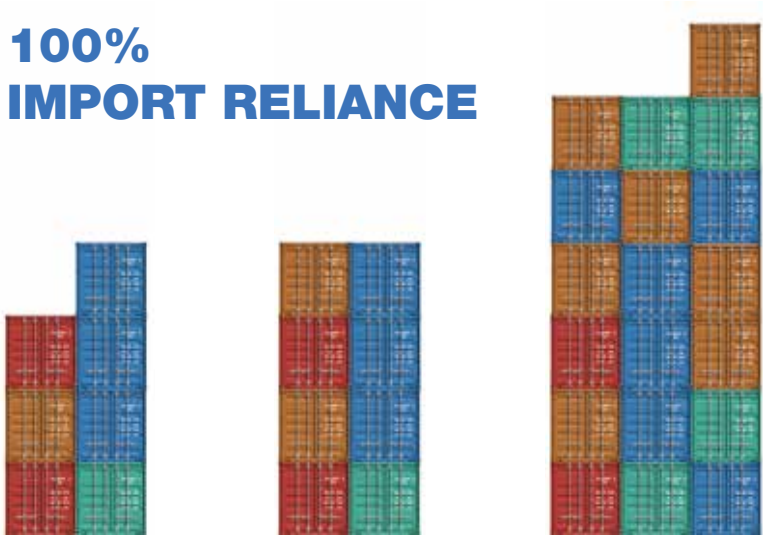
As the world's population grows, as developing countries embrace new technologies and erect new infrastructure, and as products relying on greater combinations of minerals come to market, demand for minerals is growing.

Though U.S. mines play an important role in meeting domestic demand for many minerals, American industries currently rely on foreign suppliers for more than half the minerals they use, a substantial increase from 30 years ago. Our growing dependence on imports leaves us vulnerable to supply scarcity brought on by high demand and disruptions in the supply chain.

Supply disruptions can be caused by a range of factors in producing countries, including natural disasters, labor strikes, political instability and market manipulation. This can contribute to higher costs for U.S. companies, leading to higher costs for consumers, and in some cases, companies moving overseas to obtain access to the minerals essential to their products.

U.S. Import Reliance at the World Trade Organization

Despite substantial domestic resources, the United States relies on China for 79 percent of its rare earth supplies. But in recent years, China has been restricting its exports of rare earth minerals. As a result, U.S. businesses have seen price increases of nearly 300 percent for the rare earths vital to advanced energy technologies, electronics and military applications, leading to a multi-country challenge filed with the WTO to force China to lift export limits.



Over the past 30 years, U.S. companies have increasingly relied on imported raw materials, even for resources we have here at home.

Source: U.S. Geological Survey.

PERCENTAGE OF CEOs IN KEY INDUSTRIES WHOSE BUSINESSES FACE MINERALS AND METALS SCARCITY

Source: "Minerals and Metals Scarcity in Manufacturing: The Ticking Timebomb," PricewaterhouseCoopers, December 2011.

Reliable access to minerals means a more secure America. The U.S. Department of Defense uses nearly three-quarters of a million tons of minerals every year in the technologies that protect our nation.

In the past, the United States has been able to readily access minerals due to abundant global supplies. But with our growing reliance on imports for an ever-widening range of minerals, the United States is now at greater risk of facing supply disruptions.

Without a reliable domestic supply chain, our access to many minerals vital to our security is controlled by foreign governments that have the ability to withhold minerals and complicate international trade relations.

To reestablish our strategic autonomy and maintain the ability to respond on a moment's notice to security needs, we should have a reliable mineral supply chain.

"THE VITALITY OF A POWERFUL NATION DEPENDS UPON ITS ABILITY TO SECURE ACCESS TO THE STRATEGIC RESOURCES NECESSARY TO SUSTAIN ITS ECONOMY AND PRODUCE EFFECTIVE WEAPONS FOR DEFENSE."

"Strategic Minerals," Center for Strategic Leadership, U.S. Army War College, July 2011.

"RELIABLE ACCESS TO CRITICAL MINERALS IS A MATTER OF BOTH ECONOMIC AND GEOSTRATEGIC IMPORTANCE TO THE UNITED STATES. ALTHOUGH CONCERN ABOUT ACCESS TO MINERALS WAXES AND WANES, IT IS RISING NOW DUE TO INCREASING DEMAND, NEW COMPETITORS CAPTURING LARGE MARKET SHARES AND OTHER TRENDS THAT DEFY EASY PREDICTION. THESE SAME TRENDS CAN INTERFERE WITH FOREIGN AND DEFENSE POLICY GOALS AND GIVE MINERAL SUPPLIERS EASY LEVERAGE OVER THE UNITED STATES AND OTHER COUNTRIES RELIANT ON GLOBAL SUPPLY CHAINS."

CHRISTINE PARTHEMORE
FORMER FELLOW
CENTER FOR A NEW AMERICAN SECURITY

Top 10 Standard Materials

Used by Department of Defense

		Regular DoD Demand in STONS/YR
1	ALUMINUM METAL	275,219.8
2	COPPER	105,625.8
3	LEAD	88,464.8
4	FLUORSPAR ACID GRADE	56,544.5
5	ZINC	51,085.5
6	RUBBER (NATURAL)	29,490.3
7	MANGANESE ORE CHEM/METAL GRADE	25,041.8
8	NICKEL	17,311.8
9	CHROMIUM FERRO (FERROCHROMIUM)	9,667.8
10	CHROMITE ORE (ALL GRADES)	9,630.5

Source: "Reconfiguration of the National Defense Stockpile Report to Congress," U.S. Department of Defense, April 2009.

Rhenium
Nickel

+

Lanthanum
Gadolinium
Yttrium

+

Aluminum
Copper

+

Manganese
Molybdenum

=

Nearly 750,000

Tons

of Minerals Annually

SAND **MINERALS** SULFUR GRAPHITE IRON
ZINC **MAKE** MAGNESIUM POTASH NIOBIUM
PEAT **POLICY** GRAVEL LITHIUM

MINING: A STRATEGY GAME

Countries with Minerals Strategies Advance

Despite the importance of minerals to our economic well-being, global competitiveness and national security, the United States lacks a coherent minerals mining policy. A duplicative permitting process puts our nation dead last among top mining countries when ranked on mining permitting delays. An inconsistent, outdated regulatory framework is challenging to navigate. Punitive economic policies can add to an unattractive business environment.

As a result, investors, who often spend tens of millions of dollars before even breaking ground on a mine, take their money to countries with more efficient permitting processes and predictable regulations.

While countries around the world enact forward-looking minerals policies, we in the United States watch mining jobs go overseas. We forfeit tax revenue from mining projects. We make minerals harder to obtain for U.S. manufacturers. We subject ourselves to foreign governments for the minerals vital to our security.

CANADA

PRODUCING COUNTRY

GOAL
Promote sustainable development and use of mineral and metal resources, protect the environment and public health, and ensure an attractive investment climate

BUSINESS POLICY
- Require accountability in environmental performance and mineral stewardship
- Use a life cycle-based approach to mineral management and use
- Promote a recycling industry and incorporate recycling as part of product design

RESEARCH AND DEVELOPMENT POLICY
- Provide comprehensive geosciences information infrastructure
- Promote technological innovation in mining processes
- Develop value-added mineral and metal products

MATERIALS OF INTEREST
Al, Ag, Au, Fe, Ni, Cu, Pb and Mo

CHINA

PRODUCING AND CONSUMING COUNTRY

GOAL
Maintain a stable supply of raw materials for domestic use through industry consolidation, mitigating overproduction and reducing illegal trade

BUSINESS POLICY
- Establish taxes and quotas on rare earth element exports
- Prohibit foreign companies in rare earth element mining
- Consolidate industry
- Create unified pricing mechanisms*
- Establish production quotas

RESEARCH AND DEVELOPMENT POLICY
- Explore new rare earth separation techniques and new rare earth functional materials
- Establish three additional labs and two institutions focused on rare earth element mining and applications

MATERIALS OF INTEREST
Sb, Sn, W, Fe, Hg, Al, Zn, V, Mo and rare earth elements

*Proposed policy

FORFEIT MILLIONS IN TAX REVENUES.

AUSTRALIA

PRODUCING COUNTRY

GOAL
Maintain investment in the mining industry while fairly taxing the depletion of national resources

BUSINESS POLICY
- Establish a low tax on the value of extracted resources
- Create a high tax on mine profits
- Allow tax rebates for mineral exploration
- Ensure fast turnaround for land permit applications

RESEARCH AND DEVELOPMENT POLICY
- Promote sustainable development practices in mining and processing
- Map resources

MATERIALS OF INTEREST
Ta, Nb, V, Li and rare earth elements

EUROPEAN UNION

CONSUMING COUNTRY

GOAL
Limit the impact of potential material supply shortages on the European economy

BUSINESS POLICY
- Build a mineral trade policy for open international markets*
- Gather information*
- Streamline land permitting*
- Increase recycling regulations*

RESEARCH AND DEVELOPMENT POLICY
- Increase material efficiency in applications
- Identify material substitutes
- Improve end-of-life product collection and recycling processes

MATERIALS OF INTEREST
Sb, Be, Co, Ga, Ge, In, Mg, Nb, rare earth elements, Ta, W, fluorspar and graphite

*Proposed policy

JAPAN

CONSUMING COUNTRY

GOAL
Secure a stable supply of raw materials for Japanese industries

BUSINESS POLICY
- Fund international mineral exploration
- Guarantee loans for high-risk mineral projects
- Stockpile materials
- Gather information

RESEARCH AND DEVELOPMENT POLICY
- Explore substitution research funded through Ministry of Economy, Trade and Industry and the Ministry of Education, Culture, Sports, Science and Technology
- Complete exploration, excavation, refining and safety research funded through the Japan Oil Gas and Metals National Corporation

MATERIALS OF INTEREST
Ni, Mn, Co, W, Mo and V

Source: U.S. Department of Energy, Critical Materials Strategy, 2011.

LIME **MINERALS** INDIUM **GARNET** IODINE **SODIUM SULFATE**
TALC MAKE IRON OXIDE PIGMENTS MERCURY **IRON AND STEEL**
GOLD **A GOOD NEIGHBOR** GALLIUM TELLURIUM **BERYLLIUM**

People are at the core of U.S. minerals mining—the employees whose dedication and expertise define the mining workforce and mining's friends and neighbors in communities across the country. Nothing is more important to U.S. mining than the safety of its workers and being a good neighbor and environmental steward.

2.6 million acres is larger than Yellowstone National Park.

WORKER SAFETY

While U.S. mining has lower injury rates than most other industrial sectors, mineral producers continue working hard to improve mining safety and health.

CORESafety

This year, U.S. mining endorsed CORESafety, a workplace health and safety initiative developed using the best health and safety approaches of industries around the world.

0 WORKSITE FATALITIES

CORESafety seeks to eliminate fatalities...

WORKSITE INJURIES

...and reduce the rate of worksite injuries by 50 percent in the next five years.

MINING
Lower injury rate than:

CONSTRUCTION

AGRICULTURE

FORESTRY

SUPPORTING LOCAL COMMUNITIES

Beyond providing a significant source of revenue to state and local governments, mining supports communities through contributions to local charities. In 2012, Freeport-McMoRan Copper & Gold allocated $500,000 to the Grant County, New Mexico, community. These funds were put toward adult literacy, Habitat for Humanity and Big Brothers Big Sisters initiatives, among many others.

RECLAMATION AND THE ENVIRONMENT

Mining companies invest heavily in the research and development of new technologies and processes to minimize environmental impact, part of what makes the United States one of the most environmentally cautious places in the world for mining.

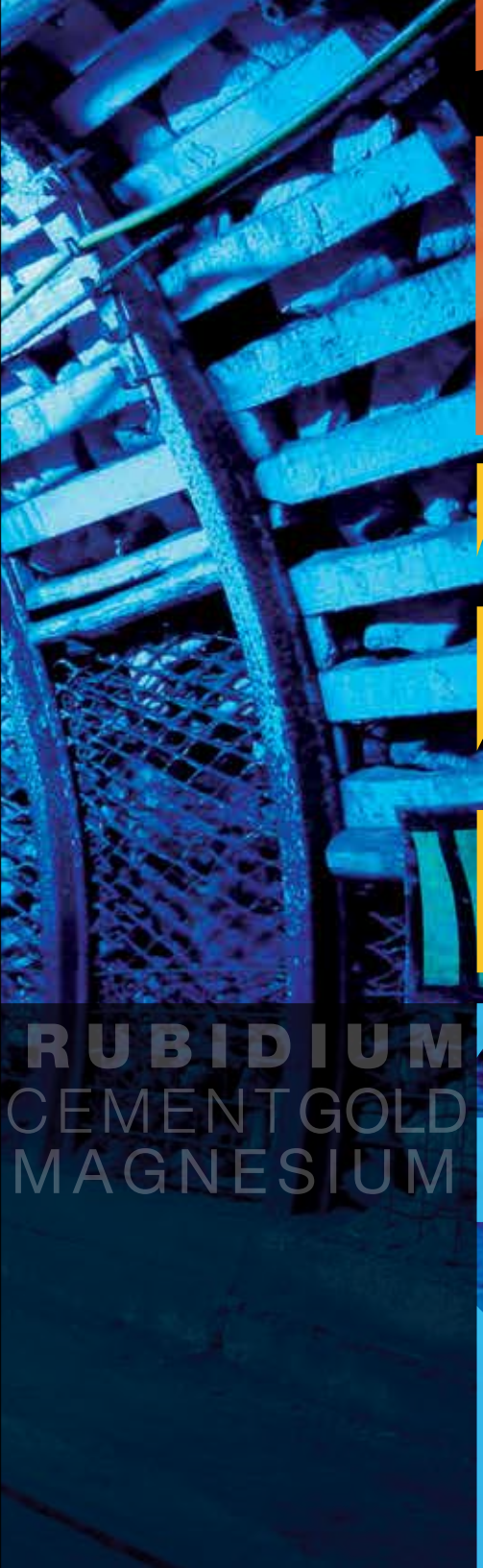
More than three dozen federal environmental laws and regulations—in addition to laws at the state and local level—are in place, governing all aspects of mining. Even before mining can begin on a project, a plan to restore the mine site to another beneficial use must be developed and approved by regulatory agencies, and funding must be set aside to complete the restoration work.

In addition, today's mining industry frequently supports state and federal regulatory agencies in their efforts to address risks associated with legacy abandoned mine sites. Mining frequently contributes financial support, equipment, operator time, transportation and fuel to assist with remediation of these sites.

PEAT **MINERALS** **BORON** **ABRASIVES** NITROGEN **STRONTIUM**
ZINC **MAKE** FLUORSPAR IRON ORE DIAMOND **TANTALUM** **TIN**
SALT **SOLUTIONS** TUNGSTEN SCANDIUM **INDIUM** ANTIMONY

To help stimulate economic recovery, secure our future and remain competitive in a global economy, the United States needs a strategy that encourages investment in the development of our domestic minerals.

What does this strategy look like?



1

EFFICIENT

A MORE EFFICIENT PERMITTING PROCESS

Mining companies independently pursue and invest in new technologies and processes that will minimize mining's environmental footprint in addition to complying with federal and state laws regarding land use and reclamation and the protection of air and water resources. All these measures—including a vigorous permitting process—are necessary. What is ultimately needed, however, is an efficient permitting process that protects the environment while stimulating job creation and economic opportunity.

2

CONSISTENT

A CONSISTENT AND SOUND REGULATORY FRAMEWORK

As we look to the future, we must ensure that regulations evolve to meet new challenges and realities. At the same time, we must make certain regulations are consistently guided by sound science rather than political agendas.
To keep our doors open to investment, we must ensure the system balances and manages environmental and social concerns with our nation's economic interests in a consistent and predictable manner.

3

NON-PUNITIVE

NON-PUNITIVE ECONOMIC POLICIES

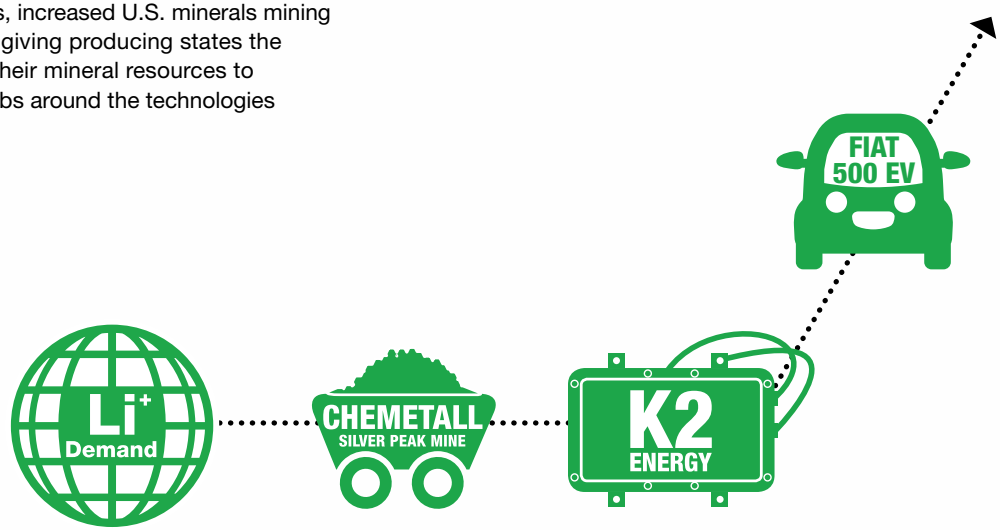
The economic policies of the United States must remain competitive in order to attract investment. At 35 percent, the United States' corporate tax rate is among the highest in the world. In addition, mining is subject to various state taxes and levies, pays high wages, and complies with strict environmental and safety requirements. These and other factors contribute to U.S. minerals mining's cost burden. Nonetheless, U.S. minerals mining is committed to paying its fair share.

STONE **MINERALS** STRONTIUM TUNGSTEN VANADIUM **HAFNIUM**
CLAYS **MAKE** TANTALUM **BISMUTH PLATINUM** MOLYBDENUM
GOLD THE FUTURE IRON MAGNESIUM **GERMANIUM POTASH**

Through the establishment of a sound domestic minerals policy, U.S. mining can lead the way to a more secure and prosperous future.

In addition to creating mining jobs and supporting current manufacturing operations, increased U.S. minerals mining will create new markets, giving producing states the opportunity to leverage their mineral resources to develop industries and jobs around the technologies that utilize their minerals.

3000% GROWTH
for K2 Energy in three years.



NEVADA SUCCESS STORY

Increasing global demand for lithium-based technologies has presented Nevada with an opportunity to leverage its lithium resources, including those at Chemetall Silver Peak mine, to build a market and create jobs. Nevada-based company K2 Energy utilizes Nevada lithium in battery backup systems, electric vehicle motors and handheld devices, and has seen exponential growth in just three years.

+$32 BILLION
U.S. REVENUE

Producing to our resource potential for **[Copper + Molybdenum + Iron Ore]** would have resulted in an additional $32 billion in U.S. revenue last year.

Auto manufacturers are using minerals to reduce emissions and increase efficiency in next-generation vehicles.

Exterior

Tires: Zinc ore, barite

Alloy wheels: Magnesium

Light bulbs: Tungsten

Glass/mirrors: Gallium, fluorspar (tinted windows), quartz sand

Body frame: Aluminum, iron ore, iron

Fuel tank: Manganese, zinc

Front and rear bumpers: Quartz, chromium

Brakes and brake pads: Iron

Paint: Micas, talc, silica, titanium dioxide

Trim: Chromium

Interior

Airbags: Molybdenum, nickel

Radio/entertainment system: Beryllium

Electronics systems: Gold

Electrical wiring: Copper

Speedometer: Nickel

Seat belt: Lead

Oxygen sensor: Zirconium

Under the Hood

Battery: Lead, manganese, cobalt (in hybrids)

Catalytic converter: Platinum

Transmission: Aluminum

Air conditioner condenser: Aluminum

Spark plugs: Platinum

Engine: Iron ore, indium, strontium

Shocks: Mica

PEAT **MINERALS** CESIUM **COPPER**
LIME **MAKE** SCANDIUM **TANTALUM**
IRON **AMERICA** **GRAVEL** NIOBIUM

Minerals generate value in all 50 states. Here's a look at some of the top minerals producing states and the value generated by mineral production.

1. NEVADA $10.40 Billion
Gold, copper, silver, lime, sand and gravel (construction).

2. ARIZONA $8.25 Billion
Copper, molybdenum concentrates, sand and gravel (construction), silver, cement (portland).

3. UTAH $4.57 Billion
Copper, molybdenum concentrates, gold, potash, magnesium metal.

4. MINNESOTA $5.12 Billion
Iron ore (usable shipped), sand and gravel (construction), sand and gravel (industrial), stone (crushed), lime.

5. ALASKA $3.79 Billion
Zinc, gold, silver, lead, sand and gravel (construction).

Source: "Mineral Commodity Summaries 2012," U.S. Geological Survey, January 2012.

SCAN QR CODE
for information on all 50 states.

6. **COLORADO** $1.94 Billion
Molybdenum concentrates, gold, sand and gravel (construction), cement (portland), stone (crushed).

7. **IDAHO** $1.29 Billion
Molybdenum concentrates, phosphate rock, silver, sand and gravel (construction), lead.

8. **MONTANA** $1.36 Billion
Copper, palladium metal, molybdenum concentrates, platinum metal, gold.

9. **MISSOURI** $2.22 Billion
Cement (portland), stone (crushed), lead, lime, sand and gravel (construction).

10. **FLORIDA** $3.27 Billion
Phosphate rock, stone (crushed), cement (portland), sand and gravel (construction), zirconium concentrates.

11. **MICHIGAN** $2.47 Billion
Iron ore (usable shipped), cement (portland), sand and gravel (construction), salt, stone (crushed).

SALT **MINERALS** ANTIMONY **BARITE** CEMENT **WOLLASTONITE**
ZINC MAKE FELDSPAR MAGNESIUM **VANADIUM** QUARTZ CRYSTAL
LIME **AMERICA** BROMINE **MICA** NICKEL **TALC** GEMSTONES

About the National Mining Association
The National Mining Association (NMA) is the voice of U.S. mining in Washington, D.C. NMA is the only national trade organization that represents the interests of mining before Congress, the administration, federal agencies, the judiciary and the media.

About Minerals Make Life
Minerals Make Life is a National Mining Association initiative created to share information about domestic minerals mining and its importance to the economy, innovation for the future and national security. This initiative will educate America's policymakers, influencers and the public and enable them to make informed decisions about U.S. mining.

Minerals Make Life aims to engage consumers, decision-makers, U.S. mining employees, retirees, suppliers and other key stakeholders in communities nationwide to speak on the need to create policy prescriptions critical to ensuring we have the minerals we need for economic prosperity and national security.

www.mineralsmakelife.org

ALUMINUM **BISMUTH** DIATOMITE **MANGANESE** PUMICE LITHIUM
STONE STRONTIUM **TIN** RHENIUM **LEAD** GOLD **SILICON** ZEOLITES
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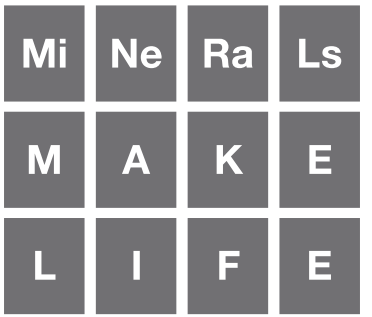

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