

Statement of Testimony

American Metals and Mineral Security:

An examination of the domestic critical minerals supply and demand chain

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SNL Metals & Mining is a subsidiary of SNL Financial, a U.S.-based data, news and consulting business focused on the financial, real estate, media, energy and mining sectors.

In early 2014, the National Mining Association commissioned SNL Metals and Mining to carry out a study tracking the minerals mined and refined in the United States, through to their end use in finished products. The aim was to demonstrate the extent to which minerals produced in the U.S. feed domestic manufacturing industries; this study has revealed numerous examples of domestic mine production supporting domestic manufacturing. The report also highlights several current trends that provide policy makers with a real opportunity to ensure that miners, manufacturers, consumers and the country as a whole derive more benefit from an optimized supply chain.

Before laying out the key findings of our study, it is worth emphasizing that the consumption of metals and minerals is integral to the standard of living that Americans enjoy. In 2013, every American born will utilize three million pounds of minerals, metals and fuels over their lifetime. The 27,416 pounds of iron ore, 978 pounds of copper, 521 pounds of zinc and 1.8 troy ounces of gold, among other minerals and metals, will allow the average American to drive safer cars on better roads and bridges, live in sustainable buildings, use conflict mineral-free laptops and smart phones and generally enjoy a high quality of life.

Our first key finding relates to a gross structural mismatch between mineral supply and demand; although the U.S. is a major mining country, it enjoys a much higher global ranking as a manufacturer, than as a miner.

The United States is the seventh largest global producer of metallic and industrial minerals, producing \$74.3 billion worth of mineral raw materials in 2013. The U.S. is a top 10 producer for a number of metals (including copper, gold, silver, zinc and iron ore), but it is import dependent on numerous key materials, most notably lithium, platinum, zinc, cobalt, and rare earth elements, that are essential for manufacturing. Metals and minerals are required for both traditional manufacturing outputs, such as automobiles and consumer appliances, new frontier technologies and for both conventional and alternative energy generation. To give a couple of specific examples, more than 8,000 pounds of copper are needed to manufacture one wind turbine, 9 pounds of nickel are used in every hybrid vehicle and 9 pounds of lithium are required to produce a single electric vehicle battery.

In contrast, the U.S. is the world's largest manufacturing nation, followed closely by China and Germany. Value added to gross domestic product (GDP) by major U.S. industries that consume processed mineral materials was \$2.4 trillion, or 14% of total GDP in 2013. Given the United States' world class mineral resources and reserves, the U.S. could supply even more of the minerals needed to satisfy domestic manufacturing demand.

Our second set of key findings relate to developments in manufacturing. Manufacturing activity is returning to U.S. soil, a phenomenon referred to as re-shoring. This is being driven by manufacturers' desire to reduce the risks in their supply chains, which are highly complex, fragmented and multilayered, often extending to more than seven tiers of supplier for any given product.

Furthermore, U.S. consumers—and in turn, manufacturers and their shareholders—are increasingly concerned with corporate accountability. Consumers want to see evidence of sustainable production processes, use of recycled materials, sound environmental practices and that raw materials are not sourced from conflict zones. The "Made in U.S.A" label is inherently reassuring to consumers in these regards.

Our third set of key findings relates to the competitive advantages of the U.S. mining industry. Relative to their global peers, U.S. miners are highly efficient, often exemplifying best practices with regard to productivity, sustainability and safety. The U.S. remains highly prospective, from a geological point of view, with abundant, diverse mineral resources of high quality. While the U.S. mining sector is ideally positioned to support manufacturers' need for greater sustainability and shorter supply chains in the production process, an outdated, inefficient permitting system presents a barrier to American companies' access to the minerals they need and thus to the economic competitiveness of the U.S. mining industry.

In conclusion, we would like to point out that despite the challenges numerous manufacturers are already sourcing their raw material needs from the U.S. mining sector.

- Stillwater Mining, the only platinum-group metals (PGM) miner in the U.S., supplies catalytic converters for the U.S. automobile sector through refiner and fabricator Johnson Matthey.
- Cliffs Natural Resources is an independent, owner-operator mining company supplying iron ore to the U.S. and global steelmaking industries.
- Materion has developed from humble beginnings as a miner of beryllium in 1931 to become a supplier of high technology products to the aerospace and defense sector.

Our final observation is that given the opportunities that exist to maximize the economic benefit of an optimized minerals supply chain, it is a shame that mining activity in the U.S. is handicapped by a permitting system which severely hampers the development of a sustainable mining industry in the U.S.