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Michigan Resources - Nickel

Bobby Canell, Economist/Fiscal Analyst

Nickel is a metallic element with the atomic number 28. It is the fifth most abundant element, and it is found in Earth's crust.¹ Nickel is used in a variety of products because of its corrosion resistance and ability to hold its form in high heat. Nickel is mainly used in the production of stainless steel, which accounts for nearly two-thirds of global nickel consumption.² Demand for nickel has been increasing due to the increased production of electric vehicle (EV) batteries and turbine blades for windmills. The only nickel mine in production in the United States is the Eagle Mine in Marquette County, Michigan. The mine mainly produces copper and nickel.

Nickel Products

Nickel is a key component in stainless steel production due to its ductility, or its ability to deform without breaking, and its resistance to corrosion. Stainless steel is made into various other products from kitchen appliances and cookware to machinery and aerospace components.

In addition to stainless steel, nickel is in high demand due to the increased production of renewable energy products. Nickel is used in the batteries for EVs either in nickel-manganese-cobalt batteries or nickel-cobalt-aluminum batteries. Nickel also is used in the turbines of windmills due to its resistance to corrosion furthering the demand for nickel for renewable energy products.

Additionally, nickel is used in coins, with the US five-cent nickel originally created out of a 25% nickel, 75% copper composition. The composition was changed during World War II as nickel was a critical material needed for military use. After the war, the composition returned to the original 25%/75% split.³ Other coins in the US are made from nickel as are coins from other nations, including the British 20-pence and 50-pence coins, the one- and two-Euro coins, and the South Korean 100 and 500 won.

United States Production

While nickel is growing in its importance because of industrial demands, the production in the United States is limited to one mine. As noted above, Eagle Mine in Marquette County, Michigan, produces copper and nickel, along with trace amounts of other materials such as cobalt, gold, silver, platinum, and palladium. It is expected to end its mining run in 2029, with an expectation of 440 million tons of total nickel mined since mining began (in 2014) through 2029. Eagle Mine currently employs 470 workers and contractors with nearly 1,000 indirect jobs and has had an estimated local impact of \$4.3 billion since 2011.⁴ Nickel production for 2024 was 8,000 tons, compared with total worldwide nickel mined at 3.7 million tons.⁵ In 2023, the Eagle Mine nickel production was 16,400 tons. As the mine approaches the end of its useful life, without discoveries of additional veins, its production will continue to be anemic until shutdown in 2029. The US imports approximately 100,000 tons of nickel each year and, without new sources, by 2029 the US will import all nickel used in the country.

¹ "Nickel", www.energy.virginia.gov. Retrieved on 10-21-2025.

² "Stainless Steel: The Role of Nickel", www.nickelinstitute.org. Retrieved on 10-21-2025.

³ "Jefferson Nickel", www.monticello.org. Retrieved on 10-21-2025.

⁴ McElrath, Roger, *et al.*, "Eagle Mine Economic Impact Report", 2022.

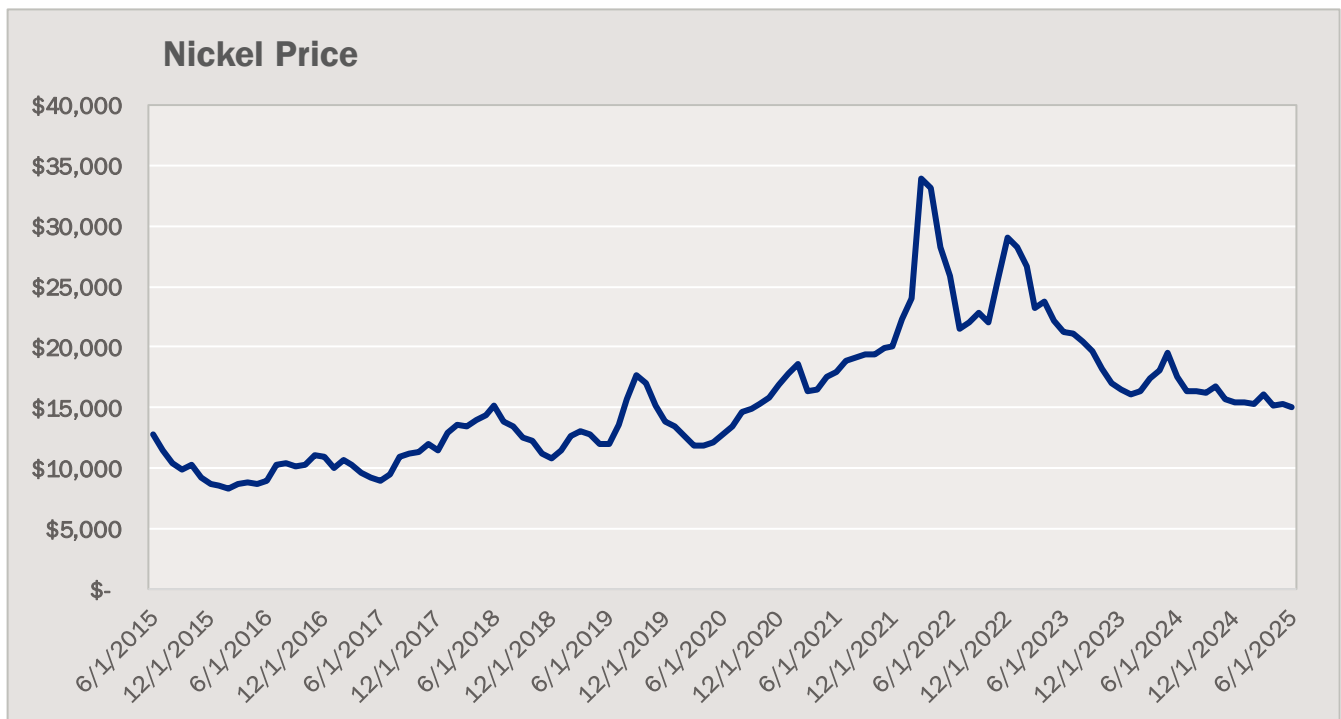
⁵ US Geological Survey, "Mineral Commodity Surveys", January 2025.

World Production

As demand for nickel increases, worldwide production is lacking. Worldwide production fell in 2024 by 50,000 tons. Indonesia is the largest producer of nickel; in 2024, it produced 2.2 million tons, roughly 60% of the total world production; US production in 2024 was 0.2% of total world production. As of 2024, other countries that produce significant amounts of nickel are the Philippines (330,000 tons), Russia (210,000 tons), Canada (190,000 tons), China (120,000 tons), Australia (110,000 tons), New Caledonia (a territory of France) (110,000 tons), and Brazil (77,000 tons).

Price History

The price of nickel has fluctuated greatly over the past several decades, with the price having more than doubled since 2000. Current prices are near \$15,000 per metric ton. There was a large spike at the beginning of the Great Recession and during the COVID-19 pandemic.⁶ Other than the two spikes, the price of nickel has been rising steadily over the years. The prices over the last ten years are shown in the graph below.



The prices shown here are benchmark prices representative of the global market price for one metric ton. This is monthly average data in nominal US dollars. A metric ton is equal to 2,240 pounds or roughly 1.1 ton. Source: St. Louis Fed.

More recently, prices fell after the COVID-19 pandemic; however, the prices remain relatively high as increased demand for EV batteries has pushed demand for nickel higher. Over 24 years, the demand for nickel has increased three-fold. In 2000, the total worldwide consumption of nickel was approximately 1.2 tons; in 2024, the total worldwide consumption of nickel was 3.7 tons.

Summary

Nickel continues to grow in importance as a strategic resource as consumption does not seem to be slowing down and will likely increase over time as EVs become more prevalent. As the Eagle Mine looks at closure in 2029, the United States either will have to find new nickel to mine or import all nickel for production, which may have economic and security implications.

⁶ "Global Price of Nickel", www.fred.stlouisfed.org. Retrieved on 10-21-2025.