

WRITTEN TESTIMONY OF
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Before the
U.S. House Committee on Natural Resources
Subcommittee on Energy and Mineral Resources

Hearing: “Powering the 21st Century with American Copper”

April 29, 2026, 10:00AM EST

About the Copper Development Association

The Copper Development Association, Inc. (CDA) is the not-for-profit trade association representing the U.S. copper and copper alloy industry. CDA’s mission is to bring the value of copper to society, serving as the market development, engineering, and knowledge services arm of the industry. CDA members comprise over 70% of the domestic copper mining capacity and more than 90% of the domestic mid-stream fabrication capacity.

American Copper’s Sputnik Moment

A strong America cannot exist without a strong copper industry. Copper is the indispensable metal of the modern era. It is irreplaceable in electric power generation, transmission and distribution across all energy sources from renewables to natural gas to nuclear to battery storage. It is the second most utilized material by the Department of War, and it is the backbone of our telecommunications systems, our water infrastructure, commercial and residential buildings, transportation including electric vehicles and charging networks, and the artificial intelligence revolution transforming the global economy. **Every sector at the forefront of American strategic ambition runs on copper.**

The United States today leads the world in data center construction. American technology companies are racing to build the computing infrastructure required for AI leadership, and this Nation holds a commanding advantage. But that advantage will erode, and rapidly, if the domestic copper supply chain cannot keep pace. Data centers are among the most copper-intensive facilities ever constructed, requiring vast quantities of copper across many product forms including wires and cables, busbars, tubes and fittings, cold plates, brass valves, grounding rods and beyond. Every gigawatt of new AI computing capacity requires thousands of tons of copper. Maintaining American leadership in artificial intelligence is, in a very direct sense, a copper challenge.

Copper’s role in national defense is equally irreplaceable. Cartridge brass for ammunition, phosphor bronze for naval vessels, nickel-aluminum bronze in missile guidance and anti-missile defense systems, copper-nickel alloys in nuclear submarine tubing, beryllium copper in aerospace components. These are precision-engineered, mission-critical uses that demand domestic supply chains operating at scale.

Copper is also the foundation of America’s energy future. The already constrained U.S. electrical grid must be dramatically expanded and modernized to support electrification, renewable energy integration with wind and solar, expanded manufacturing capacity, electric vehicles, and again the growing energy demands of data centers. A weak electrical grid will not support American dominance in strategic sectors. Only a robust, domestically grounded copper industry can deliver the scale of investment and throughput that grid modernization requires.

As copper demand continues to surge across the globe, America must adopt an “all of the above” copper sourcing strategy or risk falling behind in strategic sectors. This must include increased domestic mining, smelting and refining, increased recycling, and continued trade with reliable partners. None of these solutions on their own will be sufficient. Meeting copper demand from domestic and trusted allied sources is not merely an economic aspiration, it is a national security imperative. The stakes could not be higher.

On behalf of CDA, our members, and the domestic copper industry, we are deeply grateful for the concerted efforts from the Administration and bipartisan members of Congress, in particular the bipartisan Copper Caucus, to support our industry and to give copper the credit it deserves, which includes the addition of copper to the USGS Critical Minerals list in November 2025. That designation was long overdue and marks a turning point. For the first time, the full weight of federal policy can be brought to bear on the challenges facing this critical industry. Today's hearing is an important next step in translating that recognition into durable, transformative action.

Challenges Across Key Copper Supply Chain Segments & Policy Priorities

The domestic copper industry spans a complex, largely non-integrated supply chain with distinct challenges at each stage. Upstream miners produce copper ores, concentrates, and refined cathodes. Primary and secondary smelters and refiners process copper concentrates and scrap, including e-waste, into essential, high-purity raw material feedstocks. Midstream fabricators transform refined copper, and pre- and post-consumer scrap into semi-finished products (e.g., rods, sheet, strip, tubes, etc.) that manufacturers of derivative articles use to build the products America needs. Each segment faces formidable headwinds. Each requires targeted policy responses. And each segment must be able to compete and thrive for the whole chain to succeed.

A. Copper Mining: Unlocking America's Vast Copper Endowment

The United States sits atop a massive geological copper endowment estimated at 275 million metric tons, and the U.S. copper mining industry competes in a global market for mine development and processing. Despite having abundant reserves, domestic production has fallen dramatically over the past three decades. Challenges domestically include committing large capital investments, long lead times, regulatory stability, lack of new discoveries, and declining ore grades that increase costs compared to international operations.

A specific constraint on domestic mine development is that permitting timelines for new U.S. mines routinely stretch over a decade, exceeding those in competing nations. S&P Global reported in 2025 that on average, the U.S. mine permitting timeline is 19.1 years from discovery to production. With many U.S. copper deposits located on or near government land, the current multi-agency approval process creates investment uncertainty that discourages the large upfront capital commitments that mine development requires.

Moreover, new supply development requires long lead times by nature, and the investment cycle in mining is fundamentally different from industries like oil and gas. Even under the most favorable regulatory environment, significant new domestic mine production can take years to bring online.

Policy priorities to support increased responsible and sustainable domestic copper mining include:

- **Permitting reform and targeted regulatory modernization** to accelerate project timelines, reduce duplicative review processes, and provide greater certainty for the capital investment decisions that new mine development requires. Copper's status as a USGS Critical Mineral should be leveraged to expedite federal reviews for priority projects.
- **Federal grant programs** to promote technology investment, process modernization, and workforce development to assist U.S. producers in overcoming the competitive disadvantage of lower-grade domestic orebodies relative to international mines.

It is also important to note the copper mining industry's firm commitment to responsible production as evidenced through domestic producers' active participation in The Copper Mark, a comprehensive assurance framework that promotes responsible production practices in the copper, molybdenum, nickel, and zinc industries. The Copper Mark enables mining sites and smelters to demonstrate environmental, social, and governance performance, aligned with UN Sustainable Development Goals, through independent third-party assessment.

B. Copper Smelting & Refining: A Critical Chokepoint Requiring Sustained Support

The erosion of U.S. copper smelting and refining capacity represents one of the most acute vulnerabilities in the domestic copper supply chain. In 1976, the United States operated 16 primary copper smelters. Today, only two are operational, with a third currently mothballed. In stark contrast, China currently controls approximately 40% of global copper smelting capacity, operating at least 45 copper smelters. Through massive state subsidies, China has effectively driven the global treatment and refining charge, the fee smelters charge to

process copper concentrates, toward zero and even into negative territory, presenting severe economic headwinds for the existing U.S. smelters and deterring new market entrants.

Policy priorities to support increased domestic copper smelting and refining include:

- **Pass H.R. 8277 to make copper eligible for the 45X Advanced Manufacturing Production Tax Credit for Critical Mineral Production.** Copper's designation as a USGS Critical Mineral does not automatically confer eligibility as the existing statute hardwires the 45X benefit to the prior critical minerals list rather than dynamically updating with the current list. Congress must fix this now. The 45X credit is the primary tool available to make the economics of new and expanded domestic processing (both primary and secondary) capacity viable. The legislation also makes clear that ore extraction costs are to be included in the 45X credit.
- **Sustained financial support, permitting reform, and regulatory certainty for existing primary and secondary smelting and refining operations.** Federal investment in the form of grants, loan guarantees, and offtake support is necessary to change the calculus.

C. Mid-Stream Semi-Fabricators: Rebuilding America's Manufacturing Backbone

The mid-stream copper fabrication sector is a critical processing route between copper raw materials and finished goods. It is also a segment that has suffered severe and sustained damage from decades of unfair trade. Dumping and state-sponsored overproduction, principally from China, decimated the U.S. copper and copper alloy fabrication industry over the past 30 years, eroding productive capacity and forcing the closure of facilities that will take years and billions of dollars to replace.

In particular, domestic fabricators remain concerned about the availability of U.S.-origin, high-quality copper scrap, which is an essential raw material feedstock for the midstream in addition to refined copper cathodes. The U.S. possesses the world's second largest "urban mine" of copper in use at approximately 85 million metric tons in existing buildings, infrastructure, and products, most of it in productive use today. Due to this, not enough copper scrap will become available in the near term as much of the copper in the use phase will simply not have reached the end of its useful life in time for the coming surge in demand. Scrap limitations are further compounded by the fact that more than half of all U.S.-origin copper scrap generated each year is currently exported, with the majority destined for China where it is processed and returned to the U.S. market as semi-finished or finished goods often below-market value, thereby undercutting American manufacturers and American workers. The capital needed to invest in additional domestic fabrication and secondary smelting capacity is challenging to justify against this backdrop.

The majority of CDA's fabricator members therefore support:

- **Safeguarding domestic copper feedstock** by advancing the Section 232 domestic purchase requirements for U.S.-origin high-quality copper scrap via precision-targeted export controls or other appropriate mechanisms. The relevant Schedule B codes are: 7404.00.0010, 7404.00.0015, 7404.00.0095, 7404.00.0025, and 7404.00.0030. This remedy would also support several new U.S. secondary copper smelters and protect the significant investments made in recent years to process end-of-life scrap into high-purity copper feedstocks for domestic fabricators.
- **Advancing protections for downstream manufacturers of copper derivative articles.** Appropriate protections and policies to help reshore the domestic customer base for U.S. fabricators that was hollowed out by hyper-globalization and China's nonmarket practices are essential to generate the healthy commercial volumes required to justify continued investment in the midstream.

Fortunately, the policy momentum created by the Section 232 copper investigation is already starting to change the tide. Since the launch of the investigation, U.S. fabricators have announced or advanced over \$3.8 billion in planned investments to expand domestic copper fabrication capacity and to create new American jobs. Hundreds of millions of additional dollars in investment, and significant job growth, are ready to follow once the remaining policies needed to support long-term commitments are implemented.

Cross-Cutting Priority: Workforce Development

No supply chain reindustrialization can succeed without the workers to staff it. The copper industry faces a severe and worsening workforce crisis. More than half the current U.S. mining workforce is projected to retire by 2030. The 14 accredited mining engineering programs in the U.S. produce fewer than 200 graduates per

year combined. And fierce competition for skilled industrial and manufacturing talent has depleted the workforce pipeline needed to maintain, let alone expand, capacity across all segments of the copper value chain.

CDA and its members call on Congress and the Administration to:

- **Establish federal grant programs to support education and workforce development across domestic copper mining, refining, fabrication, and recycling.** This includes funding for mining engineering programs, apprenticeships at domestic smelters and fabricators, and community workforce development initiatives in regions where copper operations anchor local economies.

The Moment to Act Is Now

The story of American Copper is the story of American industry itself, built by ingenuity and hard work, tested by decades of unfair competition, and now poised for a historic resurgence if the right policies are put in place. The investments our members are announcing today, the jobs that are ready to be created, the facilities waiting to be built, none of this becomes a reality without the policy certainty that only Congress and the Administration can provide.

The good news is that we are closer than we have ever been. Copper is now a designated USGS Critical Mineral. A Section 232 national security investigation has documented the threats to our supply chain and called for action. Billions in private capital are queued up and ready to deploy. Industry is not waiting, they are already acting in anticipation of the policy framework that must follow.

But the window of opportunity is not unlimited. China is not standing still. Its state-directed investment in copper processing, smelting, and semi-fabrication capacity continues to accelerate. The European Union is moving to retain copper scrap within its borders. Our competitors are executing long-term industrial strategies. America must do the same.

A strong America cannot exist without a strong copper industry. CDA and its members stand ready to power the 21st century with responsibly produced American Copper.

Respectfully submitted,



Adam A. Estelle

President & Chief Executive Officer

Copper Development Association, Inc.

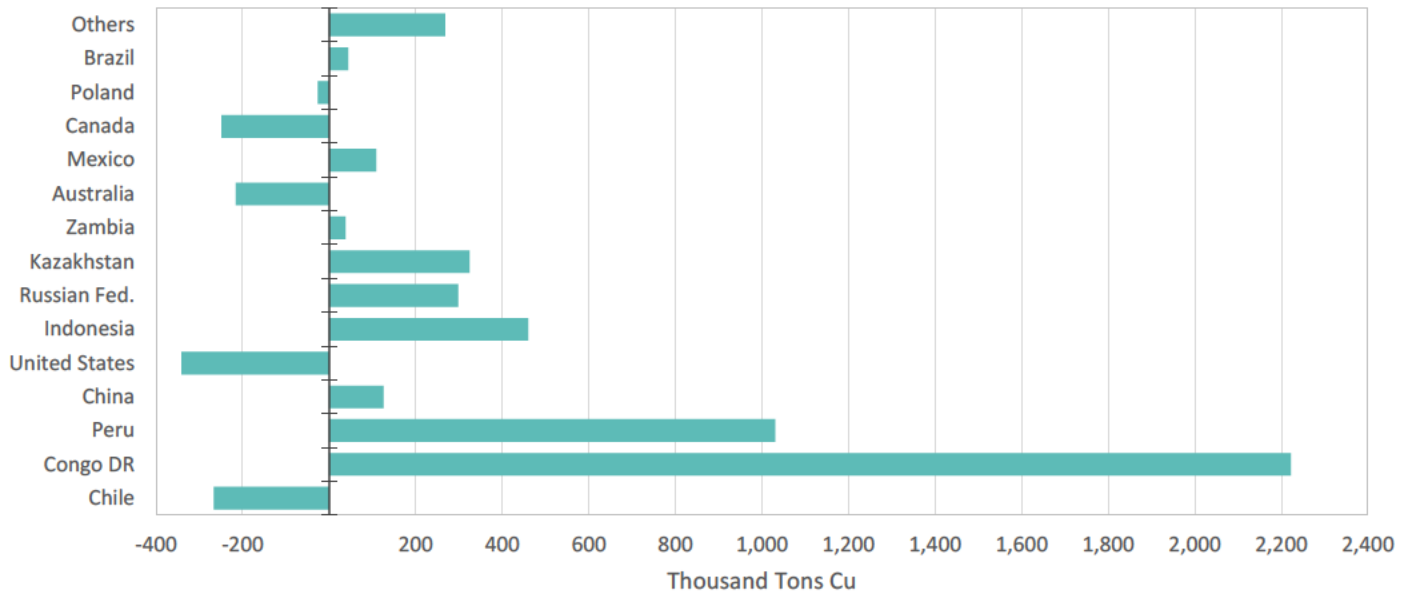
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Appendix

Visualizing Vulnerabilities to American Copper in Key Supply Chain Segments

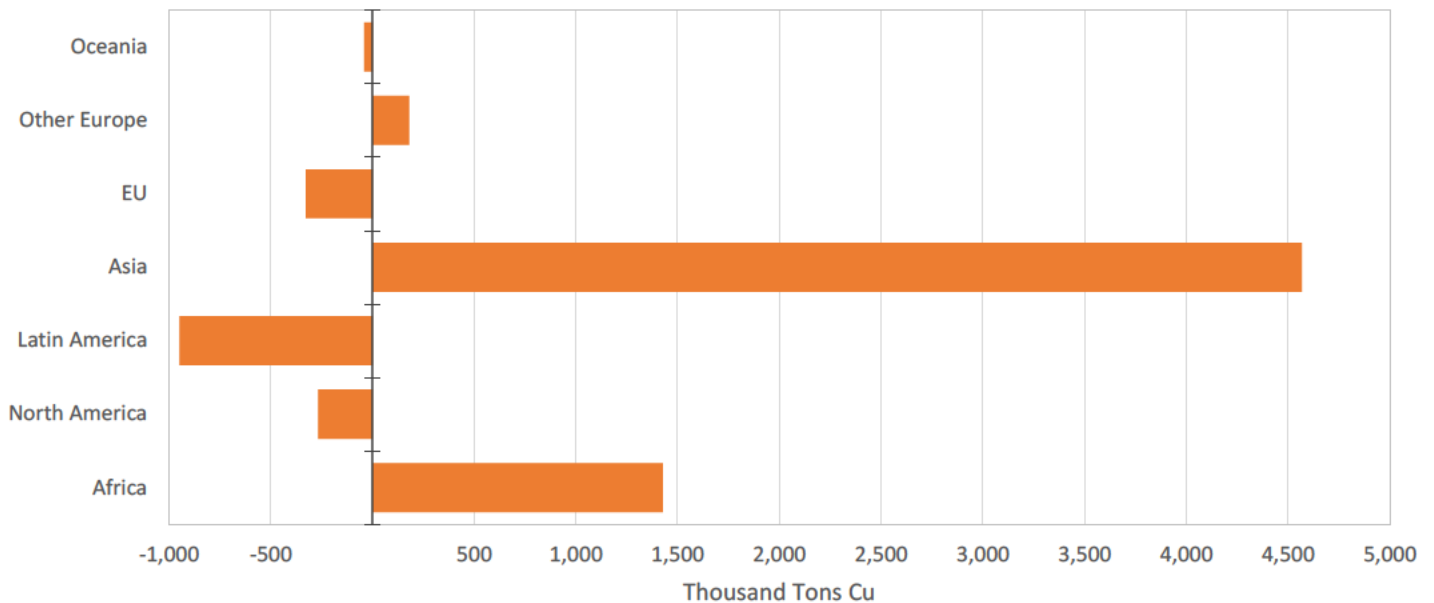
Copper Mine Production Tonnage Change: 2015 to 2024

(International Copper Study Group, 2025).



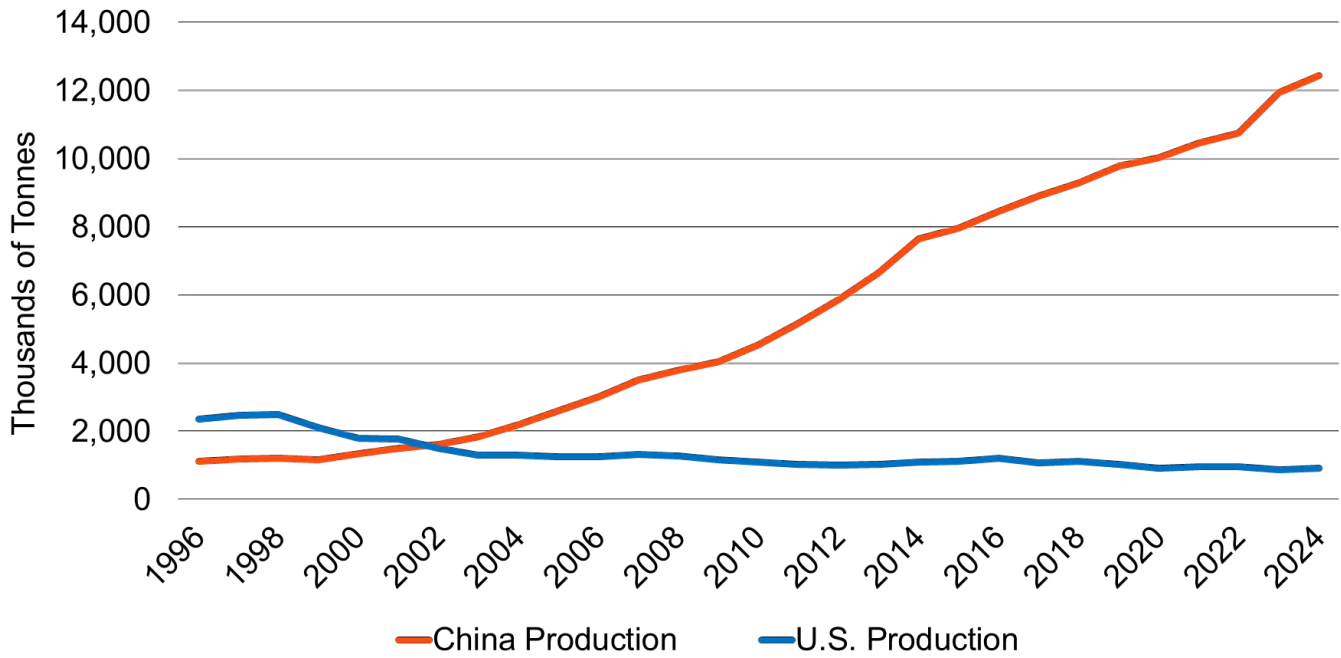
Refined Copper Production Tonnage Change: 2015 to 2024

(International Copper Study Group, 2025).



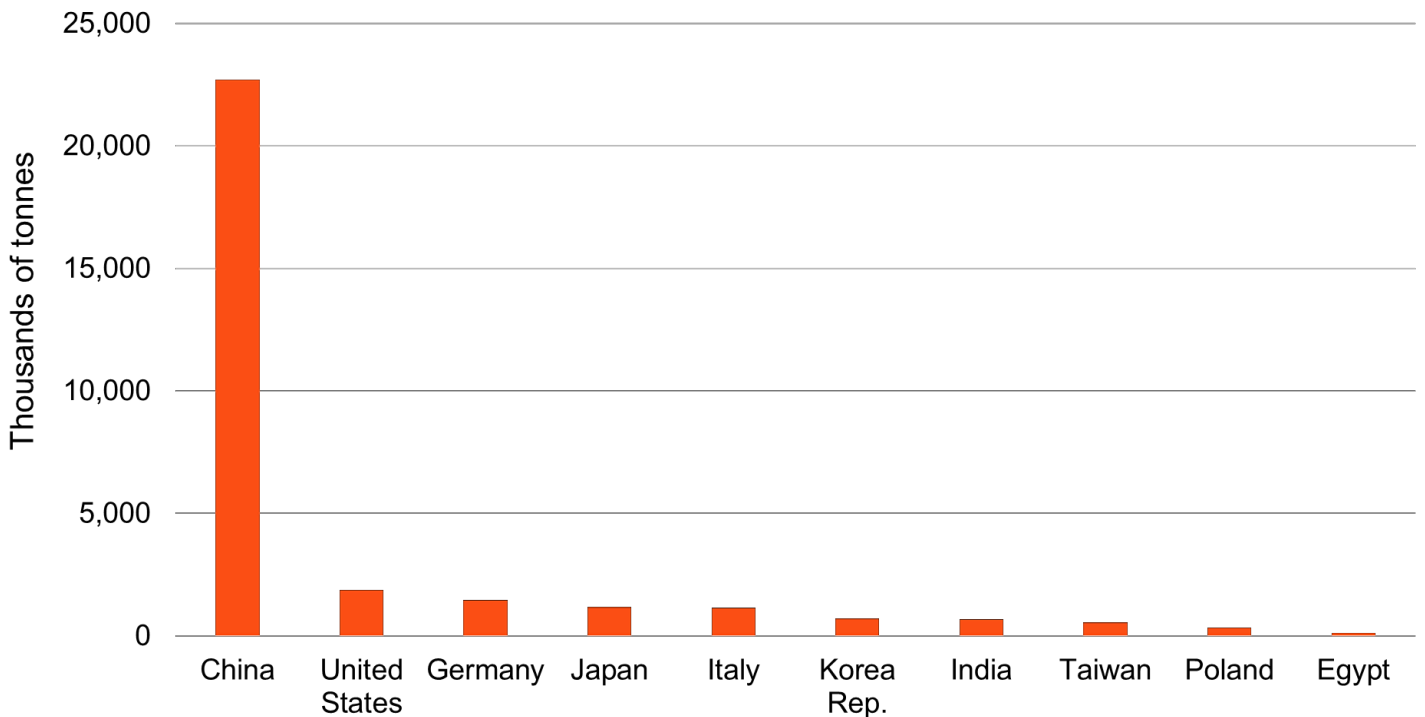
Production of Refined Copper: China vs. U.S. (1996-2024)

(International Copper Study Group, 2025)



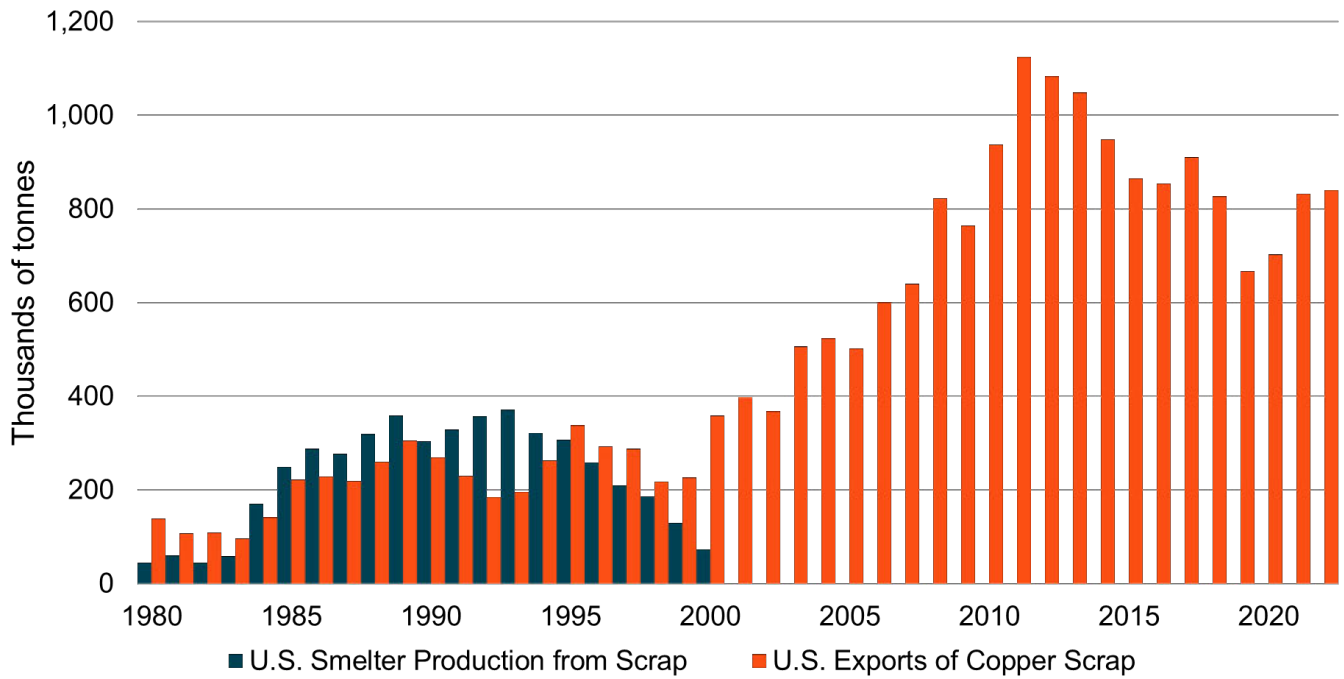
Production of Midstream Copper Semis, Top 10 Countries in 2024

(International Copper Study Group, 2025)



U.S. Smelter Production from Scrap vs. Scrap Exports (1980-2022)

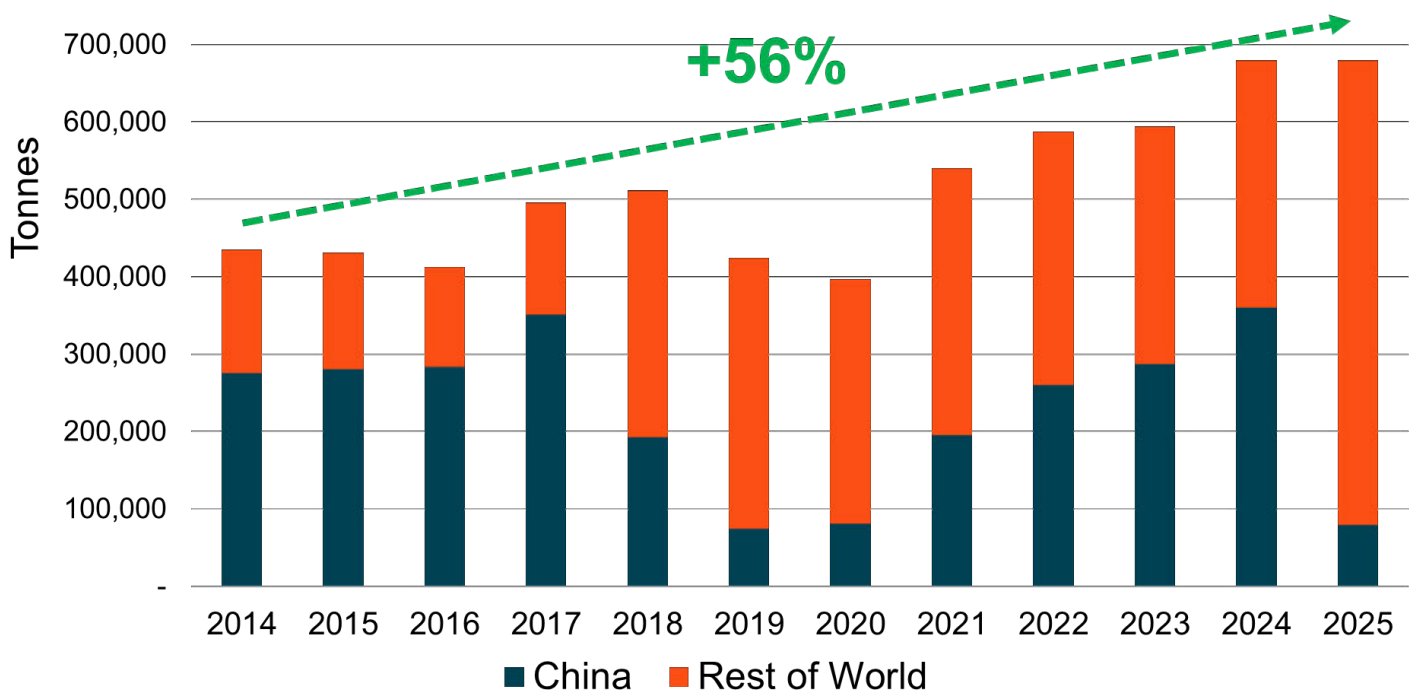
(Copper Development Association, 2025)



U.S. Exports of High-Quality Copper Scrap (2014-2025)

(USITC, U.S. Census Bureau, 2026)

(Schedule B Codes: 404.00.0010, 7404.00.0015, 7404.00.0095, 7404.00.0025, and 7404.00.0030)



Data Sources

Copper Development Association, Inc. (2025). Copper Supply & Consumption, 2003-2024.

International Copper Study Group. (2025). Statistical Yearbook: Copper.

U.S. Geological Survey. (1996-2024). Copper Statistical Yearbook. Copper Statistics and Information. National Minerals Information Center

U.S. International Trade Commission; U.S. Census Bureau. (2025).