Why the U.S. Can’t Afford to Lose Canada’s Critical Mineral Aluminum

written by Alastair Neill | February 23, 2025
“Once the dominant producer of aluminum globally, today the U.S. produces only 1.2% of the world’s supply, highlighting its growing dependence on international sources, particularly Canada.” – Alastair Neill, Director, Critical Minerals Institute (CMI)

The aluminum industry stands at a pivotal moment in the global economy, and the United States is in a particularly challenging position. Despite being one of the largest consumers of aluminum in the world, the U.S. has seen a dramatic decline in its domestic production capacity, leaving it increasingly reliant on imports. The U.S. has now become a **net importer** of aluminum, with over **80%** of its primary aluminum consumption sourced from foreign countries. At the forefront of these critical imports is **Canada**, which plays an essential role in supplying the U.S. aluminum market—particularly as the U.S. faces mounting challenges in its own industry.

U.S. Aluminum Production: Running on Empty

The numbers tell a stark story. According to the **U.S. Geological Survey (USGS)**, in **2024**, the U.S. had a primary aluminum production capacity of just **1.36 million tonnes**. However, it was operating at only **50%** of this capacity, resulting in the production of around **680,000 tonnes** of aluminum. Meanwhile, the U.S. imported over **4.8 million tonnes** of crude and semi-

manufactured aluminum products, with **Canada** supplying **2.6 million tonnes** of that total. This massive gap between U.S. production and demand underscores the fact that the U.S. aluminum sector cannot meet its needs without relying on foreign sources.

The root cause of this imbalance lies in the high cost of production. One of the most significant costs for aluminum smelters is electricity, which often accounts for up to **half** of the total production costs. In the U.S., **industrial electricity prices** are notably higher than in Canada, where the vast majority of aluminum smelters are located in **Quebec**, a province known for its abundant and low-cost **hydroelectric power**. In contrast, U.S. smelters face energy costs that are up to **three times higher** than their Canadian counterparts, making it nearly impossible for American producers to compete with Canadian aluminum on cost.

This disparity in energy costs has had significant consequences. For instance, **Century Aluminum Company (NASDAQ: CENX)** closed its **Hawesville** smelter in **Kentucky** in 2024 due to rising energy costs, resulting in the loss of **600 jobs**. While U.S. lawmakers have passed measures like the **Inflation Reduction Act (IRA)** to incentivize clean energy projects, these initiatives have yet to reach the scale needed to support the aluminum industry. Until the U.S. can significantly reduce its energy costs or increase its energy efficiency, its aluminum industry will remain at a competitive disadvantage, unable to recover to the levels it saw in the 1980s.

The Canadian Advantage

Canada’s aluminum industry, on the other hand, continues to thrive, bolstered by its low-cost and sustainable energy resources. One smelter in Sept-Îles, Quebec alone produces

628,000 tonnes compared to the entire U.S. industry in 2024, which wasps 680,000 tonnes which highlights Canada's leadership in global aluminum production. While U.S. smelters struggle with rising operational costs, Canadian facilities like Sept-Îles continue to run at near full capacity, benefiting from both abundant hydroelectric power and strong environmental regulations that promote sustainable practices.

The advantage doesn't end with low energy costs. Canadian smelters are also at the forefront of adopting **cleaner technologies**, such as **carbon capture** and advanced **recycling processes**, which make them increasingly attractive to global buyers. As industries like **electric vehicle (EV)** production ramp up, there is growing demand for **clean aluminum**—a key material in the production of EVs, wind turbines, and solar panels. Automakers like **Ford**, **GM**, and **Rivian** are increasingly seeking aluminum sourced from low-carbon operations, and Canada is well-positioned to meet this demand.

The U.S. and Canada: A Symbiotic Relationship

The relationship between the U.S. and Canadian aluminum industries is not just one of dependency; it's a **mutually beneficial partnership** that both sides rely on. In **2024**, the U.S. imported over **$9 billion** worth of aluminum from Canada, making Canada the largest aluminum supplier to the U.S. Any efforts to impose trade barriers, such as **tariffs**, would only raise prices for American consumers and manufacturers, further straining the already struggling U.S. aluminum sector.

Some policymakers argue that imposing tariffs could boost U.S. production by protecting domestic producers. However, tariffs fail to address the fundamental issue: the **high cost of**

production in the U.S. compared to Canada. U.S. smelters simply cannot produce aluminum as cheaply as their Canadian counterparts, meaning that even with tariffs, the U.S. would still be forced to rely on imports. Moreover, tariffs could disrupt the supply chain, leading to **higher prices** for consumers and making U.S. manufacturers' products less competitive globally.

Canada's Growing Role in the Green Energy Transition

As the U.S. and Canada continue to integrate their aluminum sectors, the role of aluminum in the **clean energy** transition will become increasingly critical. Aluminum is a key material for technologies that are driving the global transition to sustainable energy, including **electric vehicles (EVs)**, **solar panels**, and **wind turbines**. With the **Biden administration's** ambitious clean energy goals, the demand for aluminum is only set to grow.

Canada, with its low-carbon aluminum production, is uniquely positioned to meet this growing demand. As demand accelerates, Canada's aluminum industry will play a central role in supplying the materials needed for the production of renewable energy systems and clean transportation. The **U.S.** will need to maintain a strong and reliable supply of aluminum, and given its current energy cost disadvantage, it will have to depend on Canada to meet its future needs.

Recent Developments in U.S. Aluminum Grants

In an effort to bolster the **domestic aluminum industry**, the **U.S.**

Department of Energy (DOE) recently announced **over $650 million** in grants aimed at the growth and decarbonization of the U.S. aluminum sector. These grants are part of the **DOE's Industrial Demonstration Program (IDP)** and include substantial investments in key players within the industry.

- **Century Aluminum**, which has been struggling with rising costs, was awarded **up to $500 million** to build a **new primary aluminum smelter** in the U.S., a project aimed at increasing production and addressing energy inefficiencies.
- **Constellium SE (NYSE: CSTM)**, a leading manufacturer of rolled aluminum products, received **up to $75 million** to build a **zero-carbon aluminum casting plant** in the U.S., which will use renewable energy and innovative technologies to reduce its carbon footprint.
- **Real Alloy**, a major player in aluminum recycling, secured **up to $67.3 million** to build a **zero-waste salt slag recycling facility** in the U.S. This facility will focus on recovering valuable aluminum from industrial waste, further promoting the circular economy and improving sustainability in the sector.

These grants are a step in the right direction, but they highlight the ongoing challenges the U.S. faces in creating a competitive aluminum industry capable of meeting domestic demand. Despite these efforts, the reality is that the **U.S. will continue to depend on Canada** for a substantial portion of its aluminum supply—especially as the clean energy transition accelerates and global demand for aluminum surges. A new smelter can take 2-5 years to build, depending on the scope, and will still have to deal with U.S. costs of electricity. Recycling would make more sense for investment in the U.S. as it uses less than 10% of the power compared to primary aluminum but

the U.S. is at capacity presently and feed materials may be a limiting factor.

Conclusion: The U.S. Needs Canadian Aluminum

The future of the U.S. aluminum industry hinges on its ability to work closely with its neighbor to the north. Canada's aluminum industry offers the cost-competitive, sustainable solution the U.S. needs to maintain its manufacturing base and meet its clean energy goals. While the U.S. aluminum industry may receive some short-term relief from government grants, the long-term solution lies in deepening ties with Canada—a partner with the resources and expertise to meet the growing demand for clean aluminum in North America. The U.S. needs Canadian aluminum, and without it, the path to **energy efficient products** and economic stability will become far more challenging.

In the end, the question is not whether the U.S. needs Canadian aluminum—it absolutely does. The real challenge is ensuring that both countries can navigate the complexities of their shared aluminum market, fostering a future that supports sustainable growth and competitiveness in a rapidly changing global economy.