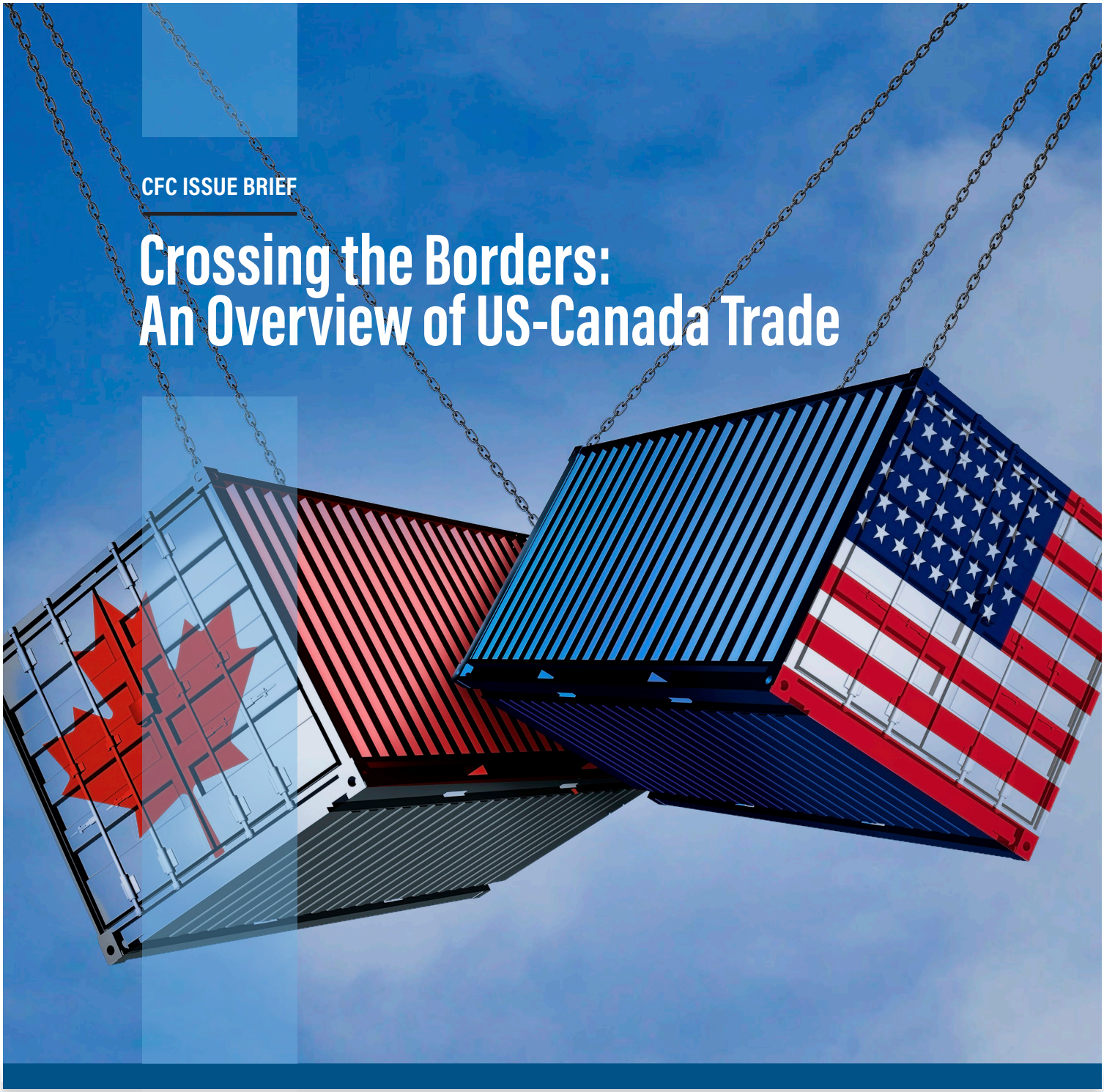
CFC ISSUE BRIEF

Crossing the Borders: An Overview of US-Canada Trade



National Rural Utilities Cooperative Finance Corporation

Crossing the Borders: An Overview of US-Canada Trade

Introduction

Amid a rapidly evolving U.S. tariff landscape, uncertainty has grown significantly in trade relations between the United States and its neighbors. Much remains to unfold in trade policy before the full impact of tariffs can be understood. Over the next 12 months or more, further announcements, policy changes and new trade agreements are expected. In anticipation of these developments, this issue brief serves as a resource to evaluate the current U.S.-Canada trade relationship and supply chains across key sectors relevant to electric cooperative leaders, their members and their communities.

Background

The United States and Canada share the longest border in the world and maintain one of the most robust bilateral trade relationships globally, thanks to large volumes of trade in energy, agricultural goods and automotive products. The United States and Canada share a long history of supply chain integration, especially in the automotive industry and energy sector.

Most U.S. states are more connected to Canada than one may think. As the largest buyer of American goods, Canada is an important export market for U.S. manufacturing, which tends to be located in smaller, more rural counties.

Canada has become heavily reliant on the United States for both imports and exports. Despite a more diverse trading partner composition, the United States also depends on its partnership with Canada for nearshoring and North American energy dominance. The electric utility industry is one of the industries that has embraced trade with Canada to build its supply chains. The industry relies on imports from Canada and Mexico for transformers, components and inputs to build our grid infrastructure. On the power supply side, the industry has also benefitted from imports of Canada's low-cost, reliable electricity.

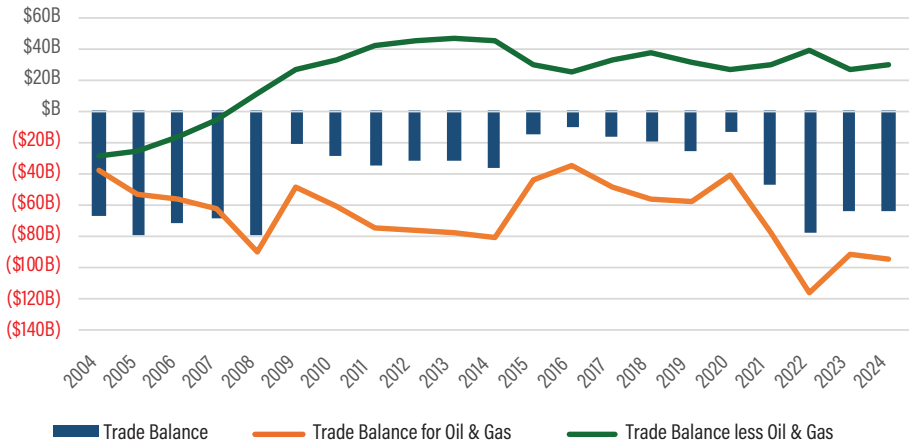
Overview of US-Canada Trade

Trading partners include both buyers and sellers–imports and exports. Canada is the second-largest trading partner of the United States, following Mexico, as of February 2025. Although the United States has a trade deficit with Canada, our northern neighbor is the largest buyer of American goods, making up nearly 17% of all U.S. exports. The two economies have had one of the most robust and integrated trading partnerships in the world until the recent uncertainty surrounding tariffs, which raised questions about the future of trade, supply chains and the cost of key imports.

Balance of Trade Between the US and Canada

The U.S. trade deficit with Canada is primarily driven by oil and gas imports. When excluding oil and gas, the United States runs a goods trade surplus with Canada. Despite being the larger oil producer, the United States imports oil from Canada because Canadian crude oil is "heavy" and cheaper, but it requires specific refinery equipment. Nearly three-quarters of American refineries are designed to process this heavy oil efficiently. American oil, on the other hand, is lighter and easier to refine, but more expensive. The United States exports most of its light crude oil, which makes economic sense. The complementary nature of these two strengthens North American oil production, reducing reliance on other oil-producing nations.

US-CANADA TRADE BALANCE

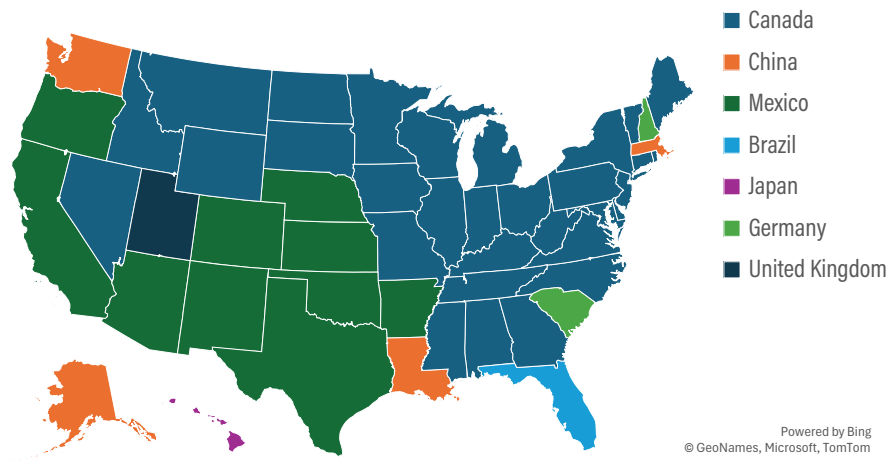


Source: USA. Trade Online, U.S. Census Bureau

Canada Tops the List for States' Export Markets

Canada is the largest export market for a majority of U.S. states, while Mexico is more important for southern border states. Trade disruptions with these neighbors can affect many states, especially those dependent on exports. From auto vehicles and parts made in Michigan to coal mined in Pennsylvania, U.S. states export a variety of goods to Canada.

EACH STATE'S LARGEST EXPORT MARKET



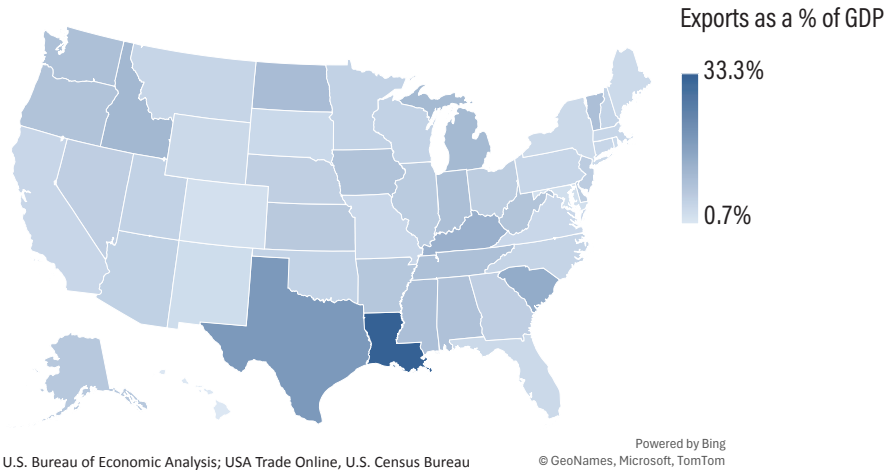
Source: U.S. Trade Representative

Rural America Is More Reliant on Exports

The term "international trade" often evokes images of bustling ports within coastal or urban regions. In reality, urban economies are less dependent on trade despite possessing high trade values. Conversely, small counties and rural areas typically exhibit more concentrated economic activities, resulting in higher exports as a proportion of gross domestic product (GDP).

Manufacturing tends to make up a larger percentage of economic output of smaller counties. For example, Saint Joseph County, Indiana, relies heavily on vehicle and parts manufacturing, much of which is exported. Other rural areas with strong agricultural and natural resource economies are also reliant on exports. According to the latest data from U.S. Department of Agriculture, trade-related employment accounts for up to one in four jobs in rural counties.

EACH STATE'S RELIANCE ON EXPORTS



Source: U.S. Bureau of Economic Analysis; USA Trade Online, U.S. Census Bureau

Energy and Electrical Infrastructure Trade

The United States is a net importer of Canadian electricity, primarily hydro power. However, electricity trade between the two countries has become more balanced over the last two years due to persistent drought conditions across Canada. Against this backdrop, certain parts of the United States remain very reliant on Canadian imports to provide low-cost, reliable electricity, particularly in parts of New England, New York and MISO's (Midcontinent Indepedent System Operator) service territory, which includes portions of 15 U.S. states (Arkansas, Illinois, Indiana, Iowa, Kentucky, Louisiana, Michigan, Minnesota, Mississippi, Missouri, Montana, North Dakota, South Dakota, Texas and Wisconsin).

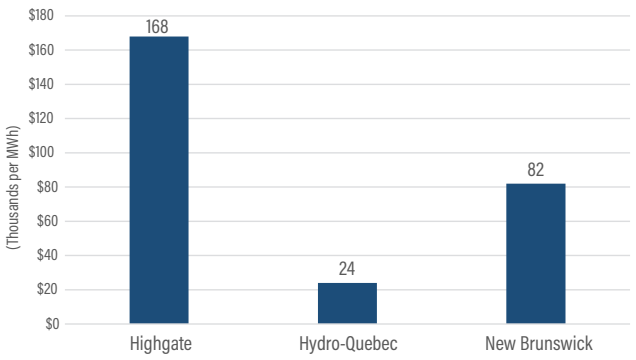
In 2024, net flows from Canada made up around 5% of ISO-NE's load. ISO-NE's (Independent Systems Operator New England) had a total transfer capacity of 3.2 GW with Canada, split between Hydro Quebec and New Brunswick. Additionally, ISO-NE is expected to become even more integrated with the Canadian grid and is working to add another 1.2 GW of transfer capacity with Hydro Quebec by 2026.

NYISO (New York Independent System Operator) imports more electricity from Canada than any other state, totaling 7.7 TWh of electricity imports in 2024, estimated to be more than 2% of total consumption. New York is also significantly interconnected to the Canadian grid in Ontario and Québec, with a total import capacity of 4.6 GW. Similar to New England, NYISO is also looking to increase its importing capabilities with Canada and is currently building another 1.25 GW of transfer capacity, connecting Hydro Quebec directly to New York City by 2026.

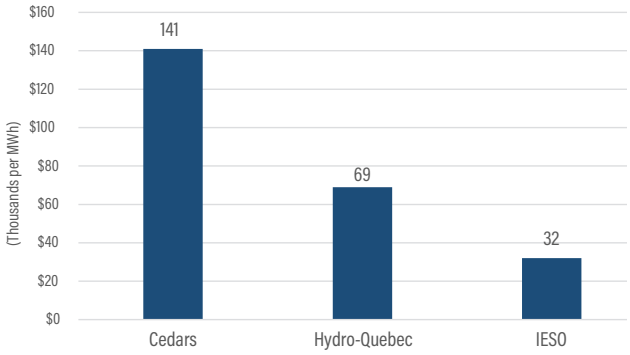
In 2023, net flows to MISO averaged 15 GWh a day from Manitoba Hydro and 20 GWh a day from Ontario Independent Electricity System Operator (IESO).

Electricity imports are largely driven by the cost savings offered by Canadian hydroelectric generation.

ISO-NE: 5-YEAR SAVINGS FROM CANADA INTERCHANGE



NTISO: 5-YEAR SAVINGS FROM CANADA INTERCHANGE



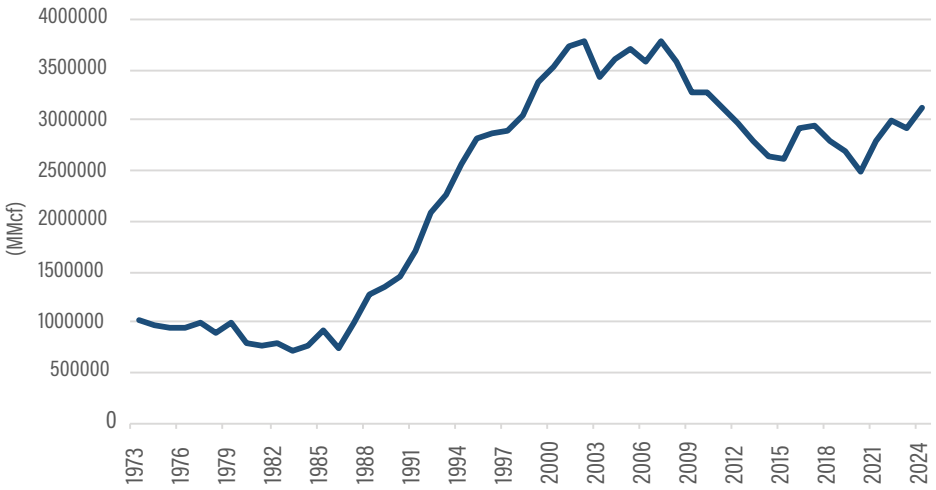
Source: Grid Status

Outside of electricity, Canada is also a key source of energy fuels for the United States, including natural gas, oil and uranium.

The Pacific Northwest consistently imports natural gas from Western Canada. These imports accounted for 89% of supply to the Pacific Northwest in 2024, with most of the excess gas flowing to Northern California, according to data from S&P Global.

The Northeast and Midwest tend to alternate between net imports and exports of natural gas, depending on demand and pricing. Imports are particularly important in the Northeast during the winter months when limited pipeline capacity and strong demand often cause significant price spikes in the region. Additionally, several Northeast pipelines begin in Canada, most notably, the Iroquois pipeline, which supplies ~5 GW of gas-fired generation units in both NYISO and ISO-NE.

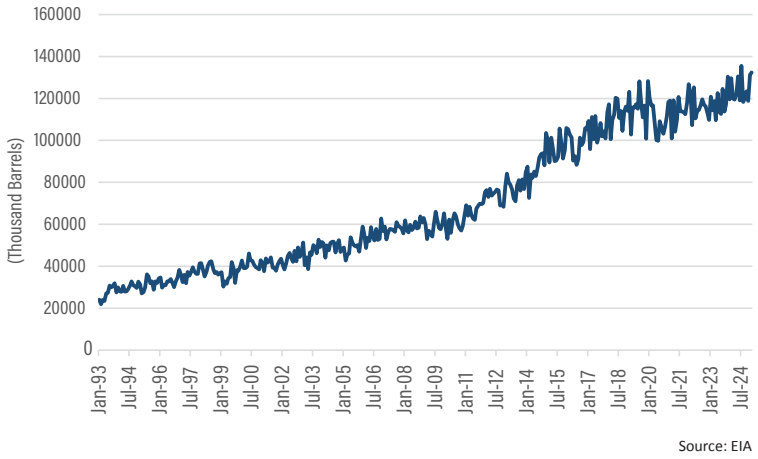
US NATURAL GAS PIPELINE IMPORTS FROM CANADA (MMcf)



Source: EIA

For crude oil, 60% of U.S. imports come from Canada. U.S. imports of crude oil from Canada reached a record of 4.3 million barrels per day (B/D) in July 2024 following the expansion of Canada's Trans Mountain pipeline. The pipeline's capacity tripled following this expansion and became fully operational in May 2024.

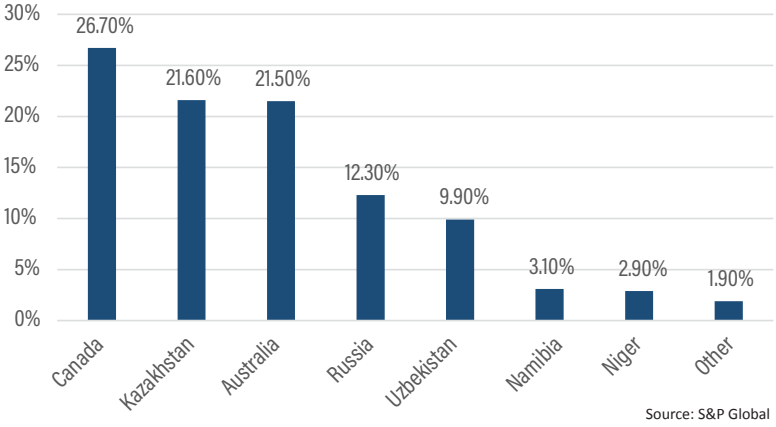
US CRUDE OIL IMPORTS FROM CANADA



Source: EIA

For uranium fuel, the U.S. predominantly relies on imports to serve demand, given the current lack of domestic production. In 2023, imports made up 95.4% of all U.S. uranium purchases, and Canada was our single-largest trading partner in that respect.

US URANIUM IMPORTS BY MARKET SHARE, 2023



Source: S&P Global

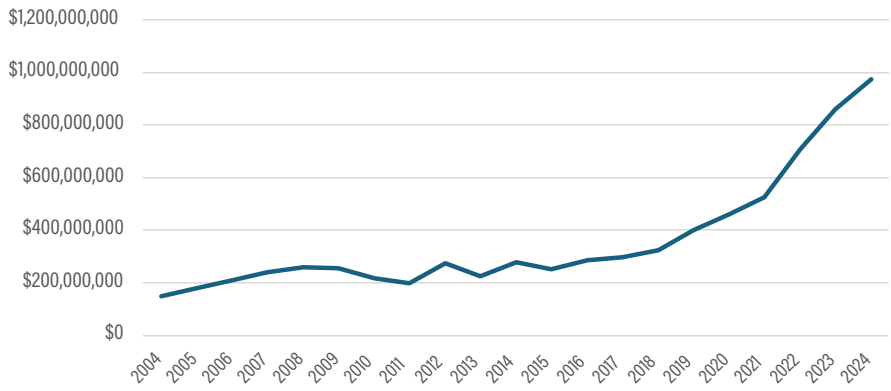
Electrical Equipment and Material Trade

The U.S. electric grid is a complex structure consisting of different categories of electrical equipment and hardware. Growing electricity demand and new loads will require upgraded or new infrastructure. While the U.S. manufactures several components to meet its domestic needs, it is reliant on Canada to fill gaps in demand. Some of the key equipment imported from Canada includes power transformers, transformer parts and conductors. Further up along the value chain, the U.S. imports steel, particularly flat sheets or electrical sheets, and aluminum from Canada as well.

Transformers are a critical part of electric grid infrastructure, helping to step-up or step-down electricity to transmit it over long distances or make it suitable for end users. Currently, only 20% of U.S. demand for transformers is met by domestic manufacturing, while 80% is met through imports. Imports were valued at $7.5 billion worth of trade in 2024 compared with exports of about $422 million worth of transformers in 2024. Canada was the third-largest import partner and the top export partner for trading transformers. In 2024, imports from Canada amounted to over $633 million, including large substation transformers and pad-mounted transformers.

Along with transformers, critical transformer parts such as wound and stacked cores are imported from Canada. In 2024, Canada was the second-largest U.S. import partner in this area, accounting for about 12% of imported transformer parts, almost $400 million.

VALUE OF IMPORTED TRANSFORMER PARTS

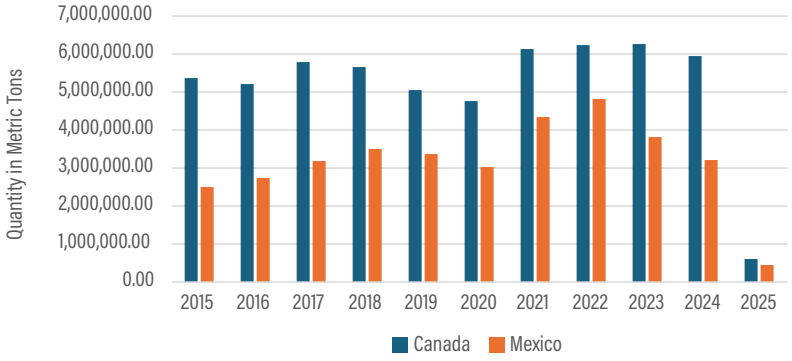


Source: U.S. International Trade Administration

Since 2020, U.S. imports of conductors from Canada have almost doubled in value. As of 2024, Canada was the United States' top import partner for conductors. Copper wires and insulated conductors were the top two imports from Canada in 2024, when total imports were more than $1.8 billion.

Steel is used in a number of ways in the electric utility industry: transmission towers, poles and substations, to name a few. At substations, a lot of the switchyard equipment uses steel. The United States produces 5% of the world's crude steel; the top producer is China (53%), followed by India (9%) and the United States. U.S. domestic steel capacity utilization has stayed between 70% and 80% since its most recent peak in August 2021 (84%). Overall capacity utilization in 2024 averaged 75.5%, a 4.8% decrease from the 2019 annual average of 79.3%. In 2024, Canada accounted for the largest share of U.S. imports by volume at 22.7%, about $6 million worth of steel products.

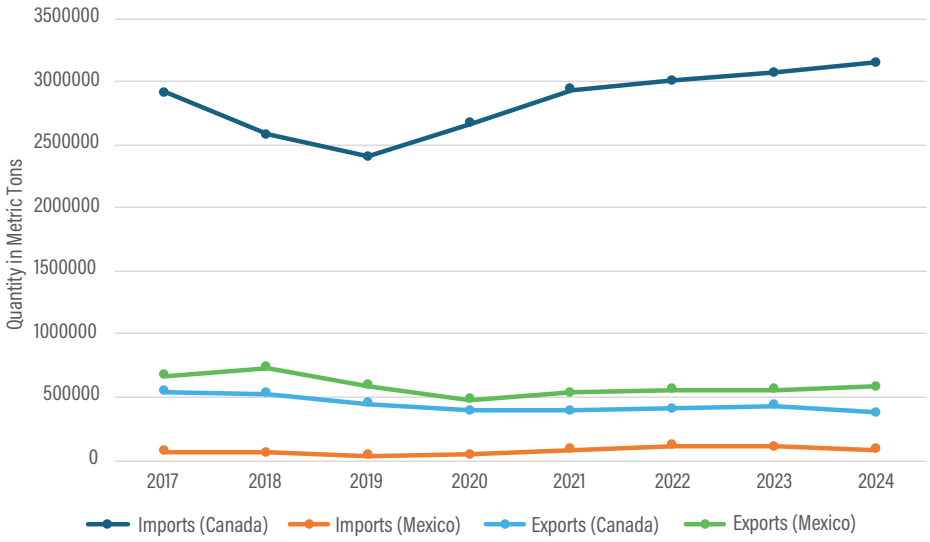
US STEEL IMPORTS



Source: U.S. International Trade Administration

Aluminum is the most widely used material for electricity transmission and distribution, according to the Aluminum Association. It is common to use aluminum in overhead power lines and transmission cables. Aluminum is frequently used for various components of transformers and substations, including busbars and connectors. It also plays a key role in renewable energy systems for solar and wind. It is the primary material used in most racking systems for solar panels and in components for wind turbines. Canada is the top trading partner for aluminum with the United States, with imports worth $1.7 billion in 2024.

US ALUMINUM TRADE (IMPORTS AND EXPORTS) IN METRIC TONS



Source: U.S. International Trade Administration

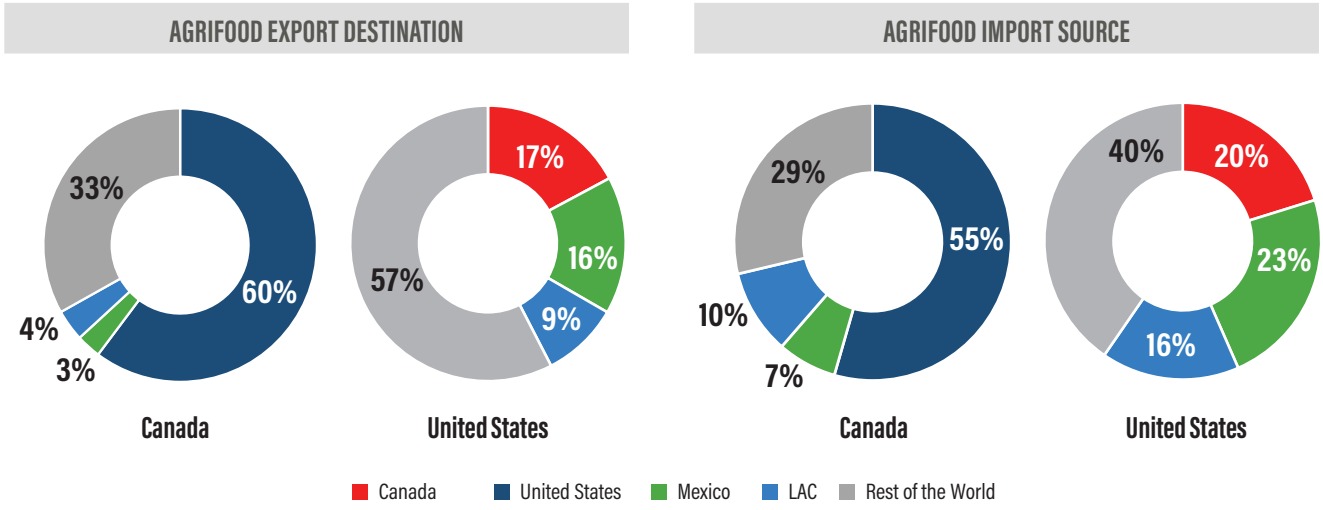
Agricultural Trade and Supply Chain

Agricultural trade between the United States and Canada was mostly balanced until 2017, when the trade deficit on the U.S. side started growing. However, it was not until 2020 that agricultural imports from Canada grew exponentially. This growth was largely driven by:

- Significant increases in imports of four main products—canola oil, canola meal, beef products and bakery products.
- Strengthened supply chains between the two countries after the United States-Mexico-Canada Agreement was implemented on July 1, 2020.
- Rising U.S. demand for high-value, diverse products.
- A stronger U.S. dollar, which resulted in relatively cheaper Canadian products.

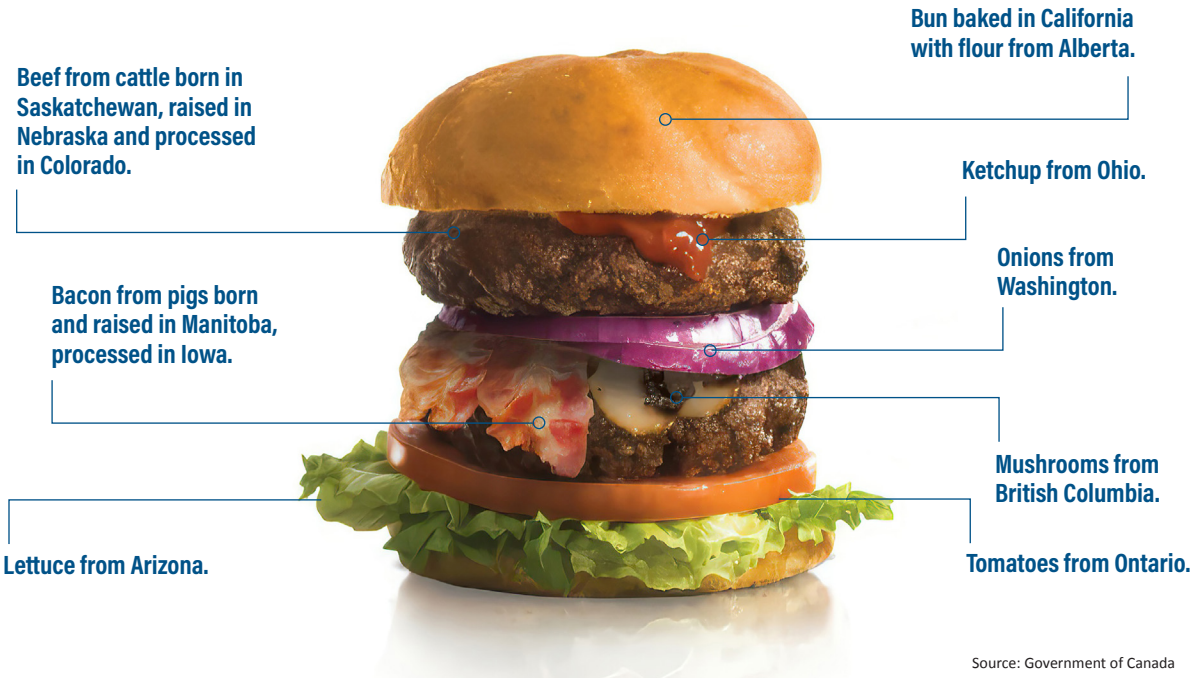
Canadian Agrifood Exports Rely on the US

Canada relies on the United States to buy and sell agrifood. The majority of Canada's agrifood, which is food derived from agriculture, is exported to the United States while the majority of its agrifood imports also come from the United States. Agrifood supply chains between the two countries' economies are some of the most integrated.



Source: FOASTAT; Internal Food Policy Research Institute
Note: LAC is Latin American and the Caribbean excluding Mexico

Integrated Food Supply Chains Between US and Canada



Source: Government of Canada

Trade in Agricultural Production

Potash, which is produced from mining, is an irreplaceable fertilizer used in modern agricultural production. The United States imports 90% of the potash it uses, 85% of which comes from Canada, the world's largest producer. The high import share of potash used by American farmers is due to geography as well as the time intensiveness and cost of mine development in the United States. Without potash from Canada, American farmers would have to turn to Russia and Belarus, the other two producers that dominate the global potash market.

On the flip side, Canada relies on the United States to import an average of 1.46 million tons of two essential phosphorus fertilizers: monoammonium phosphate and diammonium phosphate. Canada has no domestic phosphate production and relies on the United States as its primary supplier. Although the United States is not the only exporter of phosphates, it is the nearest one to Canada. The close proximity and reliable infrastructure that connects the two nations is the reason that trade has flourished between them, especially in industries that are key to national security, such as food and energy.

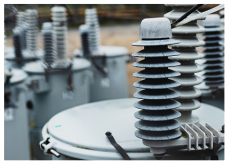
Key Takeaways

Strategic Trade Partnership Is Anchored in Energy, Agriculture and Manufacturing

The U.S.-Canada trade relationship is one of the most integrated globally, particularly in energy, agriculture and automotive manufacturing sectors. Canada is the largest buyer of U.S. goods and also a critical supplier of oil, electricity and key grid infrastructure components to the United States, reinforcing North American energy security and industrial resilience.

Energy Interdependence Drives Grid Reliability and Cost Efficiency

Canada supplies the United States with essential energy resources, including hydroelectricity, natural gas, crude oil and uranium. These imports are vital for grid stability, especially in regions like New England and New York, and help mitigate seasonal price volatility and infrastructure constraints.



Electrical Infrastructure Relies Heavily on Canadian Imports

The U.S. electric utility sector depends on Canadian imports for transformers, conductors, steel and aluminum. In 2024, Canada was a top supplier of transformer parts and conductors, filling critical gaps in domestic manufacturing and supporting grid modernization efforts.

Agricultural Trade Is Deeply Integrated but Increasingly Imbalanced

Agricultural trade has shifted since 2020, with the U.S. experiencing a growing trade deficit due to rising U.S. demand for high-value and diverse products as well as a strong dollar. Nonetheless, both countries remain each other's primary agrifood partners, with tightly linked fertilizer supply chains essential to food security.

Rural and State-Level Economies Are Highly Exposed to Trade Disruptions

Canada is the top export market for a majority of U.S. states, particularly those with rural and manufacturing-based economies. Trade policy shifts or tariff uncertainties could disproportionately impact these regions where trade-related employment can account for up to 25% of jobs.

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