

Canadian Consumption of Domestically Produced Crude Oil and Natural Gas

Note to Reader – Disclaimer Statement

- This presentation includes data compiled from multiple third-party sources. Sources are indicated at the bottom of the applicable slide. Although we believe this data to be reliable, we do not guarantee the accuracy of data from third parties. The data in this presentation may be updated from time to time following the release of updated data.
- Readers are cautioned that different methodologies may be used to gather and present certain data in this presentation. Results may differ depending on the specific sources and methodologies used.
- This presentation may contain forecasts or future estimates. Such forecasts and estimates are based on information available at the time and are not guarantees of future results.
- The information in this presentation is intended for general informational purposes only. Readers should not rely on this presentation to make business or investment decisions.

Summary of Canadian Consumption of Domestically Produced Crude Oil and Natural Gas

Canada consumes a mix of domestic production and imports for both crude oil and natural gas, with the US being the dominant foreign supplier. Canada and the US are highly integrated with supply delivered through a complex pipeline network that intertwines both countries.

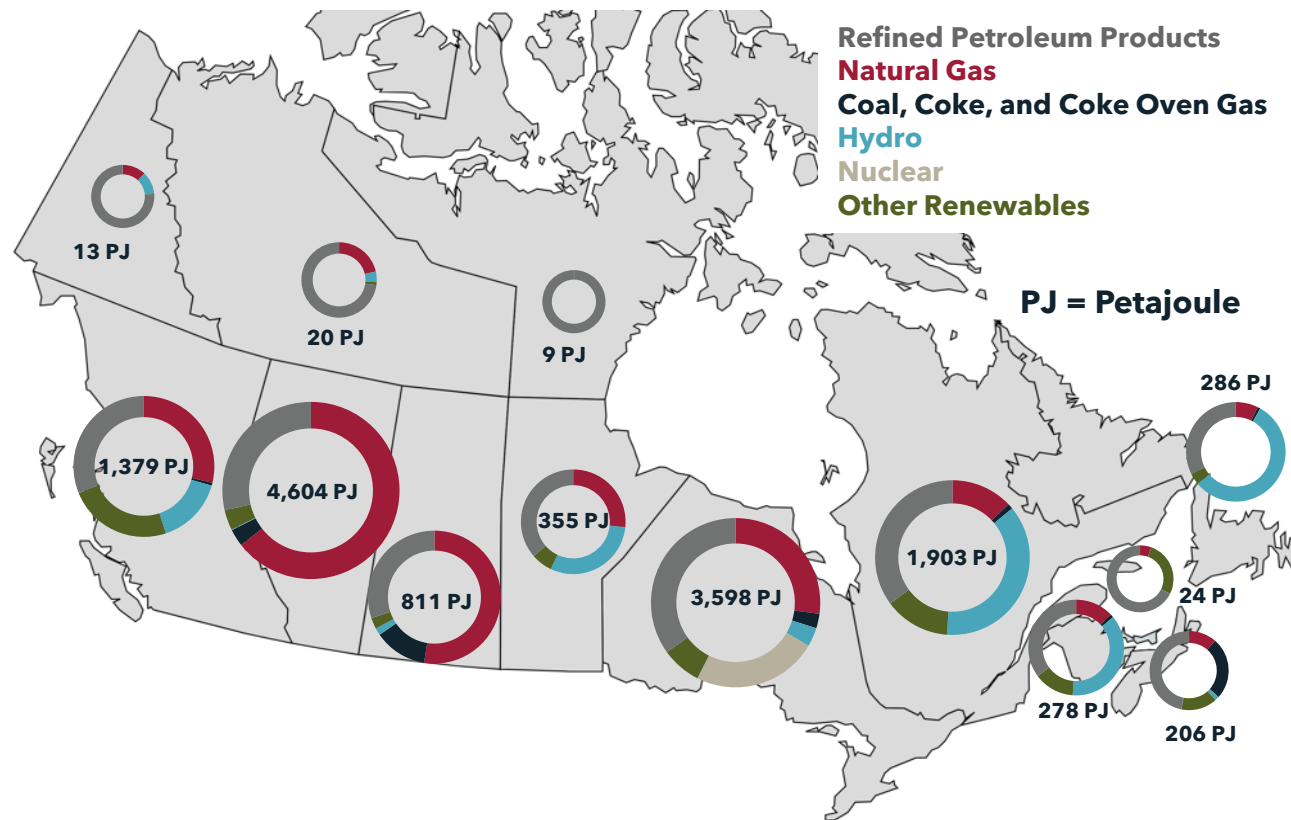
Crude Oil Consumption Highlights

- ▶ In 2024, approximately 1.29 MMB/d of Canadian refinery crude oil receipts were domestically sourced, equating to 74% of total refinery receipts.
- ▶ Canada's reliance on crude oil imports to meet refinery needs has declined by roughly 50% to ~0.46 MMB/d in 2024 since peaking at ~0.93 MMB/d in 2004. This is primarily a function of the closures of import-dependent refineries in Eastern Canada, but also due to pipeline changes that have improved connectivity to domestic sources.
- ▶ Canada's refining complex is predominantly designed to process lighter-grade crude oils. Consequently, Canada's heavy oil sands barrels are mostly exported to complex coking refineries in the US.

Natural Gas Consumption Highlights

- ▶ According to the latest Statistics Canada data, in 2023, Canadian natural gas demand was ~13 Bcf/d. Net of natural gas imports, the implied consumption of domestically produced natural gas was 10.2 Bcf/d or ~78% of total demand.
- ▶ The industrial sector⁽¹⁾ is Canada's largest natural gas consumer, accounting for ~7 Bcf/d or 53% of total demand in 2023.
- ▶ Provinces in Western Canada meet demand needs with domestic production. However, changes in North American supply/demand dynamics have led to an increased reliance on US natural gas imports for Eastern Canada and a loss in market share for Canadian gas producers in this region.

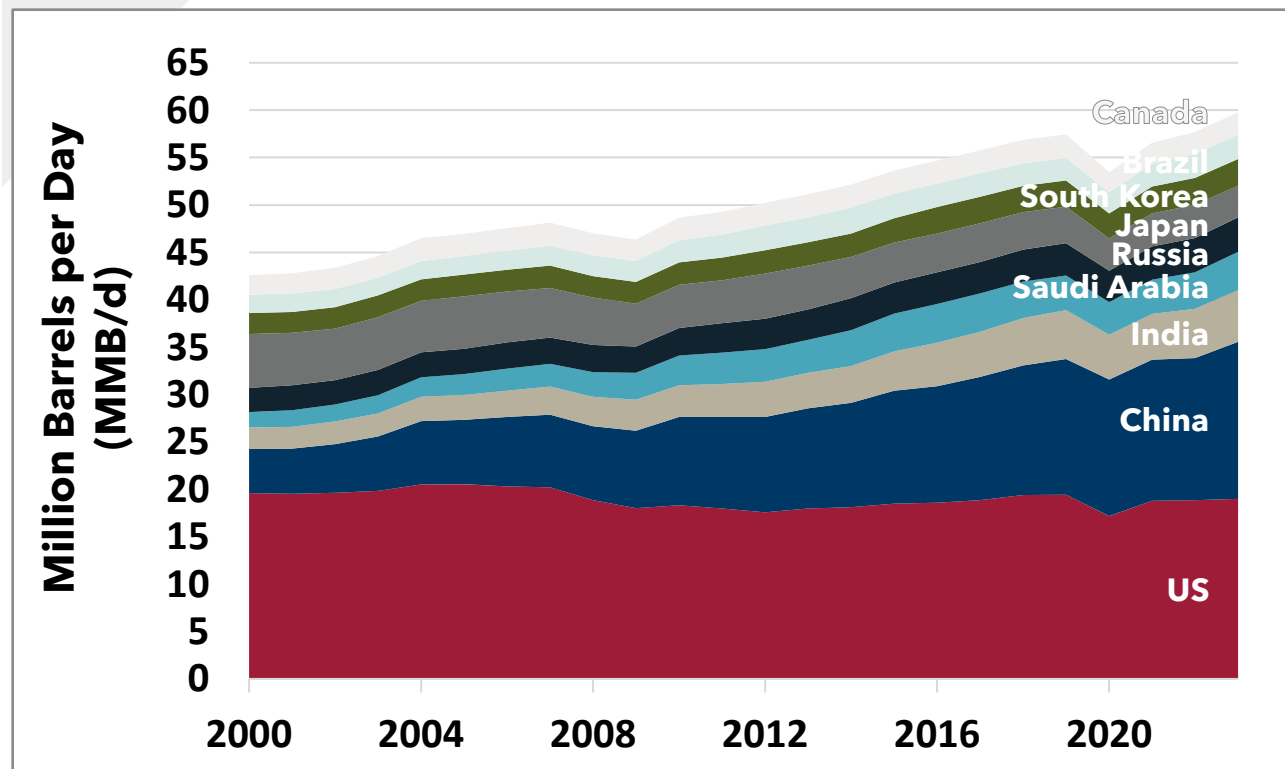
Canadian Primary Energy Demand by Province | 2022



- Canada uses diverse fuel types to meet its primary energy needs.
- Alberta, Ontario, Quebec, and BC are the largest energy-consuming provinces in Canada, accounting for over 85% of the country's primary energy demand.
- From a fuel type perspective, crude oil (i.e., 'Refined Petroleum Products') and natural gas remain dominant fixtures in the overall energy mix. According to Canada's Energy Future 2023, these products made up over 70% of all primary energy consumed in the country in 2022.

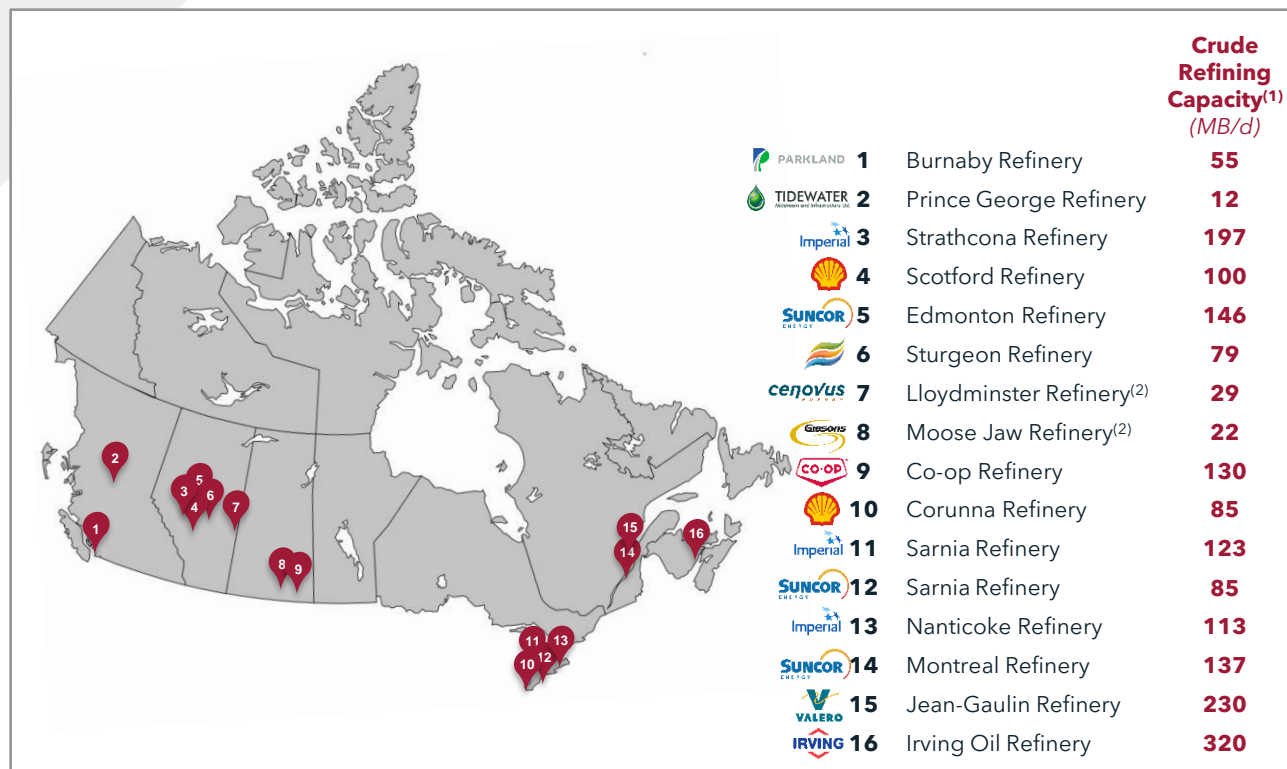
Domestic Crude Oil Consumption

Global Liquids Demand by Select Countries | Annual | 2000 to 2023



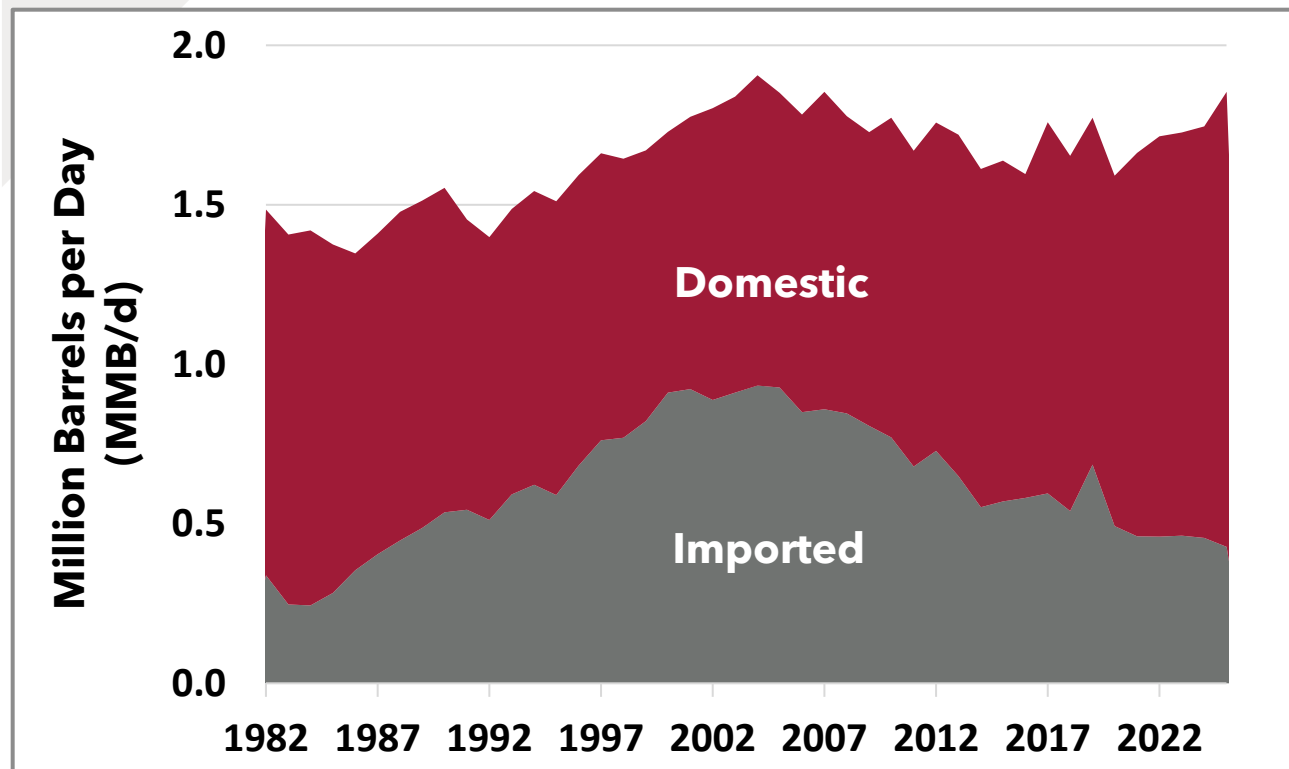
- In 2023, Canada was the ninth largest consumer of crude oil globally, equating to roughly 2.3% of total demand.
- Collectively, the top 9 crude oil-consuming countries accounted for close to 60% of global demand.
- Canadian demand has remained relatively flat since the early 2000s.
- Since 2010, global demand growth has been predominantly driven by China and India.

Canadian Refinery Overview



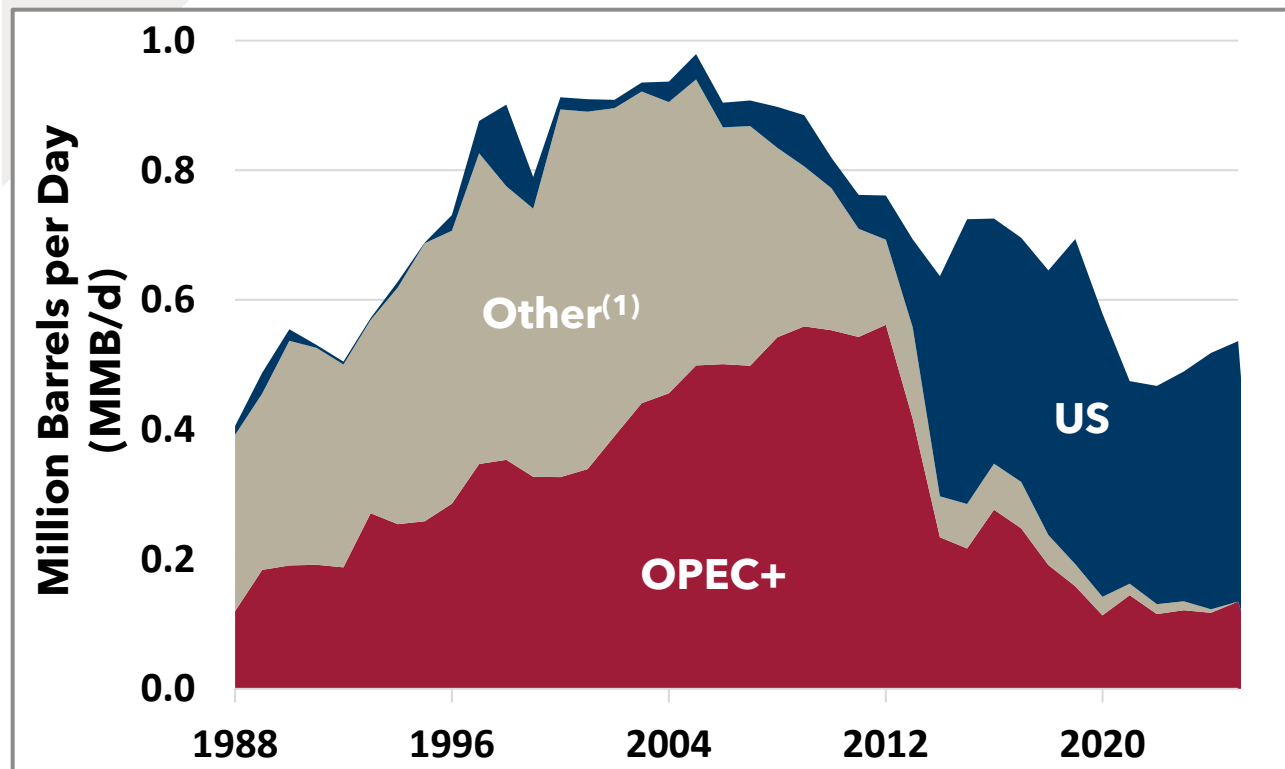
- Refineries are the primary purchasers of crude oil, converting it into petroleum products, such as gasoline and distillate.
- There are currently 16 active refineries in Canada (excluding upgraders), equating to a total refining capacity of approximately 1.9 MMB/d.
- Roughly 60% of the country's refining capacity is in Eastern Canada, near major demand hubs in Ontario and Quebec. The Irving Oil Refinery in New Brunswick is Canada's largest refinery at 320 MB/d.
- After meeting domestic refining needs, almost all of the remaining Canadian crude oil production is exported to the US.

Canadian Refinery Throughput by Source | Annual | 1982 to 2025*



- In 2023, approximately 1.26 MMB/d of Canadian refinery crude oil receipts were domestically sourced, equating to 73% of total refinery receipts.
- Refineries in Quebec and New Brunswick have tidewater access and therefore possess additional optionality for sourcing their crude oil, often relying on foreign imports.
- Canada's reliance on crude oil imports to meet refinery needs has declined since peaking at ~0.93 MMB/d in 2004, primarily a function of numerous closures of import-dependent refineries in Eastern Canada, but also due to pipeline changes that have improved connectivity to domestic sources.

Crude Oil Imports | Annual | 1982 to 2025*

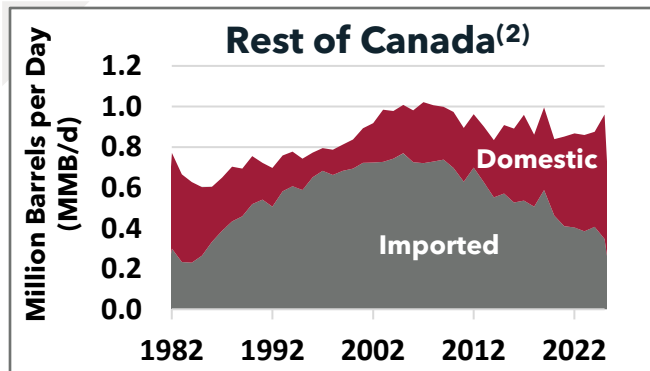
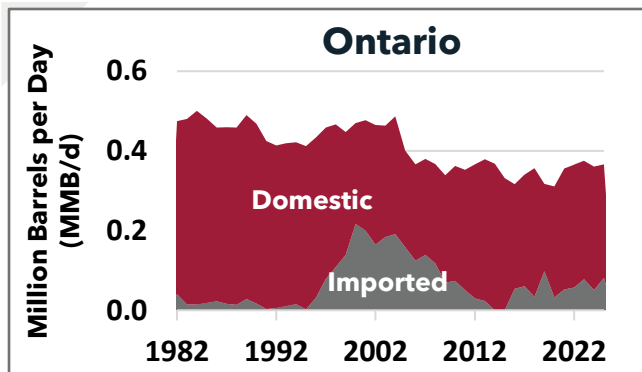
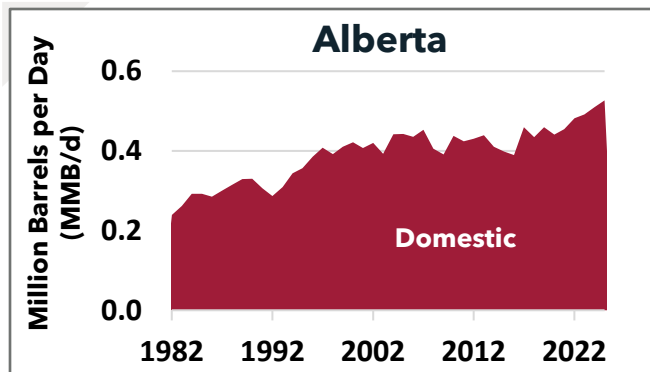


➤ The complexion of Canada's crude oil imports has changed since 2013, largely driven by the surge of US supply from shale oil. The US now accounts for a larger share of total imports, displacing OPEC+ and Other⁽¹⁾ imported barrels.

➤ In 2024, total US imports were 356 MB/d (74% of total imports), compared to 118 MB/d from OPEC+ members (25% of total imports).

➤ This dynamic has been partly driven by the closure of multiple import-reliant refineries in Eastern Canada, but also the reversal of Enbridge Line 9 in the 2010s which allowed more US crude oil to flow into Eastern Canada.

Provincial Refinery Throughput by Source | Annual | 1982 to 2025*



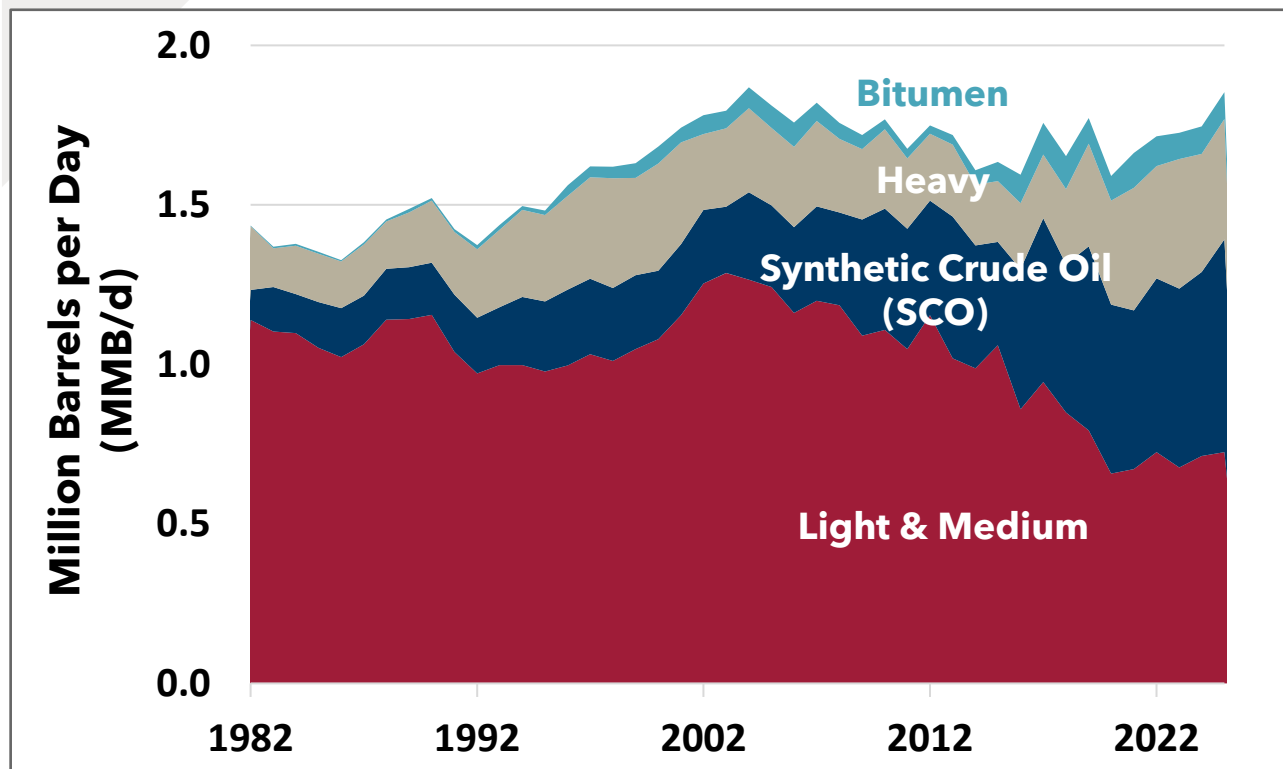
- (1) Due to data confidentiality, refinery-level data from Statistics Canada is unavailable for select refineries in Quebec, New Brunswick, Saskatchewan, and BC.
- (2) Aggregate data for refineries in Quebec, New Brunswick, Saskatchewan, and BC has been accounted for in the 'Rest of Canada' category.

➤ Refineries in Saskatchewan⁽¹⁾, Alberta, and BC⁽¹⁾ benefit from proximity to local production and therefore domestically source 100% of their crude oil receipts.

➤ In 2024, Ontario domestically sourced 86% of its 361 MB/d of crude oil receipts, with the balance imported from the US. The Enbridge Mainline is directly connected to the four southern Ontario refineries. Pipeline changes have allowed for increased pipeline flows from Western Canada, reducing the need for imports.

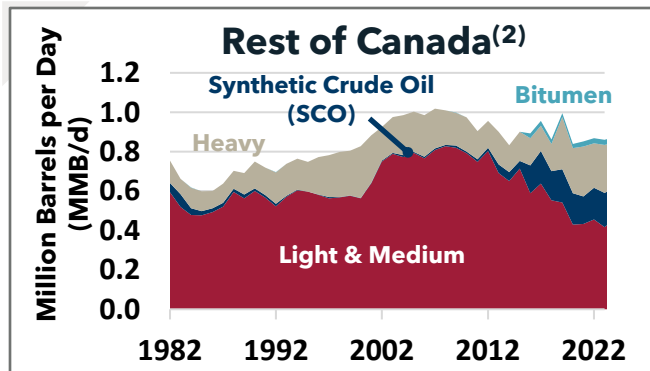
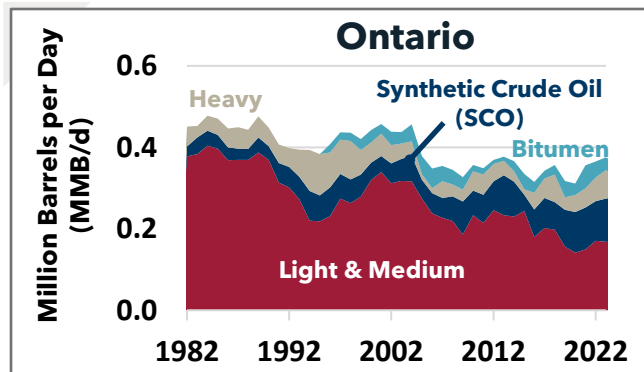
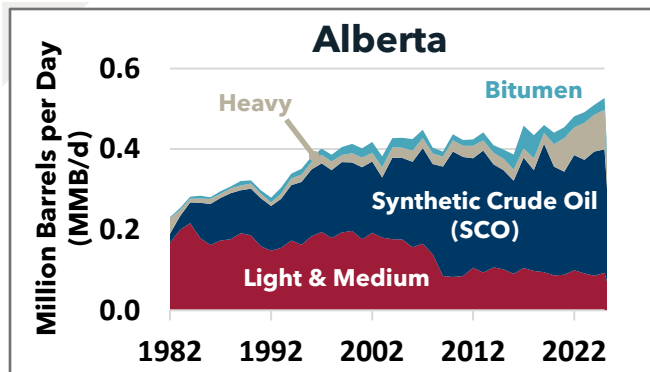
➤ Refineries in Quebec⁽¹⁾ are now mostly reliant on US imports, while New Brunswick⁽¹⁾ refineries are mostly dependent on overseas imports.

Canadian Refinery Throughput by Composition | Annual | 1982 to 2025*



- Canada's refining complex is predominantly designed to process lighter-grade⁽¹⁾ crude oil blends, which made up ~74% of total refinery receipts in 2024.
- By comparison, over 50% or 2.7 MMB/d of Canada's oil production⁽²⁾ in 2024 was comprised of heavy oil and bitumen. The vast majority of this heavy oil and bitumen is exported, as it is not suited for many of Canada's refineries.
- Due to this compatibility disconnect, the primary market for Canadian heavy barrels is the US in PADD 2 (US Midwest) and PADD 3 (US Gulf Coast), regions that have heavy oil processing capacity.

Provincial Refinery Throughput by Crude Type | Annual | 1982 to 2025*



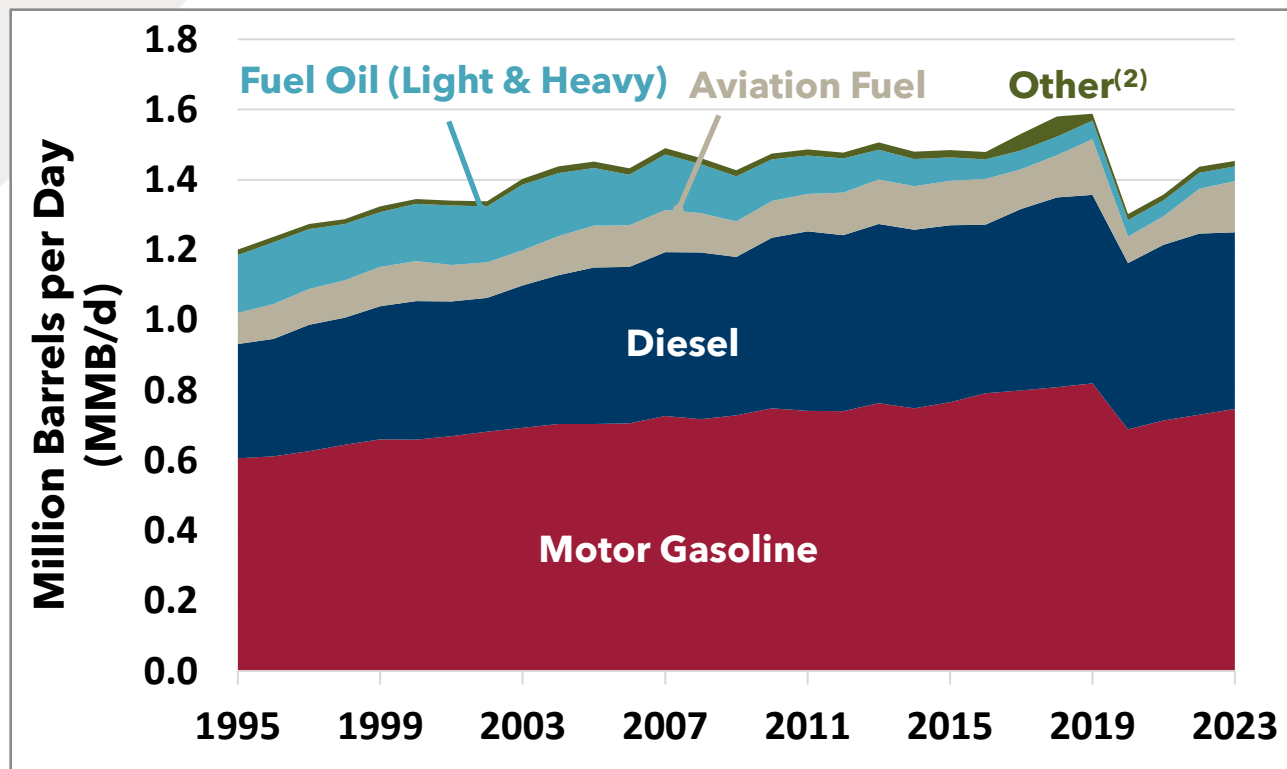
- (1) Due to data confidentiality, refinery-level data from Statistics Canada is unavailable for select refineries in Quebec, New Brunswick, Saskatchewan, and BC.
- (2) Aggregate data for refineries in Quebec, New Brunswick, Saskatchewan, and BC has been accounted for in the 'Rest of Canada' category.

➤ Alberta refineries are the primary consumers of SCO barrels, accounting for 60% of total feedstock in 2024, with light & medium, heavy, and bitumen making up the balance at 17%, 18%, and 5%, respectively.

➤ Comparatively, Ontario refineries process a slightly more balanced slate of crude oil, consisting of 46% light & medium, 31% SCO, 14% heavy, and 9% bitumen in 2023.

➤ Crude oil consumption of Rest of Canada⁽²⁾ refineries consists of 53% light & medium, 18% SCO, 26% heavy, and 3% bitumen.

Canadian Refined Petroleum Product⁽¹⁾ Consumption by Fuel Type | Annual | 1995 to 2023

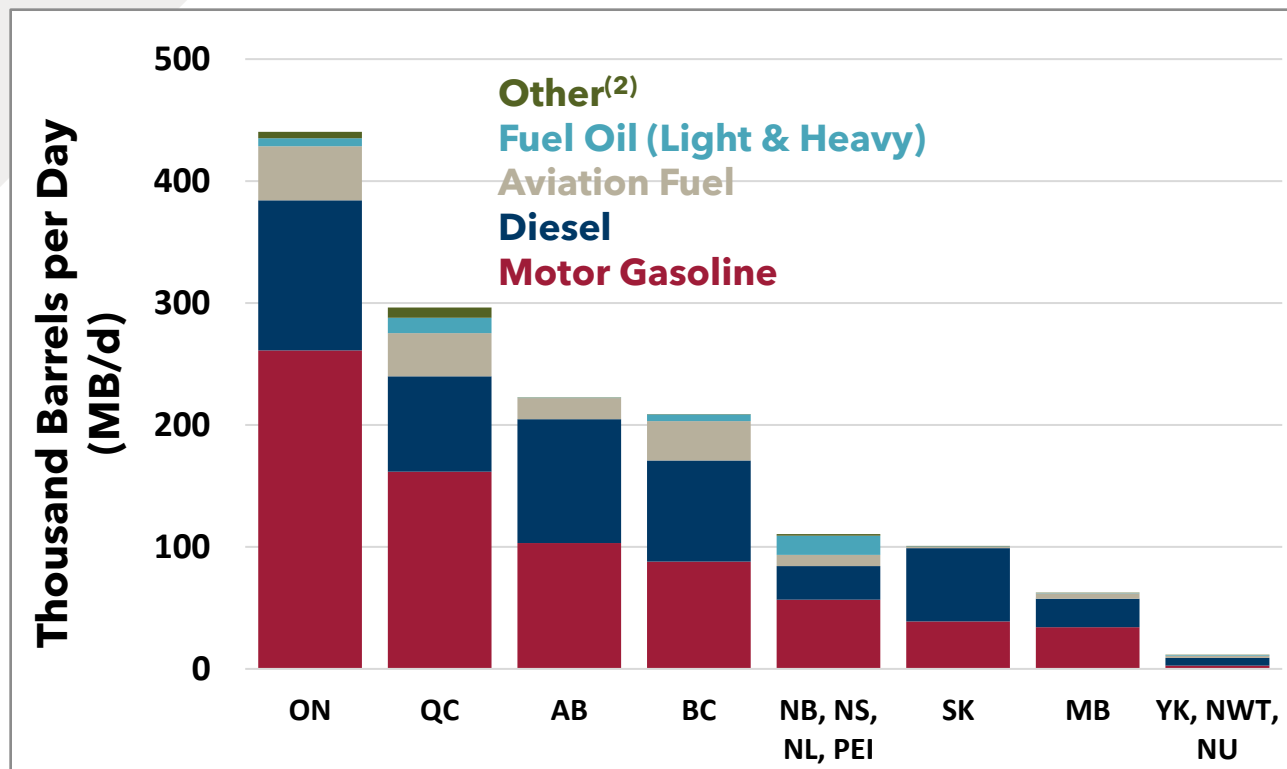


➤ Refined petroleum product (RPP) demand in Canada peaked in 2019 at roughly 1.6 MMB/d, growing over 30% from 1995 levels.

➤ RPP demand has yet to recover to pre-COVID levels as the demand for motor gasoline and aviation fuel continues to rebound. For context, demand reached ~1.4 MMB/d in 2023, which is still 10% below 2019 levels.

➤ Diesel and motor gasoline accounted for roughly 86% (2.2 MMB/d) of RPP demand in 2023.

Canadian Refined Petroleum Product⁽¹⁾ Consumption by Province | 2023



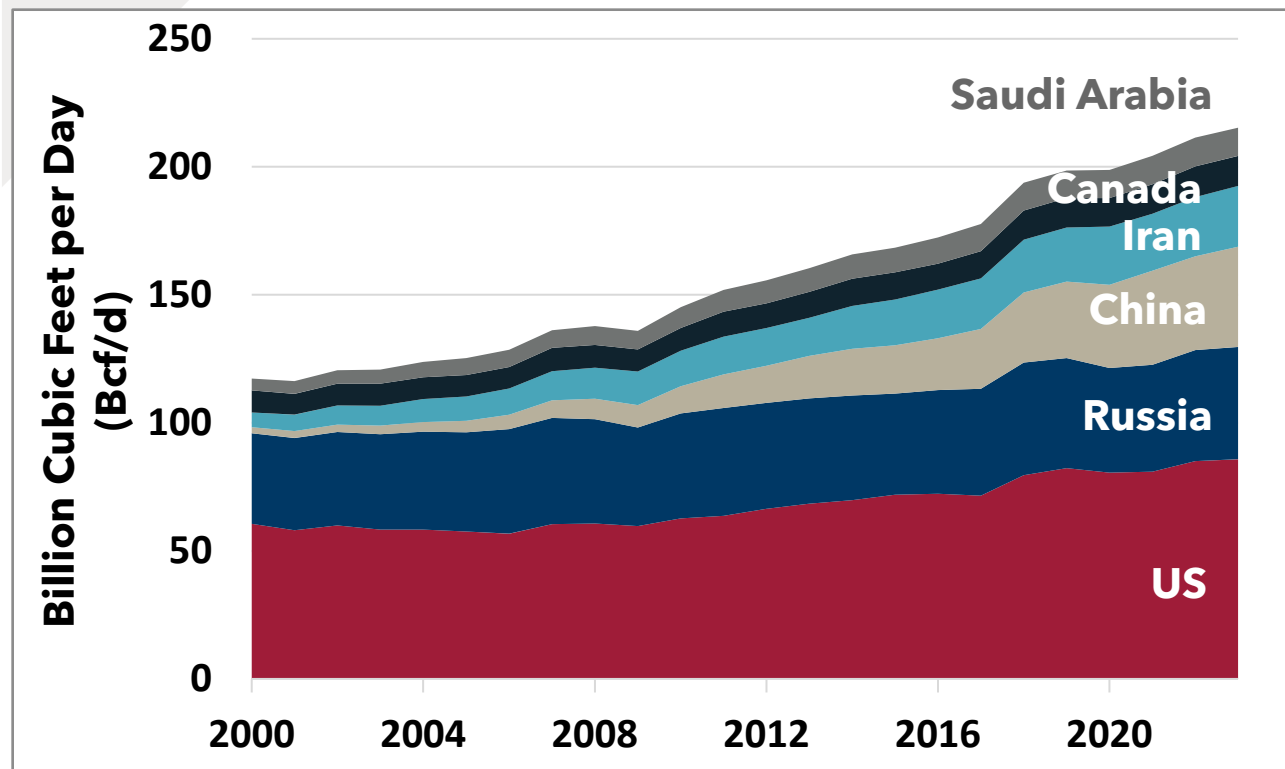
Ontario is the largest consumer of refined petroleum products (RPPs) in Canada, accounting for roughly 30% of total demand in 2023, or ~440 MB/d. Given its higher population, motor gasoline demand in Ontario was the highest in Canada in 2023 at approximately 261 MB/d.

Comparatively, as a percentage of its overall RPP demand in 2023, provinces such as Alberta (46%), BC (40%), Saskatchewan (60%), and Manitoba (37%) consume a higher proportion of diesel for agriculture, and for heavy industry and trucking as a result of more industrial economies.

Provinces in Atlantic Canada utilize a higher proportion of fuel oil for heating and marine transportation.

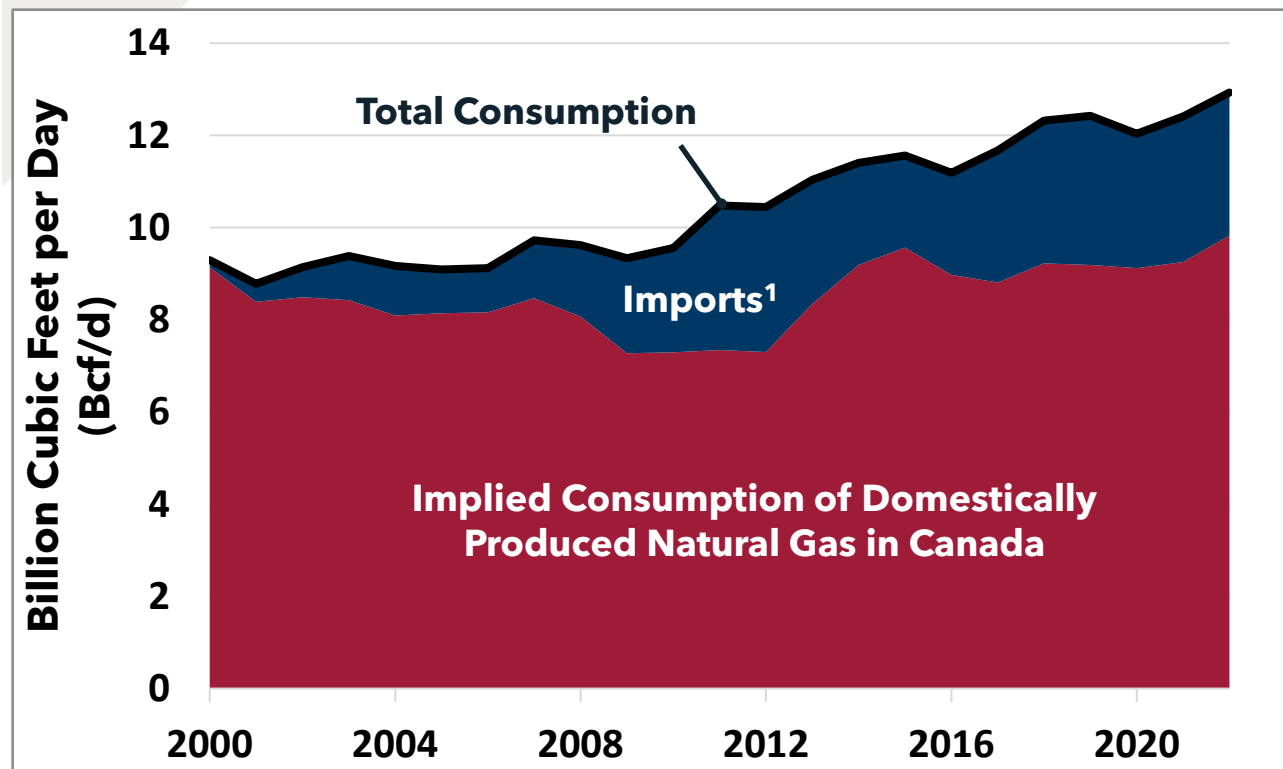
Domestic Natural Gas Consumption

Global Natural Gas Consumption by Select Countries | Annual | 2000 to 2023



- Despite a relatively low population, Canada is the fifth largest consumer of natural gas in the world, accounting for roughly 3% of global natural gas demand in 2023.
- Since 2010, natural gas demand in Canada has grown by 32%.
- The US, the world's largest consumer of natural gas, accounted for ~22% of global natural gas consumption in 2023, or ~86 Bcf/d.
- The world's top six natural gas-consuming countries (US, Russia, China, Iran, Canada, and Saudi Arabia) accounted for 55% of global natural gas demand in 2023.

Canada Implied Consumption of Domestically Produced Natural Gas | Annual | 2000 to 2023

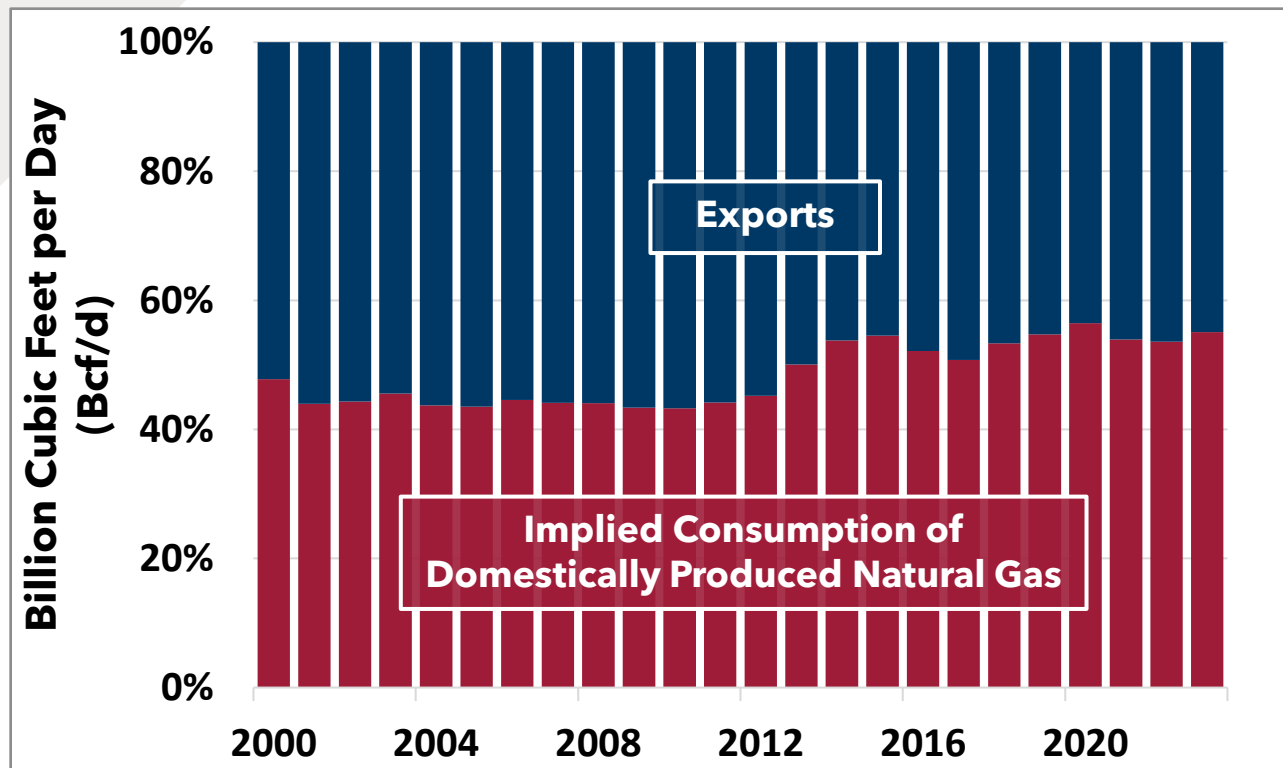


Since 2000, Canadian natural gas consumption has increased, averaging ~13 Bcf/d in 2023, up roughly 40% from 2000 levels, primarily driven by the industrial sector, particularly related to the oil sands.

Net of natural gas imports⁽¹⁾, the implied consumption of domestically produced natural gas in 2023 was 10.2 Bcf/d, equating to ~78% of total demand.

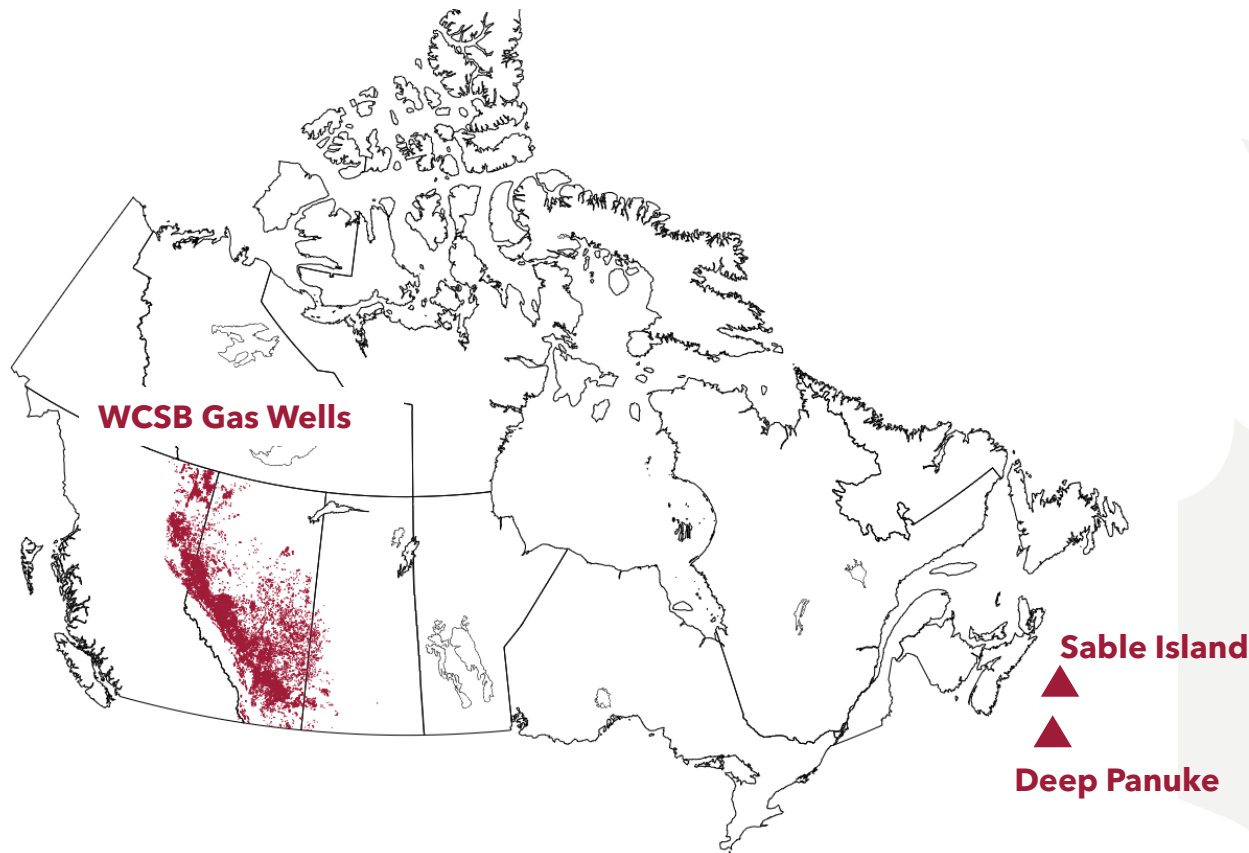
Eastern Canada and Atlantic Canada's reliance on supply from the US started growing in 2008. Increased imports resulted from a surge in US production from the development of low-cost shale gas and a shortage of pipeline capacity connecting demand to production in Western Canada.

Disposition of Canadian Natural Gas | Domestic Consumption vs. Exports | Annual | 2000 to 2023



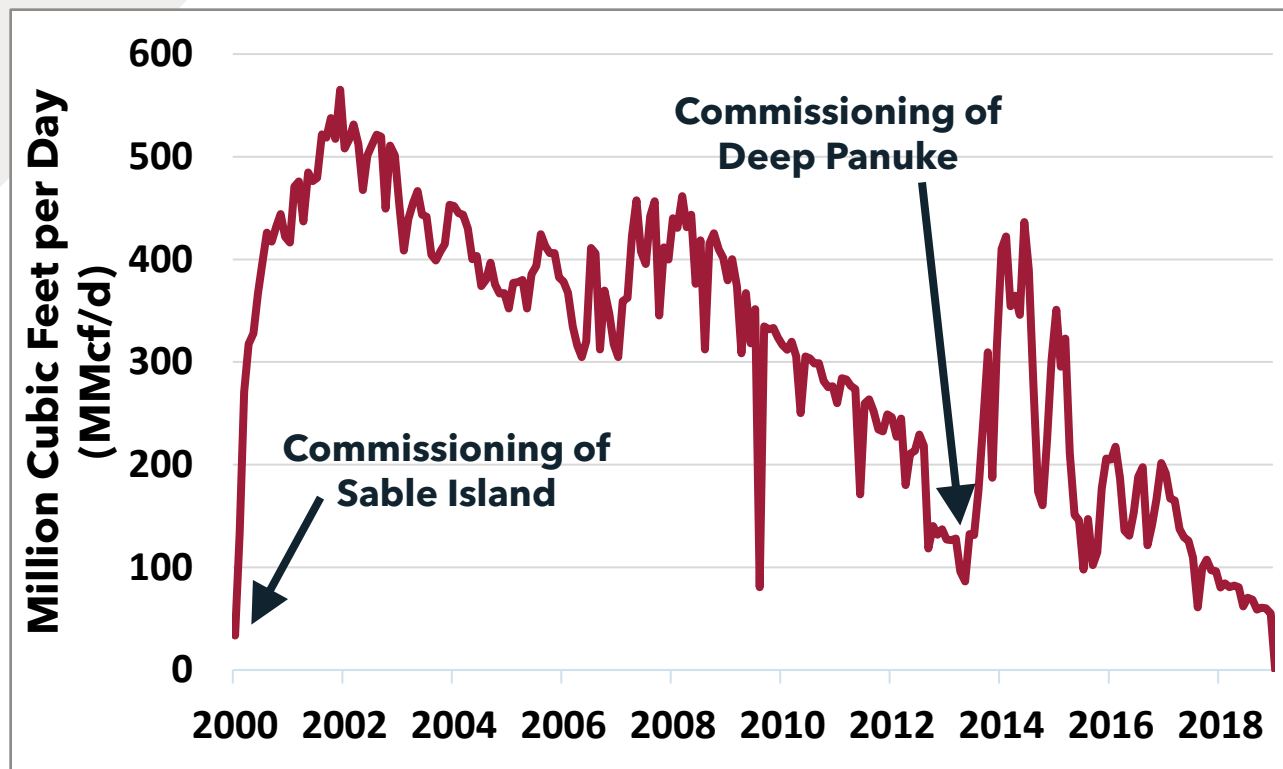
- Since 2000, domestically produced natural gas consumption as a percentage of total domestic production has ranged from ~45% to ~55%.
- Western Canada meets its demand needs with domestically produced natural gas.
- Ontario and Quebec rely on a mix of Western Canadian supply and US imports.
- Atlantic Canada no longer has marketable natural gas production and now relies on US imports and LNG imports via the Saint John regasification terminal in New Brunswick to meet demand.

Geography of Canadian Natural Gas Supply



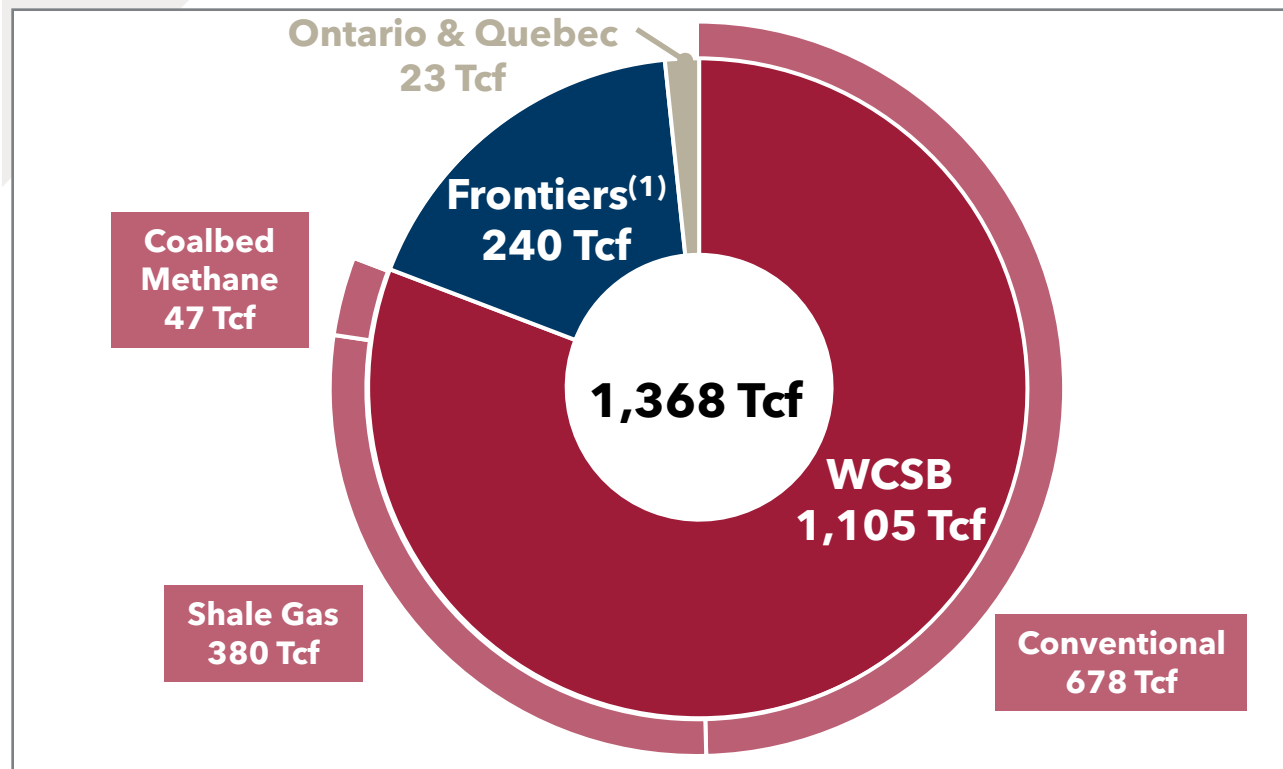
- Nearly all of Canada's marketable natural gas production occurs in the Western Canadian Sedimentary Basin (WCSB) in the provinces of Alberta, BC, and Saskatchewan.
- Natural gas was previously produced in offshore Nova Scotia at Sable Island and Deep Panuke. Production from these sources ended in 2013 and 2018, respectively.

Nova Scotia Marketable Natural Gas Production | Monthly | Jan 2000 to Dec 2018



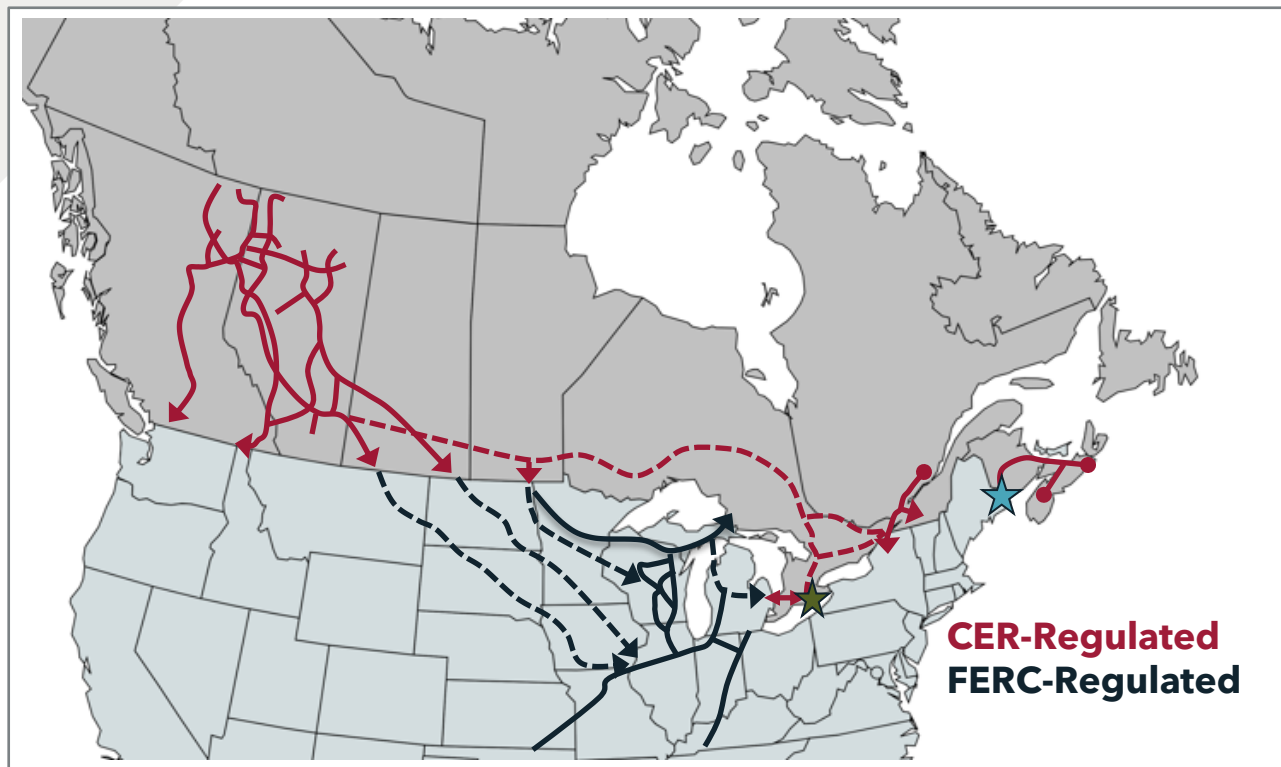
- ▶ Marketable natural gas production in Nova Scotia commenced in 2000 following the commissioning of Canada's first offshore natural gas project, Sable Island. Another project, Deep Panuke, was then commissioned in 2013.
- ▶ Offshore natural gas production in Nova Scotia ended in December 2018, and both projects have been plugged and abandoned following a period of production decline.
- ▶ Collectively, the Sable Island and Deep Panuke projects produced over 2.7 Tcf while operational.⁽¹⁾₍₂₎

Natural Gas Resource Base in Canada | 2022



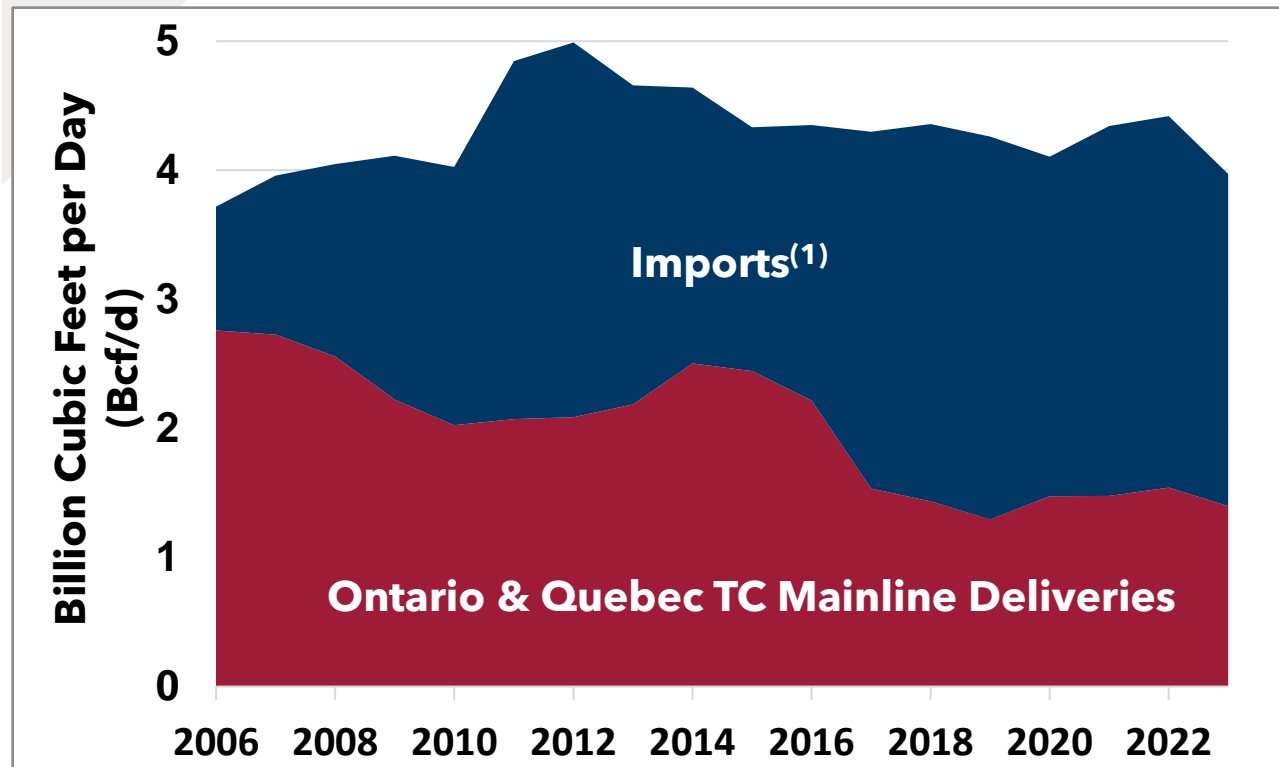
- According to data from Canada's Energy Future 2023, as of 2022, it is estimated that there is a natural gas resource base of 1,368 Trillion Cubic Feet (Tcf) in Canada, which equates to over 250 years worth of Canada's current consumption level.
- Over 80% of Canada's natural gas resources are in the Western Canadian Sedimentary Basin (WCSB). However, there is also significant resource potential in Atlantic Canada, with roughly 85 Tcf of resource (captured in the Frontiers category).

Canada and US Natural Gas Pipeline Infrastructure⁽¹⁾



- The TC Canadian Mainline (red dashed line) transports natural gas produced in Western Canada to markets in Eastern Canada.
- The Alliance, Northern Border, Great Lakes Gas Transmission, and Viking Gas Transmission pipelines (black dashed lines) supply markets in the US Midwest with Canadian gas, some of which is re-exported back into Ontario. These pipelines also supply US gas to Canada via various interconnects (not shown).
- US gas is also primarily imported into Ontario at Niagara and Chippawa (green star) and into New Brunswick (blue star) via US pipelines (not shown).

TC Canadian Mainline Ontario and Quebec Pipeline Deliveries | Annual | 2006 to 2023



Pipeline deliveries to Ontario and Quebec via the TC Mainline have steadily decreased following the expansion of US natural gas production and associated infrastructure build-out to accommodate increased transportation of US gas into Canada. In 2023, combined Mainline deliveries into Ontario and Quebec from the WCSB were ~1.4 Bcf/d, down from ~2.8 Bcf/d in 2006.

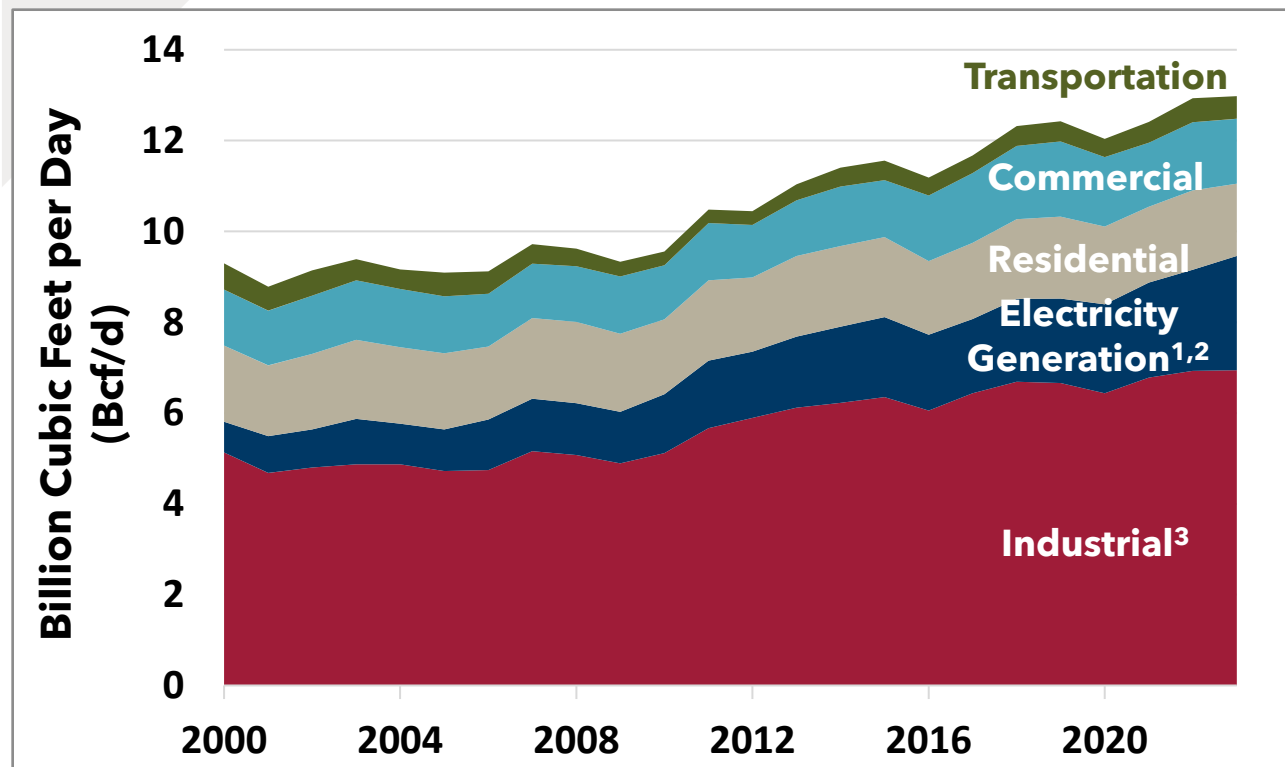
High transportation costs on the TC Mainline have hindered Canada's ability to re-capture market share. However, due to long-term fixed contracts in 2017, followed by a reduction in base tolls from 2021 to 2026 and resulting rate rider reductions as part of a toll settlement, subsequently lower tolls have stopped further erosion of Canada's market share.

End-Users of Natural Gas

The primary end-users of natural gas include the following sectors: industrial, electricity generation, residential, commercial, and transportation. In Canada, over 20 million Canadians use natural gas every day¹.

- Uses of natural gas in the **industrial sector** include fuel for the generation of steam, source of process heat, and as a feedstock in the production of petrochemicals and fertilizers, amongst others.
- Natural gas is also used for **electricity generation** by industry and utilities. Utilities then sell electricity to end-users in the residential, commercial, industrial, and transportation sectors.
- In the **residential and commercial sectors**, natural gas uses include but are not limited to, space heating, water heating, cooking applications, and clothes drying.
- The residential sector includes single-family residences, apartments, apartment hotels, condominiums, and farm homes. In Canada, nearly 50% of all residential consumers rely on natural gas for heating, cooking, and fueling appliances¹.
- The commercial sector includes service industries related to mining, transportation, storage and warehousing, communications and utility (excluding electricity and natural gas), wholesale and retail trade, finance and insurance, real estate and business service, education, health and social services, and other service industries.
- Additionally, although a relatively small consumption wedge, natural gas is used as an alternative fuel in the **transportation sector**. Some heavy-duty fleets are switching to natural gas to fuel trucks and buses to help reduce emissions.

Canadian Natural Gas Consumption by Sector | Annual | 2000 to 2023



- The industrial sector is Canada's largest natural gas consumer, accounting for ~7 Bcf/d or 53% of total demand in 2023. Comparatively, the electricity generation, residential, commercial and transportation sectors accounted for roughly 19%, 12%, 11% and 4% of total demand, respectively.
- Since 2000, Canada's growth in natural gas demand has been primarily driven by the industrial sector, particularly the "mining and oil and gas extraction" sub-sector.
- Electricity generation (2.5 Bcf/d), residential (1.6 Bcf/d), commercial (1.4 Bcf/d), and transportation (0.5 Bcf/d) demand accounted for the remaining balance in 2023.

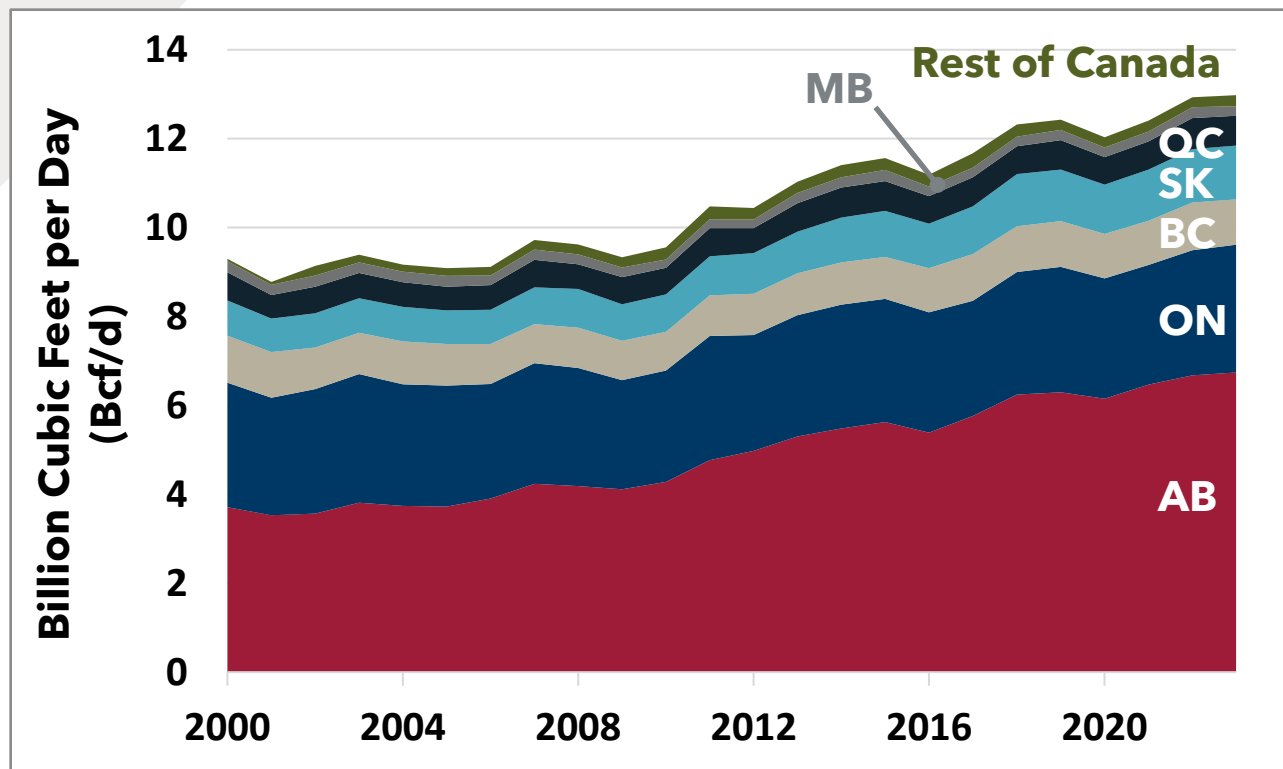
Source: Statistics Canada. Table 25-10-0029-01 [Supply and demand of primary and secondary energy in terajoules, annual](#)

(1) Includes natural gas transformed to electricity by utilities and industry

(2) Data unavailable from 2005-2013 due to confidentiality. Data was inferred during this period as a result.

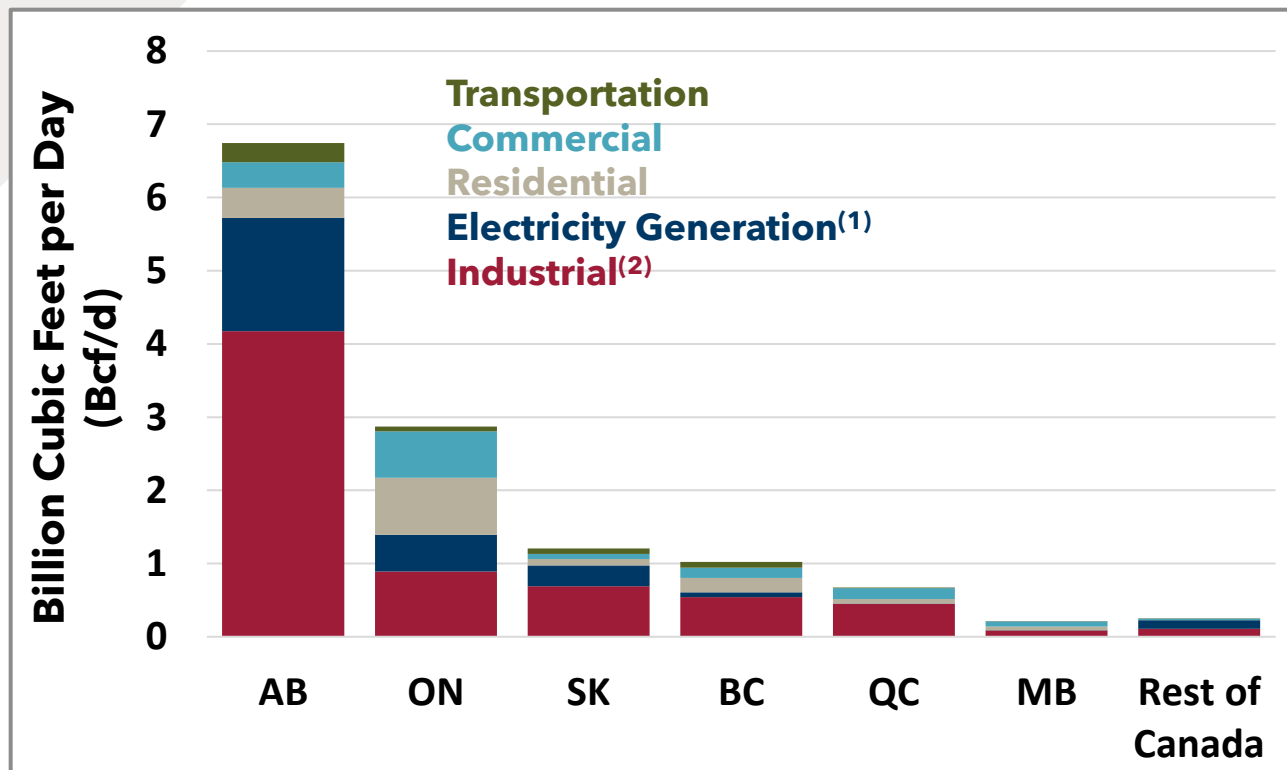
(3) Includes producer consumption, non-energy use, public administration, and agriculture, fishing, hunting, and trapping

Natural Gas Consumption by Province | Annual | 2000 to 2023



- ▶ Alberta is Canada's largest consumer of natural gas, accounting for more than 50% of the country's total demand, and more than double the second-largest consumer, Ontario.
- ▶ In 2023, Alberta consumed ~6.7 Bcf/d, 100% of which was domestically sourced.
- ▶ Canada's natural gas demand is predominantly concentrated in Alberta, Ontario, BC, Saskatchewan, Quebec, and Manitoba.
- ▶ Natural gas demand from the remaining provinces and territories is small due to the sparse population and a lack of infrastructure..

Provincial Natural Gas Consumption by Sector | 2023

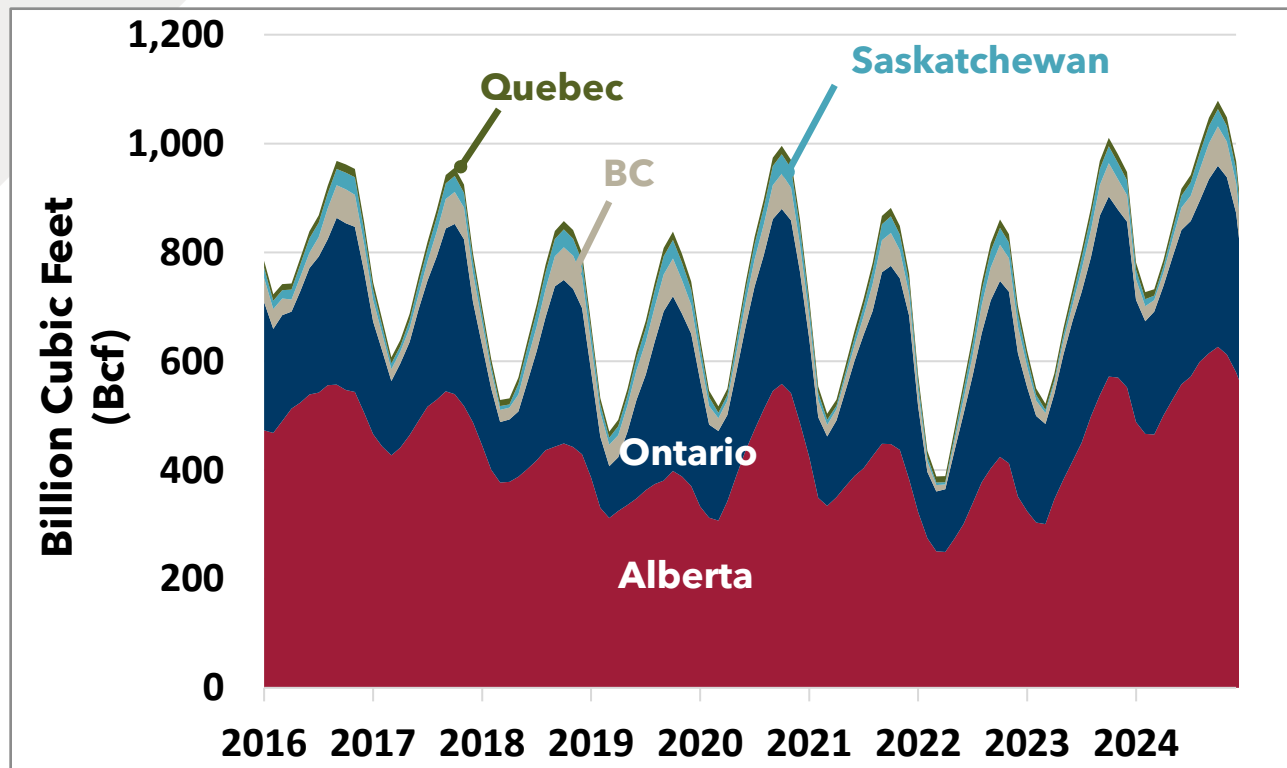


➤ The industrial sector is the largest consumer of natural gas in each province. In 2023, at ~4.2 Bcf/d, Alberta's industrial sector demand was roughly 5x greater than Ontario's, the second-highest industrial-consuming region.

➤ A large portion of the industrial demand in Alberta comes from the oil sands, which use natural gas to generate steam to heat underground reservoirs, separate bitumen from sand, upgrade the bitumen, and generate electricity.

➤ Compared to the rest of Canada, Alberta also relies heavily on natural gas for electricity generation.

Natural Gas Storage in Canada | Monthly | 2016 to Dec 2024



➤ Natural gas storage ensures the reliability of supply amidst seasonal demand fluctuations, particularly in winter months when demand can be 1.5-2X times greater than in the summer. Thanks to storage, natural gas is readily available and can be quickly deployed during periods of high demand, particularly when renewable sources such as wind and solar are producing less energy. This flexibility can complement renewable sources with less reliability to maintain a stable power supply.

➤ In recent years, Canada's cumulative storage levels have exceeded ~1 Tcf during injection season due to warm winters. There are numerous storage facilities throughout the highest-consuming regions in the country.