Trans Mountain Expansion: Connecting Canada's Energy to the World

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Key implications

The Trans Mountain Expansion (TMX) project, completed and commissioned on May 1, 2024, is a significant milestone for Canada's energy sector. This project — which involved twinning the existing pipeline from Edmonton, Alberta to Burnaby, British Columbia — has substantially increased Canada's crude oil export capacity, offering much-needed stability for Western Canadian oil prices.

- **Incremental crude export pipeline capacity provides access to waterborne markets.** TMX added 590,000 b/d of export pipeline capacity, and for the first time provides Canada meaningful access to global markets. The project has improved Canada's access to international crude markets, particularly in Asia and the US West Coast.
- **Excess export pipeline capacity, at least in the short term.** Despite the challenges and delays prior to the start-up of the pipeline, TMX has provided a cushion of excess pipeline capacity for the crude export system, thereby reducing logistical bottlenecks and helping to stabilize Western Canadian crude prices. However, this excess pipeline capacity may be short-lived as Western Canadian production growth through 2026 will increase pipeline utilization rates and additional pipeline space will be needed.

Background of the TMX project

Trans Mountain Corp. — owned by the Government of Canada — completed and commissioned its 590,000 b/d expansion of the pipeline system on May 1, 2024. TMX is a twinning of the existing 300,000 b/d pipeline that runs from Edmonton, Alberta to Burnaby, British Columbia, which had been operating since the early 1950s.

The expansion pipeline carries mostly heavy crude oil. About 80% of the pipeline's 890,000 b/d total system capacity is utilized by committed long-term shippers, typically under 15- to 20-year contracts. The remaining 20% is available for spot market movements.

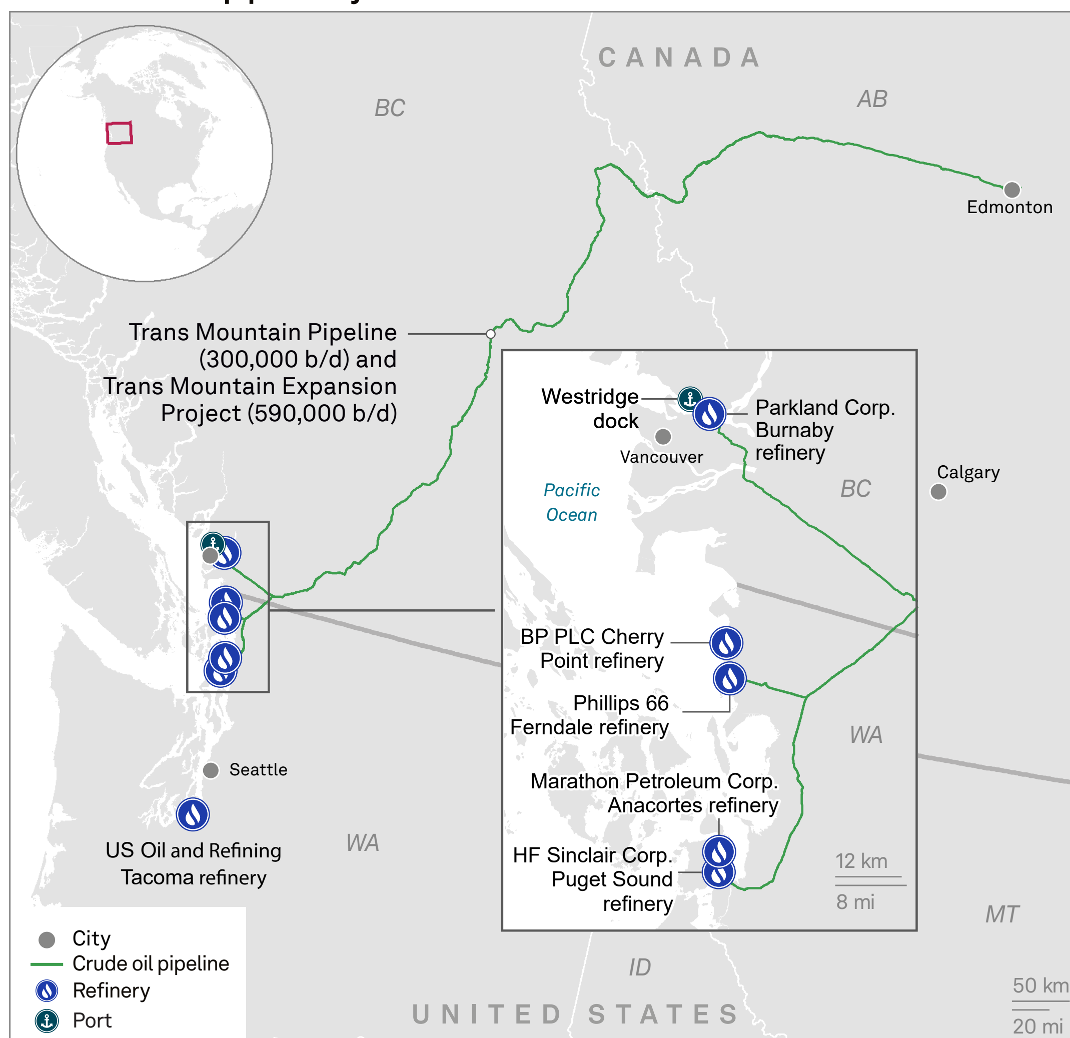
In addition to the incremental pipeline capacity, the expansion project added three new berths at the Westridge Marine Terminal, increasing Canadian crude access to global markets, including Asia and the US West Coast. These three berths provide capacity for up to 34 Aframax-sized tanker loadings per month.[1]

TMX has the potential to be the last entirely new crude oil export pipeline to be built in Canada. The project was initially proposed in 2013 and took more than a decade to complete because of regulatory hurdles, legal challenges, cost overruns and construction complications. These difficulties led to then-owner Kinder Morgan Inc. to sell it to the Canadian government in late 2019. Originally anticipated to be in service by late 2019 at a cost of C$6.3 billion, the expansion commenced operations over four years later at an estimated cost of C$34 billion.

TMX has now been in service for nine months, providing a preliminary view of its impact on Western Canadian oil prices, crude oil trade flows and production trends.

Figure 1

Trans Mountain pipeline system



Data compiled Jan. 17, 2024.
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1. See *Trans Mountain Expansion details*, accessed Oct. 17, 2024.

How has TMX affected Western Canadian crude prices, and what can we expect in the future?

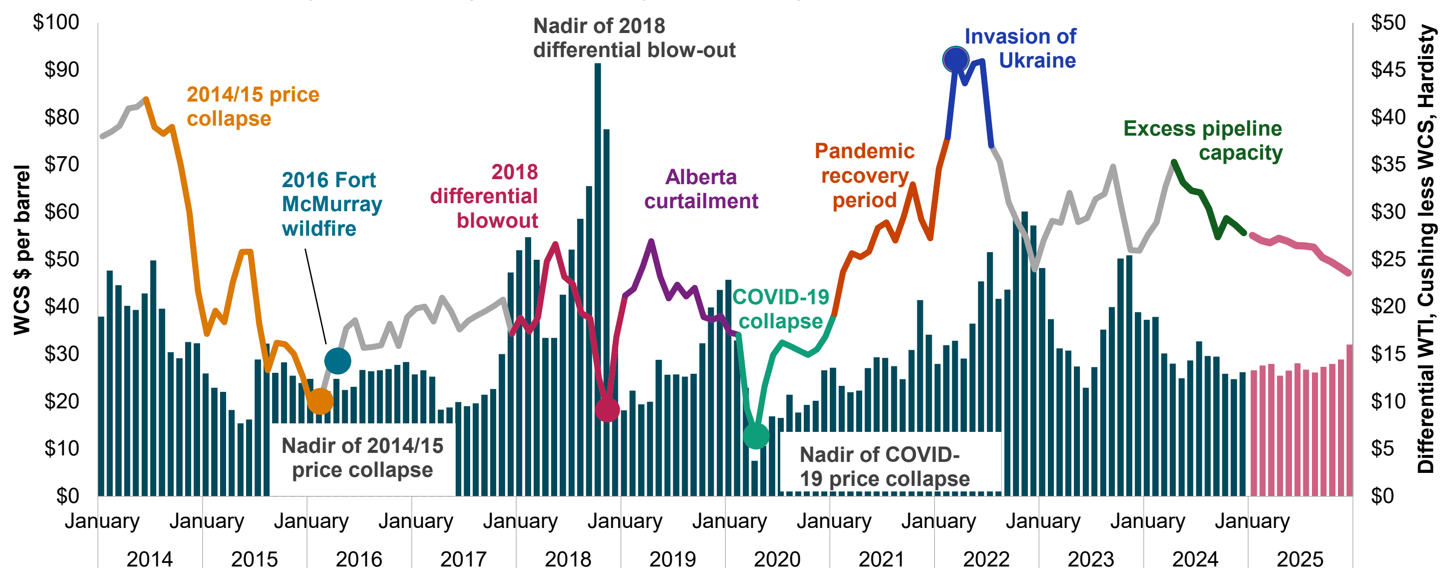
TMX provides Western Canada with a cushion of excess pipeline capacity for the first time in decades. A history of just-in-time incremental pipeline capacity and pipeline projects that were announced but not completed led to periodic oversupply of crude and extreme volatility of price differentials in Western Canada.

Western Canada has three major crude export pipelines — South Bow Corp.'s Keystone system, Enbridge Inc.'s Mainline system and the Trans Mountain's system — as well as a few smaller cross-border export pipelines. Over the past decade, as oil production has grown, pipelines struggled to meet export demand. This situation has periodically led to Western Canadian crude oil price instability, including a period in late 2018 when Western Canadian Select (WCS) fell to more than $45/b below West Texas Intermediate (WTI), prompting the Alberta government to intervene and mandate an industry-wide production curtailment.

Government action — while controversial — stabilized prices, with the differential narrowing to an average of $14/b in 2019. However, it was relatively short-lived: as Western Canadian crude production continued to rise, export pipeline utilization again reached maximum levels, even with additional capacity from projects like Enbridge's Line 3 replacement. As a result, in 2022 and 2023 the WCS discount to WTI once again widened to $20/b or more at times. These bottleneck-led price discounts caused economic harm to producers and reduced government royalties.

Since TMX entered service early in 2024, the differential between the heavy benchmark WCS price and the US WTI benchmark has fluctuated in a relatively tight band between $12.50/b and $16.50/b, even as Canadian production has risen to new records. This is the expected band assuming pipeline bottlenecks do not return.

Figure 2



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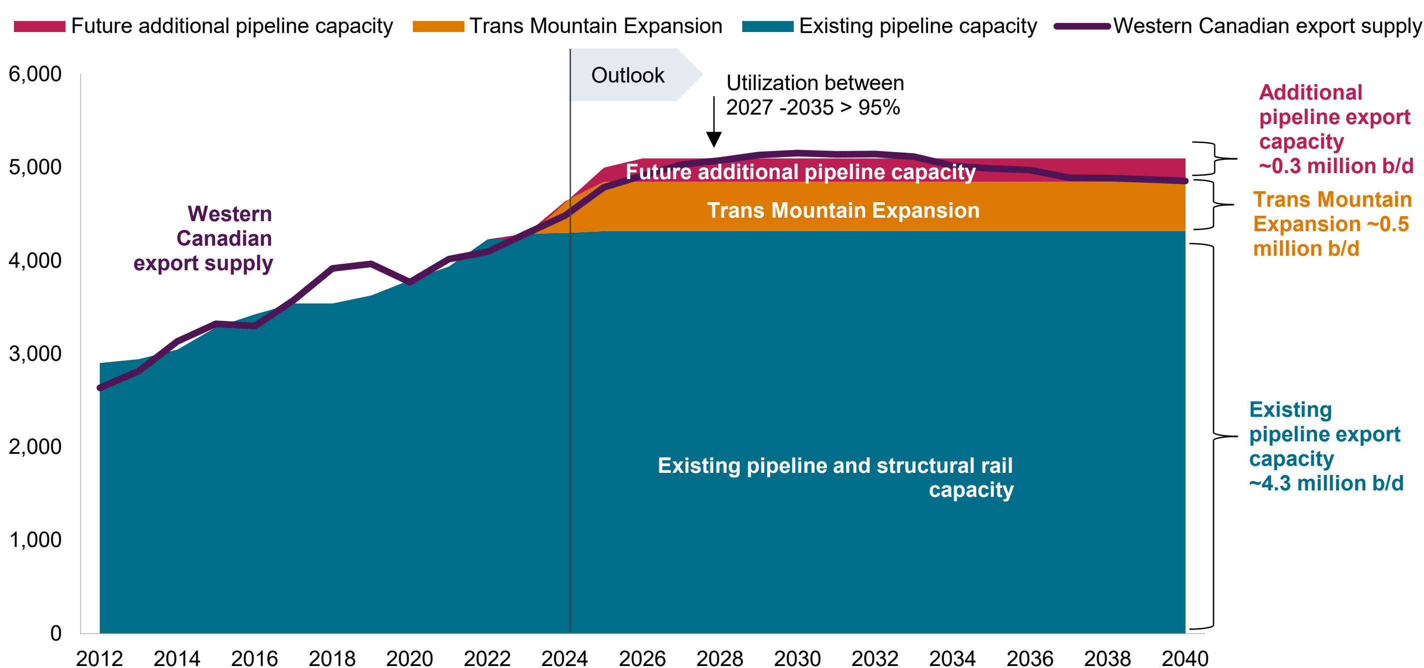
TMX has brought some reprieve to the strained system, but it may be short-lived. Western Canadian supply is expected to increase by nearly 700,000 b/d by the end of this decade compared to the 2023 annual average, which will increase pressure on the existing export system, including TMX. While no large-scale oil sands projects are being built, Western Canadian production is still growing as operators optimize and debottleneck their existing oil sands assets. These incremental projects tend to be more capital-efficient, quicker to complete, and utilize existing infrastructure.

Based on this production outlook, absent additional pipeline optimizations or expansions S&P Global Commodity Insights projects that Western Canadian export pipelines will reach capacity by early 2026, with greater pressure by winter 2027, as seen in Figure 3. At that point, there would be an increased risk of the return of crude price volatility and increased use of less-efficient rail to bring oil to market.

Beyond TMX, there is potential to expand Western Canada's existing pipeline system to give it more breathing room. Both South Bow and Enbridge have stated they could optimize their existing Keystone and Mainline systems through engineering work. If both projects are completed, they would add about 300,000 b/d. Enbridge has stated it is targeting late 2026 to expand its system while South Bow's plans are less clear. Although Trans Mountain has made no mention of additional incremental capacity to date, there may be potential on the system, but there may be issues related to marine loading to address.

Figure 3

Western Canada crude oil pipeline export capacity, thousand b/d



As of Jan. 16, 2025.
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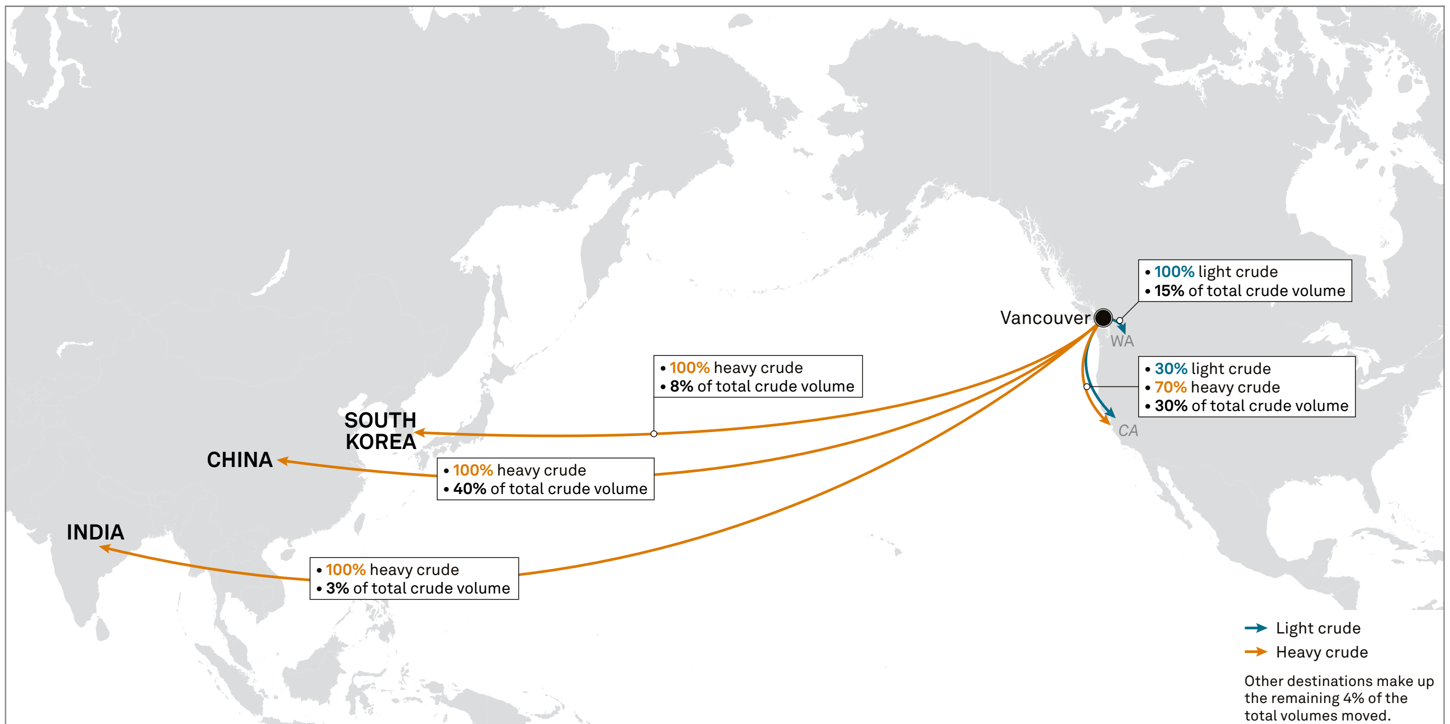
Where are TMX cargos going, and how will trade flows change?

The first crude tanker loaded with Canadian crude left the Westridge Marine Terminal in late May 2024. In the first nine months of operations, 170 ships have left the terminal, according to S&P Global Commodity Insights' Commodities at Sea service. As noted in Figure 4, about 75% of all cargos have been loaded with heavy crude. The balance — roughly 25% of the cargos — have been loaded with light, sweet crude.

As predicted, in the first few months of operation, cargoes of crude oil were taken at several different markets for refineries to test the crude grade in their facilities. Some of these markets may not continue to take crude cargoes on a long-term basis, depending on the outcome of their test runs. As noted in Figure 4, China has been the primary international destination, accounting for more than 85% of all overseas voyages, although tankers have also moved to India, South Korea, Japan and Brunei. All these cargoes have been heavy crude oil. Most US-bound tankers have unloaded in California, taking both light and heavy crude oil, with the remainder heading to Washington state and a refinery in Alaska, both destinations acquiring light crude.

Figure 4

Crude oil tanker movements from TMX to destination countries



Data compiled Nov. 20, 2024.

Source: S&P Global Commodity Insights: IC-2014934.

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The US West Coast is an attractive market for TMX shippers because it remains import dependent. Its refiners have been supplementing declining availability of California and Alaskan crude primarily with oil from the Middle East and Latin America, including heavy grades. TMX cargos into the West Coast are displacing some of these imports, especially medium sweet crudes from Latin America, which have undergone a clear decline.

The pattern for TMX crude cargoes is likely to remain the same through the end of this decade — predominantly heavy crude heading to California and Asia. Over the longer term, however, Asia is likely to take a growing share of TMX crude as refinery processing in California is expected to continue declining, as electric vehicles and government policy push for low-carbon fuels and lower consumption of gasoline, diesel and other products in the state. In contrast, Asia is expected to see refinery consumption increase through 2040. India will lead the growth in refinery runs as new refining capacity is installed and high utilization rates are maintained. China will see some refinery run growth in the short term, although it will start to decline through 2030–2040, with smaller refineries expected to close. However, China will remain a very large crude importer over the long term, with an interest in keeping its imports well diversified.

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