New Pipeline Projects Appear Enough to Solve Recurring Capacity Constraints for Canadian Crude--But Permanent Relief is Not Guaranteed

Despite major capacity additions and more on the way, the western Canadian pipeline system could run tight by the late 2020s, S&P Global Commodity Insights analysis finds

CALGARY, AB, Sept. 20, 2022 /PRNewswire/ -- One of the main challenges for the growing western Canadian oil industry—a recurring shortfall in export pipeline capacity and the oil price instability that comes with it—has been alleviated by major capacity additions, with another project that would provide more breathing room close to completion. However, a S&P Global Commodity Insights analysis finds that the situation may not last, and may experience tightness again in the future, depending on various factors.

The analysis by the S&P Global Oil Sands Dialogue finds that western Canadian pipeline takeaway capacity should be adequate, with prices in the basin more predictable for the foreseeable future as a result.

Nevertheless, by the late 2020's overall pipeline system utilization could exceed 90% on an annualized basis, leaving little cushion to adjust to any system upsets should they occur.

"At first glance, it appears that Canadian crude exports may avoid any major bottlenecks and transportation-driven price discounts over the next decade," said **Aaron Brady, vice president, energy oil market services, S&P Global Commodity Insights**. "However, our analysis indicates western Canada may not be entirely out of the woods. The system appears it may run quite full later this decade, raising the risk of future regional price instability should upsets occur in the transportation system through to end-refineries."

The Enbridge Line 3 Replacement Project (completed in 2021) and the soon-to-be-completed Trans Mountain Pipeline Expansion Project, along with potential expansions to existing systems could increase pipeline capacity by more than 1.2 million barrels per day by 2030. However, western Canadian crude production is expected to continue to grow through the decade and could exceed 5.3 million barrels per day (MMb/d) by 2030—growth of about 715,000 b/d compared to 2021.

In addition to supply growth, several other factors could result in a future where the unimpeded flow of Canadian crude oil exports may not be as secure as it currently appears:

- **Nameplate pipeline capacity is not equivalent to effective capacity** – Pipelines seldom operate at nameplate capacity. For example, there can be seasonal variations in operating rates owing to shifts in the type of crude being shipped that can impact system capacity (heavy crude travels more slowly in pipelines than light crude, lowering effective system capacity). Seasonal pipeline maintenance and occasional operational upsets also mean effective capacity is generally below design capacity.

- **Pipelines are not homogenous or interchangeable** – some pipelines are dedicated to heavy crude oil transport, while others service only lighter grades. Some more complicated systems (collections of interconnected pipelines) may have some ability to manage shifts in supply of light versus heavy grades. However, the adequacy of the entire western Canadian pipeline system's export capacity can overstate the capacity available for a particular grade.

- **Downstream markets will change over time** – Canada is unique among major global crude oil exporters in that it relies almost entirely on overland pipeline transport to access end markets. Overland pipeline transport offers less optionality than waterborne transport where exported cargos can move to the greatest source of demand globally. The risk for Canadian producers is that over time and especially as the energy transition accelerates, downstream refinery demand at the end of pipelines could shift. More than 1.3 MMb/d of North American refining capacity has been rationalized in the past 3 years, with more expected.

- **Existing pipeline export capacity can decline over time** – Pressure limits can be required as pipelines age, reducing throughput capacity. Aging pipelines can be replaced with the latest technology, as was the case with the Line 3 Replacement Project. However, even projects that are designed to increase safety and address any previous shortcomings have met opposition.

- **Adequacy of export capacity is linked to crude production** – The oil sands outlook has fallen over time and current growth is largely underpinned by existing installed capacity. The oil sands industry has a rich history of technological innovation. New advances could enable a higher production growth rate. A simple 1% annual improvement on a system of more than 3 MMb/d from 2021 to 2030 could result in more than 250,000 b/d of new production. Higher production would increase the risk that supply could exceed export pipeline capacity.

"Straight-forward comparisons between expected export supply and pipeline capacity mask a more complex system," said **Kevin Birn, vice president, GHG estimation and coordination and chief analyst, Canadian oil markets, S&P Global Commodity Insights**. "A prudent outlook should consider the real-life constraints and challenges that occur in a pipeline system as complex as that of western Canada, through which currently nearly 4 million barrels of crude oil—from ultra-light to extra-heavy are shipped often thousands of miles each day to dispersed refineries across the continent."

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