

RECONSIDERING THE NEED FOR NEW OIL PIPELINE CAPACITY IN CANADA

Summary

This brief debunks four inaccurate arguments for the creation of major new export oil sands pipelines:

- Oil production in western Canada will soon exceed pipeline capacity
- There are significant benefits from accessing new overseas markets such as Asia
- Greater pipeline capacity and access to tidewater would reduce the price differentials that Alberta producers receive for their crude oil exports
- Reductions in emissions intensity will mitigate the climate impact of substantial increases in oil sands production

The evidence shows that major new export pipelines like TransCanada’s Energy East and Kinder Morgan’s Trans Mountain Expansion are not needed to transport oil from projects that are currently operating or are under construction in Canada. These multi-billion dollar pipeline projects would only be required if significant future expansion of oil sands production were to occur at levels that would push Canada well beyond established climate pollution limits and Alberta’s emission cap.

The latest analysis of real-world takeaway oil capacity from the Western Canadian Sedimentary Basin using Oil Change International’s Integrated North American Pipeline model (INAP) demonstrates that new export pipelines are not required for producers to get their product to market from current and in-construction oil sands

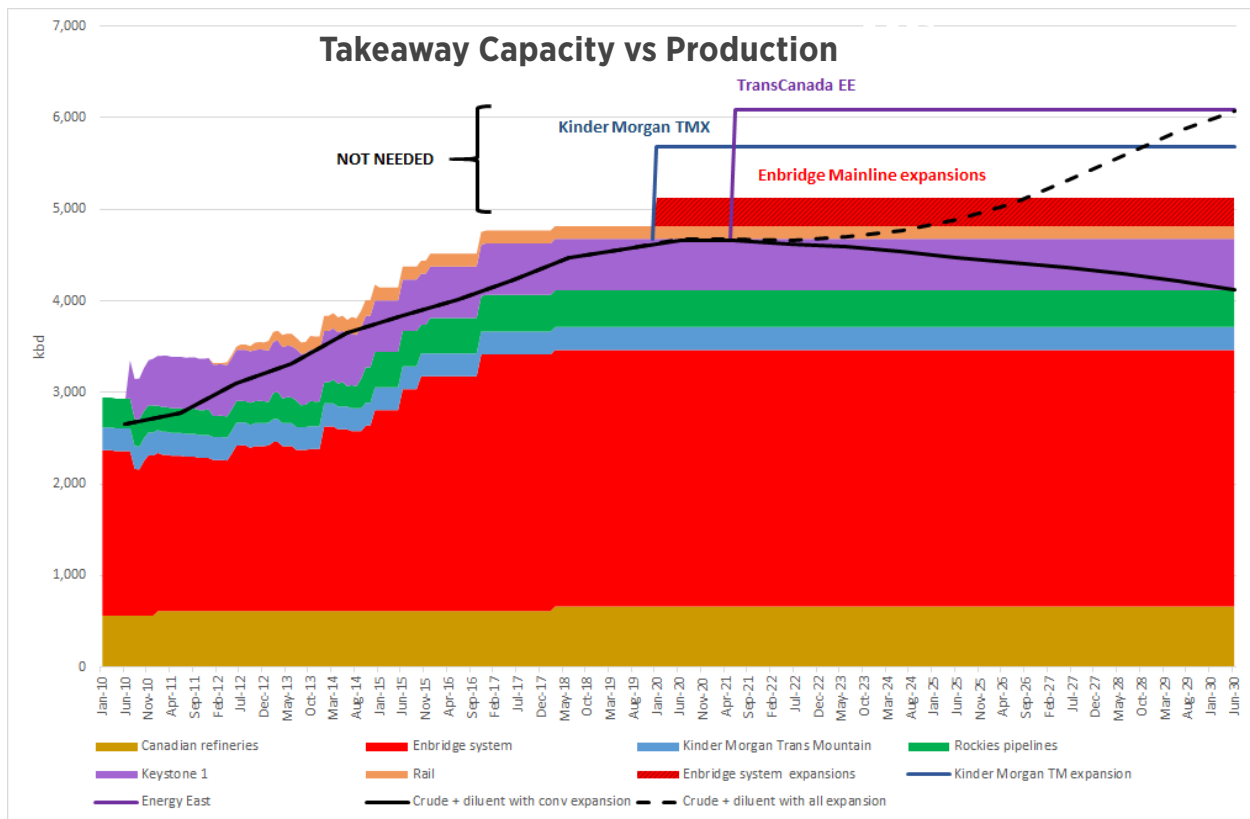


Figure 1 - Projected WCSB Oil Production vs Takeaway Capacity (OCI - INAP model, June, 2016 - Rystad

operations (solid line in figure 1). It shows that as of July 2016, there is more than 400 kbd of spare capacity in the pipeline system. It is likely that the oil industry could face one minor constraint, lasting no longer than 18 months around 2018. However, neither of the Kinder Morgan or TransCanada pipeline proposals could come online quickly enough to alleviate this constraint. After 2020, there would again be significant additional space in the system as planned Enbridge mainline expansions come online.

Only significant additional plans to increase production beyond projects already operating, in-construction or sanctioned would change this situation (see dotted line Figure 1) however, these expansions would compromise international efforts to keep global temperatures below safe levels and violate the Alberta government's oil sands emission cap. OCI's detailed and up-to-date model shows that claims about the urgent need for pipelines are unfounded.

The Canadian Association of Petroleum Producers (CAPP) have long argued that oil production will

soon exceed takeaway capacity. In June 2016, the annual 'CAPP Crude Oil Forecast, Markets & Transportation' report once again attempted to show that pipelines would be needed just to transport crude oil from existing and in-construction projects by the end of 2016 (figure 2). In fact, CAPP has wrongly forecast that oil production would exceed takeaway capacity within a year, every year, since 2012. It appears that CAPP forecasts have underestimated factors or excluded key data needed to construct a usable model.

Flaws in industry projections on pipeline capacity

- CAPP understates by 530 kbd the capacity of Alberta's refineries which can currently absorb 612kb/d of production domestically (according to CAPP's own statistical data), increasing to 660kb/d in 2018 when the Sturgeon refinery comes online, substantially reducing the total amount of crude that goes to export.

Existing WCSB Takeaway Capacity vs. Supply Forecast

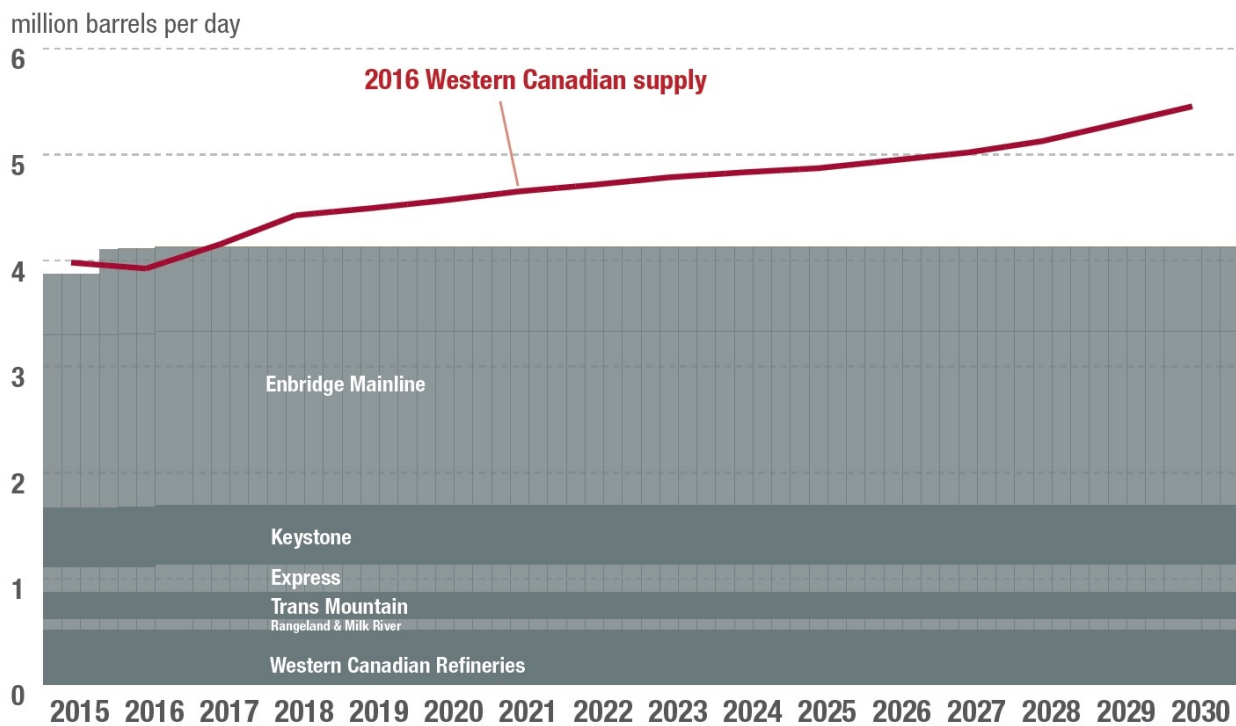


Figure 2 - WCSB Pipeline Takeaway Capacity vs. Supply Forecast (CAPP Crude Oil Forecast, Markets & Transportation, June 2016)

- CAPP does not include any rail capacity in their modelling, yet, there is approximately 140kb/d of western Canadian crude shipments continuing to move by rail in spite of ample pipeline capacity in the pipeline system and very challenging economics due to the oil price collapse. This shows that a small number of producers, primarily light oil producers in southern Alberta and Saskatchewan actually prefer to use rail to move their crude to market. (Again, this is from CAPP's numbers, which do not appear in its capacity assessment above).

	Effective takeaway capacity (kbd)
Alberta refineries	612
Enbridge system Pipelines	2565
Kinder Morgan TM Pipeline	250
TransCanada Keystone Pipeline	561
Rockies Pipelines	388
Rail	140
Total	4516

Figure 3 - Breakdown of current capacity in the North American crude oil transportation system from the Western Canadian Sedimentary Basin (OCI - INAP model, June, 2016 - Rystad UCube Database)

*No system operates at 100% efficiency, and so an average utilization over time is always less than the maximum daily capacity. However pipelines are very efficient systems, and often achieve utilization rates of 97% or more. The INAP model assumes a utilization rate of 95% of quoted capacity.

In addition to errors in calculating takeaway capacity, the June 2016 CAPP production forecast (see Figure 4) also assumes that companies will continue to sanction major new expansion projects in the future, something that would appear unlikely given current low oil prices and would be inconsistent with Canada's climate obligations

under the Paris Agreement and Alberta's emission cap.

Market diversification and access to Asia

There is little evidence to support industry claims that opening new market access to Asia will lead to increased revenue for the industry. The majority of new and additional crude exports from Canada are ultra-heavy oil sands crude and only specialized refineries (which contain coking units) are able to process heavy oil of this type. China currently does not have significant heavy crude oil refining capacity, limiting the market for importing Canadian oil. Installing coking units to handle oil sands crude is costly, and there are currently no plans to do so. In fact, the world's three largest heavy oil markets are all in the USA: the Gulf Coast, the Midwest and California. Canadian oil producers argue that upon building an export pipeline for oil sands crude, refineries in Asia would make the significant investment to add new coking capacity. This outcome is by no means guaranteed.

Canada's oil industry often expresses the desire to diversify its market away from one major customer, however this view is inconsistent with the nature of the crude oil market. Oil producers don't sell oil to countries, but rather to individual refineries. Canadian oil producers currently have access to a diverse group of at least 90 separate oil refineries, owned by 45 different companies in at least seven distinct markets across the continent.

Price Differentials

Canadian oil producers are already getting the highest possible price for their product. A briefing released by Oil Change International and partners in March 2016 demonstrated why increased access to tidewater would not improve the economics of today's oil sands production.

Back in 2012-2013, pipeline constraints did cause a period of price discounts for Canadian crude. However, those constraints and that discount no

longer exist. There are several factors that contributed to this change:

- Creation of new pipeline capacity between the mid-western crude oil terminal in Cushing, Oklahoma and refining markets on the Gulf coast has unlocked the regional transportation bottleneck that was causing an oversupply in the U.S. Midwest.
- The lifting of the 40-year U.S. crude oil export ban in 2015 has reduced market distortions between shale oil and oil sands crude oil at U.S. Gulf Coast refineries.
- A significant reduction in production expansion forecasts for the oil sands industry as a result in the crash in global oil prices has further reduced capacity constraints in crude oil transportation networks.

In spite of these changes, Canadian crude continues to sell for lower prices than some US crudes for two reasons: the geographical distance of the Hardisty pricing point from major crude oil markets, and the lower quality of ultra-heavy oil sands crude oils compared to other crude oils. These differentials cannot be alleviated through increased pipeline takeaway capacity.

Building new pipelines would not provide significant increases in revenue for either the oil industry or governments in Canada.

Exceeding pipeline capacity means exceeding climate limits

The sanctioning of new production growth beyond projects currently under construction is incompatible with Canada's global obligations to reduce climate pollution.

Table 2.4 Oil Sands Production

million b/d	2015	2020	2025	2030
Mining	1.02	1.38	1.41	1.53
<i>In situ</i>	1.34	1.69	1.87	2.14
Total*	2.36	3.07	3.28	3.67

*Total may not add up due to rounding.

Figure 4 - Oil sands production forecast (CAPP Crude Oil Forecast, Markets & Transportation, June 2016)

In spite of revising production growth forecasts down dramatically in recent years, CAPP continues to forecast an increase in oil sands production of 1.31 million bpd by 2030 from 2015 levels, a 36% increase (see figure 4). This increase in new oil production and the resulting greenhouse gas emissions would come at a time when Canada and countries around the world are obligated to dramatically reduce climate pollution. Meeting those obligations would mean Canada would need to restrict domestic oil sands production. Climate pollution limits will come into force long before oil production could reach levels that would necessitate additional pipeline capacity. New pipeline capacity would only be required if Canada intends to abandon its obligations to address the global climate crisis.

Potential for improvements in emissions intensity

Industry has indicated that it intends to mitigate the forecasted increases in absolute emissions from oil sands growth through rapid improvement in emission intensity.

Alberta's oil industry has often stated an aspirational goal of reducing emissions intensity to the level of conventional production, which would require a reduction of 50 - 75% intensity within 10 just years, to bring oil sands production emissions "in line with much of the world's conventional resource."

There is little evidence to date that reductions on this scale will be possible.

Researched and written by:
Adam Scott and Greg Muttitt

For further details:
Adam Scott
Oil Change International
Adam [at] priceoil.org

