In Focus

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ECONOMICS

Pipelines: Easing the Bottleneck

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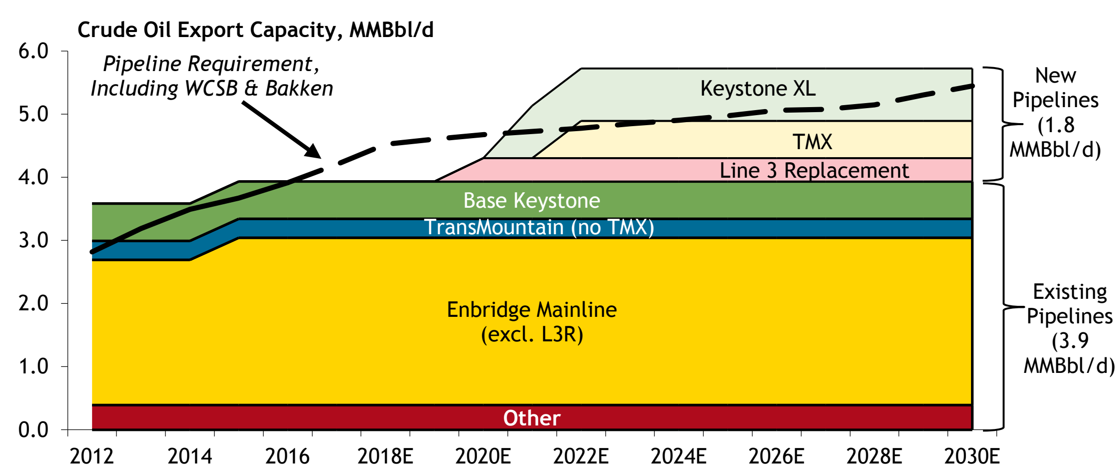
The current pipeline infrastructure in Canada is designed to meet the needs of the past, less so the present, and clearly not the future. The mismatch in the energy market is becoming more evident by the day. The twin factors of the fracking revolution and rising oil sands production are leading to greater access to crude supply in the interior while coastal regions are increasingly facing reduced access to oil and higher feedstock prices. At the margin, demand for oil in North America is falling—reducing intra-continental export opportunities, while Asian markets are expected to dominate demand growth in the coming decades. Simply put, the current pipeline system is ill-equipped to deliver products to where they are needed the most.

The cost is evident. We are already in a situation where production has surpassed takeaway capacity, with the WCS-WTI spread spending more time at wider levels. We estimate that a widening WCS discount has cost the energy sector north of C$12bn in forgone revenues over the past five years—on top of the actual cost of increased reliance on expensive rail transportation and reduced investment.

That cost will rise as pipeline capacity remains constant until 2020 while production rises. By 2020 spreads should narrow again as capacity will be enhanced by the activation of Line 3, to be followed by the Keystone XL line in 2021. However, that extra capacity will not shield the industry or the country from the high cost of disruptions akin to the one we witnessed last November.

There is a clear and urgent need to find a way to ship Canada's oil in a sustainable way to Asian markets, the Gulf coast, eastern Canada and the US eastern seaboard, while looking for opportunities to add refining and upgrading capacity in the west. Inaction is not an option.

Chart 1
Additional Capacity in the Pipeline



Source: CIBC Equity Research, CIBC Economics

http://economics.cibccm.com

A Tight Couple of Years

Pipeline capacity, or lack thereof, is already impacting companies' ability to get product to market, and the situation will only get worse before it gets better. Production is expected to increase to 4.6 mmb/d by 2020, but pipeline capacity will remain below that at 3.9-4.3 mmb/d in 2020 even as the line 3 replacement reaches completion (Charts 1 and 2).

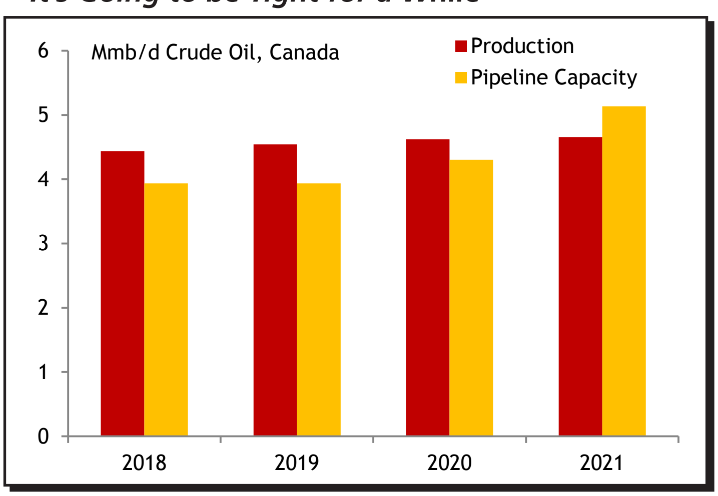
However, even that added capacity will leave the total below expected production. Not until 2021, when Keystone XL and potentially the Trans Mountain expansion are slated for completion, could pipeline capacity once again be greater than expected production.

In the interim, the energy sector will become more reliant on rail transportation. However, there are issues with that. While loading capacity is more than adequate, with the National Energy Board (NEB) estimating it at slightly more than 1 mn bbl/d, rail companies are concerned about making additional investments and/or disrupting existing clients to service what could be a fairly short-lived spike in demand for their mode of transport.

Earlier in the year, the International Energy Agency (IEA) projected that crude shipments by rail could hit 250K barrels per day this year and almost 400K next year, before additional pipeline capacity restrains demand again in 2020 and beyond (Chart 3). However, while rail shipments have risen, they aren't increasing quite as quickly as those projections suggested.

Chart 2

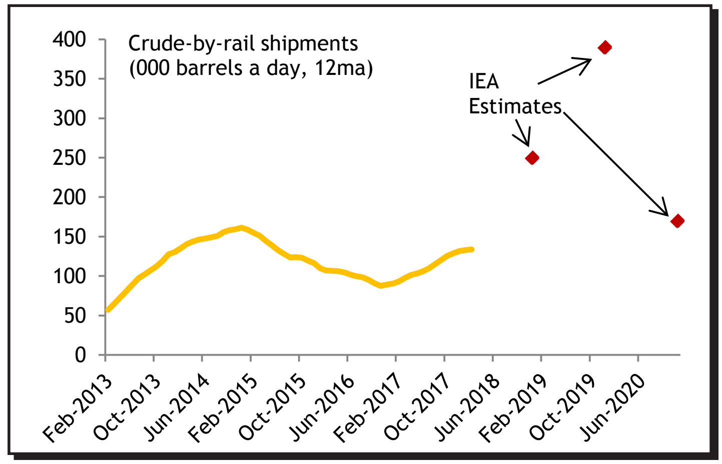
Production vs Takeaway Capacity – It's Going to be Tight for a While



Source: CAPP, CIBC

Chart 3

Crude by Rail Capacity – Rising



Source: IEA, NEB, CIBC

Moreover, the cost is going up. Having reached a low of around US$12/bbl last year, a recent industry conference placed the cost of transporting oil to the gulf by rail at between US$15 and US$18/bbl. At the previous peak in rail shipments in late 2014, the cost was pegged at close to US$20/bbl. That compares to an average cost of US$6/bbl using pipelines, and could place an additional cost of up to C$2bn if the IEA's forecast for rail use proves correct.

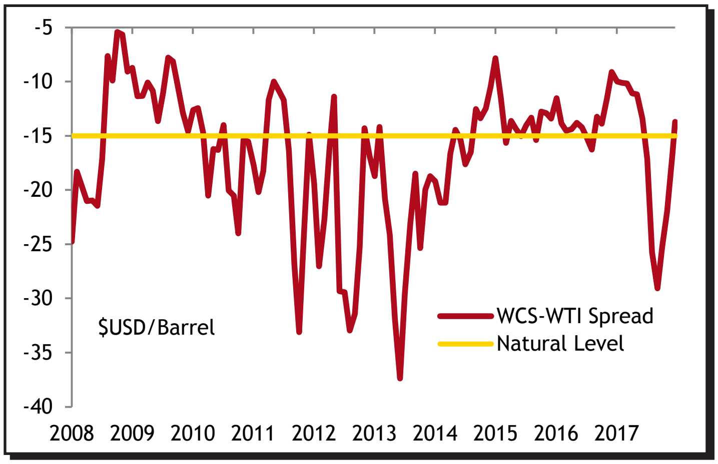
The Opportunity Cost

The opportunity cost of restricted pipeline capacity, not just for the energy sector but also for the wider economy, also seems to be rising.

At any point in time there is a natural price discount between the US benchmark West Texas Intermediate (WTI) crude oil price and the Canadian benchmark Western Canada Select (WCS) (Chart 4). That gap reflects the lower quality of WCS relative to WTI and the cost associated with pipeline tolls to transport this oil from Alberta to US refining hubs.

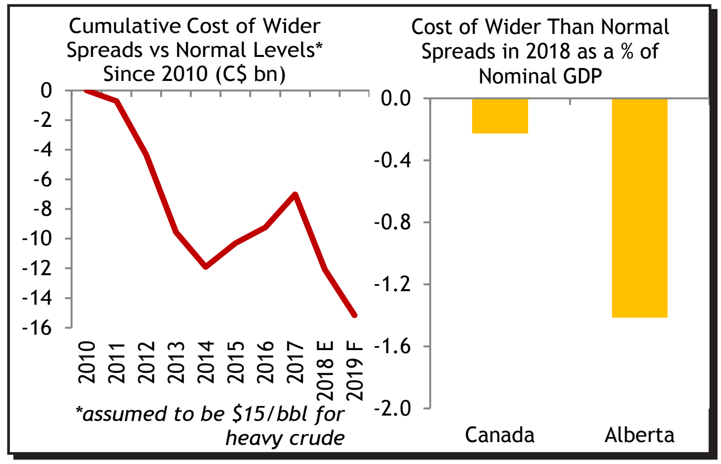
Based on discussions with industry players and the long-term average of the spread between Louisiana Sweet (a light crude similar to WTI) and Maya (a Mexican seaborne heavy crude, similar to WCS), we estimate the quality portion of a neutral WTI-WCS spread to be around US$9. As for the transportation component, based on estimates by the Canadian Association of Petroleum Producers, on average it costs around US$6 per barrel to ship heavy oil from Hardisty to Cushing. Accordingly, we estimate that a neutral discount for WCS is around US$15.

Chart 4
Neutral WCS-WTI Spread – US$15



Source: Bloomberg, CIBC

Chart 6
Wider Spreads Have Eroded Benefits of Oil Production



Source: NEB, Bloomberg, CIBC

However, the WCS-WTI differential recently reached close to US$30/bbl before narrowing to US$14 recently. The year-to-date average difference is more than US$5/bbl greater than the average since 2010 and nearly US$10/bbl greater than the US$15/bbl neutral spread. Given the lower selling prices for oil compared to pre-2014 levels, the differential is even greater in percentage terms (Chart 5).

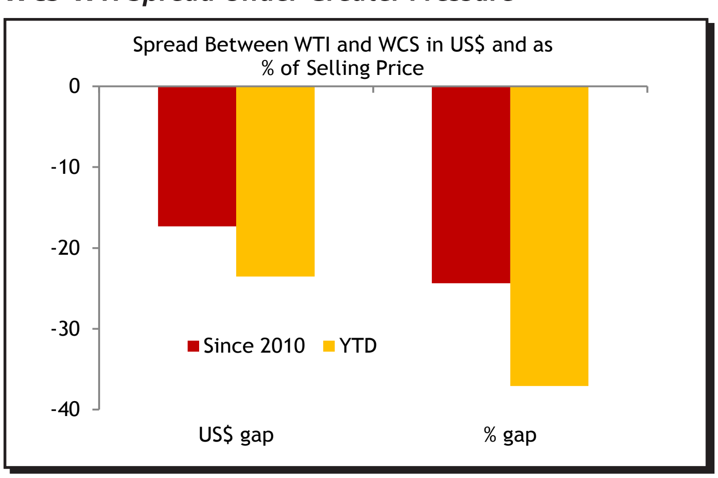
Given current production, our forecasts for the C$, and assuming that the WCS-WTI differential averages $20/bbl for the year as a whole due to the narrower gap recently, industry revenues would be around C$5bn lower than if the spread was only C$15/bbl throughout. That equates to almost 0.2% of Canadian nominal GDP, and around 1½% of Alberta's GDP this year (Chart 6, left). The cumulative "lost" revenue due to wider spreads since 2010 will almost double this year to C$12bn (Chart 6, right). As for 2019, we expect forgone revenues to rise by a further C$3bn to reach C$15bn.

Unblocking Investment

There's also evidence that wider spreads and transportation uncertainty have been holding back investment in the energy sector recently, and by extension real economic activity. As some of these uncertainties dissipate over the coming years, new investments could come back and act as a support to the Canadian and particularly Alberta economies.

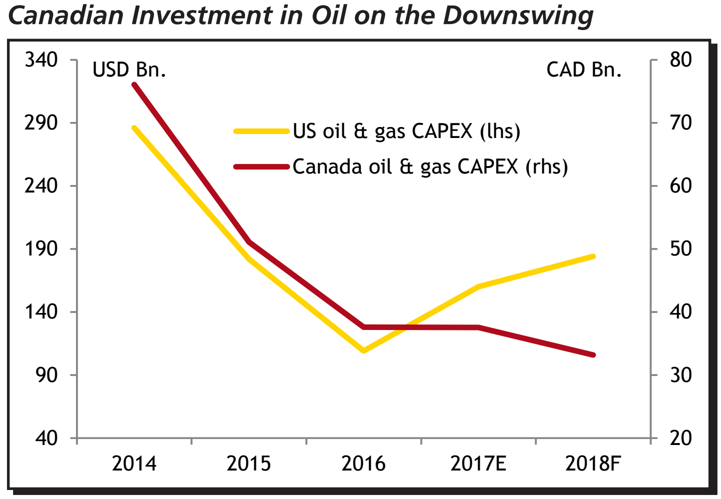
Comparing the recent trend in actual and intended oil & gas investment in the US and Canada tells the story, with higher oil prices supporting increased spending stateside but intentions actually for a slight reduction here (Chart 7). For context, the investment intentions

Chart 5
WCS-WTI Spread Under Greater Pressure



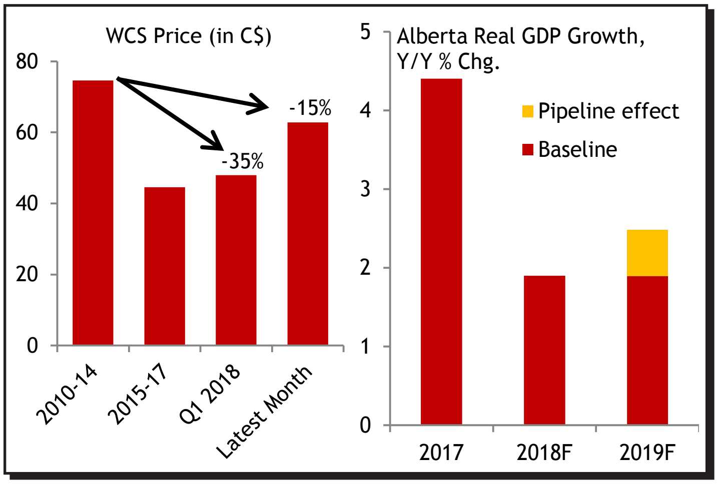
Source: Bloomberg, NEB, Statistics Canada, CIBC

Chart 7
Canadian Investment in Oil on the Downswing



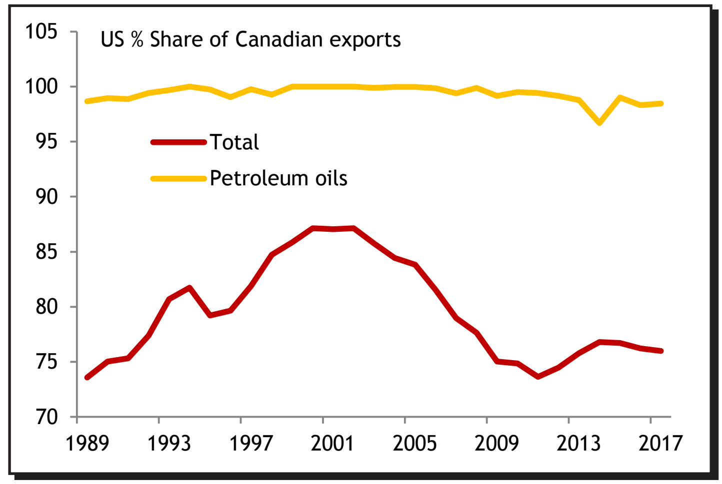
Source: Statistics Canada, Oil & Gas Journal, CIBC

Chart 8
Oil Prices Have Risen Notably Recently, Bolstering the Case for Investment in Additional Pipeline Capacity



Source: Bloomberg, Government of Alberta, CIBC

Chart 9
Oil Exports Overly Reliant on US Market



Source: UN Comtrade, CIBC

survey for Canada was conducted during a time when the WCS-WTI gap was at its widest and Canadian oil prices as a result were little improved from the average of the previous three years (Chart 8, left). Therefore, the survey results could have been overly pessimistic.

There's still evidence that investment and wider economic growth should strengthen as some of the uncertainties surrounding market access dissipate. Earlier this year, the Government of Alberta estimated that additional pipeline capacity would lift capital investment by about US$10bn and provincial GDP by between 1.5-2% by 2023. While a quick resolution may do little for 2018 growth, this implies a ½% upside potential for our 2019 Alberta GDP forecast (Chart 8, right). These also seem to be fairly conservative projections, particularly for 2020 and beyond.

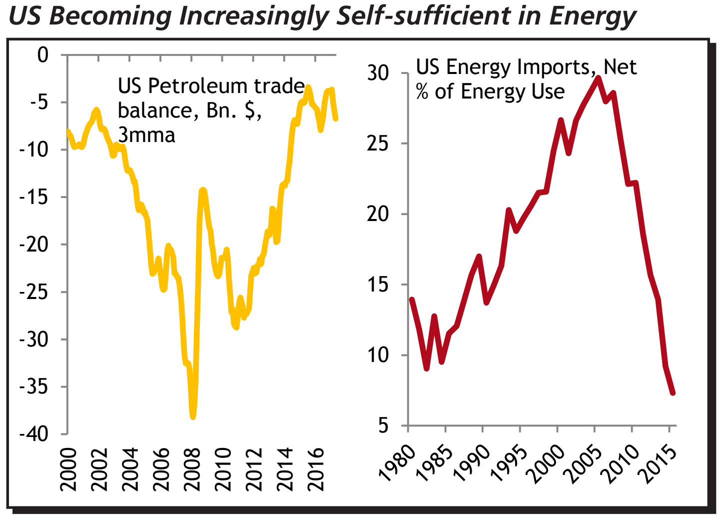
There's also the unmeasurable impact that delays in major investments such as pipelines could have on Canada's perception globally as a place for businesses to invest. Thanks to fairly stable growth and politics (in contrast to the populist wave in other countries), Canada has been perceived as a good place to invest recently. That reputation could, however, be dented by further delays in major projects and impact business investment, not just within the energy sector, but within the wider economy as well.

Diversifying Market Access

New pipeline capacity can also help Canadian oil reach new and faster growing markets. Almost since inception, Canadian oil producers have relied on the American market for an outsized portion of demand. Virtually all Canadian petroleum oils are sent to the US, whereas other industries have become less reliant on the US market (Chart 9). And, until recently, that would have been used to satiate consumption stateside. However, American energy production has increased rapidly since the recession, almost eliminating the need for imported energy altogether (Chart 10).

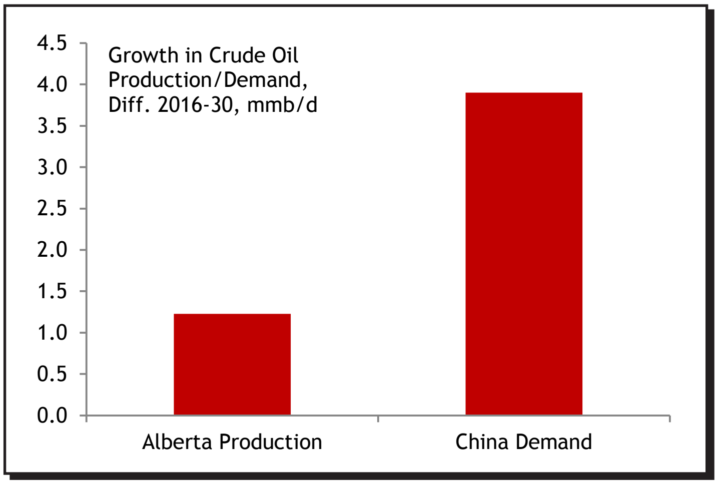
Despite this, US imports of Canadian oil remain steadfast while the American energy trade deficit has shrunk simultaneously. That indicates that American energy products have gained market share abroad, while Canadian producers remain almost solely reliant on markets south of the border.

Chart 10
US Becoming Increasingly Self-sufficient in Energy



Source: Census Bureau, World Bank, CIBC

Chart 11
Chinese Demand Set to Outpace Production Gains in Alberta



Source: CAPP, OPEC, CIBC

Indeed, that disparity between market share abroad may widen in the future in the absence of better overseas access for Canadian producers. Asian countries are slated to lead the pack in growth of energy consumption, with growth in China dwarfing production projections for Alberta oil (Chart 11). That provides ample opportunity for Canada to diversify its export base while securing an end-use source of demand.

The obvious question of course is why not add refining and upgrading capacity in Western Canada and avoid the headache associated with pipelines? The North West Redwater Sturgeon refinery with its 50,000 bbl/d capacity will come online soon and we also might see the second phase expansion of that project in the future. But that's where it will end. While on the surface, self sufficiency in upgrading and refining makes sense, the economic reality is different. There is already a surplus of refining capacity in North America, the long-term refined petroleum demand in the continent is not promising and most importantly, most nations have domestic refining capacity that matches their domestic demand. China for example has a stated policy of self-sufficiency in refined petroleum with a clear aim at minimizing any potential hit of importing pure refined products at global prices.

Given that reality, and with the realization that rail cannot be the ultimate and permanent solution, pipelines remain the only reasonable option for shipping Canada's oil to world markets. The debate about the Trans Mountain Expansion pipeline is not, however, about the here and now, it is about the future. Even with added capacity over the next few years, Canada's oil patch will once again face significant pipeline bottlenecks with mounting associated costs. The Trans Mountain expansion line will work to add enough capacity to ease that pain. More importantly, that line represents the only option for Canadian oil to reduce its dependency on the saturated US market and find its way into much faster growing markets.

All told, the future of Canada's economy looks brighter when the energy sector is thriving in a sustainable manner, of which pipeline capacity is a crucial component. Given the evolution of demand and increased competition stateside, investment in more efficient modes of transportation is necessary to attract future investment in the oil industry and maintain the competitiveness of Canada's position as a major oil player. Beyond the energy sector, the successful implementation of pipelines would also demonstrate the attractiveness of Canada to international corporations that may be looking to expand.