

Energy Market Update

State of the Union

As our fiscal year is wrapping up, the E&U team wanted to take a step back and evaluate the myriad of factors that have propelled oil prices 53% higher from US\$42 lows in June 2017. Many geopolitical events as well as the U.S. shale growth debate have shaped the narrative in the last 12 months, leading prices to hit US\$65, the highest level we have seen since May 2015. However, we have not seen much of the oil price appreciation reflected in oil and gas producers share price performance and valuations and during the same time. As a result, a lot of our focus has been trying to understand how to think about what has been going on in the macro environment and consider whether there are opportunities to buy North American producers at cheap prices. As we take a look at the comparison between the recent performance and near-term outlooks of U.S. versus Canadian energy producers, we try to paint a picture of how we are thinking about investing in energy at this point in time.

A few of the major areas that have caught the investors' attention lately have focused on:

- 1) The interplay between OPEC and its allies in their attempts to balance the oil market in face of increasing uncertainty over future demand robustness and shale production growth
- 2) The strong U.S. crude inventory draws that are indicating a more balanced market is near
- 3) The differing approaches of several E&Ps to navigate the current landscape with respect to their capital budget decisions

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Global Macro Oil Trends: The OPEC & American Shale Rivalry

The macro state of the oil market across the Atlantic Ocean over the last few months has been characterized by leveraging policy to counter the supply glut created by the American shale revolution, and geopolitical risks that have created uncertainty among investors. This section will discuss and analyze the measures OPEC has taken to rebalance the market equilibrium, Russia's impact and influence on OPEC, speculation derived from Iran's geopolitical tension, and the importance of Chinese crude demand.

The Organization of Petroleum Exporting Countries ("OPEC"), and its 14 member countries decided on an aggregate production cut in November, 2016 of 1.2MMbbls/d through the end of 2017. In addition, a consortium, of non-OPEC members, led by Russia, pledged an additional 600Mbbbls/d of production cuts. The purpose of the cut was to offset the production that the American shale producers had flooded the market with due to their technological advances in hydraulic fracturing. With demand remaining relatively

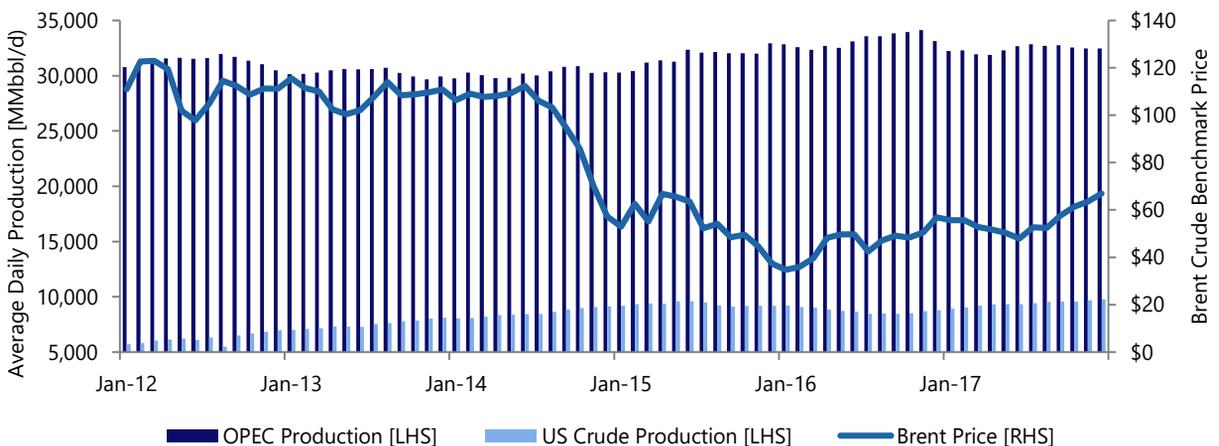
stagnant, and both American and OPEC production rapidly increasing, the Organization implemented the quota mechanism in order to drain the built up inventory to make prices profitable again. Historically, OPEC agreements were ineffective due to a low compliance rate (60% on average) from the members; however, this most recent agreement has seen a 90% compliance rate. The production cut was recently extended through 2018 with Libya and Nigeria, both previously exempt from cuts, joining the agreement.

Does OPEC Want \$70 Oil?

As a cartel with the most oil-rich countries in the world, OPEC seemingly does not have as much power in determining the market price as it once had. American shale producers can generate positive cash flows above the \$60 WTI threshold, which will result in even more supply hitting the market. Due to this threat, there are rumours of dismantling the agreement at OPEC's June meeting.

EXHIBIT I

The Relationship Between the Increase in American Production, OPEC Production Cut, and Brent Crude Price



Source(s): Bloomberg, EIA, OPEC

Global Macro Oil Trends: Major Players & Their Budding Relationships

In the current OPEC production agreement, the two countries that are affected by the largest cuts are Saudi Arabia and Russia, with cutbacks of 486,000bbls/d and 300,000bbls/d, respectively. While both players certainly have the capacity to produce oil at a much higher clip, they seem to have incentives other than just the balancing of the market equilibrium. In addition, Saudi Arabia and Russia are using this agreement to unite the two countries and revive an economic partner ship that has been starved since the cold war.

Saudi Arabia: Pump Less Oil, Pump Up Aramco

When the United States began its shale revolution in the early 2010's, their production rapidly increased and they flooded the market with oil. Saudi Arabia, owner of the largest oil reserve base in the world and de facto leader of OPEC, instituted a policy to fight fire with fire by also increasing oil production. The oil-dependant Kingdom, which can breakeven at a third of the price as the United States, decided to create an exodus of supply to drive the price down with the intent of running the American's out of business. The WTI oil benchmark touched \$26.05/bbl, down from a 2014 high of \$105/bbl.

However, this time around, Saudi cannot afford to take that route. The Kingdom's state-run oil company, Saudi Aramco, is set to IPO in the coming year. The purpose of the sale is to acquire capital to invest in diversifying the Saudi economy, alleviating its dependence on oil. In order to get top dollar for the valuation, the company needs a higher oil price. Many analysts believe that Saudi is delaying the IPO into 2019 in anticipation of higher oil prices in an attempt to acquire the \$2T valuation that it is seeking.

Russia: Keep Allies Close, and Competition Closer

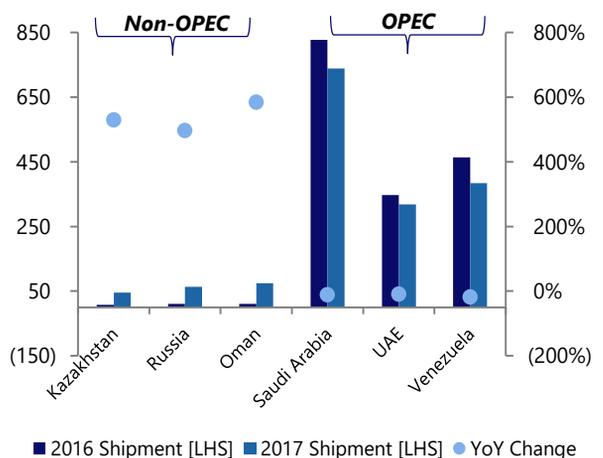
Despite taking part in the oil production cuts, Russia has been able to capitalize on the decreased production from the OPEC countries by acquiring their market share in the countries where oil-demand is

growing the fastest: India and China. Russia was able to infiltrate India as it used its stockpiles developed from their October and November 2016 production runs, which was its highest in history. Exhibit II shows the increase in non-OPEC countries' market share in India, relative to OPEC countries. After the United States slapped sanctions on Russia, the Kremlin turned their attention to acquiring market share in China. After increasing exports to China to ~1MMbbl/d, Russia's largest integrated oil producer, Rosneft, is planning on creating new shipment channels through Kazakhstan to provide an addition 360,00bbl/d. In addition, ties have been strengthened as Chinese state-owned conglomerate, CEFC, bought a 14.2% stake in Rosneft for \$9.1MM.

Russia and Saudi are using energy as an adhesive to forge a political and economic relationship. While on his first visit to Moscow, Saudi Crown Prince Salman has vowed to invest \$10B in Russia's direct investment fund, while Russia has committed to building a \$1.1B processing plant in the Kingdom.

EXHIBIT II

Average Daily Shipment of Crude to India (Mbbbl/d)



Source(s): Bloomberg

Global Macro Oil Trends: Geopolitical Noise from Iran

Iran, the world's 6th largest oil producer at 3.6MMbbls/d, has caught the attention of the commodity market due to deadly protests from its citizens. The unrest stems from a depressed economic state that has seen real incomes drop 15% in the last decade, due in part to sanctions slapped on the state from the United States due to its aggressive nuclear program. The market is watching for three main events, all of which could result in a decrease in Iranian oil supply. Firstly, Donald Trump is thought to be re-evaluating the sanctions on Iranian oil exports and potentially pressuring his European allies to increase them. Additionally, there is a risk of militia attacks on pipelines to bottleneck supply to the market; Bahrain accused Iran as the root cause of an explosion at a 230,000bbl/d pipeline in November. Finally, markets are considering political tensions between Saudi Arabia and Iran. The Saudi's accused Iran for funding two ballistic missiles that had been aimed at Riyadh, the Kingdom's capital. Any war in the Middle East would result in severe supply reductions.

However, the E&U team has taken a devil's advocate position on this trend. Below a thin theocratic layer of the Islamic Republic in Iran exists a semi-democratic system in which votes are casted. We believe that the theory of the Iranian government retaliating to the protests, resulting in decreased oil production is invalid. In fact, we believe the contrary; the widely accepted solution would be an increase in public spending, which is only affordable the revenue generated from oil exports. Given the current high-priced environment, this seems like an obvious strategy that acts as a catalyst in Iran's attempt to get out of its recession. In addition, the protests are in major cities and towns, far away from the oil fields and refineries. Although the pipeline attacks must be taken seriously, there has been no proof in either allegations against regarding its militias nor its funding of the ballistic missiles. The only way the political unrest in Iran affects the oil markets is if it severely escalates, which is not in the best interests of the current regime. We can conclude that this unrest is just noise and will have a limited effect on the oil market moving forward.

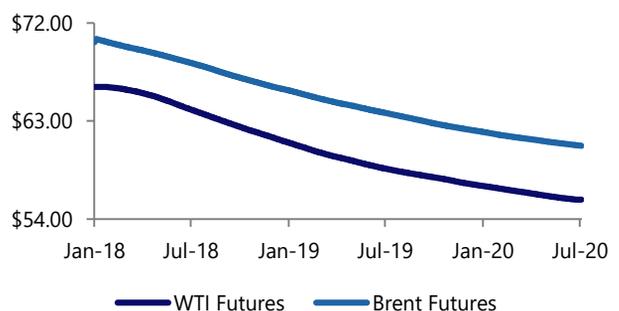
Futures Backwardation: A Signal of Success

In late 2017, both Brent and WTI crude futures moved from contango into backwardation for the first time since 2014. Backwardation occurs when the current price of a commodity is higher than a future price of oil, creating a downward sloping futures curve (exhibit III). Backwardation's primary cause is a shortage of the commodity in the spot market, and is seen as a sign of higher immediate demand relative to supply.

The shift to backwardation has multiple implications for the market, which support the efforts made by OPEC to stabilize the crude price. Since 2014, the market has been obsessed with the overhang in crude inventories caused from excess American shale supply. Backwardation indicates that the OPEC quotas are having a material impact on reducing the inventory build, supporting the spot price that exceeds futures prices. Not only does this achieve OPEC's objective, it gives them a competitive advantage, as OPEC producers sell all of their oil on a spot basis, while American producers hedge a substantial amount on in the futures market. For commodity investors, backwardation has predicted positive future returns, relative to negative returns in contango markets.

EXHIBIT III

Crude Futures (in USD), as of January 26, 2018



Source(s): CME Group

Global Macro Trends: The Demand Catalyst - China

The efforts of overseas countries have generally surrounded issues regarding the oil supply; however, demand stemming from China will act as a major catalyst in finding an appropriate equilibrium over the foreseeable future. China has been the world's largest oil consumer since 2011 with demand increasing more than 5x from 1990 to 12.4MMbbl/d. The continuing growth of China's demand is an imperative support mechanism to hold up crude's price floor; however, domestic downstream competition poses a threat to the feasibility of continuously accelerated growth.

With oil production at its main oilfields declining and consumption growth at 6.4%, China became the world's largest net importer of crude in 2015. The Chinese government simultaneously granted non-state owned independent refineries, called "Teapots" for their size and shape, import quotas allowing them to import directly instead of buying it from a state-owned company. As imports boomed, so did the production of refined products. Since its refinery capacity is larger than domestic demand, China has a foothold in the oil

industry as a net exporter of refined products. With over 24MM new gasoline-using cars on the Chinese roads in 2016, demand for petroleum has, and continued to remain robust.

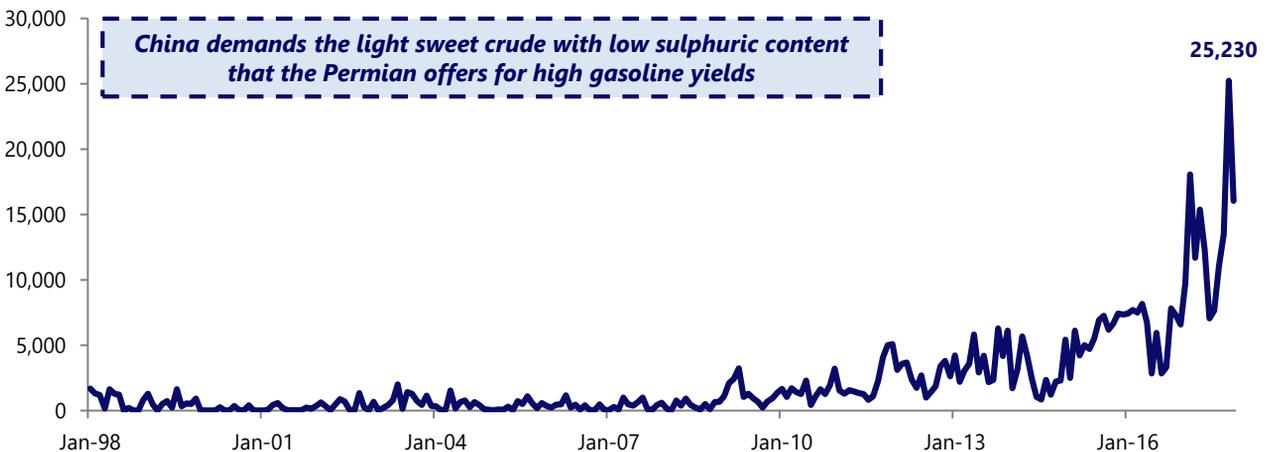
Refinery Demand Comes With Risk

An increasing amount of Teapots have entered the market, creating two overarching concerns from the market. Increased refinery production has resulted in China's petroleum reserve filling up approximately 95%. Should crude intake falter, China's gasoline reserves would send shockwaves through the market. Secondly, the glut of refined products has increased competition between independent refiners, causing them to continuously peel layers off of their margin.

Contrary to local refinery risk, the trickle down effect from Chinese demand is integral to the stability of the oil market. Chinese crude demand results in increasing refinery demand, causing China to pull crude from the glut and diminish global stock piles.

EXHIBIT IV

Monthly American Crude Exports to China, in Mbbls



Source(s): EIA

U.S. Market Trends

What are Oil Inventories, Anyway?

On a high level, oil inventories provide investors with insight into the balance between supply and demand. This balance, as well as the sentiment for what it will look like in the future, have many profound implications on the price of oil. According to basic economic principles, if supply exceeds demand prices fall because the resource is not considered to be scarce and buyers aren't coerced into buying from a small number of sellers. In this case, the buyers have market power. The opposite is also true.

With a fundamental understanding of market dynamics, it is now easier to discuss the Energy Information Administration's (E.I.A) weekly update on U.S. inventories. These reports show the amount of oil "stocks" or "reserves" at the Cushing, Oklahoma delivery hub. It is important to note that Cushing is considered to be a major intermediary between exploration & production companies and refineries.

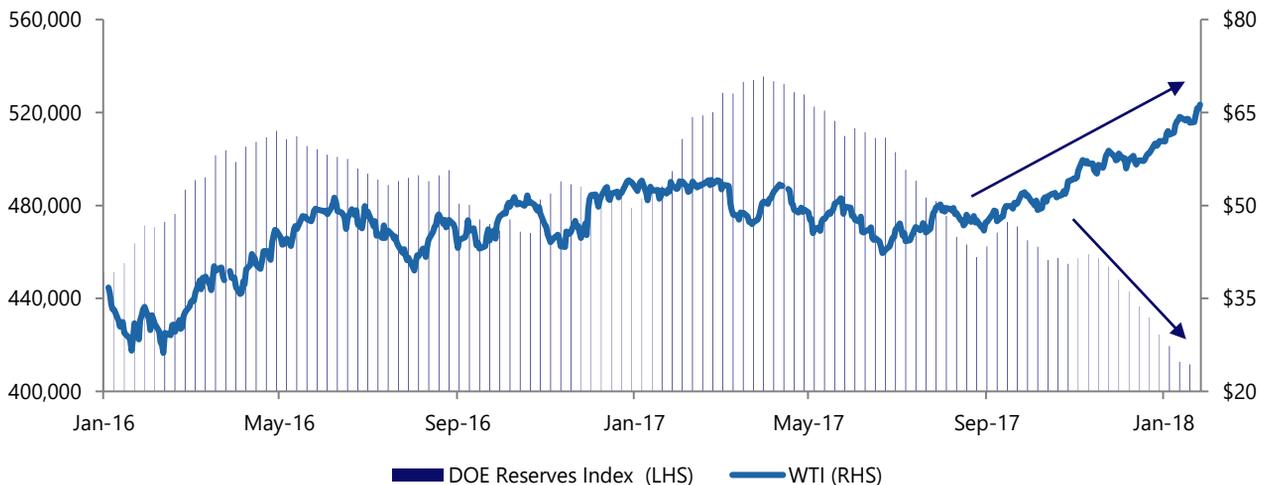
Given that, in any week if stock numbers rise, this means that the oil supply for that week outpaced demand. Typically, oil prices fall when news such as this is released. If supply is less than demand, energy investors call this a 'draw' on reserves and oil prices usually increase.

Current Supply/Demand Balance

Exhibit V is an accurate depiction of current stock levels provided by the E.I.A. For the last 10 weeks, oil stocks have drawn and inventories have rapidly fallen. Accordingly, the price of a barrel of oil in the United States - as measured through WTI, the U.S. benchmark for oil - has increased ~\$15, or ~30%. Current reserves are being aggregated slightly above 400 million barrels. This is the lowest level oil stocks in the U.S. have been since the beginning of 2016 and markets have responded very positively in recent weeks. In the rest of this report, we take an objective approach to try and get a sense for the sustainability of this euphoria.

EXHIBIT V

U.S. Crude Oil Reserves Vs. WTI (mbbls)



Source(s): EIA, Bloomberg

The E.I.A. Production Fallacy

Not Living up to the Hype?

It may be the case that the all-consuming U.S. shale boom the world has witnessed over the past few years has been given too much praise for the wrong reasons – something that may have prominent effects on the supply and demand dynamics of global oil.

In December 2017, researchers at MIT published a research paper with empirical evidence proving that the E.I.A. has historically overestimated supply from U.S. shale producers in the Bakken region.

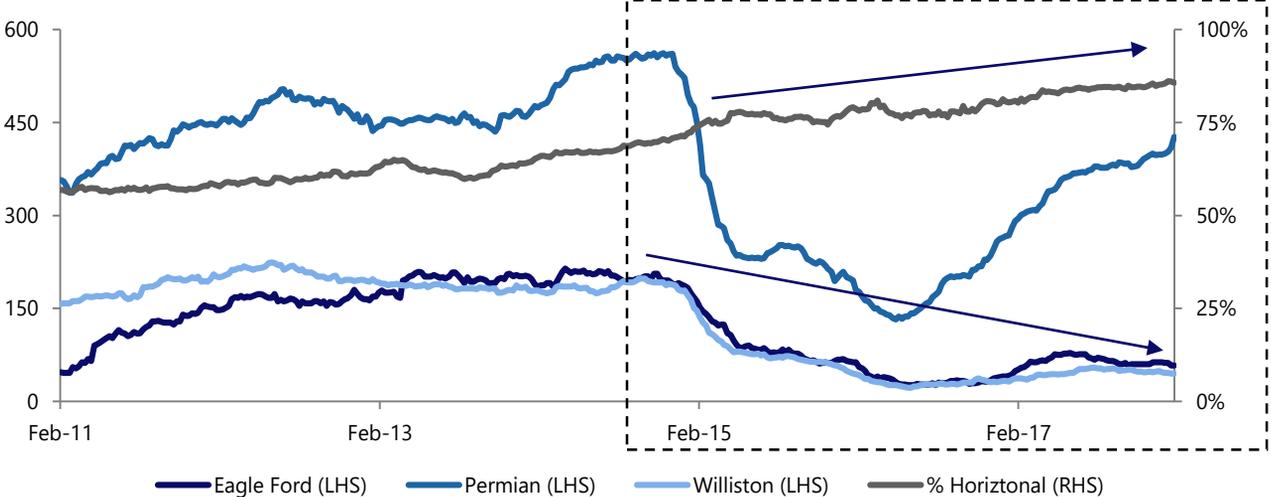
Although technological advancements have helped American shale producers survive the price trough, the researchers have found that a more accurate cause for their ability to produce so significantly is due to premium drilling drill sites – ones that are now becoming scarce. This information comes at odds to what the majority of investors believed – that new technological advancements were the root cause for

the increase in production. Exhibit VI depicts the rig count amongst U.S. major shale plays and contrasts this to the industry adoption rate of horizontal drilling techniques (one of the prominent methods for decreasing well costs and boosting production). In the Williston Basin, located in the Bakken, it is evident that even through horizontal adoption rates have risen, production numbers in this region haven't rebounded nearly as sharply as that of peers. From the new information provided by MIT, this data could suggest that the technological advancements may not be cutting it.

The problem that is being witnessed now stems from the fact that the well locations with superior economics in the Bakken are running out. As a result, MIT is suggesting that the intense levels of production will start to taper off despite technological advances. If this trend continues, this will serve as a long-term catalyst for oil prices and OPEC may gain a stronger grip on setting global supply.

EXHIBIT VI

Oil Rig Count in Prominent U.S. Shale Plays (mbbls)



Source(s): EIA, Bloomberg

Outlook for U.S. and Canadian Producers

Recent Oil Price Surge Shifting U.S. Sentiment

With the recent surge in oil prices, the outlook for U.S. domestic producers has shifted to a much more optimistic view on the near-term attractiveness in drilling (Exhibit VII). As well, Capital investment plans indicate that producers are considering prices above US\$60 to be attractive pricing points for additional investment. For one, ExxonMobil has recently announced plans to invest over US\$50 billion over the next five years, with \$15 billion cited as direct investments in expanding Permian Basin production. Permian and broader U.S. producers are expecting to continue to increase spending overall by 15% over in 2018 compared to 2017 as the pricing environment stabilizes into a new attractive US\$60+ level.

Canadian Producers Focus on Cash Flow

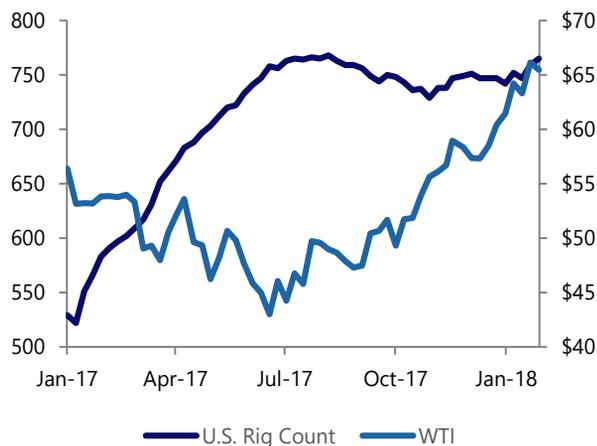
In contrast, to their growth focused peer group south of the border, Canadian large cap producers are

shifting focus to disciplined capital allocation and free cash flow generation. Canadian E&Ps are expected to increase capital spending by a more modest 9% in 2018. With Suncor's Fort Hills having come online in January, the era of oil sands mega-projects appears to be over for the time being. The massive capital requirements, which can range anywhere from \$10-17 billion and take over 15 years of lead time to complete are no longer attractive in the current pricing environment. Large cap oil producers such as SU and CNQ will now transition to smaller debottlenecking and expansion projects, resulting in lower near-term capex and production growth expectations (Exhibit VIII).

Canadian producers also face the prospect of longer term price weakness than their U.S. peers as the WCS heavy crude oil discount sits near US\$30/bbl due to pipeline constraints and increased regional supply.

EXHIBIT VII

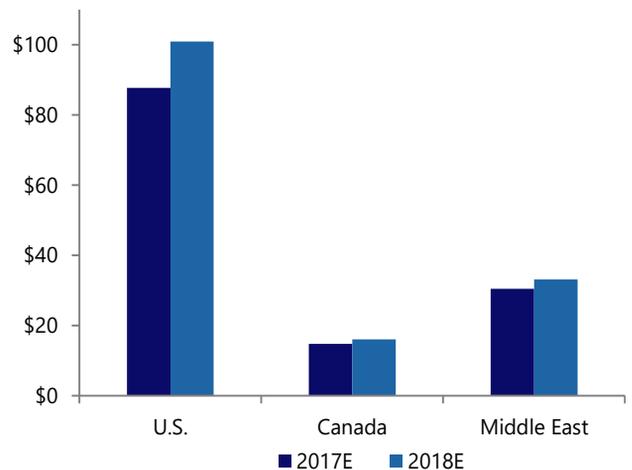
U.S. Rig Activity and WTI Relationship



Source(s): Baker Hughes, S&P Capital IQ

EXHIBIT VIII

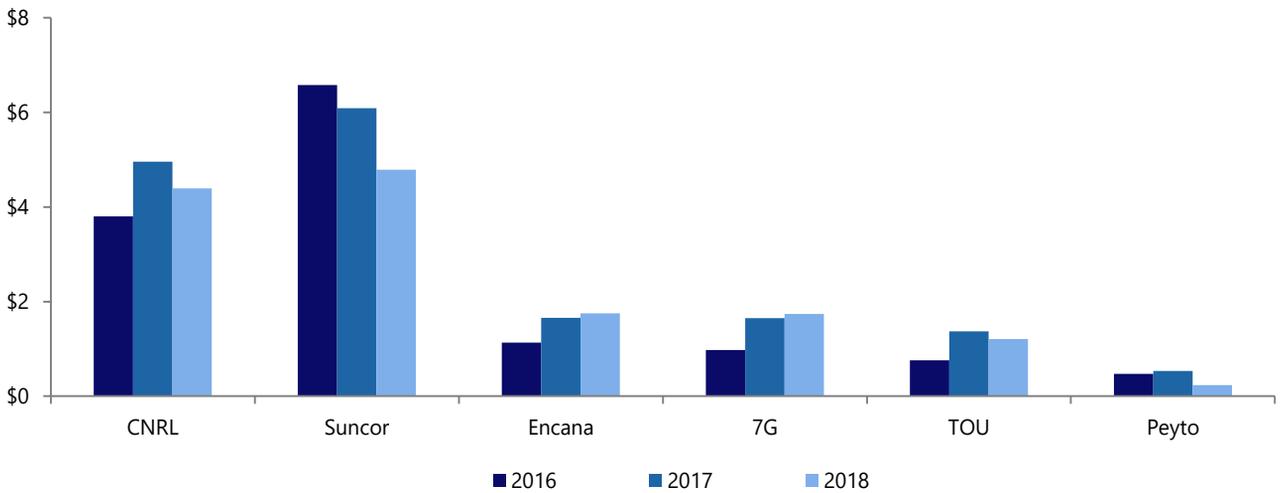
Near-Term E&P Capex Estimates (\$US billions)



Source(s): Evercore

EXHIBIT IX

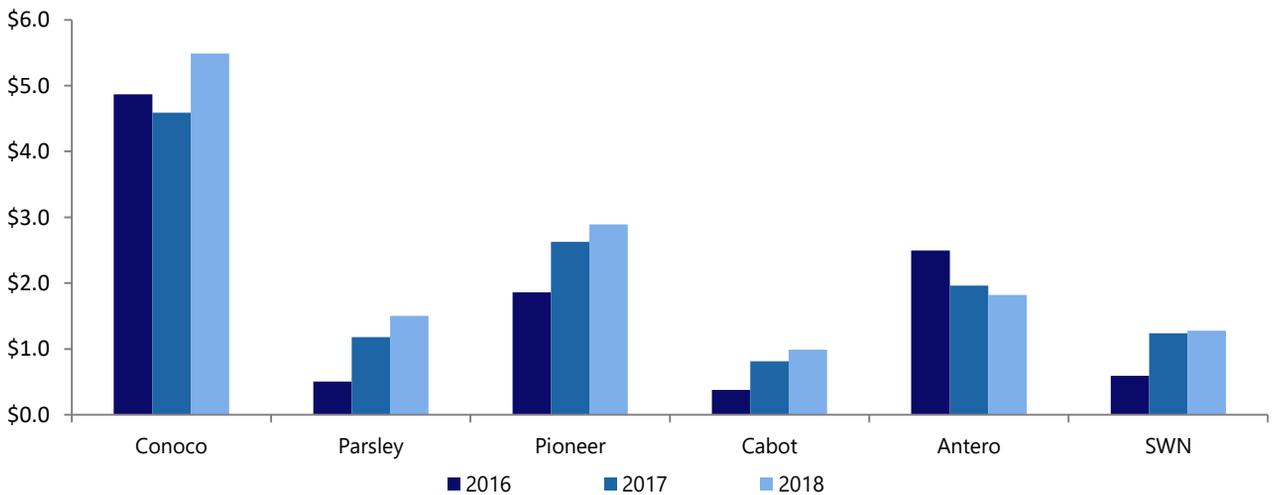
Select Canadian E&P Capex Estimates (C\$ billions)



Source(s): Company Reports, S&P Capital IQ

EXHIBIT X

Select U.S. E&P Capex Estimates (US\$ billions)



Source(s): Company Reports, S&P Capital IQ

E&Ps Continue to Face Obstacles in 2018

Pipeline Constraints Remain a Challenge

Among the many additional constraints that Canadian oil and gas producers face, few others than the lack of pipeline capacity are given as much attention. Much of the current pipeline networks that connect Canada to the U.S. are insufficient to handle the current supply of Canadian crude being produced. With the addition of Suncor's Fort Hills project to the Canadian supply, the IEA expect Canadian production to top 5MMbbl/d in 2018, which is supported by only 3.85MMbbl/d of current pipeline capacity. This issue is widely believed to one of the main drivers behind the current US\$30 discount Canadian producers face relative to WTI pricing and it is increasingly forcing them to ship by rail, a more expensive alternative. The near-term outlook remains challenged as uncertainty remains over the future of KeystoneXL and Kinder Morgan's Trans Mountain and Enbridge's L3R are still many years away from completion.

In contrast, the sentiment in the U.S. differs in that announced pipelines passing through the Permian Basin have more or less kept pace with the massive amount of growth seen in recent years. As of now, there is approximately 3MMbbl/d in takeaway capacity from the Permian, which could grow to nearly 5.9MMbbl/d by 2020. However, other local U.S. regions still face constraints, such as Cushing where outbound pipeline capacity is leading to higher price differentials.

Not Much Optimism in Natural Gas

Canadian natural gas producers are waking up to the harsh reality that their market is fundamentally challenged. AECO outages and oversupply have hurt gas weighted E&Ps over the last year, with many struggling to decide the best course of action in 2018 and beyond. For one, companies such as Peyto and Tourmaline, which have historically relied on AECO to supply gas production have significantly reduced capital spending plans for 2018 to better protect cash flow and focus on economics, instead of the obsession of growth at all costs. Nonetheless, others like Seven

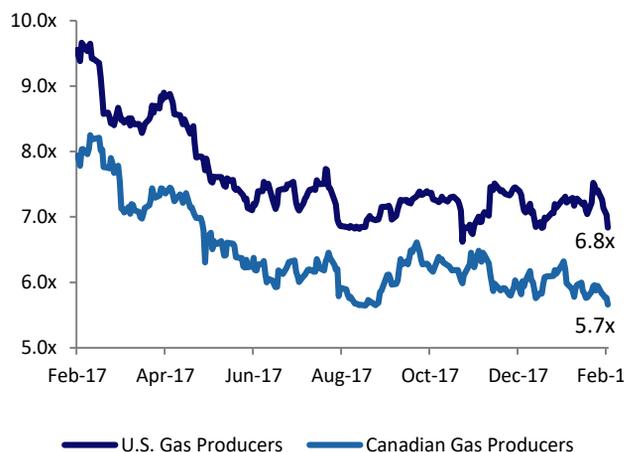
Generations have increased capital budget plans by 5% in 2018 to maintain investor expectations of production growth.

Weak regional pricing in Canada has decimated gas weighted E&Ps over the last year, and much of the negative overhang is expected to continue in 2018 as the market points to long-term structural issues. Technological advancements in horizontal drilling have bolstered production growth, which has worsened market oversupply as demand remains stagnant. Firms such as Peyto and Canada have tried to remedy the situation by shifting supply to U.S. priced hubs; however, pipeline constraints remain a key issue for takeaway capacity.

U.S. gas producers have also seen extreme volatility in gas pricing over the last year despite recent cold weather and low storage levels. In aggregate, Canadian and U.S. gas producers have seen their multiples and share prices drop more 30% over the last 12 months (Exhibit XX).

EXHIBIT XI

Gas Producer EV/NTM EBITDA Multiple Trend



Source(S): S&P Capital IQ

References

1. Baker Hughes
2. Bloomberg
3. CME Group
4. EIA
5. Evercore
6. J.P.Morgan
7. IEA
8. OPEC
9. S&P Capital IQ