Energy Investing in 2018:
A Time for Cautious Optimism

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The market landscape underlying oil and gas-focused investments has been shrouded in optimism recently, which is supported by the following developments:

- Oil prices have posted strong growth year-over-year, from a mid-$40 per bbl level observed early to mid-year 2017 to $60-65 per bbl in January/February of 2018.

- A recovering European economy has resulted in a stronger Euro Dollar (i.e., $1.23: $1 conversion rate, up from $1.08: $1.0 in summer 2017), which means that crude consumers overseas can buy oil cheaper today on a relative basis than what was the case through much of 2016 and 2017.

- The International Energy Agency ("**IEA**"), a world leading provider of energy-related statistics and best practices, also estimates that 99.1 million bbls of oil per day will be consumed worldwide in 2018, which, if true, will eclipse last year's oil consumption of 97.8 million bbls per day, and the 2016 oil consumption of 96.2 million bbls per day.

In view of these developments, some highly regarded financial firms are bullish on the prospects of oil for 2018, with Goldman Sachs Group Inc. ("**Goldman**") boosting its six-month price target by 33% to $82.50 per bbl oil, and with J.P. Morgan increasing its 2018 Brent market forecast to a more conservative $70 per bbl. Despite these bullish sentiments, there are a number of reasons we believe 2018 should be viewed as a time "**for cautious optimism**" when considering both traded and non-traded energy related investments that focus upon upstream and midstream activities. While there is room for oil prices to increase to an $80 per bbl level in upcoming years (i.e., considered the "new-normal" price for crude prior to the market crash in late 2014 and early 2015), a number of factors exist that warrant a more cautious outlook.

Reasons for Skepticism

While oil demand is expected to grow worldwide by 1.3% in 2018, U.S. shale producers have their foot on the "drilling/production gas pedal" so to speak. According to production statistics provided by the Energy Information Administration ("**EIA**"), oil production from 2014-2016 averaged about 9 million bbls per day. In the wake of a more stabilized market environment in 2017, however, U.S. producer's comfort zones improved and the domestic production level rose (i) to an average of 9.265 million bbls per day through the first 11 months of last year (a 3% increase over the preceding 3-year daily production average), and (ii) to an average of about 9.718 million bbls per day from September through November of last year (an 8% increase over the preceding 3-year daily production average). Currently, U.S. production looms over 10 million bbls per day, with sentiment out there that production levels could creep to 11 million bbls per day by the end of this

year. Given that many basins in the U.S. are economic at $30-$50 per bbl, the motivation for domestic producers to drill remains quite high.

In addition to the rise in U.S. drilling activities, there continues to be an unprecedented level of drilled but uncompleted ("**DUC**") wells within various basins. Nationally, the EIA estimated that there were 7,493 DUC wells at year-end 2017, **which increased by 2,274 wells** from what was reported a year prior (i.e., a 44% increase in DUC inventory year-over-year). By region, the Permian Basin accounts for the highest percentage of the DUC well inventory at 2,777 wells, followed by the Eagleford Shale Play at 1,468 wells, and the Oklahoma STACK/SCOOP Plays at 1,022 wells. In view of better oil prices, coupled with the general sentiment that the U.S. and worldwide appetites for crude will continue to increase oil demand, the motivation for domestic producers to complete more from the DUC inventory again remains high.

Quoting the words of an energy executive that attended our annual energy investment conference, "U.S. producers have just gotten too good" at finding oil and gas reserves. Much of this success has to do with the implementation of horizontal drilling in earnest in the mid-2000's and the follow-on improvements that were made to fracing methods used in the completion process over the past few years. While drilling and completion costs per well in general have risen moderately over recent history, much more sand and water is used today to hit the oil and gas bearing formations than what was used five years ago. As more of the reservoir is now being exposed to the frac and reached, the same has resulted in production numbers that are multiples of what was possible years ago. In light of such technological improvements, more operators can drill profitable wells at lower oil prices.

What Must Give?

The wildcard in the success equation for 2018 and future years is whether or not the Organization of the Petroleum Exporting Countries ("**OPEC**") will continue to be cooperative in curtailing crude outputs. Over a three-year period from 2014-2016, OPEC increased its oil production from 30.5 million bbls per day to 32.6 million bbls per day. This sent shockwaves into the oil market as the world supply/demand equilibrium became disrupted. In 2017, however, OPEC kept its production stable at 32.1 million bbls per day in Q1 2017, 32.3 million bbls per day Q2 2017, 32.7 million bbls per day Q3 2017, and 32.5 million bbls per day in Q4 2017. This resulted in a slight 0.5% drop in oil production year-over-year from what was reported for OPEC in 2016. While OPEC's production is expected to remain stable for the first six months of 2018, OPEC's production estimates, at this time, anticipate an increase in daily oil production to about 34.0 million bbls per day in the last two quarters of 2018.

In the absence of OPEC's willingness to capitulate to the desires of U.S. producers and to leave production at current levels, the world will most likely need to increase its appetite for crude to sustain oil market prices at or above $60 per bbl. *Taking a measure of future supply and demand uncertainty into account, the EIA's price forecast for oil in 2018 was last reported in its February 6, 2018 Short Term Outlook to be $58 per bbl U.S. and $62 per bbl Brent pricing*. A measure of skepticism about oil's future prospects can also be observed within the U.S. oil futures markets, with futures contracts on February 7, 2018 trading at $58-59 per bbl for July through December of

2018 and $57-58 per bbl through the first six months of 2019. While operational profits can be made by a fair number of U.S. producers at such pricing levels (i.e., assuming drilling and completion vendor costs remain relatively constant), time will tell whether the oil market joyride continues.

Signs of Higher Investor Comfort

Despite the uncertainties, some indicators show that investors are moderately more comfortable with energy investments now than what they were from 2015 and through much of 2016. Last year in the publicly-traded partnership universe, traded MLPs reported a collective market capitalization of about $375 billion at year end 2017 (up from a low of about $320 billion reported in 2015), with the Alerian MLP Index ("**AMZX**") being fairly stable at 1,200-1,400 after posting a five-year low of 826 in February 2016. In 2017, some degree of positive sentiment also reached the broker-dealer retail investment community, as broker-dealer sales of non-traded pass-through oil and gas fund products we reviewed increased about 10% year-over-year (i.e., $330 million in 2017 vs. $300 million in 2016 as to the sponsors whose offerings we reviewed). Of this amount, about 70% was raised in tax advantaged drilling funds, with the remainder spread out among diversified opportunity funds and programs that acquire mineral and royalty investments. Of the nine oil and gas sponsors that we track during our due diligence legal engagements, six reported fairly significant increases in capital raised. Still, the road to a full recovery to the $700 million to $1 billion raised in the retail channel in 2007-2008 and 2011-2014 is most likely a few years into the future.

Summary

The oil market landscape is like the ocean and you cannot afford to turn your back on it from a due diligence and market monitoring perspective. $60-65 bbl is a better oil pricing environment from where we were through much of 2015-2017, **but with questions unanswered as to whether the drilling momentum of U.S. producers can be neutralized with OPEC production and/or a growing world economy.** Assuming the sentiments of Goldman and J.P Morgan play out, some upside will likely find its way to investors who placed capital in fundamentally sound projects and assets.

We believe that *cautious optimism* is the key to success with respect to oil and gas investments in 2018. As fundamentals are important, we urge you to pay close attention to the energy companies that have heeded certain lessons after the oil market fall of Q4 2014 and have shaped their business strategies accordingly (e.g., less leverage, project diversification among multiple plays, maintaining sound liquidity, maintaining a balance within critical areas of oil/gas operations, and by timing the deployments of capital methodically as opposed to rapidly). Reps and advisors should also be ever mindful of each investor's allocations of public and private investments to energy given the inherent level of market variables beyond the rep/advisor's and investor's abilities to control.