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## MUSINGS FROM THE OIL PATCH

July 28, 2015

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Managing Director

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**Note:** *Musings from the Oil Patch* reflects an eclectic collection of stories and analyses dealing with issues and developments within the energy industry that I feel have potentially significant implications for executives operating and planning for the future. The newsletter is published every two weeks, but periodically events and travel may alter that schedule. As always, I welcome your comments and observations. Allen Brooks

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### Divining The Oil Recovery – Bulls And Bears At Loggerheads

**So far, none of the early forecasts have been able to explain the current industry downturn**

Recently, a newspaper article reported that California farmers have turned to divining rods to seek new sources of water on their property as they struggle to deal with the state's ongoing drought. This technique was tried by Texas ranchers during our state's recent drought with mixed results. Those trying to determine what will happen to the crude oil market, including output, oil prices and oilfield activity levels, probably don't need a divining rod as there are plenty of bullish and bearish cases available to use. The problem is that many of these forecasts have about as much hard data underlying them as does a search with a divining rod. While the various scenarios are based on analyses of past data trends and economic relationships, the projections often rely on judgments about the relative importance of the multiple trends and relationships. So far, none of the early forecasts have been able to explain the current industry downturn. A critic might characterize these scenarios as being based on "wishing and hoping," which, as one of our past bosses declared, is not a strategy!

#### Exhibit 1. How Divining Rods May Help



"This guy knows how to find revenue streams."

Source: [depositphotos.com](http://depositphotos.com)

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**Some of these technical successes are encouraging companies to start using more drilling rigs**

The current collapse in oil prices has companies and analysts rapidly revising their outlooks for future prices. The reaction of some forecasters suggests that they had built their outlooks on the “wishing and hoping” mantra. Now, the data and absence of industry improvement, in fact further deterioration has been the norm, has management teams planning and announcing further capital spending reductions, and for oilfield service companies, idling additional equipment and laying off more workers. Amidst this gloom, however, are some bright spots as several oil companies have announced that as a result of the technical successes they are experiencing with well completions they have reduced the breakeven cost of the wells they are drilling or want to drill enabling them to complete more wells even with reduced capital budgets. Some of these technical successes are encouraging companies to start using more drilling rigs. That may be supported by last week’s increase in the oil and overall Baker Hughes (BHI-NYSE) rig count.

**Some of these forecasts are being revised in order to explain strategic moves the companies are making**

While we have detailed the views of ConocoPhillips (COP-NYSE) and Royal Dutch Shell (RDS.A-NYSE) elsewhere, it is interesting how companies and organizations are revising, or at least making public, their oil price forecasts. Some of these forecasts are being revised in order to explain strategic moves the companies are making and/or to help outline how their earnings outlooks may be impacted. All of this comes as the price of a barrel of West Texas Intermediate (WTI) in the futures market fell below \$48 a barrel on Friday. Here are some of the bullish and bearish views.

**The gist of Shell Oil’s forecast is that low prices will reduce exploration for and development of new oil supplies and will stimulate greater consumption**

Shell Oil’s oil price outlook, which seemed to be pessimistic when initially presented in interviews a little over a week ago granted by the company’s CEO and its head of international exploration. The gist of Shell Oil’s forecast is that low prices will reduce exploration for and development of new oil supplies and will stimulate greater consumption. Those two trends will lead to an improved supply/demand balance and will lead to higher oil prices over time. In Shell Oil’s case, that time frame is five years. As can be seen from the chart in Exhibit 2 (page 4), the Shell Oil price projection appears to be optimistic relative to two energy price forecasts from government organizations. Shell Oil is more optimistic than the oil price expectations of CEOs such as Ryan Lance of ConocoPhillips and Robert Dudley of BP plc (BP-NYSE) whose views are best captured in the phrase “lower for longer.”

**T. Boone Pickens, stated that he expects oil output to fall and the price to rebound, reaching \$70 a barrel by the end of 2015**

On the optimistic side, oil operator, takeover artist and now energy hedge fund manager, T. Boone Pickens, stated a couple of weeks ago that he expects oil output to fall and the price to rebound, reaching \$70 a barrel by the end of 2015. That would be a dramatic move from current price levels, similar to the price rise that occurred earlier this year after oil prices bottomed in the low \$40s a barrel.

**However, he did predict the collapse that sent oil prices down roughly 49% by early 2015**

We were attracted to an article on *Bloomberg Business* with the eye-catching headline “Oil Guru Who Called 2014 Slump Sees a Return to \$100 Crude.” Since not many forecasters called the collapse in oil prices, we were curious as to who this successful prognosticator was and what his outlook is now. The forecaster is Gary Ross, the founder of consultants PIRA Energy Group. His claim to forecasting fame came, according to the article, when he turned negative on oil prices after his firm hosted a seminar in New York City in October 2014 where Saudi Arabian oil officials hinted they would change their oil policy. No one says whether these Saudi Arabian oil officials actually pointed out that they were considering defaulting to market forces to determine oil prices or whether Mr. Ross deduced their action from comments they made. What we don’t know is exactly when the seminar occurred, but the price of oil fell from \$91 a barrel at the start of October to \$81 at the end of the month. Crude oil prices peaked June 20<sup>th</sup> at almost \$108 a barrel. So after oil prices had declined by nearly 21% (to the mid-point of October prices), Mr. Ross turned negative. However, he did predict the collapse that sent oil prices down roughly 49% by early 2015.

**PIRA’s forecast calls for a 1.7 million barrel a day (b/d) increases in demand for both 2015 and 2016**

So what does Mr. Ross say about the upcoming recovery in oil prices? According to the article, he was quoted saying, “Current prices are unsustainable. It’s hard not to see oil hitting \$100 a barrel at some point in the next five years.” How is that possible? It is because Mr. Ross claims that the global oil market is not as oversupplied as everyone assumes? Or is it because he also believes that low oil prices will dramatically stimulate oil demand? PIRA’s forecast calls for a 1.7 million barrel a day (b/d) increases in demand for both 2015 and 2016. That demand growth would be greater than for any year since the post-recession demand rebound in 2010 when consumption increased by 2.5 million b/d. That demand growth is substantially greater than the 1 million b/d average growth experienced during 1989-2014. Amazingly, annual demand grew by an average of only 950,000 b/d over 2000-2014.

**During the 23-year period since 1989, there have been only five years when oil demand grew more than 1.5 million barrels**

It is important to note that during the 23-year period since 1989, there have been only five years when oil demand grew more than 1.5 million barrels, with three of them barely beating that mark. In 2004 and 2010, oil demand grew by 2.5 million barrels a day, modern record years for growth. The world has been waiting for the demand response to low oil prices, but it doesn’t seem to be as obvious this year, so far. As a result, we wonder whether Mr. Ross believes his oil price target price might be reached within the next year or will it take five years to achieve it. Without a more definitive time frame, this forecast could be the most optimistic as suggested by the article’s title or merely consistent with many other forecasts. As a good consultant, Mr. Ross has given a price but not a date.

Last Thursday, our friend Dave Demshur, the CEO of Core Laboratories (CLB-NYSE) conducted his company’s earnings call. Mr. Demshur is considered a resource for the investment community

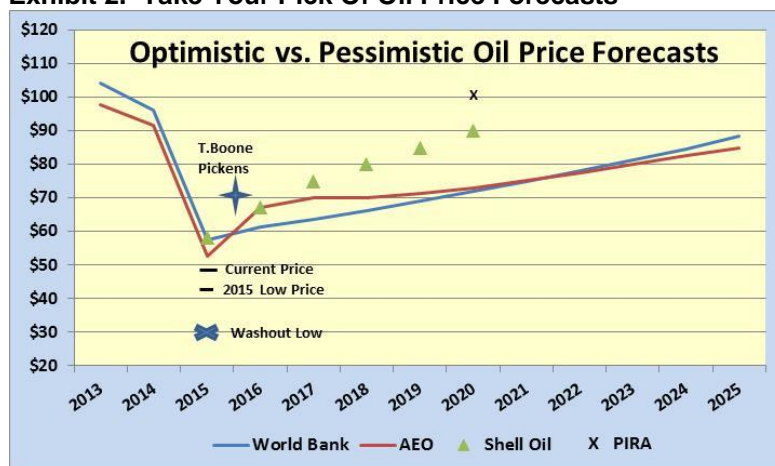
**Based on three-year annual production decline rates of 70%, 40% and 20%, Core Labs believes that domestic oil output will fall by 500,000 b/d by year-end 2015 and by another 500,000 b/d in 2016**

**Core Labs does not see an upturn in deepwater exploration, but rather that sector will be dominated by development work**

for assessing macro industry trends. In his comments, Mr. Demshur said that he believes U.S. oil production peaked in April 2015, which he based on the December 2014 peak in production for Bakken oil output and the peak earlier this year for Eagle Ford formation oil production. Based on three-year annual production decline rates of 70%, 40% and 20%, Core Labs believes that domestic oil output will fall by 500,000 b/d by year-end 2015 and by another 500,000 b/d in 2016, unless there is a sharp upturn in drilling. In addition, Mr. Demshur believes that the impact of low oil prices will boost global demand by 1.4 million b/d for all of 2015, after averaging a 1.3 million b/d increase in the first half. That suggests he expects oil demand to grow at a 1.5 million b/d rate during the second half of 2015. Finally, Core Labs does not believe Russia and the Middle East countries can boost their output further and that the longer they produce at their current high output rates, they will encounter productive capacity constraints.

After putting all these factors together, Mr. Demshur said that there will be a “V-shaped” recovery in oil prices starting in early 2016. That recovery in prices will drive an upturn in oilfield activity led by international activity, and especially by the 18 deepwater field development projects that are expected to be sanctioned at the end of 2015 or early 2016. Core Labs does not see an upturn in deepwater exploration, but rather that sector will be dominated by development work. The next market to recover should be North American onshore activity. Taken all together, along with some specific industry antidotes Mr. Demshur offered, this is a compelling optimistic case for an energy industry rebound in 2016, a view everyone in the industry will warmly embrace.

**Exhibit 2. Take Your Pick Of Oil Price Forecasts**



Source: World Bank, EIA, PPHB

On the less optimistic side, the World Bank recently reduced all its commodity price forecasts including those for crude oil and natural gas. Their oil price forecasts through 2020 are well below those of

**The World Bank’s 2020 forecast calls for WTI at \$71.90 a barrel while the EIA’s AEO sees it at \$72.96, gaps of roughly \$7-8 a barrel to the Shell Oil projection and \$17-\$18 a barrel to the PIRA forecast**

**He termed the \$30 price as a “washout” price, reflecting his view that at that price every oil commodity and stock investor will be throwing up**

both Shell Oil and PIRA. Another modest oil price forecast can be found in the 2015 Annual Energy Outlook (AEO) produced by the Energy Information Administration (EIA). The gap between the World Bank’s oil price forecast and the AEO’s forecast narrows as they move toward 2020. The World Bank’s 2020 forecast calls for WTI at \$71.90 a barrel while the EIA’s AEO sees it at \$72.96, gaps of roughly \$7-8 a barrel to the Shell Oil projection and \$17-\$18 a barrel to the PIRA forecast. Those gaps represent huge amounts of income either lost or gained by the petroleum industry. That will impact the energy industry’s profitability and force the industry to become more efficient. The price gaps also have an implication for energy demand as higher oil costs ripple through global economies.

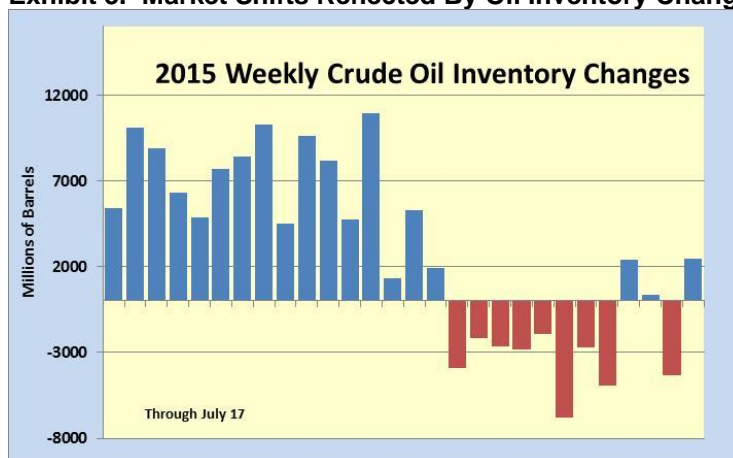
In Exhibit 2 (prior page), we also show the current oil price as of the end of last week along with the WTI low price point so far this year. There is a \$30 a barrel number on the chart, which was suggested by a technical analyst on a CNBC. That is close to the 2008 low price (\$33 a barrel) that he believes will be tested in this downturn, especially as the U.S. dollar continues to strengthen. It is already up 21% so far this year. He termed the \$30 price as a “washout” price, reflecting his view that at that price every oil commodity and stock investor will be throwing up. That is also known on Wall Street as the capitulation phase – or the bottom!

## Oil Storage Reflects Output Up And Mixed Demand Picture

**Crude oil storage volumes have increased in three of the past four weeks**

Crude oil storage volumes have increased in three of the past four weeks as reported by the Energy Information Administration (EIA). This reversal from the prior period of eight consecutive weekly storage declines for the weeks from the start of May through mid-June reflects continued growth in domestic oil production and a rebound in imports from Canada that had been interrupted by wildfires and weather issues.

**Exhibit 3. Market Shifts Reflected By Oil Inventory Changes**

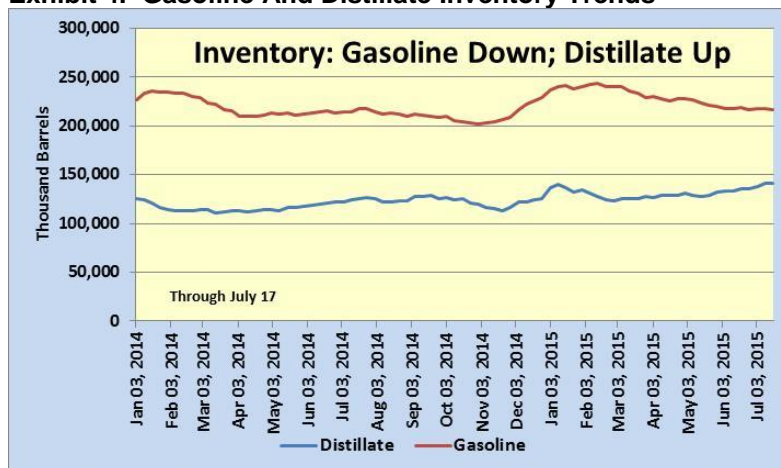


Source: EIA, PPHB

**The increase in diesel inventories may help explain why in 22 states in the nation the price for diesel fuel at the pump is now below gasoline pump prices**

The weekly crude oil inventory gains may reflect the conflicting trends in the domestic fuels market. Gasoline inventories are down roughly -10% from their peak earlier in the year, but they are 0.5% higher than they were a year ago. In the market for distillate fuels, which includes fuel used both for heating homes and powering diesel vehicles, inventories are higher both when compared to a year ago (+12%) and surprisingly even since the beginning of this year (+3%). The increase in diesel inventories may help explain why in 22 states in the nation the price for diesel fuel at the pump is now below gasoline pump prices. That is surprising as diesel fuel is usually a by-product of refineries producing gasoline and the fuel carries a higher federal fuel tax. The explanation is that refineries in Europe have been ramping up their gasoline output in order to boost shipments to the U.S. market, but that also means they are producing more diesel, which is also being shipped to the U.S. The net result is that there is now a glut of diesel here.

**Exhibit 4. Gasoline And Distillate Inventory Trends**

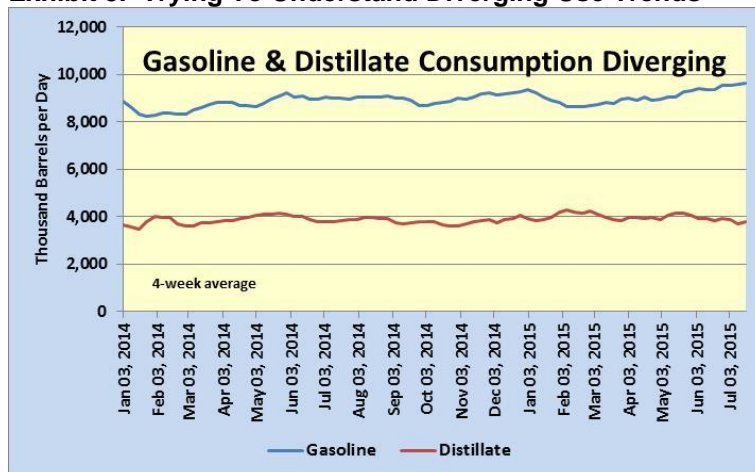


Source: EIA, PPHB

**Year-over-year gasoline consumption, as measured by the 4-week average, which we employ to smooth out the volatility of weekly data, is higher by 6.9%**

When we examine gasoline and distillate consumption trends since the start of 2014, the increase in gasoline use in 2015 can clearly be seen. Year-over-year gasoline consumption, as measured by the 4-week average, which we employ to smooth out the volatility of weekly data, is higher by 6.9%. On the other hand, year-over-year distillate fuel use is actually -1.5% lower. Since we are measuring distillate consumption in the middle of July for each year, that consumption is less impacted by heating oil use and power generation, which tend to be a winter phenomenon. As we mentioned above, diesel fuel pump prices are below gasoline pump prices in much of the U.S., so one must wonder whether the consumption decline reflects economic weakness in the U.S. economy.

Exhibit 5. Trying To Understand Diverging Use Trends



Source: EIA, PPHB

Crude oil and refined product inventory levels, along with mixed fuel consumption trends, are all data points that commodity traders and oil price forecasters are watching closely. Unfortunately, the data trends are not signaling any clear growth trend for fuel consumption nor declining production, therefore downward pressure on oil prices is likely to remain in place until weekly data trends change.

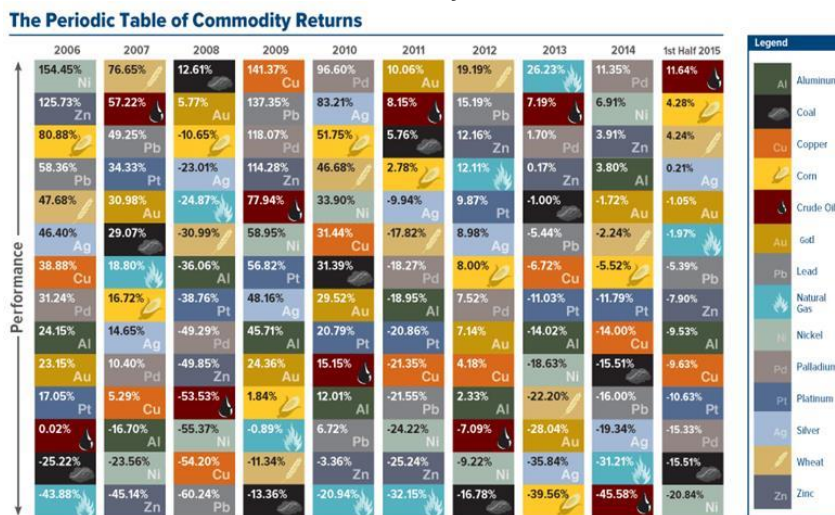
## Crude Oil Leads Commodity Returns: A Dead Cat Bounce?

The focus in financial circles during the past week has been on the dramatic fall in the price of gold, which is being presented as the bell cow for all commodities, which have also declined. That linkage was helped by the drop in crude oil prices that took West Texas Intermediate (WTI) below \$50 a barrel for the first time since April 2<sup>nd</sup>, which happened as crude oil rebounded from its \$43.93 a barrel low on March 16<sup>th</sup> to its recent peak of \$61.36 a barrel on June 10<sup>th</sup>.

**Our immediate thought was that this was the equivalent of the “best house in a bad neighborhood” commentary**

As WTI was headed for its first sub-\$50 a barrel price in months, we were treated to a report from U.S. Global Research about how crude oil was the best performing commodity for the first half of 2015. Our immediate thought was that this was the equivalent of the “best house in a bad neighborhood” commentary. The table of commodity performance that the money management firm produces was a reminder of the point we made in our last *Musings* about the revival of oil prices this year. In that article we highlighted how oil, although up 11.1% (measured by the change in WTI spot prices) for the first six months of 2015, over one-year and three-year periods was down 43.6% and 11.2%.

**Exhibit 6. Crude Oil Led Commodity Performance In 2015**



Source: U.S. Global Investors

**Based on the record since 2006, this is the first time WTI's performance topped the annual commodity price performance table**

When we examine the periodic table of commodities prepared by U.S. Global Research, WTI (based on futures prices) showed a higher performance for the first half of 2015 – up 11.64% versus the 11.1% spot price increase we quoted in our last article. That difference relates to the use of futures prices versus spot oil prices. Based on the record since 2006, this is the first time WTI's performance topped the annual commodity price performance table. WTI's performance was ranked second in three years – 2007, 2011 and 2013. It finished fifth in 2009. The pattern of outstanding price performance for oil seems to reflect a highly cyclical pattern because in the years when WTI was not at the top, it was at the bottom. Twice – in 2006 and 2012 – WTI finished third from the bottom. Last year, WTI was the worst performing commodity, falling 45.58% due to the collapse in global oil prices at the end of the year.

**WTI is only one of four commodities with positive performance this year so far**

The positive performance for WTI for the first half of 2015 should not be a great surprise given its dismal performance in 2014, but WTI is only one of four commodities with positive performance this year so far. Silver was barely positive for 2015's first six months. The other two positive commodities are food stuffs – corn and wheat – probably helped by the limited crop expectations due to the harsh winter and the heavy rains this spring and early summer.

**As the U.S. dollar strengthened throughout most of 2014, commodity prices weakened**

WTI, as well as most other commodities, are being hurt by the strong U.S. dollar that makes it more expensive for foreign buyers to purchase these commodities in the higher-valued currency. The chart in Exhibit 7 shows the inverse relationship between the value of the U.S. dollar and an index of commodities. The strength of this relationship was very clearly demonstrated starting in the fall of 2013. As the U.S. dollar strengthened throughout most of 2014, commodity prices weakened. Since late fall of last year, the U.S.



**Exhibit 7. How The Commodity Rout Has Unfolded**

**The Rout**

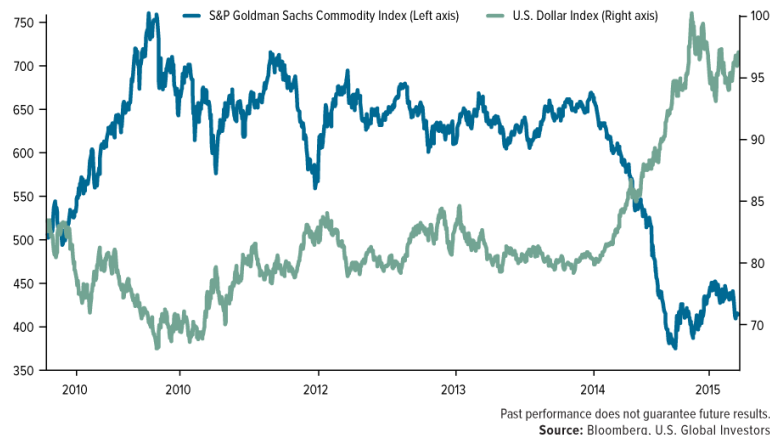


Source: *Bloomberg*

**This volatility and slight weakening of the value of the U.S. dollar helped the oil price rebound**

dollar has shown greater volatility than almost any period since 2010 as a result of investor expectations for higher U.S. interest rates this year plus the drama in currency markets due to concerns over the Eurozone-Greece bailout negotiations and their impact on the economies of European countries. This volatility and slight weakening of the value of the U.S. dollar helped the oil price rebound, but the dollar is now strengthening, once again.

**Exhibit 8. How Commodities Are Being Beaten Up By US Dollar**  
**Inverse Relationship Between the U.S. Dollar and Commodities**



Source: *U.S. Global Research*

**At the present time, the country's purchasing managers' index is below 50, the point separating a contracting economy from an expanding economy**

Another concern for commodities, especially crude oil, has been the health of the world's fastest growing major economy - China. At the present time, the country's purchasing managers' index is below 50, the point separating a contracting economy from an expanding economy. Although China reported that its second quarter gross domestic production (GDP) grew 7%, many of the underlying physical data measurements suggest that the country's economy remains weaker than government officials contend. Not only is

**Marc Faber made the point that he resides in Asia and it is clear to him that none of these economies, especially China's, are growing despite what government officials report**

China's economy weaker than anticipated, other Asian economies appear to be struggling more than expected. Last week, the money manager and publisher of the investment newsletter *The Gloom, Boom & Doom Report*, Marc Faber, was interviewed on CNBC and he made the point that he resides in Asia and it is clear to him that none of these economies, especially China's, are growing despite what government officials report. That is the principle reason why he believes the world is entering another recession, which makes him negative about the valuation of global stock markets and why he believes they are at risk of a significant decline. His economic view supports why he believes commodity prices will weaken more, and not rebound soon. The problem, according to Mr. Faber, is that countries around the world have expanded their commodity output – especially in base metals and petroleum – due to expectations for every-increasing demand growth and cheap capital, making it easy to expand capacity, e.g., U.S. shale oil.

**The capacity expansion is leading to a long-term decline in commodity prices that will benefit consumers rather than producers**

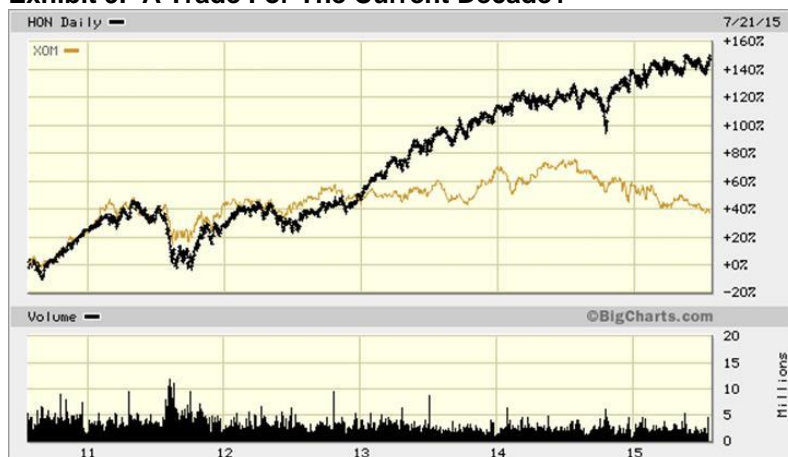
The scenario Mr. Faber outlines reflects one of our underlying beliefs, which is that the commodity boom of the first decade of the new century has spurred a significant commodity output expansion, fueled by the easy money policies of the United States, and now followed Europe, Japan and China. The capacity expansion is leading to a long-term decline in commodity prices that will benefit consumers rather than producers. This trend is long-term, and at times may appear not to be working because of near-term news and economic events. However, over 5- and 10-year periods, macro trends will drive investment returns.

**Petrochemical companies benefit from lower-priced and readily-available natural gas and natural gas liquids supplies while producers struggle with extremely low natural gas prices**

In a presentation we gave at a 2010 Decision Strategies Oilfield Breakfast meeting, we offered this view on the macro trend for energy. We suggested that the past trend that benefitted energy producers would shift to benefitting energy consumers. For example, petrochemical companies benefit from lower-priced and readily-available natural gas and natural gas liquids supplies while producers struggle with extremely low natural gas prices. In that presentation, we attempted to crystalize our view by suggesting an investment trade for the next decade even though we were no longer in the business of researching and recommending stocks at that time. Our suggested trade was to buy Honeywell (HON-NYSE) and sell ExxonMobil (XOM-NYSE). **[THIS SHOULD NOT BE CONSIDERED AN INVESTMENT RECOMMENDATION.]** We decided to see how this trade has developed. The chart in Exhibit 9 shows the stock prices for the past five years, in which Honeywell has outperformed ExxonMobil.

**What often appears evident in the near-term about industries and companies often changes as time enables new fundamentals to play out**

Our point in bringing up this trade is to highlight that what often appears evident in the near-term about industries and companies often changes as time enables new fundamentals to play out. In this case, remember that in 2010 the energy industry had just emerged from the 2008 financial crisis and 2009 recession that cut energy demand and caused oil and gas prices to collapse. In 2010,

**Exhibit 9. A Trade For The Current Decade?**

Source: Big Charts, PPHB

**Remember when the head of Chevron described \$100-a-barrel oil as “the new \$20-a-barrel oil”?**

oil prices had rebounded and were on their way to multiple years of oil prices of \$100 a barrel. Remember when the head of Chevron (CVX-NYSE) described \$100-a-barrel oil as “the new \$20-a-barrel oil”? Presently, that assumption appears questionable, but it is quite possible the statement may still prove accurate. If not, then the future for oil and gas will not be like the past. The challenge is to determine what the future might look like and how best to capitalize on changing energy industry and investment trends.

## Revisiting Natural Gas Storage: Should Consumers Relax?

It has been a month since we last focused on the natural gas storage situation, a market that seems to be ignored as a result of investors and analysts focusing on the more volatile, and globally important, crude oil market.

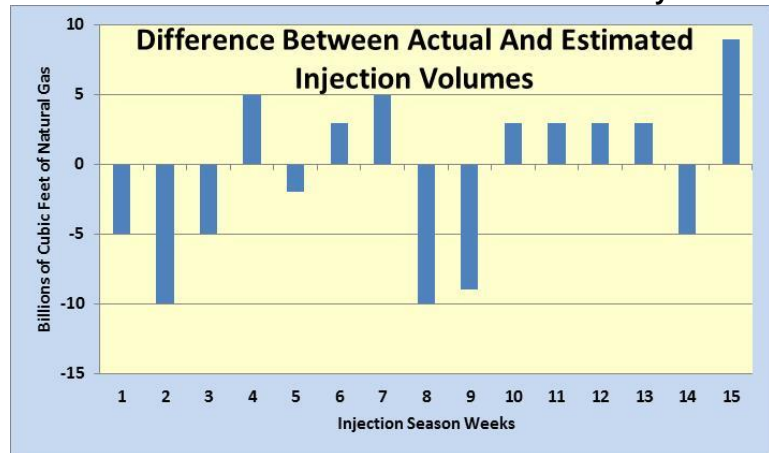
**Through the first 15 weeks of this injection season, the industry is averaging 86 billion cubic feet (Bcf) of gas injected into storage per week**

One reason the natural gas storage market has been ignored is that activity there is pretty benign. We started the natural gas injection season in better shape than last year. Weekly gas injection volumes have been healthy and have closely tracked forecasters' estimates. Through the first 15 weeks of this injection season, the industry is averaging 86 billion cubic feet (Bcf) of gas injected into storage per week. That rate matches the average weekly injection volumes during the 2014 season. Maybe more important, this weekly injection rate represents the highest average weekly volume for any year in the past 21 years since 1994.

**We find that there have been only four weeks when the difference was in excess of 5 Bcf**

When we consider the difference between actual weekly injection volumes and the estimates for them made by professionals monitoring the market, we find that there have been only four weeks when the difference was in excess of 5 Bcf, suggesting that the forecasters' models are accurately capturing well production and consumption dynamics at work in the market. There are many

Exhibit 10. Actual And Estimated Volumes Are Very Close

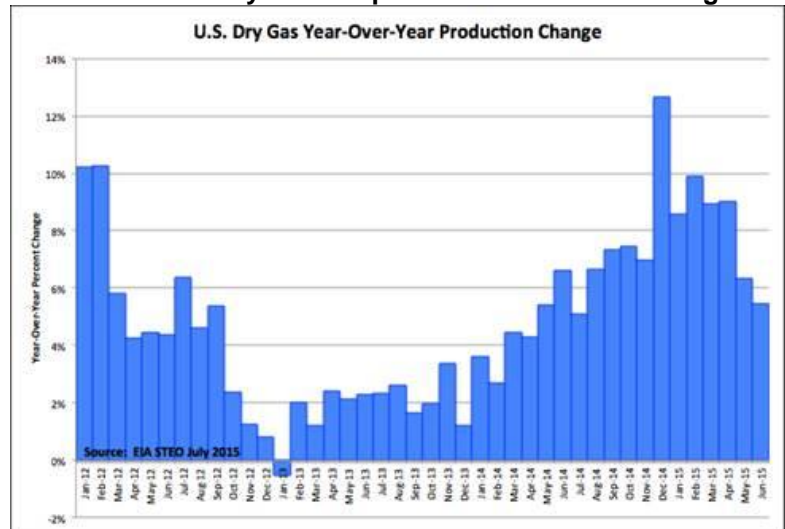


Source: EIA, PPHB

**With continued low oil drilling, projections suggest that associated natural gas output will not recover anytime soon**

concerns about how long domestic natural gas output can continue to grow given the low number of gas-oriented drilling rigs at work and the reduced output of associated natural gas obtained from the fewer oil wells recently drilled. With continued low oil drilling, projections suggest that associated natural gas output will not recover anytime soon. All factors considered, when we examine what is happening to natural gas output there is an interesting trend emerging that may become of greater concern for gas buyers later this year, but it is probably a concern for consumers in 2016.

Exhibit 11. Monthly Gas Output Growth Rate Is Slowing



Source: Art Berman

The chart in Exhibit 11, which shows the year-over-year changes in monthly dry natural gas production volumes, shows how strongly domestic output has been growing over the past year. But the concern emerges from the downward trend in the monthly growth

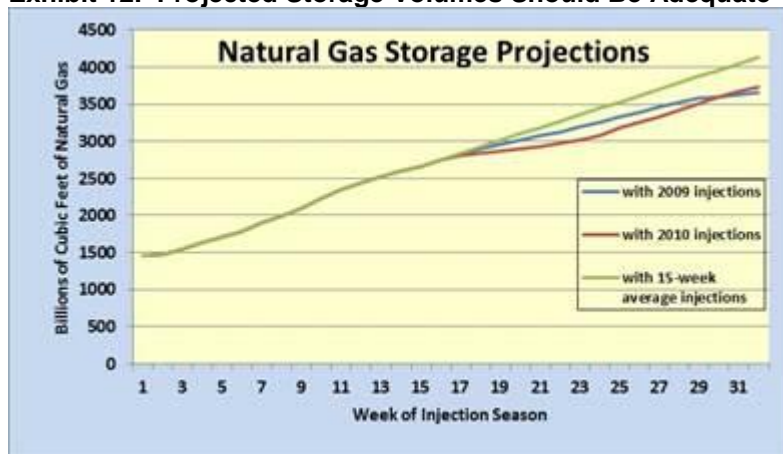
**Monthly gas output growth rate declined throughout most of 2012 leading to a negative monthly comparison for January 2013**

rate since October 2014. To try to understand what this declining trend might mean for dry gas output later in 2015 and in 2016, one should look at what happened to the industry in 2012 and 2013. In that period, monthly gas output growth rate declined throughout most of 2012 leading to a negative monthly comparison for January 2013. The slowing gas output growth during 2012 led to very low output growth throughout all of 2013. Since the 2013 natural gas injection season began with a healthy volume in storage (1,678 Bcf), the industry was able to inject 2,127 Bcf into storage giving the industry a comfortable supply of 3,814 Bcf at the start of the withdrawal season. The industry was fortunate that it had so much gas in storage as the winter proved to be brutally cold such that it ended the season with only 822 Bcf of gas in storage. That low storage volume prompted concerns that the industry would not be able to rebuild storage capacity to levels that would make buyers comfortable. As a result, natural gas prices rose.

**The weekly average injection volume for the season-to-date had declined from the 88 Bcf for the first 11 weeks to a 13-week average of 86 Bcf**

To see where we are with respect to our forecast for gas storage volumes at the start of the 2015 withdrawal season, we updated our model. We had previously updated our model after week 13, but had not published its results. What we found, however, was that the weekly average injection volume for the season-to-date had declined from the 88 Bcf for the first 11 weeks to a 13-week average of 86 Bcf. After two additional weeks, we remain at that 86 Bcf average weekly injection volume rate.

**Exhibit 12. Projected Storage Volumes Should Be Adequate**



Source: EIA, PPHB

**If the industry keeps up with the 86 Bcf average weekly injection rate for the balance of the season, there will be slightly over 4,133 Bcf in storage at winter's start**

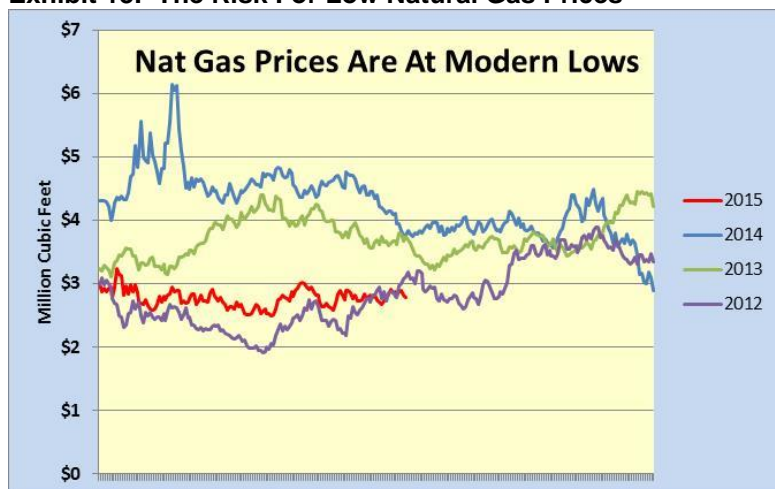
Our forecasting model has used the weekly injection patterns for the 2009 and 2010 seasons along with the weekly average injection volume for the first 15 weeks. If the industry keeps up with the 86 Bcf average weekly injection rate for the balance of the season, there will be slightly over 4,133 Bcf in storage at winter's start. When we consider the season-ending storage volumes based on the 2009 and 2010 injection patterns, the forecasts call for peak storage volumes of 3,659 Bcf and 3,738 Bcf, respectively. Those peak

**So far this year, gas buyers have been enjoying the lowest natural gas prices since early 2012**

volumes are slightly below the peak volumes reported each year between 2009 and 2013. The forecasted peak volumes, however, would be slightly ahead of the annual peak storage volumes reported for 2006 through 2008.

If supply isn't an issue, then the question is whether natural gas buyers should care about gas prices. Producers certainly care about gas prices. In the event that gas supply does become a concern of consumers because they start worrying about future gas supply growth, then gas prices might jump in response to a rush to secure supplies either for storage injection or consumption. So far this year, gas buyers have been enjoying the lowest natural gas prices since early 2012 as shown in Exhibit 13. As shown in that chart, it was just about this time of the year in 2012 when natural gas prices crossed \$3 per thousand cubic feet (Mcf). Other than for a brief period in 2012, natural gas prices remained above that \$3/Mcf threshold until very late in 2014, at which point it dropped into the mid-\$2/Mcf for almost all of 2015.

**Exhibit 13. The Risk For Low Natural Gas Prices**



Source: EIA, PPHB

**The price could easily jump to the \$3.50/Mcf level before climbing higher toward the \$4/Mcf threshold**

If natural gas supply finally does stop growing, we could see a fairly sharp jump in prices. How high might they jump? In a non-scientific guess, the price could easily jump to the \$3.50/Mcf level before climbing higher toward the \$4/Mcf threshold. A jump to that level would certainly hit utility buyers who are using greater volumes of natural gas than coal to generate electricity. Thus, we could see a revival of coal-powered electricity along with some natural gas-fired generation curtailment. The big question is will a \$3.50/Mcf price level cause exploration and development of natural gas resources to accelerate, or does the industry need a \$4/Mcf price? Our guess is that once we cross \$3.50/Mcf we will see a drilling response.

## More Companies Reveal Strategies For New Energy Reality

**It has been our contention that the energy business will operate differently from the past and as a result, energy companies will be forced to reassess their long-term business strategies and even consider radically altering their current business models**

**The key problem for the 2015 IMF forecast is that the 3.3% growth projection will mark a decline in global economic activity from that reported for 2014 and would be the lowest growth rate since the 2009 financial crisis and recession**

**Slow economic growth is not good news for energy demand**

The past several weeks have provided new information from companies across the energy sector dealing with their strategies to survive and hopefully thrive during the next industry upturn. We have written several previous articles discussing how the oil and gas industry may look and operate once we get to the start of the next upcycle. It has been our contention that the energy business will operate differently from the past and as a result, energy companies will be forced to reassess their long-term business strategies and even consider radically altering their current business models. One of our early articles dealt with the strategic move by Royal Dutch Shell (RDS.A-NYSE) to bet on the long-term growth potential for the global natural gas business through its proposed acquisition of BG Group (BG-NYSE). That is how a significant re-orientation of a company's business strategy, based on shifting commodity market opportunities, might play out. Another example is Halliburton Company's (HAL-NYSE) proposed combination with Baker Hughes (BHI-NYSE) to create a much more broadly-based oilfield service provider to rival, industry king-pin, Schlumberger Ltd. (SLB-NYSE).

Recently, Shell Oil's CEO Ben van Beurden and one of his senior E&P executives sat down for interviews with an industry publication and with the global news service *Reuters*. The focus in Mr. van Beurden's interview was on the challenges presented to energy companies and global economies from low oil prices. On that point, Mr. van Beurden said, "Low prices have big implications for exporting countries like Iran, Russia and Venezuela, but also for shale-producers in the U.S., and even the domestic budgets of producers in the Gulf states. In consuming nations, low oil prices are an economic boon stimulating growth and demand." To the demand point, he highlighted the recent International Monetary Fund (IMF) forecast for global economic growth in 2015 and 2016, despite the forecasts having recently been reduced from projections made earlier this year. The key problem for the 2015 IMF forecast is that the 3.3% growth projection will mark a decline in global economic activity from that reported for 2014 and would be the lowest growth rate since the 2009 financial crisis and recession.

A look back at other economic growth estimates shows that the 2015 rate will approximate the rates reported for 2012 and 2013. In other words, the global economy is failing to accelerate despite the benefits of loose monetary policies that have been operating in most advanced economies around the world along with the sharp drop in global fuel prices. This problem was highlighted by IMF chief economist Olivier Blanchard when he remarked to the media during the press conference related to the release of the IMF forecast, "We have entered a period of low growth." Slow economic growth is not good news for energy demand. But, if slow economic growth contributes to continued low oil and gas prices, reduced capital spending by energy companies and reduced drilling and well

**Consistency of activity is one of the defining characteristics of major petroleum companies that have led to their growth over the decades**

completion activity, then slow petroleum output growth should follow and possibly even a decline in output. A world with a more balanced oil market and higher commodity prices would be welcomed.

This scenario appears to underlie the medium term outlook adopted by Shell Oil as outlined by Mr. Van Beurden. He pointed out that there are many petroleum producers who are reluctant to explore for oil because of the reduced profit margins currently. As a result, he said, "Supply ... may even decline." But he stressed that for Shell Oil, "We're determined to avoid a start-stop approach to investment." Of course, consistency of activity is one of the defining characteristics of major petroleum companies that have led to their growth over the decades. Not all of them, however, are continuing to embrace Shell Oil's mantra.

**That scenario's wild card, according to Mr. van Beurden, is U.S. shale oil**

Mr. van Beurden pointed out that if the petroleum industry does cut back its drilling and development activity for an extended period, then there could be a "rapid recovery." "A rapid recovery could occur if projects are postponed or even canceled," Mr. van Beurden said. "This would lead to less new supply – not so much now, but in two or three years. Combined with economic growth, the market could tighten quickly in this scenario." That scenario's wild card, according to Mr. van Beurden, is U.S. shale oil. Everyone is quite familiar with the explosion in shale oil output due to the initial success of the technologies that enabled shale resources to be produced. That production growth, along with weak oil demand, contributed to the global supply glut and the steep decline in oil prices highlighted by Saudi Arabia's decision to fight to regain its lost market share by starting a price war that would make shale oil and other expensive oil resources uneconomic and slow output growth.

**"It will take several years but we do believe fundamentals will return" according to Shell Oil**

The wild card is whether shale producers can reduce their drilling and completion costs to achieve corporate profitability in today's low oil price environment. If shale producers can do this, Mr. van Beurden suggested that "With moderate economic growth, prices could stay low for longer." How long? According to Andy Brown, Shell Oil's upstream international director, who oversees the company's oil and gas production outside of North America, in his *Reuters*' interview, said, "It will take several years but we do believe fundamentals will return." Shell Oil's forecast calls for oil to average \$90 a barrel in 2020. Near term, Shell Oil expects the Brent oil price to show only a modest recovery from the mid- to high-\$50s a barrel now to an average of \$67 a barrel in 2016 and \$75 a barrel in 2017.

**When Mr. van Beurden was elected Shell Oil's CEO on January 1, 2014, he quickly moved to re-orient the company's strategy**

While projecting a long slow recovery for oil prices, Shell Oil has been making moves to improve the company's financial returns and to position it for the energy world of the next decade and beyond. People may remember when Mr. van Beurden was elected Shell Oil's CEO on January 1, 2014, he quickly moved to re-orient the company's strategy in order to better capitalize on the company's strong portfolio and to make up for the deteriorating performance of



**His immediate objectives included increasing the pace of asset sales to \$15 billion for 2014-2015 and cutting capital spending**

recent years. In a press release about his agenda for the company shortly after assuming office, he said, "Our overall strategy remains robust, but 2014 will be a year where we are changing emphasis, to improve our returns and cash flow performance." His immediate objectives included increasing the pace of asset sales to \$15 billion for 2014-2015 and cutting capital spending. After spending \$46 billion, including \$8 billion for acquisitions, in 2013, spending for 2014 was reduced to \$37 billion, including \$2 billion for acquisitions.

**The results for 2014 showed Shell Oil generating \$25 billion in free cash flow that underpinned the company's \$15 billion of dividends and share buybacks**

Shell Oil had been highly criticized before Mr. van Beurden's arrival for its high capital spending and low asset returns forcing the company to have to borrow funds to pay dividends in 2013. The results for 2014 showed Shell Oil generating \$25 billion in free cash flow that underpinned the company's \$15 billion of dividends and share buybacks. Now Shell Oil is spending \$70 billion to purchase BG Group, while also continuing to execute its long-term strategy for exploration in Alaska. At the same time, in a press release in late January 2015, Shell Oil highlighted that "organic capital investment in 2015 is expected to be lower than 2014 levels, and we have curtailed over \$15 billion of potential spending over the next three years. The company indicated it had options to further reduce its capital spending but that it was striving to not "over-react to current low oil prices." The statement about strategic focus in late January was followed in February with the BG deal, which is a large bet on the long-term growth of the global natural gas market, especially in the form of liquefied natural gas (LNG).

**ConocoPhillips announced it would raise its quarterly dividend rate but reduce its deepwater exploration spending, specifically due to the low oil prices**

Another oil major's strategy in response to this low oil price environment and the belief it will extend until 2017, shows how it views capital allocation and shareholder concerns. Nearly two weeks ago, ConocoPhillips (COP-NYSE) announced it would raise its quarterly dividend rate but reduce its deepwater exploration spending, specifically due to the low oil prices. The company raised its quarterly dividend rate to 74 cents from its prior 73 cent rate, which will add roughly \$12.3 million per quarter to shareholder remittances. We have to assume that part of that increase will be funded from the planned cutback in deepwater spending that ConocoPhillips announced, even though it was forced to terminate a long-term contract for a deepwater drillship owned by Ensco International (ESV-NSE) to execute its strategy. ConocoPhillips will pay a termination fee that represents up to two years of contract day rates, or close to half a million dollars. That fee will become a special item charge to ConocoPhillips's third quarter results. The company does avoid the rest of the spread cost associated with the deepwater drilling rig – probably \$1-1.5 million a day.

In the release announcing these moves, ConocoPhillips' CEO Ryan Lance stated, "Since the start of the oil and gas price downturn last year, we have moved decisively to position ConocoPhillips for lower, more volatile prices by exercising capital flexibility and reducing operating costs across our business." He went on to explain that

**“This strengthens our ability to achieve cash flow neutrality in 2017 even if lower commodity prices persist.”**

**The company isn’t abandoning drilling, but rather refocusing it from exploration to exploitation of its existing resource base**

**Based on the average breakeven price per barrel for the categories of deepwater oil (~\$50 a barrel) and Ultra deepwater (~\$55 a barrel), current oil prices of \$48 a barrel suggest that there is no investment return currently**

**Some of the steps being taken may prove to be too little, too late given the damage that has already been done to activity, pricing and asset values**

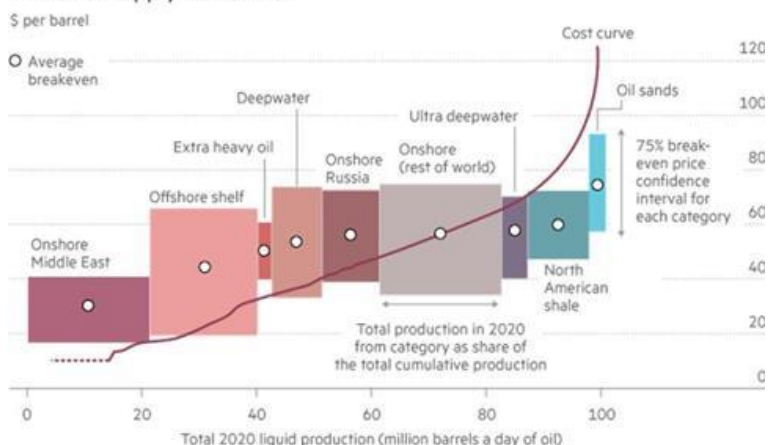
“Our decision to reduce spending in deepwater will further increase our capital flexibility and reduce expenses without impacting our growth targets. This strengthens our ability to achieve cash flow neutrality in 2017 even if lower commodity prices persist.”

ConocoPhillips was among the first of the U.S. oil producers to announce a cut in its 2015 capital spending in response to the collapse in crude oil prices. In March, it stated it would curb capital spending through 2017 to reflect its expectation that oil and gas prices would remain volatile and low during this period. ConocoPhillips said it would cut back on exploring for new oil and gas resources, including drilling in some of the shale formations in North America. The company isn’t abandoning drilling, but rather refocusing it from exploration to exploitation of its existing resource base. The company previously disclosed it had 44 billion barrels of oil equivalent reserves. Those barrels are located in acreage spread throughout the Gulf of Mexico along with the Eagle Ford, Bakken, Permian and Western Canada unconventional plays. In the press release, Mr. Lance stated, “We are committed to delivering the value we have created from these discoveries, while reducing the number of deepwater exploratory prospects we drill in the future.” So what do these steps indicate about ConocoPhillips’ view of the future and its strategy? The dividend hike suggests that management wanted to provide additional sustenance to its shareholders to offset the pain they have experienced as the share price has fallen 35% over the past year. That approach reflects the popular view about the investment merit of large oil companies – you own their shares for the income they provide and the belief that their low growth rates can support rising dividend payouts in the future.

The decision to cutback deepwater exploration, a move similar to one executed by BP plc (BP-NYSE) earlier this year, reflects the dismal economics for that effort given the explosion in the day rates for the new drilling rigs needed to drill these prospects in recent years. As shown in Exhibit 14 (next page), deepwater and ultra-deepwater oil are among the more expensive sources available. Based on the average breakeven price per barrel for the categories of deepwater oil (~\$50 a barrel) and Ultra deepwater (~\$55 a barrel), current oil prices of \$48 a barrel suggest that there is no investment return currently, which is especially challenging given the higher risk of deepwater exploration and development. Key questions for this type of exploration are: What will the oil price be when the discovery begins producing? How much needs to be invested?

The investment news is full of examples of petroleum and oilfield service companies making strategic moves to survive the current downturn. Some of the steps being taken may prove to be too little, too late given the damage that has already been done to activity, pricing and asset values by the current period of low oil prices on top of the extended period of low natural gas prices. The number of energy companies entering bankruptcy continues to grow with most

**Exhibit 14. Deepwater And Ultra Deepwater Oil Is Expensive**  
Global oil supply cost curve



Source: Rystad Energy  
Source: Rystad Energy

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**We certainly expect this bankruptcy wave to continue**

of them going in with “pre-packaged” plans for restructuring their balance sheets and debt, and essentially yielding control to their creditors. We certainly expect this bankruptcy wave to continue with later entrants arriving as a result of adversarial outcomes from their prior attempts to restructure their debt.

**Since most Asian and European LNG prices are linked to oil prices in some way, low oil prices are depressing LNG cargo prices making many LNG projects uneconomic**

Both Shell Oil and ConocoPhillips are large oil companies with significant assets and financial strength. Even with these strengths, each company is making a meaningful strategic adjustment to its business model. Will the LNG market evolve as Shell Oil anticipates? Given the growing supply of global natural gas and the possibility that Japan, a major user, will be restarting many of its currently shuttered nuclear power plants, LNG prices have dropped sharply eroding the profit potential gas exporters were anticipating. Since most Asian and European LNG prices are linked to oil prices in some way, low oil prices are depressing LNG cargo prices making many LNG projects uneconomic.

**This drilling shift may be signaling that oil companies believe there is greater output potential from onshore shale resources than currently assumed**

ConocoPhillips’ decision to reward shareholders with higher dividends at the expense of more deepwater exploration suggests that the one bright spot in the petroleum industry’s long-term outlook has dimmed – at least in the view of one company. The decision to scale back deepwater exploration, even if it is only for a couple of years, means future oil supply may not arrive when needed, which could send oil prices sharply higher at some point in the intermediate term. On the other hand, this drilling shift may be signaling that oil companies believe there is greater output potential from onshore shale resources than currently assumed. Should that scenario prove correct, there will be a forced rethinking of the orientation of future domestic petroleum activity, and with it adjustments to the business strategies of producers and certainly the oilfield service

industry. We fully anticipate that management teams and company boards of directors will spend many hours debating these trends and possible strategic responses.

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