**Musings from the Oil Patch**

April 7, 2015

Allen Brooks
Managing Director

**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

---

**Falling Rig Counts But Sustained Output – Change Coming?**

Throughout our career we have watched weekly data series become a cause célèbre for forecasters. Trying to understand how the continuing growth in crude oil and natural gas production in the face of the 900+ rig count decline can still be happening. As a result, we have been monitoring the weekly changes in the estimate of domestic crude oil production announced every Wednesday by the Energy Information Administration (EIA) along with their Thursday weekly estimates of the change in natural gas storage volumes. We consider these weekly changes in conjunction with the weekly count of drilling rigs targeting oil and natural gas prospects.

Last week provided an interesting perspective on this ultra-short-term market focus when oil production numbers surprised observers by falling compared to the prior week’s estimate and natural gas storage withdrawals were twice forecasters’ expectations. In both cases, the immediate price reactions were significant – crude oil prices increased by 5% Wednesday while the front-month natural gas futures contract price rose over 4%.

Like many in this industry, we spend a lot of time looking at the weekly data seeking a clue to the end of the industry’s current down-cycle and the start of the next up-cycle. Throughout our career we have watched weekly data series become a cause célèbre for forecasters. In the past, it might have been weekly Baker Hughes (BHI-NYSE) rig count numbers, natural gas storage injections or withdrawals, oil storage volumes, weekly gasoline production figures, gasoline pump prices, or possibly even daily crude oil and natural gas prices that drew everyone’s attention. However, trying to draw meaningful conclusions about these short-term trends often became not only difficult, but often impossible.

The number one conundrum confounding industry forecasters today is to understand how the continuing growth in crude oil and natural gas production in the face of the 900+ rig count decline can still be happening. As a result, we have been monitoring the weekly changes in the estimate of domestic crude oil production announced every Wednesday by the Energy Information Administration (EIA) along with their Thursday weekly estimates of the change in natural gas storage volumes. We consider these weekly changes in conjunction with the weekly count of drilling rigs targeting oil and natural gas prospects.
Does this slowing mark that we are at the bottom?

The bottom of the 2008-2009 decline came after roughly 150 more rigs were lost or about 14% of the rig count at the time of the pause.

In Exhibit 1, we show the pace of the current rig count decline compared to the one of 2008-2009. As seen, the current rig decline has been sharper than before. However, the pace of the current rig decline appears to be slowing, similar to the pattern observed during the earlier decline, and frankly, something that usually happens with all declines as sharp reversals are not typical. The question on the minds of many oil industry participants and forecasters is: Does this slowing mark that we are at the bottom?

Exhibit 1. Current Rig Downturn Mirrors Last Great Decline

It is interesting to note when examining the two rig declines that we are slowing at virtually the same point as in 2008-2009. As a caution to those believing the current slowing rig count decline marks an approaching bottom, in 2008-2009, following a couple of weeks of flat rig counts, the decline continued. The bottom of the 2008-2009 decline came after roughly 150 more rigs were lost or about 14% of the rig count at the time of the pause.

An interesting chart (Exhibit 2, next page) we have been maintaining is a plot of the weekly rig count changes compared with the total rig count and WTI oil price since 1987. We suggest viewers focus on the weekly rig count changes. In looking at 1987-2000, we notice that there was a high degree of variability in weekly rig count changes. The industry downturns in 1990 and 1997-1998 can clearly be seen. Interestingly, those downturns show width but limited depth, meaning that the rig correction lasted for a while but each week’s decline was modest. The entire 1987-2000 period showed sporadic weeks with very sharp declines or gains.

Shifting our focus to post-2000, we note that after the 2001 recession’s impact on drilling, the preponderance of weekly rig count changes was to the upside. That again is not a surprise when one
Following the 2008-2009 downturn, the pattern of mostly positive weekly rig count changes returned until the current downturn. Again, that pattern was supported by the steady march higher in oil prices into an extended period of stable and high prices. Our last observation is that if we look at the growing mass of dark blue reflecting the current weekly rig count declines, its shape mirrors the 2008-2009 decline, which is consistent with the rig count chart in Exhibit 1 on page 2.

Exhibit 2. A Story Of Oil Price, Rig Activity And Oil Production

Another interesting industry pattern to observe is the weekly change in oil production since 2005 and the weekly oil rig count. In the earlier years, there were several episodes of sharp weekly oil production declines that mark the impact of hurricanes that shut in production offshore and hurt Gulf Coast onshore oil output. We would direct the readers' attention to the past several years. There have been very few declines in the 4-week average production figures, and the falling volumes were minor.
Many people became quite excited last Wednesday when the EIA released its weekly report showing that domestic production declined by -36,000 barrels a day (b/d), following the prior week when production rose by only 3,000 b/d.

We will now shift our focus to a more recent time period and the difference in the results of the weekly production estimates and the 4-week average of weekly production estimates. The chart in Exhibit 4 shows the weekly production estimates since the start of 2014. In the chart, we have marked the point at which the highest WTI price of $107 a barrel was recorded. We also have noted the week when the U.S. drilling rig count reached its peak.

Many people became quite excited last Wednesday when the EIA released its weekly report showing that domestic production declined by -36,000 barrels a day (b/d), following the prior week when production rose by only 3,000 b/d. These figures prompted comments about this marking a bottom in the downturn because we were now seeing definitive evidence that the fall in the rig count was causing production to stop rising. Obviously, one could make that case based on the latest weekly numbers. However, one needs to only go back to the last half of January when the three weekly production reports showed the following: -6,000 b/d, +27,000 b/d and -36,000 b/d. There was also the week of February 20th when oil production only increased by 5,000 b/d. That small weekly increase was sandwiched between two weeks of +49,000 b/d and +54,000 b/d changes in production. The small weekly gain was followed by three weeks of production gains of +39,000 b/d, +42,000 b/d and +53,000 b/d before the +3,000 b/d gain. Because of this volatility, we are very careful about drawing inferences about a shift in the trend of domestic production. Instead, we prefer to focus on changes in the 4-week average production estimates.
We see what appears to be a visual pattern of lower weekly gains. Prior to the past four weekly reports, we were beginning to feel optimistic that we might be approaching a bottom in the growth in domestic oil production. Then we experienced four consecutive weeks when the 4-week average production increases were well above what they had been averaging during the prior 12-week span, a time encompassing the winter months, when production in major basins such as the Permian, Bakken and Marcellus was impacted.
We may be much closer to the oil industry stepping on that drilling treadmill than everyone suspects

by the weather. There is also a question about what impact on oil production, if any, occurred in the Bakken area due to North Dakota’s new natural gas flaring regulations.

We are hopeful that the latest domestic oil production estimates reflect the start of a sustainable decline in output that will lead to a stable oil price, and in turn, sustained drilling and completion activity, at least at current levels. If total domestic production continues falling, as suggested by the typical shale oil well production profile, then the industry will find itself on a drilling treadmill in order to sustain output. We may be much closer to the oil industry stepping on that drilling treadmill than everyone suspects.

Keystone XL – The Whack-a-Mole That Keeps Re-Surfacing

Gina McCarthy, the head of the Environmental Protection Agency (EPA), responded to a question from Politico’s reporter Mike Allen, at an event that the news agency hosted, about whether TransCanada’s (TRP-NYSE) Keystone XL pipeline would be a “disaster” for the climate. She said, “No, I don't think that any one issue is a disaster for the climate.” Was this a slip of the tongue?

Ms. McCarthy’s answer just questioned the orthodoxy of the climate change movement as expressed by its leaders, former vice president and now green private equity investor, Al Gore, James Hansen, retired National Aeronautics and Space Administration (NASA) scientist, Professor James McKibben, leader of the environmental organization 350.org, and former hedge fund manager and billionaire Tom Steyer. In fact, Mr. Hansen wrote a May 9, 2012, op-ed in The New York Times in which he stated that “If Canada proceeds, [mining its oil sands] and we do nothing, it will be game over for the climate.” Since Keystone XL will be hauling bitumen from the Canadian oil sands into the U.S. to be refined here, the access encourages development of additional oil sands output, which constitutes the reason it is being fought so fiercely.

Ms. McCarthy’s statement seems at odds with her agency’s own stance on the Keystone XL pipeline as expressed in its February 2, 2015, letter to the Department of State in response to that department’s request of various federal agencies asking them to review and offer comments about the Final Supplemental Environmental Impact Statement (SEIS) for a Presidential Permit application by TransCanada Keystone Pipeline, L.P. to construct and operate the Keystone XL Project. In that letter, Cynthia Giles, Assistant Administrator for Enforcement and Compliance Assurance at the EPA, expressed the agency’s view that this pipeline project runs the risk of boosting the nation’s carbon emissions, the critical test established by President Barack Obama in his June 2013 speech at Georgetown University. Her letter made the point, “Until ongoing efforts to reduce greenhouse gas emissions associated with the production of oil sands are more successful and widespread, the
Ms. Giles then went on to discuss oil price volatility and that the current low oil price might change the economics of the development of Canada’s oil sands.

The EPA was providing cover for the President to veto the Keystone pipeline.

In Copenhagen in 2009, he was pledging to reduce U.S. emissions by about 80% by 2025, but it appears some realism has crept into his zeal.

Mr. Obama is expected to try to achieve his emissions reduction goal through executive action, principally through the EPA’s regulations.

Final SEIS makes clear that, compared to reference crudes, development of oil sands crude represents a significant increase in greenhouse gas emissions.”

After discussing the “robust market analysis” and how “market dynamics may influence the levels of greenhouse gas emissions associated with the proposed Project,” in the Final SEIS, Ms. Giles went on to say, “...the Final SEIS concluded that although development of oil sands would lead to significant additional releases of greenhouse gasses, a decision not to grant the requested permit would likely not change that outcome, i.e., those significant greenhouse gas emissions would likely happen regardless of the decision on the proposed Project. This conclusion was based in large part on projections of the global price of oil.” Ms. Giles then went on to discuss oil price volatility and that the current low oil price might change the economics of the development of Canada’s oil sands, after acknowledging that oil sands developments are based on long-term oil price trends and not short-term price movements.

It was clear that the EPA was providing cover for the President to veto the Keystone pipeline construction permit, especially important since he was facing a Congressional initiative mandating the approval of the permit, which he ultimately vetoed. The veto was upheld by Congress.

What we found interesting in the news story about Ms. McCarthy’s comment was that it was reported on the same day that President Obama submitted his proposal to the United Nations for cutting U.S. carbon emissions by 26-28% by 2025. This target was part of the deal President Obama negotiated with Chinese president Xi Jinping last November while in Beijing. Environmental groups applauded the move, but also noted that these cuts need to be a floor and that deeper emissions’ cuts will be needed after 2025. When Mr. Obama was working the delegates in Copenhagen in 2009 that resulted in the Copenhagen Accord, he was pledging to reduce U.S. emissions by about 80% by 2025, but it appears some realism has crept into his zeal.

The UN gambit is reflective of President Obama’s style of leadership – give a speech, make a comment or gesture and then assume everyone will embrace it and follow his direction. Mr. Obama is hoping that by putting forth an ambitious emissions reduction target, other countries will follow, which would lead to a deal in Paris later this year in which every country would commit to enact domestic climate change plans. However, facing strong Republican opposition at home, Mr. Obama is expected to try to achieve his emissions reduction goal through executive action, principally through the EPA’s regulations requiring pollution cuts from power plants and other sectors of the economy. Already, Senator Ray Blunt, R-MO, has put together legislation to nullify any international
It was hailed by the UN as a huge success as carbon emissions in those countries that signed on to the Kyoto Accord fell 22.6% below their 1990 level, well beyond the 5% target. Despite the UN's claim of success, Glen Peters, a climate policy analyst at the Center for International Climate and Environmental Research (CICERO) in Oslo, Norway, says that the gains were mostly due to other considerations than the treaty. He pointed to the fact that many developed economies already had in place policies to reduce their carbon emissions. He cited the United Kingdom where utilities substituted natural gas for coal. Other significant factors were the collapse of the former Soviet Union economies and offshoring of heavy industry and manufacturing to lesser developed economies, many of whom were not signatories to the treaty. The global recession also contributed to a reduction in emissions.

So while President Obama fights the fossil fuel industry through his EPA rules restricting emissions from power plants and other installations, and he delays approval of and then vetoes legislation approving the Keystone XL pipeline permit application, the Canadian oil industry seeks alternative transportation routes to ship oil sands output to markets south of the border. Pipelines are not the only transportation avenue being explored as rail and truck traffic is also growing. The Energy Information Administration (EIA) has begun publishing monthly data on oil movements by rail including Canadian imports and exports. The data series begins in 2010, but crude oil imports from Canada only show having occurred in November 2010. From January 2011, however, oil imports into the U.S. become regular and show a steady rise, although there is variability on a month-to-month basis. The data is plotted in Exhibit 6.
Exhibit 6. Moving Oil By Rail Is Now A Growth Business

![Crude Oil From Canada By Rail](chart)

Source: EIA, PPHB

To show visually what has been happening to the movement of crude oil by rail in North America, we have presented the 2011 and 2015 EIA maps showing the volume growth through larger dots and wider bars.

Exhibit 7. 2011 Marks Early Phase Of Oil By Rail

Crude-by-rail movements (2011)

Source: EIA
In Canada, it is clear that developing alternative routes for moving oil sands output has become a much more important issue as Keystone remains in limbo. Pipeline proposals for moving the bitumen across the Canadian Rocky Mountains and to the Pacific coast are challenging both technically, in having to cross those mountains, and politically, by having to deal with the First Nations and the province of British Columbia, which is quite liberal and environmentally sensitive. TransCanada’s Energy East project to take Alberta’s heavy oil all the way to the Canadian East Coast, while longer and more costly than the other proposals, may make the most sense because of the ability to reach more international markets.
Most of the rest of the world’s major polluters – China, India, Brazil and Russia – are not expected to submit their plans before at least June, and possibly not until October.

As Canada wrestles with oil exports and political relations with the United States over fossil fuels, President Obama may find that his carbon emissions strategy will struggle as much as his foreign policy. In Lima, Peru last November, 200 nations pledged to develop and present plans to reduce greenhouse gas emissions. The countries were to commit to the reductions included in their plans, which were agreed to be optional and not mandatory. The plans were to be submitted to the UN by March 31st, and if not, then by June. As of last Wednesday, only the European Union, Mexico, Norway and Switzerland, along with the United States, have submitted plans. Most of the rest of the world’s major polluters – China, India, Brazil and Russia – are not expected to submit their plans before at least June, and possibly not until October. Once all the plans are in, the UN will evaluate them and produce an analysis of just how far they go, collectively, to slowing climate change. These plans and the analysis will form the basis of the negotiations scheduled for Paris in December. Peer pressure can be a powerful force, but when it comes to nations and their economic future, we doubt it is a realistic strategy.

The Game Of Calling The Cycle Bottom

Those dates are: April 10th, June 5th, the third quarter of 2015 and 2017.

The industry needs to commit to “a permanent lifestyle change.”

A week ago we were part of a panel of “experts” discussing the outlook for the oilfield service industry at a breakfast meeting sponsored by the CFA Society in Calgary, Canada. The three participants were allotted ten minutes each for comments and then we responded to questions. In our presentation, we began by discussing the four possible times when we thought the industry down-cycle might end. Those dates are: April 10th, June 5th, the third quarter of 2015 and 2017. For most in the industry, the earlier the end to his nightmare the better, but the reality is growing that this downturn will not be the “V-shaped” price pattern that characterized the 2008-2009 economic turmoil.

One of the other panelists quoted Mark Little, Suncor Energy’s (SU-NYSE) executive vice-president, upstream, speaking at a heavy oil conference in Edmonton, Canada, that the industry needs to commit to “a permanent lifestyle change.” His comment summed up the industry’s problem in failing to learn from the experiences of past industry downturns. He said the current downturn is “severe in terms of price drop and the expected duration.” But what bothers him is that after every industry downturn, the industry recovers only to “go on the same crash diet all over again” in the next downturn. He says for the industry to emerge from this downturn more cost-conscious and focused, managers need to “not forget this when things get better.”

Interventions to effect lifestyle changes are difficult to undertake and even more difficult to sustain, which is at the heart of Mr. Little’s observations. Much like crossing a raging stream, which you’re doing with the singular focus of taking one step at a time in hopes of.
The April 10th date would mark the average length of time the six previous downturns since 1975 required for the drilling rig count to bottom following the peak in the oil price.

Our rationale for suggesting four cycle-ending dates had to be brief. The April 10th date would mark the average length of time the six previous downturns since 1975 required for the drilling rig count to bottom following the peak in the oil price. It is interesting to note that while the current decline in the rig count has been sharper than in 2008-2009, the sudden slowing in the rate of decline in the Baker Hughes (BHI-NYSE) weekly rig count data as reflected in the data.

Exhibit 10. Current Rig Downturn Is Faster Than Last One

Source: Baker Hughes, PPHB

Exhibit 11. Horizontal Rig Decline Dominates Downturn

Source: Baker Hughes, PPHB
Now, after 900+ rigs have been laid down, the percentage of rigs drilling horizontal wells has increased to 77%.

During the 2008-2009 rig downturn, the decline in active rigs lasted for approximately nine months.

For the week ending April 2nd, may represent an approaching bottom. The two charts below demonstrate this possibility – one showing the overall rig count drop while the second shows an almost-perfect bell-shaped curve reflecting the weekly rig count decline by rig type.

While the focus on the drilling rig count is being dismissed as no longer particularly relevant due to the impact of the shale revolution on the productive capability of the wells being drilled today in contrast to the wells drilled in past downturns, it is still relevant when one examines the types of wells being drilled by the idled rigs. In this downturn, the preponderance of the rigs being idled were drilling horizontal wells, which is not surprising since at the time the rig count peaked, 71% of them were drilling horizontal wells. Now, after 900+ rigs have been laid down, the percentage of rigs drilling horizontal wells has increased to 77%.

In contrast, during the 2008-2009 rig downturn, the decline in active rigs lasted for approximately nine months. During that time, the mix of wells being drilled saw vertical wells falling from 49% of active rigs to 38%, while at the same time the horizontal well share rose from 31% to 43%. These well mixes reflected the shift in drilling focus by producers, exemplified by the shift away from dry gas wells and toward oil and liquids-rich wells after 2008, despite the loss of 1,155 active rigs.

Although the quality of the chart in Exhibit 12 is not great, there is sufficient definition for the reader to understand that during the 2008-2009 drilling industry downturn, there was a bell-shaped curve in the weekly decline in the number of rigs by well-type, much like what is happening now.
An alternative scenario is that we are fairly close to the absolute bottom in the rig count decline because producers are adopting a different business strategy of continuing to drill wells but not completing them.

If OPEC (à la Saudi Arabia), Mexico and Russia can agree to cut their combined output by roughly 1.5-2.0 million barrels a day, it would not only but a floor under the global oil price, but potentially send it higher.

We understand that Iran has 30 million barrels of oil in storage tanks and moored tankers and could immediately increase exports once an agreement is signed.

Whether April 10th marks the bottom of the drilling rig decline or not, the likelihood is that we are close to a bottom. A critical question will be whether we need to see a similar rig count decline as experienced in 2008-2009. If so, then we have to shed another roughly 250 rigs. Would this happen quickly, if required? Would it be 50 rigs a week for five more weeks, or 25 rigs over the next ten weeks? An alternative scenario is that we are fairly close to the absolute bottom in the rig count decline because producers are adopting a different business strategy of continuing to drill wells but not completing them. This strategy has been identified by the growth in the backlog of “Drilled but Uncompleted Wells.” Estimates put the total number of DUWs at around 3,000, but growing. Various producers have offered up information that this is a strategy they are following in the current low oil price environment – both to fulfill lease obligations and to conserve cash since completion costs now account for more than half the total cost of new horizontal wells. The producers also see this strategy as providing in-ground-storage since the wells can be completed and brought into production in a matter of weeks, which would allow them to maximize well production in a stronger oil price environment. If this strategy is adopted broadly throughout the oil and gas industry, it will make the drilling rig count much less important in judging the evolution of oil and gas production volumes, and thus future commodity prices.

The June 5th recovery date is much simpler to explain. That is the date of the next OPEC meeting. There are people who are close to the Russian oil industry and government who suggest that after having nixed a coordinated production cut deal last November and suffered the wrath of that decision, they may be more agreeable to cutting now. If OPEC (à la Saudi Arabia), Mexico and Russia can agree to cut their combined output by roughly 1.5-2.0 million barrels a day, it would not only but a floor under the global oil price, but potentially send it higher.

Despite speculating on whether these three parties can agree, there is near-term possibility that the Iranian nuclear framework agreement will lead to the lifting of economic sanctions. That would enable Iran to increase its oil exports. We understand that Iran has 30 million barrels of oil in storage tanks and moored tankers and could immediately increase exports once an agreement is signed. How sustained an export increase would be is questionable, but we assume a 500,000 barrels a day type increase that would slowly build to 800,000 barrels a day to one million barrels a day by a year from the lifting of the sanctions. The lifting of the sanctions would enable western oil companies and oilfield service companies to start working in Iran to further develop that country’s energy resources.

For this production cut scenario to occur requires Saudi Arabia to believe two things. First, that it has recaptured its lost market share and has solidified its position in the global oil business. Secondly, and partially related to the first, that Saudi Arabia has sufficiently
To accept our third forecast of a 2015 third quarter cycle bottom would merely be acknowledging the conventional wisdom that the drilling rig count decline is dragging down shale oil production and will restore the global oil market supply/demand balance. The decline in domestic oil output would be teamed with growth in oil demand. There has been an increase in petroleum consumption since last fall, but the critical question is how much is a reflection of seasonal and weather impacts versus improved economic conditions – more employment and higher gross domestic product (GDP)? The March employment report highlights that question.

Our last recovery date was 2017 – a timeframe that clearly made many in the audience uncomfortable. We understand that everyone would like the recovery sooner, but this downturn does not appear to be similar to the recent demand-driven ones of 2008-2009, 2001 or 1997-1998. In fact, a 2017 recovery underlies the World Bank’s new scenario for oil prices. It believes this is a “supercycle” that has been supply-driven, much like that of the mid-1980’s. As pointed out by the World Bank in its look at that 1980’s cycle, the prior decade encompassed the boom of the second half of the 1970’s. About 6 million barrels a day (b/d) of new production, primarily from the Gulf of Mexico and the North Sea, was added to the global supply and created a huge supply/demand imbalance that forced Saudi Arabia to give up supporting OPEC’s desired oil price. Following the 1985 oil price collapse, oil consumption growth eventually led to global oil prices slowly recovering along with petroleum industry activity.

If we fast forward and look at the oil market in 2014, unconventional oil supply was surging, led primarily by U.S. tight and shale oil production gains along with roughly one million b/d of additional conventional and unconventional oil output from Canada. Between 2011 and 2014, U.S. and Canadian oil production grew by four million b/d while global oil consumption rose by only three million b/d or less than one million b/d on average. This surge in production, without an offsetting pick-up in consumption led to global storage volumes rising – either voluntarily (China buying aggressively for its strategic oil inventory) or involuntarily in commercial storage sites. The fact that between three and four million b/d of potential oil production was held off the market due to wars and civil unrest was helped support oil prices above $100 a barrel through the first half of 2014. It was only when the oil futures market recognized that high oil prices were stimulating more drilling and production while retarding consumption that oil prices began weakening.

The World Bank believes this is a “supercycle” that has been supply-driven, much like that of the mid-1980’s.

Between 2011 and 2014, U.S. and Canadian oil production grew by four million b/d while global oil consumption rose by only three million b/d.

altered the thinking of oil industry executives about the pace of their long-term production growth strategies. Since the late 2014 decision to undo the country’s oil price support strategy that Saudi Arabia said it was prepared to live with for up to two years would be a significant adjustment after less than eight months of time. We are not sure Saudi Arabia would be willing to return to its historical role of being the globe’s swing oil producer, at least at this time.
Events in October had set the oil price collapse in motion

The capitation of oil price support by Saudi Arabia came officially at the OPEC meeting of November 27, 2014, when the organization met in Vienna, Austria. The die had been cast in prior weeks as leaders of OPEC countries, desperate for high oil prices to keep their economies afloat, shuttled around the world talking to Saudi, Russian, Mexican and other leading oil exporters about a coordinated production cut that would restore the supply/demand balance and keep oil prices up. But events in October had set the oil price collapse in motion.

It was obvious that the “dirty” oil designation would not be endorsed by the EU

In early October, the European Union released a proposal that would eliminate the risk of Canadian oil sands output from being declared “dirty” oil and barred from use by European refiners. While the proposal was not officially voted on until mid-December, it was obvious that the “dirty” oil designation would not be endorsed by the EU. This was a signal to OPEC, and especially to Saudi Arabia, that it was going to face stiffer competition for its heavy oils in Europe. After having conceded the North American market to domestic production, the prospect of losing European demand further convinced Saudi Arabian oil officials that it faced a permanent reduction in market share unless it did something to slow down the growth of the oil sands, U.S. shale and deepwater output. Reducing the oil incomes of Russia and Iran was also a side benefit that would accrue if the Kingdom abandoned its support for OPEC’s oil price target. In a matter of weeks, between the EU’s “dirty” oil proposal to OPEC’s meeting, the 2014-2015 oil price collapse was set in motion.

The oil companies needed to slash their capital spending and shift into a mindset that this downturn was not of the 2008-2009 quick-recovery variety

So how does the industry recover from this price collapse in 2017? There are several key events that must occur. First, the oil companies needed to slash their capital spending and shift into a mindset that this downturn was not of the 2008-2009 quick-recovery variety, which featured a price spike down and a rapid recovery. Oil executives needed to focus on preparing for an extended downturn, more like a 1985-type oil industry collapse. The outcome from that period was a major restructuring of the petroleum industry.

The oil industry needs to shrink, which has started as E&P and oilfield service companies file for bankruptcy or are forced to sell many of their assets

Second, the business environment needed to be altered in such a way as to slow down the flood of cheap capital funding the industry from the high-yield debt market, business loans, initial public offerings of start-up exploration and production companies, and private equity investors. This explains the reasoning behind the public messages from Saudi oil officials about the size of the Kingdom’s currency reserves for withstanding the oil price drop and lost income and the willingness of the Kingdom to accept these low oil prices for up to two years. Third, the oil industry needs to shrink, which has started as E&P and oilfield service companies file for bankruptcy or are forced to sell many of their assets. Not only will bankruptcies shrink the industry but mergers and acquisitions will also help. Lastly, with a shrinking oil industry, the years of low oil prices, worldwide monetary ease and low inflation should stimulate global economic growth lifting oil consumption. By 2017, oil and gas
The World Bank forecast is at odds with the more optimistic forecasts calling for $65-80 a barrel prices by the end of 2015 or early in 2016.

Prices should be rising as production growth wanes due to a lack of drilling while demand grows.

**Exhibit 13. World Bank Sees Long Slow Oil Price Recovery**

As those events transpire, we would expect to see an oil price recovery similar to that forecasted by the World Bank in Exhibit 13. You will note that the World Bank forecast is at odds with the more optimistic forecasts calling for $65-80 a barrel prices by the end of 2015 or early in 2016. In fact, in a recent energy conference sponsored by *The Wall Street Journal*, Boone Pickens, chairman of BP Capital Management and former CEO of Mesa Petroleum Company and oil industry corporate raider, forecast that the oil price would be at $70 a barrel by the end of 2015 and at $90-100 a barrel by the end of 2016. This is in contrast to the prediction made by Saudi Arabia’s OPEC governor Mohammed al-Madi at a recent energy conference in Riyadh. He said, "$100-$120 - I think it’s difficult to reach $120 another time...We understand that all countries need higher incomes...We want higher incomes, but we want higher incomes for us and future generations." He went on to state, "We are not against anybody or against the (production of U.S. shale oil)...On the contrary we welcome it, as it balances the market in the long run."

The wildcard in this forecast is a war in the Middle East that involves Saudi Arabia and impacts the Kingdom’s oil fields and/or its oil output. The now unfolding conflict involving Saudi Arabia and its Sunni allies to counter the rebels, sponsored by Iran, who have taken control of neighboring Yemen could become that conflict.

There is an additional variable in this longer term oil industry recovery scenario, which is the impact of bank lending to E&P companies. Usually twice a year the commercial banks who are lenders to E&P companies meet with the executives to discuss energy markets, current oil and gas prices, expectations for their...
The most recent borrowing base determinations were done either at the end of 2014 or in early 2015 and were not severe. The most recent borrowing base determinations were done either at the end of 2014 or in early 2015 and were not severe. We can see that based on comments about these meetings from several publicly-traded E&P companies saying they have negotiated relief in their loan covenants and/or that they are being pushed to raise capital to lower their borrowings. This pressure is behind some of the recent debt and equity offerings.

Those deeper cuts will guide the 2016 spending plans of E&P companies. At current crude oil and natural gas prices, we have been told by lenders to expect more significant downward adjustments to E&P company borrowing bases later in 2015. That will restrict the amount of money companies can borrow. Those deeper cuts will guide the 2016 spending plans of E&P companies. Even though we may be experiencing a bump upward in oil and gas prices as the nascent recovery begins, neither the banks nor managements can assume it will be all blue skies ahead. We expect any oilfield activity increase in 2016 to be restrained until corporate balance sheets are healthier and the recovery is judged to be sustainable. That is another reason to support a 2017 recovery forecast.

We think Suncor’s Mr. Little has it right: the industry needs “a permanent lifestyle change” and that message is valid whether the recovery is April 10th, June 5th, the third quarter of 2015 or 2017.

Global Warming Fear To Be Replaced By Ice Age Concern?

He has, in contrast to other climate scientists, consistently predicted the lack of global warming. A new paper published in the journal *Thermal Science* by Habibullo Abdussamatov of the Pulkovo Observatory of the Russian Academy of Sciences in Saint Petersburg, Russia, suggests that the world has entered the first stage of its 19th Little Ice Age. Prof. Abdussamatov heads the Russian space research laboratory and its global warming research. His work utilizes data collected by the International Space Station. He has, in contrast to other climate scientists, consistently predicted the lack of global warming that the others’ computer models have wrongly projected, having authored papers during 2003-2007 with his predictions.
The impact of these gases in driving climate change is secondary and minor compared to the power of the sun.

Prof. Abdussamatov’s research work is built on the science developed previously by astronomers Milutin Milankovitch, who a century ago described how the tilts in the Earth’s axis and other changes in the planet’s movement determine its climate, and William Herschel, who two centuries ago noticed the inverse relationship between wheat prices on Earth and the number of sunspots generated by the Sun’s cycles. Warmer temperatures usually accompanied wetter conditions and led to greater wheat harvests and lower wheat prices and vice versa. Prof. Abdussamatov acknowledges that greenhouse gases – carbon dioxide (CO₂) and water vapor – do play a role in the climate’s evolution, however, not due to humans with their SUVs and energy-demanding lifestyles, but rather from the oceans. The oceans contain up to 50-times more CO₂ as the atmosphere and as they warm or cool due to the sun’s intensity, they release or absorb these gases. The impact of these gases in driving climate change is secondary and minor compared to the power of the sun.
What he has found in his work is that all of the 18 previous Little Ice Ages experienced during the past 7,500 years were entirely caused by the 200-year cycle of total solar irradiance and the feedback effects from the release of greenhouse gases.

Prof. Abdussamatov’s climate model incorporates the sun’s 200-year cycle plus the feedback effects from greenhouse gases released by the oceans, and how these forces have acted in the Earth’s previous 18 Little Ice Ages. What he has found in his work is that all of the 18 previous Little Ice Ages experienced during the past 7,500 years were entirely caused by the 200-year cycle of total solar irradiance (see Exhibit 14, page 19) and the feedback effects from the release of greenhouse gases. The new paper contains a forecast for temperature changes during the next 100 years. (We are sure you won’t see this climate change prediction in the mainstream media’s coverage of the subject.)
The new 100-year climate forecast shows that temperatures around 2035 will be about even with the 1961-1990 average for the planet.

“When asked what they attribute it to, most of those in the cold regions believe the extreme cold reflected normal variations in weather”

Is it possible that the American public could be smarter than the climate scientists?  Maybe that explains why Gallup is mystified by the supposed inability of Americans to connect weather patterns and global warming.  Maybe Americans are more worried about how they will keep warm during the upcoming 19th Little Ice Age.
Attacks On Energy Companies Come From All Quarters

Administration officials at Syracuse University announced last week that it would no longer make direct investments in coal mining and other fossil fuel companies. Administration officials at Syracuse University announced last week that it would no longer make direct investments in coal mining and other fossil fuel companies. The move, in response to an 18-day occupation of the university’s administration building last fall, means that Syracuse will join with a small group of other schools such as Stanford University and the University of Maine that have taken similar actions.

In late February, Syracuse officials met with representatives of Divest SU, a student-based group seeking to divest the university’s endowment from the fossil fuel industry. According to the statement issued by the administration, Syracuse will not directly invest in publicly-traded companies whose primary business is the extraction of fossil fuels. The university will instruct its external investment managers to take every step possible to prohibit investments in these public companies as well.

In its statement, Syracuse University Chancellor Kent Syverud was quoting saying: “Syracuse has a long record of supporting responsible environmental stewardship and good corporate citizenship, and we want to continue that record. Formalizing our commitment to not invest directly in fossil fuels is one more way we do that.” Now the energy investment focus will shift to target solar energy, biofuels and advanced recycling.

The idea behind the proposal is that Chevron should boost dividends to shareholders because high-cost energy projects are becoming riskier, in part due to regulations being imposed on the industry to address carbon emissions that contribute to climate change.

While the fossil fuel divestment campaign chugs along scoring minor victories, a new twist on shareholders impacting investment decisions regarding energy companies comes in the form of a shareholder proposal that will be considered at the upcoming Chevron Corp. (CVX-NYSE) annual meeting. The proposal, submitted by social-responsibility groups, calls for the company to increase its dividend in light of uncertain profits from energy projects. The idea behind the proposal is that Chevron should boost dividends to shareholders because high-cost energy projects are becoming riskier, in part due to regulations being imposed on the industry to address carbon emissions that contribute to climate change. The company challenged inclusion of the proposal in its upcoming proxy but the Securities and Exchange Commission (SEC) was not persuaded by Chevron’s arguments as to why it should be excluded.

Exxon Mobil Corp. (XOM-NYSE), on the other hand, was more successful in persuading the SEC to allow it to exclude a similar proposal. ExxonMobil wrote the SEC, “The company’s long-standing capital allocation strategy – to invest only in capital projects that offer attractive returns to shareholders, to maintain a sustainable and growing cash dividend, and to distribute surplus liquidity to shareholders through share repurchases – substantially
Energy company managements, along with energy company managements, need to pay attention to the shifting views of the public toward fossil fuels. While those views are often short-sighted and fail to recognize the huge social benefits for people from the energy of fossil fuels, they are becoming a more powerful force in the marketplace.

According to an SEC staff member, the SEC concluded that Exxon’s capital allocation strategy was consistent with the guidelines of the proposal so there was no reason for shareholders to consider it.

Energy investors, along with energy company managements, need to pay attention to the shifting views of the public toward fossil fuels. While those views are often short-sighted and fail to recognize the huge social benefits for people from the energy of fossil fuels, they are becoming a more powerful force in the marketplace.

Contact PPHB:
1900 St. James Place, Suite 125
Houston, Texas 77056
Main Tel: (713) 621-8100
Main Fax: (713) 621-8166
www.pphb.com

PPHB is an independent investment banking firm providing financial advisory services, including merger and acquisition and capital raising assistance, exclusively to clients in the energy service industry.