

## MUSINGS FROM THE OIL PATCH

January 15, 2013

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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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### **Fiscal Cliff Deal Saves Renewable Energy Tax Credits**

**As New Year's Eve rapidly approached, the "green energy" industry's hope for new life with an extension of the renewable fuels tax subsidies was definitely on life-support**

As New Year's Eve rapidly approached, the "green energy" industry's hope for new life with an extension of the renewable fuels tax subsidies was definitely on life-support. The original "fiscal cliff" compromise proposed by Speaker of the House John Boehner (R-Ohio) would have pulled the plug on these subsidies, but since that plan never made it to a legislative vote, the fate of these subsidies was left to the Senate, which had taken over the task of attempting to fashion a political compromise. After Majority Leader Senator Harry Reid (D-Nevada) and Minority Leader Mitch McConnell (R-Kentucky) failed to find common ground, Sen. McConnell and Vice President Joe Biden and their minions worked to craft a bill that would appeal to the legislators. The process of designing a horse by committee began.

**Only two things needed to be addressed in this legislation – raising taxes on certain people and stopping previously-legislated spending cuts**

Not surprisingly, the horse turned into something worse than a camel. A legislative initiative that could have been printed on a postcard ballooned into a 150-page bill that most legislators, even speed-readers, could not have digested before having to vote on it in the wee hours of New Year's Day - a replay of the Obamacare vote. Only two things needed to be addressed in this legislation – raising taxes on certain people and stopping previously-legislated spending cuts. As the key terms of the first part of the agreement – taxes - leaked out, President Barack Obama went on his first victory lap with a campaign-style rally in the auditorium of the Eisenhower Office Building where he announced that an agreement was in sight, although not yet done. In his next breath he put Republicans on notice that this was the first inning of the first game of the "Tax the Wealthy Season" and those politicians better understand that he would be back at the tax trough in the new year.

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**The negotiations were over “fixes” for other issues that would be dumped into the bill to secure the necessary votes**

With the tax issue agreed to, although no one had any idea whether the income level for higher taxes was based on gross income, adjusted gross income or taxable income. Maybe reporters don't understand that there is a difference. At that point, we assumed the debate had shifted to spending cuts. As we anxiously (or disgustingly) watched the negotiation reporting, we were led to believe the debate was whether the legislated sequester (spending cuts) would be put off by 30 days or two years, which seemed to leave a lot of room for an agreement. The final decision was to postpone them for two months. But what we also began learning was that the negotiations were over “fixes” for other issues that would be dumped into the bill to secure the necessary votes.

**Wind turbine manufacturers all around the world let out a whoop of joy – the U.S. Congress was serious about climate change!**

With its failing heart-beat, the electric shock paddles were applied and the renewable fuels tax subsidies were extended for another year. Wind turbine manufacturers all around the world let out a whoop of joy – the U.S. Congress was serious about climate change! Or maybe it was just serious about spending taxpayers' money, because the extension made a significant change in the eligibility of wind power projects for either the production tax credit (PTC) or the Investment Tax Credit (ITC). The PTC pays 2.2¢ per kilowatt hour (kWh) of electricity generated during the first ten years of a project's life. On a pre-tax basis, the subsidy is equal to 3.5¢/kWh, which in some areas exceeds the wholesale price of electricity. The ITC option allows a wind farm developer to receive upfront in cash 30% of the cost of the project in lieu of the PTC. For the first time in the history of these tax subsidies, which started in 1992, wind projects that start construction before January 1, 2014, will be able to claim the subsidies rather than the requirement that they had to be operating by that date.

**Taxpayers will be shelling out an estimated \$12.1 billion in subsidies for new wind farms over the next ten years**

It took reading the American Taxpayer Relief Act of 2012 (H.R. 8) to find out about this change. The extension of the PTC was accomplished in “SEC. 407. Extension And Modification Of Credits With Respect To Facilities Producing Energy From Certain Renewable Sources. (a) Production Tax Credit. (1) Extension For Wind Facilities.” By merely striking “January 1, 2013,” from Paragraph (1) of section 45(d) and inserting “January 1, 2014,” the change was made.

Changing the definition of an eligible project was further on in the legislation - Extension For Wind Facilities in “(3) Modification To Definition Of Qualified Facility. (A) In General.” There, the language “before January 1, 2014,” was struck and replaced with “the construction of which begins before January 1, 2014.” And with those minor wording changes and 257 House Republican and Democratic votes in favor, taxpayers will be shelling out an estimated \$12.1 billion in subsidies for new wind farms over the next ten years. That means the annual \$1.2 billion new subsidy will go on top of the estimated \$10 billion being spent every year now for wind farms already in operation and entitled to these subsidies.

**Either physical work on the project of a “significant nature” or a 5% “safe harbor” of costs paid or incurred standard had to be met**

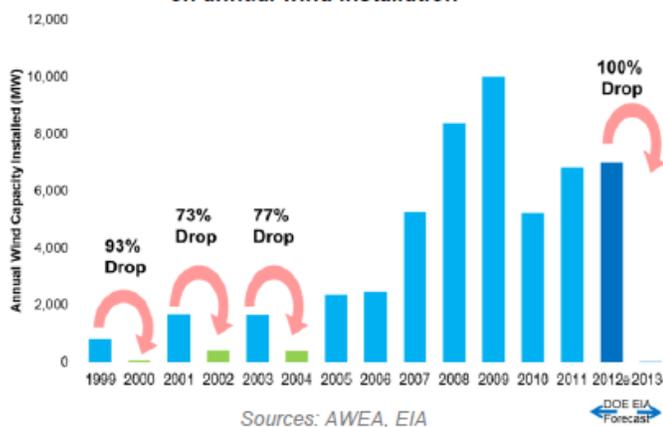
**One has to wonder whether at the end of December 2013 we will see lots of backhoes rolling in to sites to kick off wind farm construction projects**

To us, the big question was just how the government will define “under construction?” According to a report from political intelligence firm, Washington Analysis, it expects the Treasury Department to follow the guidelines established for the Section 1603 Grant Program for renewable projects enacted as part of the Recovery Act of 2009. Under those rules, either physical work on the project of a “significant nature” or a 5% “safe harbor” of costs paid or incurred standard had to be met. Washington Analysis went on to explain the two tests: “Under the physical work criteria, there is no minimum amount of activity that must be complete by the end of the year, and the amount of work can be very minimal, as long as it is part of a ‘continuous program of construction.’ Under the 5% expenditure criteria, the project developer needs to only pay or incur 5% of total actual project costs. These costs can include services and do not necessarily include the construction of anything. Moreover, no project site necessarily needs to have been identified.”

So while the wind and renewable industries lobbyists will tell you that this change in eligibility more closely matches the work flow of the businesses, as opposed to the previous starting and stopping whenever the PTC expired and then renewed, one has to wonder whether at the end of December 2013 we will see lots of backhoes rolling in to sites to kick off wind farm construction projects. Will they suffer the same fate as the “shovel-ready” projects President Obama touted as part of his economic stimulus spending in 2008, only to acknowledge later that they weren’t actually so “shovel-ready?” The wind industry has already said there will likely be wind farms beginning construction by the end of 2013 that will not become operational until 2015 or possibly later.

**Exhibit 1. PTC Extension Uncertainty Hurts Wind Business**

*Historic impact of PTC expiration on annual wind installation*



Source: AWEA

So while the renewable fuels subsidies live on for another year here in the U.S., a report about the useful lives of wind turbines in the UK

**REF can be seen as taking a rational approach to renewable energy and its development**

and Denmark raises questions about the economics of wind energy everywhere. The study, "The Performance of Wind Farms in the United Kingdom and Denmark," was published by the Renewable Energy Foundation (REF), a registered charity in England and Wales promoting sustainable development for the benefit of the public by means of energy conservation and the use of renewable energy. REF outlines its objective with the following statement: "We aim to raise public awareness of the issues and encourage informed debate regarding a structured energy policy that is both ecologically sensitive and practical. The issues of climate change and security of energy supply are complex and closely intertwined. REF contributes to the debate surrounding these issues by commissioning reports to provide an independent and authoritative source of information." As a result, REF can be seen as taking a rational approach to renewable energy and its development, although one always has to question whether there are other agendas at work that outsiders are not aware of.

To conduct the study, REF turned to Dr. Gordon Hughes, Professor of Economics at the University of Edinburgh since 2001. There, he teaches courses in the economics of natural resources and public economics. Prior to his academic assignment, he was a senior advisor on energy and environmental policy at the World Bank. He has written extensively on green energy policy issues.

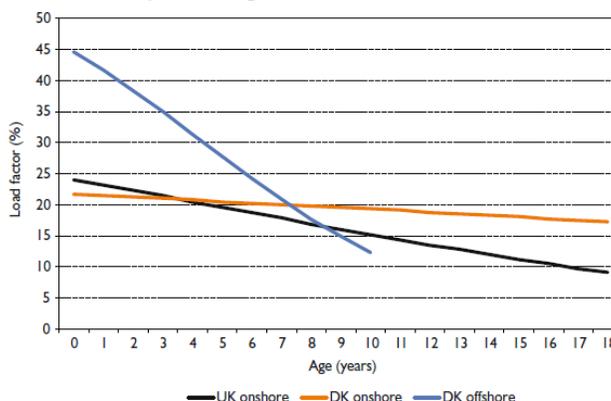
**"The normalized load factor for UK onshore wind farms declines from a peak of about 24% at age one to 15% at age 10 and 11% at age 15"**

Dr. Hughes' study uses monthly datasets for the UK and Denmark. These include monthly observations for 282 onshore installations in the UK and 823 in Denmark with an age range of zero to 19 years. Offshore, the wind dataset for Denmark is smaller with only 30 installations, but the author claims it can be used to reasonably estimate wind turbine performance up to age 10. Based on the data, Dr. Hughes found "the normalized load factor for UK onshore wind farms declines from a peak of about 24% at age one to 15% at age 10 and 11% at age 15." [The load factor is determined by measuring the actual amount of electricity output over a time period against the total output expected had the turbine operated for 100% of the time period. The ratio is expressed as a percentage.]

The decline in performance Dr. Hughes found for Danish onshore wind farms was "slower but still significant." He found that the decline was from 22% initially to 18% at age 15. Offshore, Denmark wind farms experienced a steeper decline going from 39% at age zero to 15% at age 10. The data did not allow for a detailed analysis of the reasons behind the sharper decline rate, but some of it is acknowledged to be the result of mechanical breakdowns.

The analysis from the data that Dr. Hughes derived was done two ways but both produced similar outcomes. When he compared the output from all the wind farms weighted equally, he developed the age-related performance degradation curves contained in Exhibit 2 on the next page.

**Exhibit 2. Equal-weighted Wind Farm Performance**

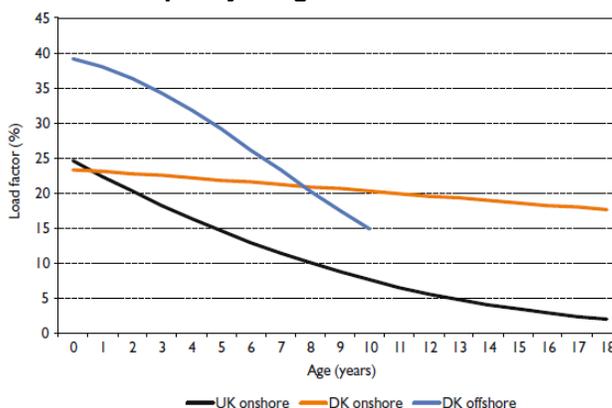


Note: Normalised load factors in %. Source: Author's estimates.

Source: Dr. Hughes, REF

He also prepared age performance degradation curves by weighting the wind farms by their respective output capacities. Those curves are displayed in Exhibit 3.

**Exhibit 3. Capacity-weighted Wind Farm Performance**



Note: Normalised load factors in %. Source: Author's estimates.

Source: Dr. Hughes, REF

**With such low load factors later in their lives, many wind farms will need to be repowered once they reach the age of 10, or at most, 15 years**

The conclusions of the study are that with such low load factors later in their lives, many wind farms will need to be repowered (the turbines replaced) once they reach the age of 10, or at most, 15 years. This is well short of the 20-25 year lives that project economics and electricity purchase contracts are based upon. In addition, depending on the country, the expected turbine lives may be less than the tax subsidies provided the wind farms.

Dr. Hughes believes there are several explanations for the observed decline in average load factors as wind farms age. First, turbines become less efficient over time due to mechanical wear and tear, erosion of the turbine blades and related factors. Secondly, turbines

**Larger wind farms seem to perform worse than smaller wind farms**

experience more frequent breakdowns and the operators take longer to repair them because they are less concerned about the performance of older farms. Regardless of the specific reasons for this decline in performance with age, it is much greater than would be expected for fossil fuel-powered electricity generating plants.

Some other findings were that the average normalized load factor of new onshore wind farms at age one, the peak year of operation, declined significantly between 2000 and 2011. Additionally, larger wind farms seem to perform worse than smaller wind farms. His conclusion is that after adjusting for age and wind availability, the overall performance of wind farms in the UK has deteriorated markedly since the beginning of this century. As result, he believes there are some meaningful messages that come from the study for UK regulators. First, the UK subsidy program appears to be overly generous if investment in new wind farms is profitable despite the decline in performance due to age. Secondly, the UK Government's targets for wind power generation in meeting the country's climate change targets imply that substantially (a third) more wind capacity will be needed to be built, and thus a substantially greater amount of new capital investment, and therefore, higher subsidies borne by citizens. Lastly, he sees a need to restructure power contracts since few wind farms will operate for more than 12-15 years.

**A recent analysis demonstrated that those states with mandates have a higher average cost of residential power than states without mandates**

We have often focused on the life of wind turbines as a serious flaw in the economics of wind farm projects and as such a potential Black Swan for power purchase contracts that utilities are forced to agree to under various state climate change mandates. These state mandates are often used to justify retaining the federal renewable energy subsidies, which in essence are paid for by all taxpayers including those living in states without mandates. A recent analysis demonstrated that those states with mandates have a higher average cost of residential power than states without mandates. A second problem for wind power is the exclusion from any economic analysis of the cost of building and maintaining gas-fueled generating plants to provide power when the wind doesn't blow. The best summary of the economics of the wind power business was given by Dr. John Constable, director of REF, when he said, "This study confirms suspicions that decades of generous subsidies to the wind industry have failed to encourage the innovation needed to make the sector competitive. Bluntly, wind turbines onshore and offshore still cost too much and wear out far too quickly to offer the developing world a realistic alternative to coal."

**TransCanada Wins First Of The Four Keystone Fight Rounds**

In the first days of January, the Department of Environmental Quality (DEQ) delivered its final report to the governor of the state on the reroute of TransCanada's (TRP-NYSE) Keystone XL pipeline through Nebraska. The report was round one of a four-round fight to

**TransCanada proposed the re-routing to avoid the objections of environmentalists and Nebraska residents that the original route risked damaging the environmentally-sensitive Sand Hills region of the state**

win a permit to build the northern section of the pipeline that would bring Canadian oil sands output to the U.S. Gulf Coast. We term this exercise a fight because in 2011 opponents of importing and burning Canadian bitumen produced from the oil sands torpedoed the permit's approval in what was seen as a politically-motivated act by President Barack Obama who was seeking the support of these environmentalists in his re-election bid.

In January 2012, President Obama denied a Presidential Permit for the original Keystone XL Pipeline due to his concern there was insufficient time for the U.S. State Department, which has jurisdiction over pipelines that cross international borders, to review the proposed re-routing of the line. TransCanada proposed the re-routing to avoid the objections of environmentalists and Nebraska residents that the original route risked damaging the environmentally-sensitive Sand Hills region of the state. The Nebraska Legislature enacted legislation on April 17, 2012, clarifying the evaluation process and standards the state's DEQ would have to follow. TransCanada reapplied for approval the following day. From then until early January, a series of public hearings were held, feedback was provided to TransCanada who proposed several modifications to the route.

**Exhibit 4. Keystone Pipeline Proposed Routes**

Figure ES-2. Keystone's Proposed Nebraska Reroute



Source: Nebraska DEQ

**“The proposed Nebraska Reroute avoids the Sand Hills but would cross the High Plains Aquifer, including the Ogallala Group”**

This permit approval process consists of four steps. First is the report and recommendation of the Nebraska DEQ to be followed within 30 days by a recommendation from the Nebraska governor to the U.S. Department of State (DOS). The DOS then has to review the recommendation along with its environmental review of the pipeline route and make a recommendation to Pres. Obama who will be the ultimate decider.

The Nebraska DEQ’s Final Evaluation Report did not provide any recommendation, but rather presented a series of findings. There were 13 findings, as reported in the Executive Summary, but most readers will focus on the very first one. It said, “The proposed Nebraska Reroute avoids the Sand Hills but would cross the High Plains Aquifer, including the Ogallala Group. Impacts on aquifers from a release should be localized and Keystone would be responsible for any cleanup.” The language of this finding would seem to have addressed the primary concerns of the environmentalists to the original pipeline route. However, the proposed route will still create opposition.

**The fact that the proposed pipeline route crosses the Ogallala Aquifer at all creates a potential political problem**

Jane Kleeb, head of the anti-Keystone group Bold Nebraska, said in a statement, “Governor Heineman asked President Obama to deny the pipeline permit because the route crossed the Ogallala Aquifer. We continue to stand with Gov. Heineman and his valid concerns on the risks of this pipeline route to farmers’ and ranchers’ livelihoods and our water. We look forward to the Governor denying the route since it still crosses the Aquifer and the risks to our state’s economy and identity remain at the forefront of this fight.” So even though the Nebraska DEQ said the pipeline “avoids many areas of fragile soils” and it “avoids a shallow groundwater area upgradient” the fact that the proposed pipeline route crosses the Ogallala Aquifer at all creates a potential political problem, even though the Governor has told TransCanada’s management that the state’s objection was not really about the aquifer, but rather the quality of the oil the pipeline would be carrying.

**Will facts help sway the decision of the Governor or adequately address the objections of opponents?**

To address those concerns, the Nebraska DEQ added three additional appendices to its final report, including two addressing the specifics of the movement of crude oil in groundwater in the event of a spill and details about the qualities of the oil that would be moving through the pipeline. Will facts help sway the decision of the Governor or adequately address the objections of opponents? Let’s try assessing the politics of this decision since the facts have proven immaterial throughout the entire multi-year application process.

We doubt Governor Heineman will read the 2,000-page report, but rather will rely on the findings of the Nebraska DEQ report, which generally are positive. He may cite the findings about the route avoiding the worst of the environmental issues and that a spill’s effect on any aquifer “should be localized” and besides, TransCanada will be responsible for any cleanup. The Governor

**The Nebraska DEQ report found that construction of the pipeline would result in \$418.1 million in economic benefits and would support up to 4,560 new or existing jobs in the state**

may also emphasize the economic benefits for his state. The Nebraska DEQ report found that construction of the pipeline would result in \$418.1 million in economic benefits and would support up to 4,560 new or existing jobs in the state plus it would generate \$16.5 million in taxes on materials used in the construction along with providing between \$11 million and \$15 million in local property taxes. The Governor's problem will be rationalizing how his previous objection to the pipeline because the route crossed the Ogallala Aquifer doesn't remain valid as this report shows the new route still crosses the aquifer, just in a different location.

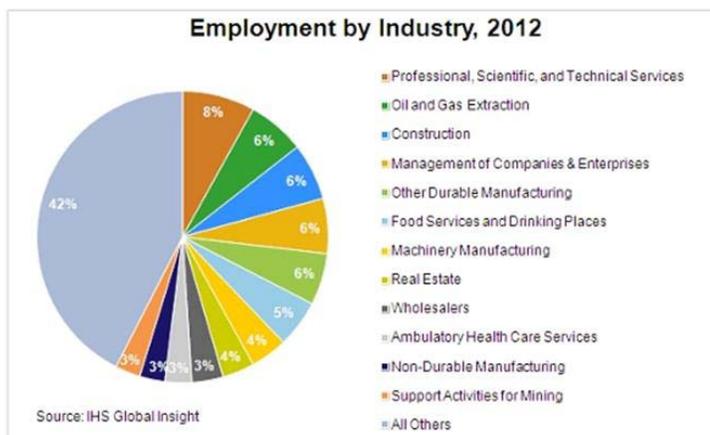
Let's assume Gov. Heineman is able to overcome the aquifer issue and recommends approval of the pipeline to the DOS. Previously, the DOS environmental reviews were challenged by the Environmental Protection Agency (EPA) for their lack of rigor. Will that still be an issue with a new leader of the EPA? What happens to the entire DOS review process with a new Secretary of State, assuming that Senator John Kerry (D-Mass) is approved soon? Sen. Kerry is known to be opposed to "dirty" oil such as the oil sands output, so will his views shape the DOS response?

**The conventional wisdom is that he has no reason to object to the pipeline now because he will never face the voters again so he doesn't need to appease his environmental supporters, so he will do what is best for the country**

If Keystone makes it through this gauntlet of reviews with a favorable recommendation, we then have to assess the political factors that might enter into Pres. Obama's thinking. The conventional wisdom is that he has no reason to object to the pipeline now because he will never face the voters again so he doesn't need to appease his environmental supporters, so he will do what is best for the country. But that doesn't mean that is what will happen. Remember, in his last State of the Union address Pres. Obama touted his administration's role in growing the nation's oil production and how much the federal government had done to develop hydraulic fracturing technology, which has been primarily responsible for that oil output growth. At the same time, the petroleum industry has produced numerous studies to show just how important their unconventional activity is in creating jobs and economic benefits. The most recent study conducted by IHS says that by 2035 the shale revolution could be responsible for creating 3.5 million jobs. The study said that in 2012, unconventional activity was responsible for directly or indirectly creating or sustaining 1.7 million jobs. It projects that in 2015 the industry will be responsible for 2.5 million jobs and 3 million in 2020 on its way to the 2035 target.

The breakdown of the 2020 jobs contribution is that 600,000 of these new jobs are directly associated with the oil and gas industry while 900,000 are indirectly related to the industry. These two categories will create or sustain 1.5 million jobs by their spending. So what if Pres. Obama says, 'Hey, we have a successful shale revolution underway – it has led to significant oil and gas production increases – so much so that we are looking at becoming a net oil and gas exporter – and we are creating and will create lots of jobs, especially compared to only 5,000 for building the pipeline, so why do we need

**Exhibit 5. Oil & Gas Accounts For 6% Of Jobs**



Source: IHS

more “dirty” oil from Canada when we can produce it right here in America.

**The President can claim that his policies are helping to re-shore petroleum industry jobs, and besides that we have lower energy costs that will help revive the American economy and further create jobs**

By that standard, the President can claim that his policies are helping to re-shore petroleum industry jobs, and besides that we have lower energy costs that will help revive the American economy and further create jobs. One could also take a more sinister view and suggest that by bringing more heavy oil output into the U.S. from Canada, we will be displacing the heavy oil we currently buy from Venezuela and Mexico. Maybe Pres. Obama favors helping out the ill leader of Venezuela, although he hasn’t expressed much affection for the new head of Mexico.

**A federal government commitment embracing a greater role for natural gas in the nation’s fuel mix would also have a lasting and significant effect**

We may be considered cynical, but we look at how Pres. Obama has campaigned since his re-election and how he negotiated (?) with the Republicans during the fiscal cliff debate, and ask why would he do anything that doesn’t further his true agenda? The inclusion of the alternative energy tax credits in the fiscal cliff agreement should signal that “green” energy remains a high priority for this president and the Keystone pipeline isn’t likely a part of that vision, especially given a credible alternative to sell to the American public. Remember also that at the Democratic National Convention Pres. Obama told the crowd that “we can cut our oil imports in half by 2020 and support more than 600,000 new jobs in natural gas alone.” Just as his administration will be known for having increased the fuel-efficiency standards of the domestic vehicle fleet to 54.5 miles per gallon by 2025, which will have a lasting impact on gasoline consumption, a federal government commitment embracing a greater role for natural gas in the nation’s fuel mix would also have a lasting and significant effect. While many environmentalists don’t like any fossil fuels, they are more likely to accept natural gas, especially with additional regulation, over “dirty” oil sands oil. We continue to believe the odds favor a rejection of the Keystone

pipeline permit by Pres. Obama despite the recent comments from the head of the American Petroleum Institute (API) suggesting otherwise based on his perception of improved relations with the White House.

## ***Harvard Business Review Gives Energy CEOs High Rankings***

**The *HBR* study is done quantitatively, seeking to measure the true value of successful CEOs, which is defined as their long-term ability to create value for their companies**

The latest edition of the *Harvard Business Review* contains a study by three professors, which is a follow-up to one they conducted in 2010, to identify the 100 best CEOs in the world. Oftentimes studies of the “best” of anything, especially when it relates to people, are measured on reputation, popularity or anecdotal evidence of accomplishments, which leads to lots of debate about the possible biases of the authors of the study. The *HBR* study is done quantitatively, seeking to measure the true value of successful CEOs, which is defined as their long-term ability to create value for their companies.

**They saw their mission to not only shift the focus from thinking about the next quarter’s performance to a longer time horizon**

The three professors, Morten Hansen of the University of California at Berkeley, Herminia Ibarra of INSEAD and Urs Peyer of INSEAD, previously collaborated on a global project to develop a scorecard to measure the long-term achievements of CEOs in creating value for their companies. Their goal was to get people to focus on the long-term, which meant they had to develop metrics that could be objectively measured and that correlated with creating value. They saw their mission to not only shift the focus from thinking about the next quarter’s performance to a longer time horizon. They were hoping to not only get people talking about long-term performance but to also alter the way boards, executives and compensation consultants thought about and assessed CEOs.

**The measures used were the increase in total shareholder returns over this time period, adjusted for country and industry effects, plus the overall increase in market capitalization**

Three years ago this trio of professors created a scorecard to measure CEO performance. It measured CEOs over their entire tenure in office. They used it to rank the performance of 2,000 CEOs. This year they expanded the study in two ways – making the CEO group truly global and to measure not only financial performance but also corporate social performance. To accomplish this, they assessed the long-term performance of CEOs from the first day in office to their last, or if they are still in place up to August 31, 2012, the arbitrary cutoff-date for the study. The measures used were the increase in total shareholder returns over this time period, adjusted for country and industry effects, plus the overall increase in market capitalization. To reflect the truly global nature of business, the pool of CEOs measured was expanded by about one-third from 1,999 in the 2010 study to 3,143 in this year’s study. To be included in the pool, CEOs could not have assumed their position prior to 1995 or after August 31, 2010.

The CEOs selected were leaders of companies included in one of a handful of recognized global stock indices. The company’s financial returns during a CEOs’ tenure were calculated daily using

**The total country-adjusted shareholder return earned by the CEO was based on the stock price increase after including reinvested dividends but minus the average return for other firms in the same country**

*Datastream* and *Worldscope* stock prices. The total country-adjusted shareholder return earned by the CEO was based on the stock price increase after including reinvested dividends but minus the average return for other firms in the same country. This eliminates the possible impact of a particular country's stock market being a favored investment target. The total industry-adjusted return was calculated in the same manner to eliminate the bias of a company being in a "hot" sector. To calculate the change in market capitalization, each company's change in its equity market capitalization was adjusted for inflation in its home country and then translated into U.S. dollars using 2011 exchange rates. To this total was added the inflation-adjusted value of dividends and shares repurchased less the value of new shares issued. Once all these calculations were done, then all CEOs were ranked for each of the three metrics and an average of the three rankings was calculated to create a final ranking for each CEO.

**In 2010, to make the top 100, a CEO had to rank in the top 5% of the executives in the study, while this year they had to make the top 3.2%**

One conclusion of the study was that the top 100 CEOs performed exceptionally well. On average they delivered a total shareholder return of 1,385% during their tenures and they increased their firms' market value by \$41.2 billion, adjusted for inflation, dividends, share repurchases and share issuances. In contrast, the bottom 100 CEOs produced a total shareholder return of -57% and saw their company's market values decline by an average of \$13.6 billion.

In reporting on observations from the study, the authors pointed out that there was significant turnover in the top 100 ranking between 2010 and now. Some 43 CEOs are new to the top 100 list this year, which the authors attribute largely to the expanded scope of the CEO pool. In 2010, to make the top 100, a CEO had to rank in the top 5% of the executives in the study, while this year they had to make the top 3.2%. There were a number of interesting comparisons of CEOs geographically, but the one that stood out for us were the observations about Brazil. CEOs of Brazilian companies made up only 4.5% of the total pool, but they represented 9% of the top 100. On the other hand, Brazilian CEOs were overrepresented in the bottom 100, suggesting that companies there play the high-risk high-reward game.

**When investors think about energy companies, they are perceived as the way to play short-term cycles**

The other key observation was that energy CEOs, who only represented 5% of the pool studied, represented 15% of the top 100. That result was both pleasing but also somewhat startling. When investors think about energy companies, they are perceived as the way to play short-term cycles, usually associated with global economic recoveries or periods of high oil and gas prices. Due to the "wildcatter image" of American oilmen, or the "robber baron" view of international oil company execs, this industry is seldom mentioned in the same sentence with "well managed." After over 40 years of analyzing the energy industry, we believe it is better managed today than ever. Let us quickly add, however, that there are lots of CEOs who are still focused on short-term performance or

**When we look at the list, we are struck by the wide diversity of sectors of the energy business the CEOs represent and their geographic spread**

base their corporate strategy on pleasing the investment crowd. Both of these traits ultimately lead to vanishing companies and dissatisfied investors.

Listed in Exhibit 6 are the 15 energy company CEOs who made the top 100. Before we gave up analyzing energy stocks for a living, we were fortunate to have come into contact with about half of the CEOs on this list, and we hope that maybe our paths will cross with those we haven't met earlier. When we look at the list, we are struck by the wide diversity of sectors of the energy business the CEOs represent and their geographic spread. To us, the clear message from these results is that energy can be a long-term rewarding sector to invest in. The key is to find and back those CEOs with the right focus and right business strategy, along with the patience to allow their moves to play out.

**Exhibit 6. Energy CEOs in Top 100 Global Ranking By *Harvard Business Review***

HBR Rank	Name of CEO	Company	Tenure	Tot. Shareholder Return		
				Country Adjusted %	Industry Adjusted %	Market Cap. Chg. %
13	Subir Raha	ONGC	2001-2006	729	915	57
19	Mark Papa	EOG Resources	1998-	1,428	1,201	25
23	Paolo Rocca	Tenaris	2002-	816	1,138	26
28	Mukesh Dhirubhai Ambani	Reliance Industries	2002-	565	745	41
31	William E. Greehey	Valero Energy	1997-2005	721	629	36
39	Fu Chengyu	CNOOC	2003-2011	448	395	83
42	Pietro Franco Tali	Saipem	2000-	706	924	21
50	Shafagat Fakhrazovich Takhautdinov	Tatneft	1999-	983	1,285	14
54	Frank Chapman	BG Group	2000-	408	315	58
57	John C.S. Lau	Husky Energy	2000-2010	437	553	23
68	Patrick Darold Daniel	Enbridge	2001-	355	511	24
75	Pedro Wongtschowski	Ultrapar	2007-	763	840	19
88	Grant Alfred King	Origin Energy	2000-	985	1,673	8
91	Merrill A. Miller, Jr.	National Oilwell Varco	2001-	329	273	30
92	Ronald Alvin Brenneman	Petro-Canada	2000-2009	314	409	21

Source: *Harvard Business Review*, PPHB

## Efficient Cars Force States To Consider Alternative Taxes

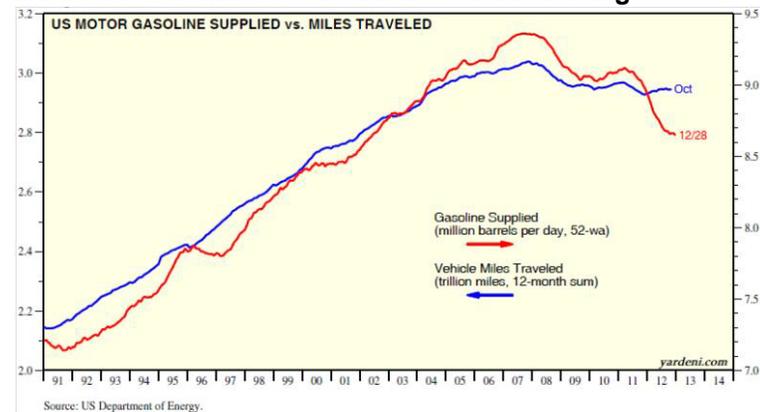
**These trends raise questions about how states are going to secure the necessary funds to sustain road maintenance and for new highway construction**

In the past we have written about the impact of gasoline pump prices on vehicle miles driven as people find the cost of a fill-up consuming too much of their budget so they reduce unnecessary driving. We have also focused on the impact this trend, coupled with an increase in the number of more fuel-efficient vehicles in the auto fleet, has had on overall gasoline consumption. These trends raise questions about how states are going to secure the necessary funds to sustain road maintenance and for new highway construction as fewer tax dollars are flowing into the federal highway trust fund and state treasuries.

**Those below-trend periods for vehicle miles driven were due to spikes in gasoline prices that crossed a threshold level that caused consumers to retrench their fuel consumption**

Exhibit 7 shows the 12-month moving average of vehicle miles driven since the early 1990s and the volume of gasoline supplied. Between 1990 and 2007 the number of vehicle miles driven annually increased steadily, although the amount of gasoline supplied did experience several periods of declines or at least a slowing in the rate of growth. Those below-trend periods for vehicle miles driven were due to spikes in gasoline prices that crossed a threshold level that caused consumers to retrench their fuel consumption. However, following the 2007 peak in vehicle miles driven, gasoline volumes consumed fell dramatically due to the financial crisis and resulting recession before rebounding in 2010 as the economy recovered, pump prices fell and drivers drove more. The sharp drop in gasoline prices encouraged drivers to step up their driving and purchase of less-fuel-efficient vehicles, in particular SUVs. But when gasoline pump prices reversed and went above \$4 a gallon in early 2011, drivers cut back vehicle use until prices fell in late spring and driving increased. The pickup in miles driven extended until very early last year when gasoline prices unexpectedly surged and again exceeded the \$4 a gallon threshold. Just as in the previous year, the pattern of driving picking up as pump prices fell was repeated. It is quite interesting that at the time of the peak in vehicle miles driven in 2011, gasoline volumes supplied to the market also peaked and began a steady decline that only seemed to slow as we entered the last few months of 2012.

**Exhibit 7. Gasoline Use Down More Than Driving**



Source: US Department of Energy.  
Source: [Yardeni.com](http://Yardeni.com)

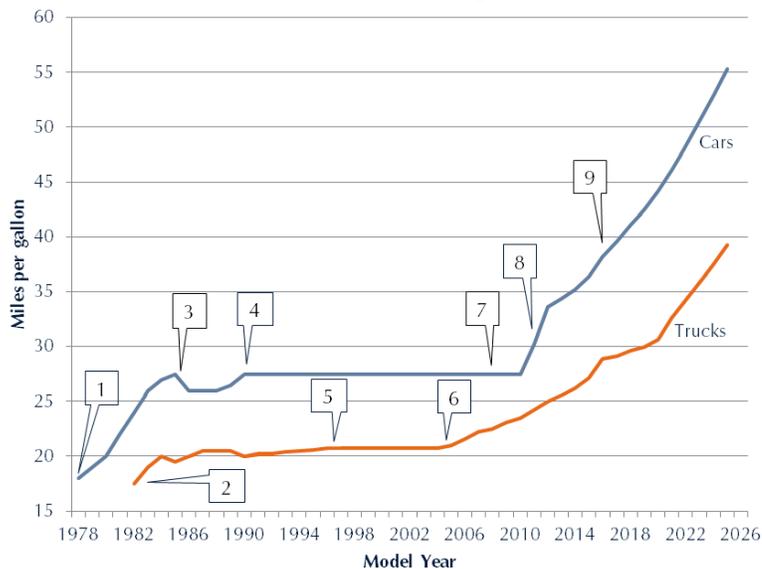
**As automobile manufacturers face the prospect of having to meet substantially greater fuel-efficiency targets starting in 2016, look for the industry to market more fuel-efficient models including electric- and hybrid-powered vehicles**

One of the key factors impacting fuel consumption has been the mandated improvements in vehicle fuel-efficiency standards, otherwise known as CAFE (Corporate Average Fuel Economy). As automobile manufacturers face the prospect of having to meet substantially greater fuel-efficiency targets starting in 2016, look for the industry to market more fuel-efficient models including electric- and hybrid-powered vehicles. According to the rules established by the Environmental Protection Agency (EPA) who establishes the CAFE standard, the new auto fleets are supposed to average 35.5 miles per gallon (mpg) in 2016, which increases steadily until it

**In 1923 the American auto fleet averaged 14 mpg, but as of 2008 it had only improved to 17.4 mpg**

reaches a goal of 54.5 mpg in 2025. According to the Transportation Research Institute at the University of Michigan, the 2012 average for new cars sold was 23.8 mpg. The challenge for America is that these high fuel-efficiency requirements only apply to new vehicles and not the entire fleet. Due to the advanced age of the average American car the overall fleet fuel-efficiency rate lags well behind the new fleet standard. The Transportation Research Institute reports that in 1923 the American auto fleet averaged 14 mpg, but as of 2008 it had only improved to 17.4 mpg. This gain was despite federal government mandates for better fuel-economy for new vehicles and several periods of high gasoline prices that altered consumer attitudes toward purchasing more fuel-efficient vehicles. Some four years later, despite significantly improved fuel-efficiency performance for new cars sold in this country, the higher mileage vehicles still represent only a small portion of the roughly 210 million vehicles on America’s roads. The chart in Exhibit X shows the history and projections of federal government initiatives to boost vehicle (cars and trucks) fuel-efficiency standards since the late 1970s.

**Exhibit 8. Federal Mandates For Mileage Standards**



1. 1978-1985: Congress sets car standard (1978-1985)
2. DOT sets truck standard to max feasible (1979-1996)
3. DOT decreased car standard (1986-1989)
4. DOT sets car standard to 27.5 mpg (1990-2010)
5. Congress freezes truck standards at 20.7 mpg (1997-2001)
6. Bush Admin issues new truck targets (2005-2007)
7. EISA changes CAFE to footprint standard (2008-present)
8. Obama Admin issues new car & truck standards (2012-2016)
9. Obama Admin issues new car & truck standards (2017-2025)

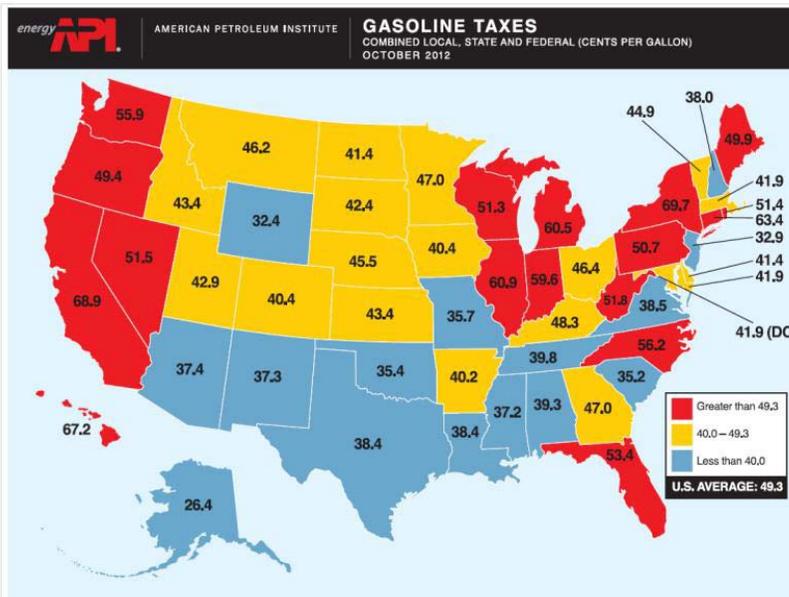
Source: NHTSA

As more fuel-efficient vehicles enter the nation’s fleet, projections call for no growth in gasoline consumption over the next couple of

**Gasoline consumption last year fell for the third consecutive year by 0.2% to 8.73 million barrels per day, an 11-year low**

years. According to the Energy Information Administration's (EIA) Short Term Energy Outlook in December 2012, gasoline consumption last year fell for the third consecutive year by 0.2% to 8.73 million barrels per day, an 11-year low. The EIA's forecast calls for gasoline volumes to remain flat in 2013 and 2014. With several additional years of more fuel-efficient vehicles entering the American fleet, expectations have to be that in 2015 and thereafter the direction for gasoline volumes will be down unless there is a dramatic rise in vehicle miles driven, which does not seem likely in the face of expectations for a slowly growing economy at best.

**Exhibit 9. Pressure On States To Raise Gas Taxes**



Source: API

**Several states have enacted new taxes on electric vehicles and high fuel-efficient vehicles in order to deal with their disproportionately low contribution to highway tax funds**

To deal with the financial squeeze on highway tax revenues, various states boosted their taxes on gasoline at year-end. Exhibit X shows a map of the various states with their combined federal, state and local taxes per gallon of gasoline and whether they are above or below the national average of 49.3 cents per gallon. The chart's data is as of October 2012. Several states have enacted new taxes on electric vehicles and high fuel-efficient vehicles in order to deal with their disproportionately low contribution to highway tax funds. Oregon has unleashed the genie of a "per-mile" tax scheme for these "gas-sipping" vehicles. Already, the State of Washington has a law on the books that will require all electric vehicle owners to pay a flat annual fee and it is considering an additional per-mile tax. Nevada is also looking into a per-mile fee. This per-mile fee, which is essentially a use tax for roads, seems to be drawing increased attention as a possible solution to the highway funding problem. It is much like the whispered value-added tax (VAT) solution for raising federal tax revenues.

**The Oregon government has admitted that the administrative costs of the system will outstrip the incremental revenues for some years into the future**

Oregon is interesting in that the state also bans self-service refueling having judged drivers as incompetent to put gasoline in their vehicles. There is a \$500 fine for being caught filling up your own car, so drivers wind up paying an additional 5-10-cents per gallon for full-service fill-ups. This is a state that allows doctor-assisted suicides, but not gasoline fill-ups. Oregon also encourages the use of studded tires during the winter despite the fact they cause an estimated \$40 million in damage to the roads according to the state's transportation department. The state has been experimenting with how to implement a per-mile fee for nearly a decade and believes its citizens are going to willingly accept the concept despite privacy issues. The Oregon government has admitted that the administrative costs of the system will outstrip the incremental revenues for some years into the future. There can be little doubt, however, that state governments, and possibly the federal government, will be considering revamping (or raising) fuel taxes in order to raise the funds needed to maintain and expand the roads. Just how citizens will react to a tax scheme that penalizes drivers for buying fuel-efficient vehicles remains to be seen.

## **Wein's Surprises For 2013 Could Bring Bad News For Energy**

Byron Wein, Vice Chairman of Blackstone Advisory Partners, annually provides a list of ten surprises for the year that would alter conventional thinking about political and economic trends and in turn would create investment opportunities. Mr. Wein started this tradition in 1986 when he was the Chief U.S. Investment Strategist at Morgan Stanley (MS-NYSE). He continued the tradition after joining the Blackstone Group (BSL-NYSE) in September 2009.

**Mr. Wein sees investment positives coming from negative outlooks for Europe and Japan, but their continued economic weakness would dampen global energy demand**

In his list of ten surprises, and we don't know that there is any probability difference among the ten, is a true curve ball for the domestic energy business that would be welcomed on one hand but could prove to be a long-term negative. That surprise follows another of Mr. Wein's surprises – geopolitical in nature - that predicts the International Atomic Energy Agency will confirm Iran has sufficient enriched uranium to produce a nuclear-armed missile, so the world now must deal with a nuclear threat. He also sees a scenario where China's leadership aggressively attacks corruption in its economy thus untracking it and helping it to grow at a 7% annual rate or better. One of these surprises would help boost global oil demand while the other would raise geopolitical tensions, both of which should be positive for global crude oil prices. In other surprises, Mr. Wein sees investment positives coming from negative outlooks for Europe and Japan, but their continued economic weakness would dampen global energy demand.

We consider Mr. Wein's biggest surprise, however, to be his fourth one. "In a surprise reversal the Democrats sponsor a vigorous program to make the United States independent of Middle East oil imports before 2020. The price of West Texas Intermediate crude

**And what might be the political fallout if the industry eased up activity in order to try to restore profitability?**

falls to \$70 a barrel. The Administration proposes easing restrictions on hydraulic fracking for oil and gas in less populated areas and allowing more drilling on Federal land. They see energy production, infrastructure and housing as the key job creators in the 2013 economy.”

Wow! Imagine a real “all-of-the-above” energy policy! What a conflict it would create for energy company CEOs. We know that with an aggressive drilling and hydraulic fracturing policy, the U.S. could significantly boost oil and gas output in the near-term. But how would we get it market? Would we be willing to change the laws in order to allow exporting surplus oil and gas? How would CEOs justify spending more on drilling and development in the face of falling oil and gas prices? And what might be the political fallout if the industry eased up activity in order to try to restore profitability? Energy CEOs might think they were confined to purgatory – unable to do anything to improve their lot while being threatened with penalties and regulations that would force them to do things that didn’t make economic or financial sense. But would that be surprising from an Administration that has demonstrated an almost total lack of understanding of how business (capitalism) operates.

Maybe the best thing about Mr. Wein’s surprises is that his record for accuracy is extremely low. As it relates to Mr. Wein’s surprise #4, we should hope it doesn’t come to pass even though its antithesis won’t be pretty either. After watching Washington’s and the Administration’s performance over the holidays we aren’t sure that some variation of Mr. Wein’s surprise #4 won’t be the more likely scenario. Buckle up, 2013 is going to be a real roller coaster ride in our opinion.

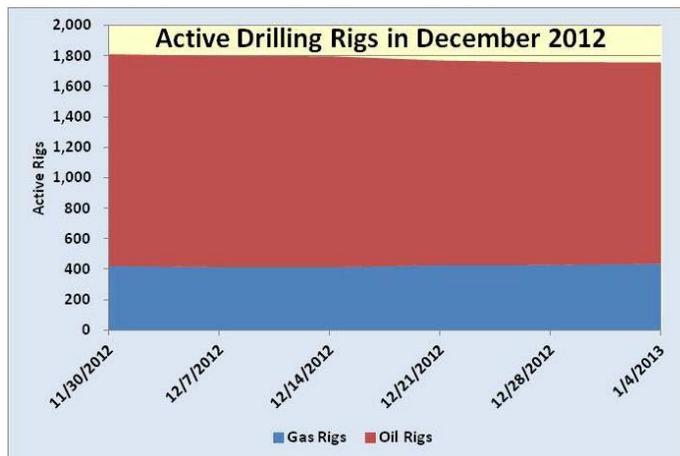
## Is The Rig Count Really “Falling Off The Cliff?”

**“Falling off the cliff” struck us as an over-the-top assessment**

We were intrigued to read a *Yahoo! Finance* headline a week ago Friday that the domestic drilling rig count was “falling off the cliff.” The headline was attached to an article discussing the year-end (December 28, 2012) report of the weekly Baker Hughes (BHI-NYSE) tally of various drilling rigs working in the oil patch. The article went on to discuss the trends among the various categories of drilling rigs that Baker Hughes reports – oil, gas, other, total, horizontal, directional and vertical. We understand that writers of news articles, especially those posted on news’ websites, often become flamboyant with their headlines in order to draw readership. Still, “falling off the cliff” struck us as an over-the-top assessment.

Our first reaction was to examine the rig count data for December and then the last six months of 2012, although we updated everything through the first weekly data point in 2013. We prepared graphs of the two periods just to see visually how this supposed cliff looked. Those graphs are Exhibits 10 and 11 below.

**Exhibit 10. Hard To Call This A Cliff Dive**

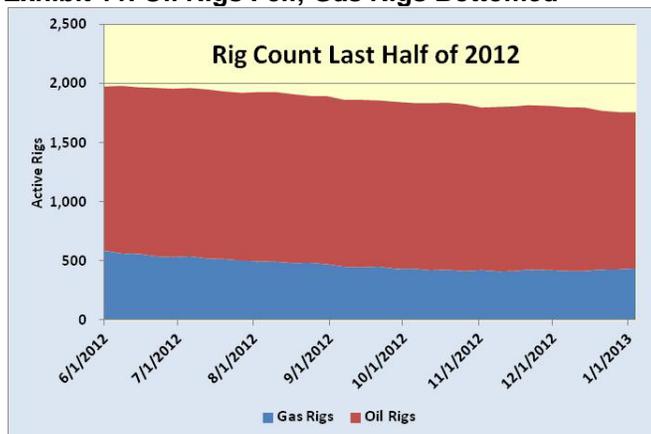


Source: Baker Hughes, PPHB

**Oilfield costs had risen strongly in 2011 and into the first part of 2012 such that many producers were finding they were running out of capital before the end of the year**

From the week ending November 30, 2012, to the week ending January 4, 2013, the total rig count declined by 48 rigs, or a drop of 2.8%. Rigs drilling for oil during this period fell by 68, or a decline of 4.9%, while gas-oriented rigs rose by 15, or up 3.5%. With crude oil futures prices bouncing from the mid \$80s a barrel to the low \$90s, one would think there would still be a strong incentive for producers to continue drilling at a healthy rate. What we observed, however, during the latter part of last year was that the logistics for shipping oil to market was disrupting some operations. Additionally, oilfield costs had risen strongly in 2011 and into the first part of 2012 such that many producers were finding they were running out of capital before the end of the year. This was the justification for why so many rigs working in the Bakken area were laid down during the latter part of 2012. That explanation was also supported by the responses to a question posed by the Barclays analysts in their 2013 E&P spending survey in November.

**Exhibit 11. Oil Rigs Fell; Gas Rigs Bottomed**

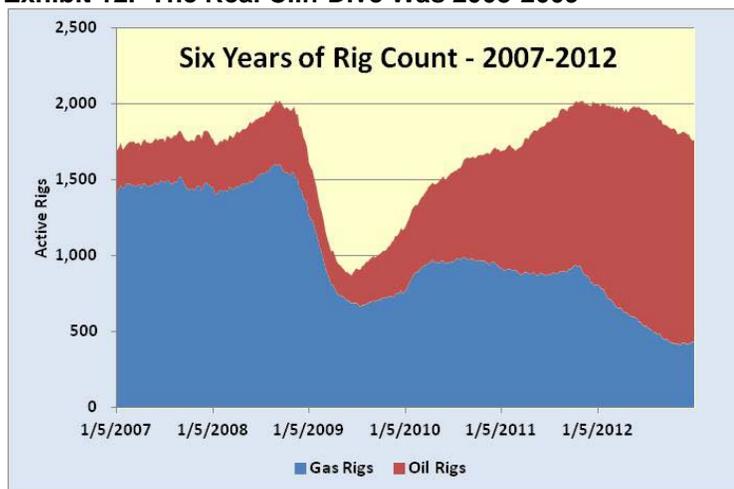


Source: Baker Hughes, PPHB

**Since virtually all the oil-oriented rig decline occurred in the final month of the year, it was more like the fall was due to budgets running out**

When we examined the rig count over the last half of 2012, we found that the total count fell by 212 rigs, with about three-quarters of them being gas-oriented and one quarter oil-focused rigs. Overall, the rig count declined 10.7% during that period, with gas rigs falling by 25.3% and oil rigs declining 4.9%. Since virtually all the oil-oriented rig decline occurred in the final month of the year, it was more like the fall was due to budgets running out. The gas rig decline, however, reflected further abandonment of dry-gas drilling, which was not unexpected given the lack of a sustained recovery in gas futures prices heading into the winter heating season.

**Exhibit 12. The Real Cliff Dive Was 2008-2009**



Source: Baker Hughes, PPHB

**But in the next three months when the rig count seemed to be falling at the same rate as in the earlier period, the oil price rebounded to \$70 a barrel**

Another chart we prepared (Exhibit 12) covered rig activity from the start of 2007 to the end of 2012. When we visually examined the rig activity trend at the end of 2012 and compared it to the collapse in the fall of 2008 and first half of 2009, which coincided with the financial crisis and start of the global recession that crushed oil and gas prices and created severe cash liquidity issues for many companies, there didn't seem to be any comparison in the patterns. We would describe the late 2008 and early 2009 time period as "falling off the cliff." Just to put that time period into perspective, from mid-September 2008 to mid-March 2009, the total rig count plummeted by 907 rigs, or nearly 45%. That was followed by another three months in which the overall rig count dropped another 22%. The total rig count fell during this period from 2,019 to 868, or a drop of 1,151 rigs. Oil rigs fell by 56% to 183, while gas rigs dropped by 921 rigs to 685. What is very interesting is that from September 2008 to March 2009, oil prices fell from \$100 a barrel to \$40-45. That certainly would explain the 45% rig count drop. But in the next three months when the rig count seemed to be falling at the same rate as in the earlier period, the oil price rebounded to \$70 a barrel. The message of this trend is that while commodity prices may be extremely volatile, the oil and gas industry can't respond

quite as quickly. Moreover, no one wants to go through a radical downsizing of its business and then jump back in within a matter of weeks – that would have suggested management was only reacting to events rather than managing around them.

**We suggest he should measure activity against the pattern during the financial crisis**

So while the *Yahoo! Finance* headline writer may think the decline in the rig count over the past few months is like going over a cliff, we suggest he should measure activity against the pattern during the financial crisis. That's a pattern we would call "falling off the cliff." Let's hope we never see that magnitude of an industry contraction again, although based on the history of the oil and gas business, it will re-occur sometime.

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