
MUSINGS FROM THE OIL PATCH

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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

Chemicals: An American Shale Revolution Beneficiary

Since natural gas is used both as a feedstock and a power source for the operation of the plants, economics drove the manufacturers' decisions to locate plants in Texas and Louisiana

One of the primary beneficiaries of the American shale revolution is the domestic chemicals industry. In fact, the revival of this industry is reminiscent of one of the original industry boom periods that occurred in the mid-1970s. At that time, the critical issue for the industry was access to adequate natural gas supplies. The existence of the intrastate natural gas market in Texas and Louisiana where gas supplies were abundant, in contrast to the interstate gas market where wellhead gas prices were regulated at levels that discouraged the development of new supplies, contributed to dramatic growth for the petrochemical industry along the Gulf Coast. Chemical companies were encouraged to build new processing plants in the region because they could be assured of a long-term supply of natural gas, although the price had to be negotiated and was well above interstate wellhead gas prices. Since natural gas is used both as a feedstock and a power source for the operation of the plants, economics drove the manufacturers' decisions to locate plants in Texas and Louisiana. The contracted prices were often in the \$6-\$8 per thousand cubic feet of gas, but the availability of gas supplies and access to shipping facilities were the key considerations. Because of gas shortages in the interstate market and the regulatory control that ensured gas would be allocated away from manufacturers in favor of homes, schools and hospitals, manufacturers decided to relocate their production by shutting down old plants in other parts of the country and building new plants along the Gulf Coast.

The supply shortage was an unintended consequence of wellhead price regulation

The lack of adequate gas supplies in the interstate gas market in the mid-1970s created one of the first crises for the gas transmission industry after decades of building demand. The supply shortage was an unintended consequence of wellhead price regulation for natural gas dedicated to the interstate market begun following

The next step was to totally restructure the gas transmission industry and make it a common carrier business with customers responsible for buying their own gas

the 1954 Supreme Court Phillips Petroleum case. The federal government's solution to the supply shortage was to raise the wellhead gas price for supplies dedicated to the interstate market. Unfortunately, it proved inadequate. The next step was to totally restructure the gas transmission industry and make it a common carrier business with customers responsible for buying their own gas. The move consolidated intrastate and interstate gas transmission markets into a single national transportation industry. While restructuring the pipeline industry seemed to work, it actually marked a demand peak, leaving transmission companies with surplus gas volumes they had contracted for in order to supply their many small customers who were unable to arrange their own supplies. These high-priced supplies were contracted under take-or-pay contracts that eventually bankrupted the pipeline industry.

They elected to construct new plants in the Middle East where supplies of natural gas were plentiful and cheap

As the global economy recovered from the mid-1980s recession, chemical producers soon faced the issue of how best to meet growing demand. They elected to construct new plants in the Middle East where supplies of natural gas were plentiful and cheap. In addition, national oil companies were happy to establish joint ventures with them. These arrangements allowed the national oil companies to deploy the U.S. dollars they were earning from exporting oil. Besides financing the new plants, the national oil companies were able to turn a non-economic resource, natural gas, into a revenue generating asset and their national chemical companies were able to gain manufacturing knowledge.

Low-cost U.S. gas supplies are also impacting the European chemical industry

Now, some 20 years later, the next phase of manufacturing capacity needs to be built, which happens to coincide with the emergence of the American shale revolution. The current low cost of natural gas and the belief that the favorable pricing environment will continue for years into the future is making locating new chemical manufacturing capacity in the United States attractive. Low-cost U.S. gas supplies are also impacting the European chemical industry, which is rapidly becoming uneconomic due to its high-cost liquefied natural gas (LNG) dependency. The impact of these trends may be dramatic.

The ACC estimates that chemical exports in 2013 reached \$2.7 billion

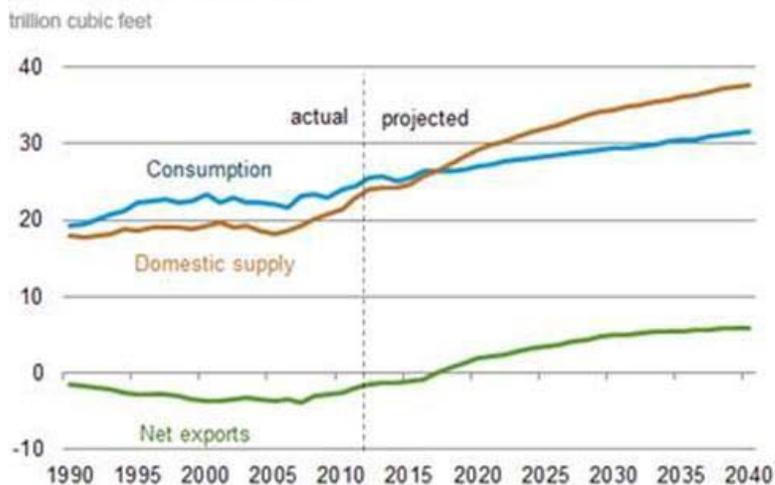
The American Chemistry Council (ACC) has estimated that the U.S. chemicals industry's exports will rise by 45% between 2013 and 2018 as a result of this wave of investment in new capacity that will be targeting overseas markets. From an importer of chemicals in 2011, the industry has transitioned into an exporter. The ACC estimates that chemical exports in 2013 reached \$2.7 billion. The Council further predicts that chemical exports will rise to almost \$30 billion in 2018.

A key aspect of the shale revolution helping the petrochemical industry is the growth in natural gas liquids (NGLs), which are the core building block of chemical products. A late 2013 report by consultant IHS Inc. (IHS-NYSE) forecasts that NGL volumes will reach 3.8 billion barrels per day by 2020, a 100% increase over

According to the ACC, U.S. chemical industry employment increased by 1.3% in 2013 to 793,800 workers

current production levels. As of early December, chemical companies have announced 136 planned or possible investments in the United States worth \$91 billion, with more than half of those projects proposed by non-U.S. companies. That statistic demonstrates the impact low-cost U.S. NGLs and natural gas are having on the economics of petrochemical production. A side benefit of this trend is its impact on jobs. According to the ACC, U.S. chemical industry employment increased by 1.3% in 2013 to 793,800 workers. That was the first increase in chemical employment since 1999. The ACC forecasts that chemical industry employment will grow every year through 2018.

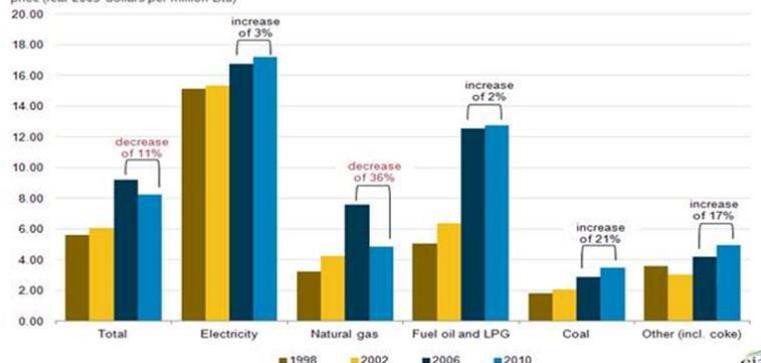
Exhibit 1. Supply Forecast Drives Belief In Low Gas Price
Natural gas annual consumption, domestic supply, and net exports in AEO2014



eia Source: EIA, Annual Energy Outlook 2014.
 Source: EIA

IHS forecasts that natural gas prices will remain at \$4 per million BTUs through 2030

Behind all these investments is the long-term forecast for natural gas supply in the United States. The 2014 Annual Energy Report of the Energy Information Administration (EIA) calls for U.S. gas supply to surpass demand projections between 2015 and 2020. This forecast also underlies the optimistic outlook for LNG exports commencing in 2015 and building through 2018 and possibly thereafter (but that analysis is for another day). What has happened as a result of the shale revolution and its impact on natural gas prices has been a reduction in the cost of the feedstock for petrochemical companies and the cost of electricity to operate their plants. IHS forecasts that natural gas prices will remain at \$4 per million BTUs through 2030. The low cost of gas and electricity also positively impacts the cost of operating refineries and America’s manufacturing industry in general. Low electricity costs are a significant driver behind the American manufacturing renaissance currently underway, although it is also being helped by other considerations.

Exhibit 2. Cheap Natural Gas Helps Chemical Industry Grow**Figure 1. Average energy prices for manufacturers (1998-2010)**
price (real 2005 dollars per million Btu)

Source: EIA

The game-changers, besides low natural gas prices and low electricity prices, included the decline in the cost of a programmable logic controller, and workers' willingness to accept lower wages

Those new plants should produce about 2.5 million new jobs in manufacturing and related services

Given the characteristics of natural gas, with the projected new supply growth there should be an equally meaningful NGL volume growth

A recent article in *Global Finance* examining the American manufacturing renaissance highlighted a new state-of-the-art semiconductor plant being built in Malta, New York, a town of 15,000 residents located about 175 miles north of New York City by Global Foundries, a unit of Advanced Micro Devices (AMD-NYSE) purchased in 2012 by the government of Abu Dhabi. The three-million-square-foot plant, built at a cost of \$8 billion, opened early in 2013. The game-changers that justified that investment, besides low natural gas prices and low electricity prices, included the decline in the cost of a programmable logic controller, which represents the main investment in an automated factory, and workers' willingness to accept lower wages as a result of the prolonged weak economic recovery from the Great Recession of 2009.

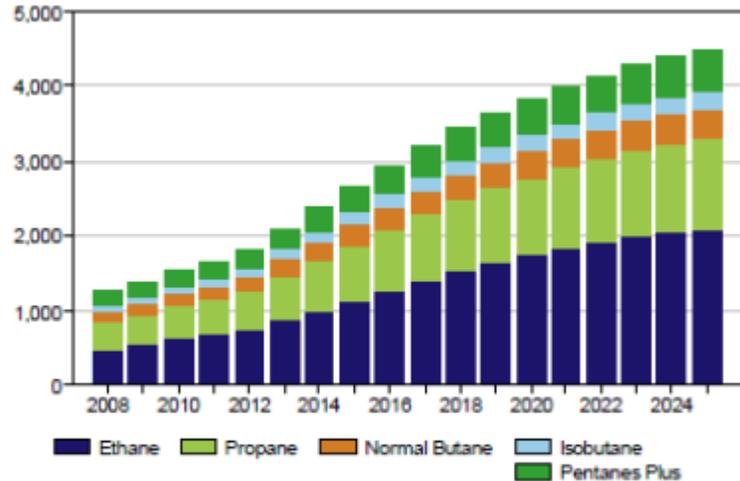
A consultant to companies considering re-shoring their operations to the United States estimates that manufacturers will have made \$100 billion to \$150 billion in new investments by 2020. Those new plants should produce about 2.5 million new jobs in manufacturing and related services. As manufacturing accounts for about 12% of America's economic activity, the impact of this investment and job creation should provide a meaningful boost to future economic activity.

Some of these same factors are behind the revival and expansion of the domestic petrochemical industry. If the EIA's forecast for natural gas supply growth proves correct, then it is likely natural gas prices will remain well below the double-digit levels experienced during the early 2000s, which coincidentally helped drive the petroleum industry to solve the shale puzzle and unlock the trapped oil and gas that has propelled the American shale revolution. Given the characteristics of natural gas, with the projected new supply growth there should be an equally meaningful NGL volume growth, which is exactly what IHS forecasts to happen.

Exhibit 3. Shale Revolution Will Drive NGL Volume Growth

US NGL Contained Production from Gas Processing

Thousand barrels per day



NGL production to double by 2020
Ethane supplies to quadruple by 2025

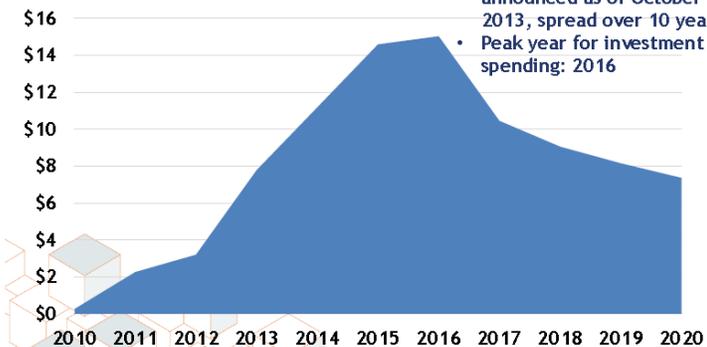
Source: ACC, IHS

This expansion, which will lead to a 12-fold increase in the nation's output of this building block for plastics, is driven by the prospect of low natural gas prices for at least the next 17 years

With the optimistic gas supply outlook and low price assumption, chemical companies are rapidly expanding facilities along the Gulf Coast. In an updated forecast, ACC says the industry will invest \$91 billion over the next 10 years with the peak investment amount in 2016. A recent example of the impact of this expansion is the restarting, expansion and building of new methanol plants in the Houston area. There are nine projects underway at a cost of \$5-\$7 billion. This expansion, which will lead to a 12-fold increase in the nation's output of this building block for plastics, is driven by the prospect of low natural gas prices for at least the next 17 years.

Exhibit 4. Chemical Industry In Strong Expansion Mode

Billions of 2012 Dollars

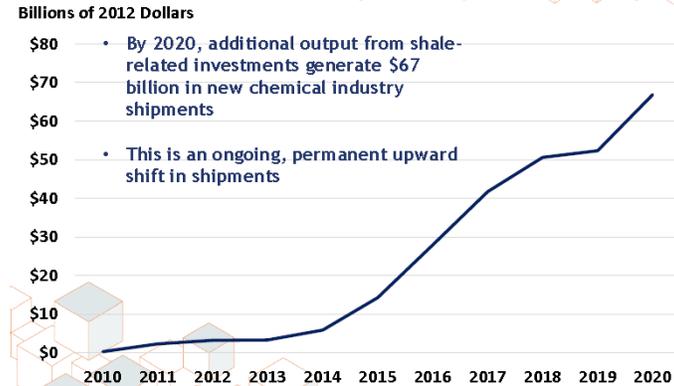


- \$89 billion in investment announced as of October 31, 2013, spread over 10 years
- Peak year for investment spending: 2016

Source: ACC

What the chemical industry's capacity expansion means is the potential for \$67 billion in new chemical industry shipments by 2020. Because of the recovering U.S. and global economies and the continuation of attractive cost dynamics, the increase in industry shipments should be permanent.

Exhibit 5. Chemical Industry To Help US Economy Grow



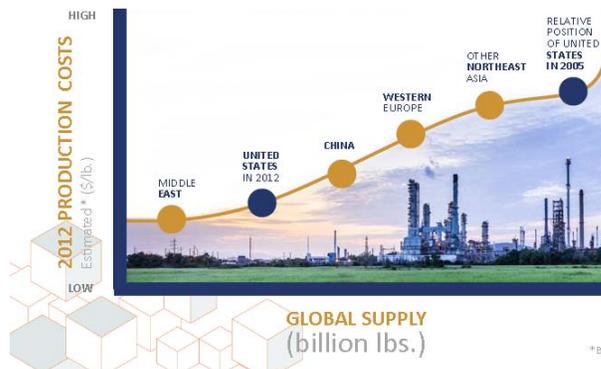
Source: ACC

In 2005, spot natural gas prices at Henry Hub averaged \$8.69 per million BTUs compared to \$2.75 in 2012

What makes the American chemical industry expansion significant is that the cost dynamics will enable it to capture a greater share of world chemical output. The ACC study showed the cost position of the United States chemical industry relative to China and other regions of the world. It also showed the cost improvement for the U.S. chemical industry between 2005 and 2012, which is nothing short of amazing. Clearly, much of this cost improvement is due to reduced natural gas and NGL prices between the two years. In 2005, spot natural gas prices at Henry Hub averaged \$8.69 per million BTUs compared to \$2.75 in 2012. According to the EIA, whose data series begins in 2007, the composite price for NGLs averaged \$12.91 per million BTUs compared to \$10.98 in 2012.

Exhibit 6. US Chemical Industry Is More Competitive

Relative Position of U.S. (2005-2012)
(Petrochemical Production Costs)



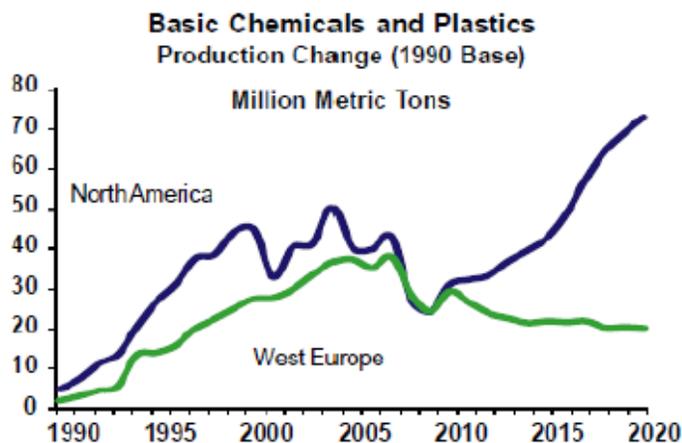
Source: ACC

*Based on estimates from best available data

According to IHS, North American chemicals and plastics production will double by 2020 while Western Europe's output will fall by a third

With its significant cost advantage, U.S. chemical companies are anticipating taking market share globally. The impact of that scenario is presented in Exhibit 7 from the IHS study showing that the U.S. has already gained a small advantage over Western Europe but that the advantage will widen significantly by 2020. According to IHS, North American chemicals and plastics production will double by 2020 while Western Europe's output will fall by a third. European chemical companies have been under pressure from high raw material costs as they tend to run costly, crude-oil-derived naphtha crackers rather than ethane crackers. High-cost oil in Europe is at a significant disadvantage against cheap ethane in the U.S. and Middle East. As the U.S. shifts from importing chemicals to exporting them, Middle East producers are increasingly targeting European markets. As a result, European chemical companies have been meaningful investors in new capacity in the United States, and they have abandoned commodity chemicals for higher-margin specialty chemicals. That shift has been achieved by either closing plants, with attendant job losses, or merging operations into joint ventures with other chemical companies in an effort to achieve economies of scale.

Exhibit 7. US Chemical Industry To Double By 2020



Source: ACC, IHS

One has to wonder whether the impending loss of high-paying chemical industry positions in Europe may soften various countries' opposition to the development of their shale resources

The American shale revolution is having significant impacts on many industrial sectors with the chemical industry being the most visible. Not only is the American chemical industry being impacted, but the changes are impacting Middle East producers and European markets. One has to wonder whether the impending loss of high-paying chemical industry positions in Europe may soften various countries' opposition to the development of their shale resources that might provide them with cheaper domestic energy. But the American chemical industry boom could also be at risk. That risk could come from sharply higher natural gas prices if the forecasted shale gas output being counted on cannot be generated at today's

Depending on whether or not we have significant gas supplies as forecasted, future gas prices may be dramatically different in the future

low prices. Another risk would be if there is insufficient export market demand for the increased capacity. According to Paul Hodges, chairman of industry consultant International eChem, quoted in an article about the European chemical industry outlook in the *Financial Times*, "The U.S. is adding 10 million tons of export-oriented ethylene capacity...But who are they going to export it to? I believe they are doomed to fail as there is no market for it." If he is correct, then the supply/demand relationship between NGLs (and natural gas) and ethane crackers would change. Depending on whether or not we have significant gas supplies as forecasted, future gas prices may be dramatically different in the future. Does that conundrum help explain why Royal Dutch Shell (RDS.A-NYSE) continues to study its plans for a new ethane cracker to tap Marcellus and Utica gas output?

A New Year Brings Us Another Anti-Fracking Movie

Both of Josh Fox's movies have been shown to employ sensationalism at the expense of honesty in explaining the issues

Energy has become mainstream if it means that Hollywood is fascinated with the topic. Most of us have assumed that actors and actresses only think about energy when confronted with the bill for firing up their private Lear Jet for a quick trip to Sun Valley or a Caribbean hide-away. The energy industry has been the target of two *Gasland* movies attempting to demonstrate the dangers of hydraulic fracturing of wells. Both of Josh Fox's movies have been shown to employ sensationalism at the expense of honesty in explaining the issues surrounding damage to residents' drinking water supplies from fracking a nearby natural gas well. The industry has made the claim, which has been substantiated by the Environmental Protection Agency (EPA) that there are no examples of water wells poisoned due to the fracking of close-by wells. Instead, virtually all of the water wells damaged that contribute to scenes of flaming water pouring from kitchen faucets is the result of poor cement jobs at neighboring wells.

Seeing people igniting flowing water from kitchen faucets is much more impressive

While the two *Gasland* movies were interesting and appeared to be professionally done, they lacked honesty about the basic facts of drilling and, more importantly, completing gas shale wells. Those movies were created with the anti-shale gas agenda of the producer, who was determined to demonstrate that drilling and fracking shale formations was inherently risky and should be banned despite the fact that natural gas is a more environmentally-friendly hydrocarbon resource for powering the global economy. The petroleum industry attempted to counter *Gasland* with its own public relations program to show that shale gas drilling and completions were not risky. It is difficult convincing people that shale formations are hundreds, if not thousands, of feet below drinking water aquifers and that the rock layers separating the shale formations that were fracked and the shallow-water aquifers prevent formation water from contaminating their drinking water. Seeing people igniting flowing water from kitchen faucets is much more impressive.

His idealism about fracking’s benefits for landowners is questioned when he sees water contamination

Last year, Matt Damon released a movie he both produced and starred in called *Promised Land*, in which he was a landman for a natural gas outfit that was leasing acreage in Pennsylvania’s Marcellus formation. His idealism about fracking’s benefits for landowners is questioned when he sees water contamination and he ultimately switches from wearing a black hat to a white one as he quits the company because of its drilling and fracking practices. Unfortunately for Mr. Damon, this movie never generated the buzz needed to propel it to the Oscar stage and it eventually settled into obscurity.

The story line is that hydraulic fracturing causes a dead horde to come to life and attack a rural town

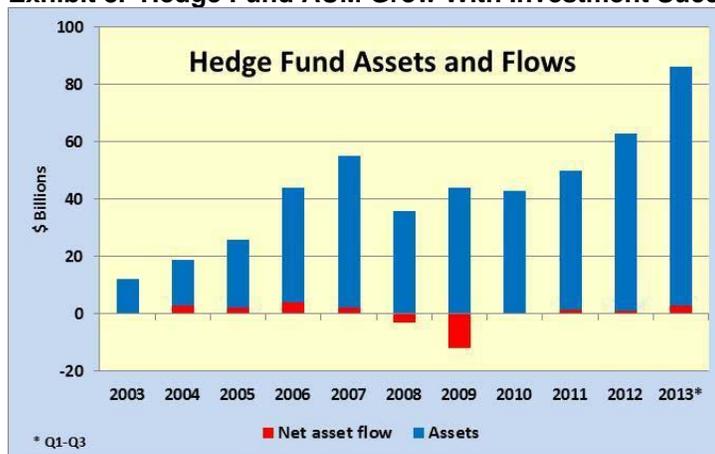
Now, we are being treated to Hollywood’s next version of the badness of fracking. *Zombie Killers: Elephant’s Graveyard* is due this year and will star Billy Zane and Mischa Barton, star of television’s *The O.C.* The story line is that hydraulic fracturing causes a dead horde to come to life and attack a rural town. We are assuming the story line marries fracking with the earthquakes supposedly associated with injecting waste fluids into disposal wells as the stimulus for bringing the zombies to life. What lengths will Hollywood go to try to make money off popular concerns over water contamination due to hydraulic fracturing? We will skip this movie making Hollywood poorer without our \$8 ticket.

Will Energy Shareholders Hope For More Activism In 2014?

“Two thousand and thirteen was the year the activist hedge fund investors won”

“Two thousand and thirteen was the year the activist hedge fund investors won,” said Anthony Scaramucci, managing director of SkyBridge Capital, a fund of hedge funds, in an interview on CNBC on New Year’s Eve Day. He went on to say that he expected 2014 would bring more of the same. Industry statistics suggest that is indeed a likely possibility as assets managed by activist hedge funds surpassed \$90 billion in the fourth quarter, according to Hedge Fund Research, almost triple the total of five years ago. An important

Exhibit 8. Hedge Fund AUM Grow With Investment Success



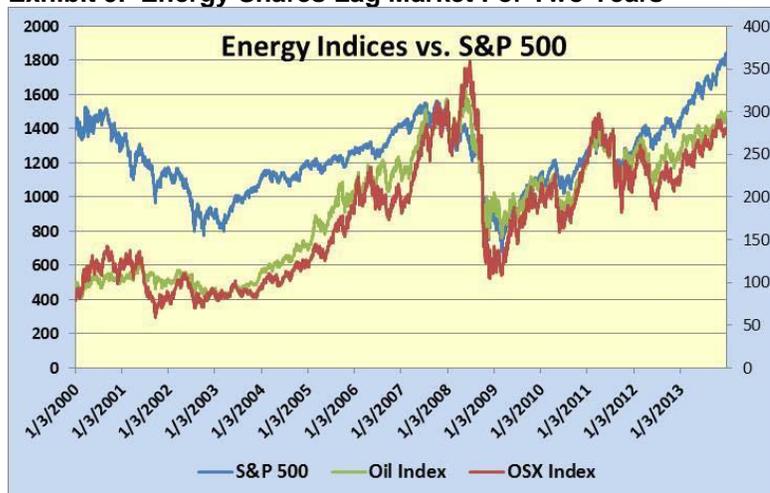
Source: HFR, PPHB

An early cold winter in North America and a faster economic pace across the western world and in China is now boosting both energy demand and commodity prices

question is: Will energy become a fertile sector for activist hedge funds this coming year and will it be one more example of how the shale revolution is impacting the energy business?

If we examine the long-term performance of the two principle energy indices - oil stocks (XOI) and oilfield service stocks (OSX) – compared to the overall stock market as represented by the Standard and Poor’s 500 stock index, we can see how they have lagged the market over the past two years. The underperformance has been driven by weak U.S. natural gas prices and a lack of global oil demand growth due to the weak economic recovery. An early cold winter in North America and a faster economic pace across the western world and in China is now boosting both energy demand and commodity prices. If these trends continue, energy company earnings will grow faster than anticipated, which should help lift energy companies’ share prices. On the other hand, if economic activity slows in the spring of 2014 as it has in recent years and the early North American cold fades, commodity prices could be at risk as well as energy share prices.

Exhibit 9. Energy Shares Lag Market For Two Years



Source: Yahoo Finance, PPHB

In 1949, Alfred Winslow Jones created the investment industry’s first hedge fund and is credited with introducing the 20% performance fee

The concept of hedge funds has a long and colorful history. The regulation of securities in the U.S. only began with the Securities Act of 1933 where Regulation D exempts companies selling securities to “accredited investors” from having to register with the government. That law was followed with the Securities Exchange Act of 1934 that established the Securities and Exchange Commission (SEC) that oversees the investment business. The Investment Company Act of 1940 established the regulatory framework for investment funds. In 1949, Alfred Winslow Jones created the investment industry’s first hedge fund (referred to as “hedged funds”) and is credited with introducing the 20% performance fee that characterizes the fee structure of hedge funds. The key to the hedge fund industry’s

Endowments and pension plans that followed the diversification plan produced substantial outperformance

growth, however, can be attributed to *Fortune's* publication of an article about A.W. Jones. Following the article, the number of hedge funds exploded and led to the modern hedge fund industry.

For years, hedge funds were the preserve of wealthy individuals and other pools of private capital. That began changing about 15 years ago when university endowment funds, led by Yale University, began investing in hedge funds as part of a portfolio diversification strategy for investing in financial assets that are not highly correlated to stocks and bonds. The result of this portfolio strategy during the early 2000s was that endowments and pension plans that followed the diversification plan produced substantial outperformance and this strategy was mimicked by other institutional funds.

As of mid-2012, total assets under management by hedge funds and funds of hedge funds reached \$2.317 trillion

As alternative investments are now considered as an acceptable asset class for pension and endowment funds, their share of institutional portfolios is expanding just as the money flowing into these funds is growing. As of mid-2012, total assets under management by hedge funds and funds of hedge funds reached \$2.317 trillion. What we found interesting was the allocation of that money across various investment strategies. The most popular hedge fund investment strategy, accounting for 29% of all the money, was long/short, in which portfolios strive to keep an evenly-balanced split of money between shares owned (long) and shares sold short. This strategy is designed to capitalize on positive and negative business trends and differences in stock market valuations of companies within the same industry. The idea is that if an investor can pick those stocks in a sector that will perform the best (go up the most) and short those that will decline, or maybe only go up modestly, the profit spread between the long and short positions will provide positive investment returns.

The next largest segment of hedge fund money, 15%, was in managed futures funds, or commodity plays. That strategy was followed by 12% in emerging markets and 10% for global macro strategies. Six percent of the money was allocated to each of three investment strategies - fixed income; event driven; and relative value. There was 4% allocated to multi-strategies with 12% spread among other strategies.

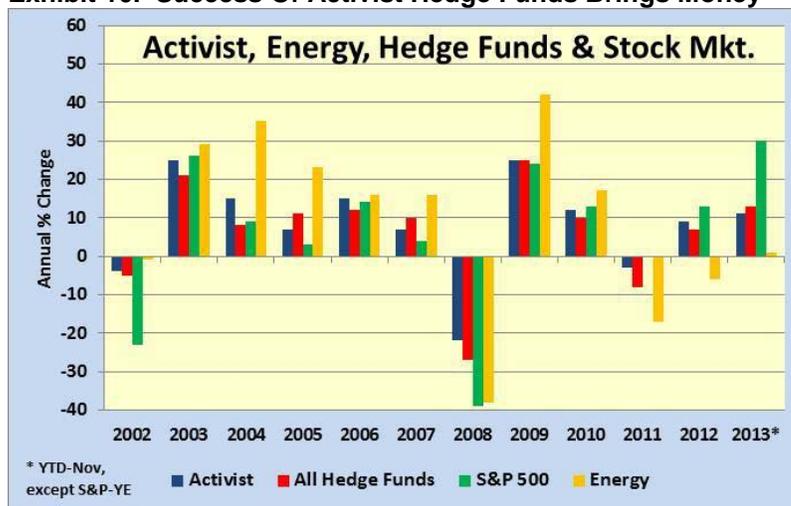
Activist investors have established their objective to become an acceptable investment class and they have demonstrated that they are a power to be reckoned with in corporate America

While it only accounts for 6% of the hedge fund assets, one of the hottest sectors has been activist hedge funds, otherwise known as event-driven funds. Activist investors have established their objective to become an acceptable investment class and they have demonstrated that they are a power to be reckoned with in corporate America. Activist investors have demonstrated that by owning even a small position the outstanding shares of underperforming energy companies, and by then agitating for changes in executive management, the company's corporate governance policies and/or its business strategies, they can force actions that benefit all shareholders through increased share values. A few of the energy

The activists were able to force management and/or board of director changes and meaningful shifts in business strategy

companies that were in the crosshairs of activists in 2013 include Chesapeake Energy (CHK-NYSE), Transocean (RIG-NYSE) and SandRidge Energy (SD-NYSE). In every case, the activists were able to force management and/or board of director changes and meaningful shifts in business strategy that either provided more cash to shareholders or provided increased share value.

Exhibit 10. Success Of Activist Hedge Funds Brings Money



Source: HFR, PPHB

If examined over 2002-2013, activist hedge funds have done well, often outperforming all hedge funds and certainly outperforming energy sector hedge funds in recent years

The success of activist hedge funds can be seen in Exhibit 10, which shows their annual returns compared to those of all hedge funds, energy sector hedge funds and the overall stock market represented by the S&P 500 index. When China was driving the energy demand story in 2003-2007, energy sector hedge funds performed well. Following the financial crisis in 2008 and the collapse in global oil prices, energy prices subsequently rebounded and energy sector hedge funds performed well in 2009-2010. Since then, however, energy sector hedge funds have been poor relative performers. If examined over 2002-2013, activist hedge funds have done well, often outperforming all hedge funds and certainly outperforming energy sector hedge funds in recent years. With years of underperformance and weak financial results and balance sheets, activist hedge funds have to be considering the attractiveness of energy company opportunities. This is especially true following the success event-driven hedge funds experienced with their energy company investments last year.

An interesting and recent development involving activist investors is that they are raising significant new investment funds, often with money coming from traditional investors such as mutual funds, pension plans and endowments that are precluded from being activist investors in their own right due to investment mandate restrictions.

The governance rules ISS supports are adhered to by most corporations today

Another recent development helping activist hedge funds is the decision by Institutional Shareholder Services Inc. (ISS), an organization that tracks the corporate governance actions of companies against a standard they have developed of what constitutes the “best practices” for governance, to modify its standards to help activist shareholders. The “best practices” are based on ideals presumed to guarantee transparency in corporate actions by the board and management and that ensure governance actions that should represent the interests of all shareholders rather than benefit a select few insiders or preferred shareholders. The governance rules ISS supports are adhered to by most corporations today. In cases where those rules are not embraced by corporations, there is a record of corporate failures, with the classic example being Houston’s own, Enron. Following that corporate disaster, ISS and other governance advisors gained legitimacy that has translated into ISS becoming a powerful, and maybe undue, influence on how institutions vote their shares on policy matters requiring shareholder approval.

Achieving the measure of half of all votes cast will be substantially easier than winning the votes of the much larger pool of all outstanding shares

ISS’s strategy involves recommending to its institutional clients “no” votes against directors who fail to support good governance actions previously approved by shareholders but not implemented by the directors. The key decision by ISS was to change the measurement of shareholder support for a recommendation not honored by the board of directors. Now their standard is that if shares supporting the measure represent more than half of all the shares actually voted at the shareholder meeting. Before, the measure needed more than 50% of the outstanding shares entitled to vote at the meeting. This provides activist shareholders an easier threshold to achieve success as usually a substantial number of shareholders, primarily individual shareholders, do not vote their proxies and therefore they are not actually represented at the meeting. As activist shareholders are often supported by other institutional shareholders with large holdings, achieving the measure of half of all votes cast will be substantially easier than winning the votes of the much larger pool of all outstanding shares.

ISS calculated that activists were successful in 68% of their battles for board representation in 2013 (through November), which does not count the number of times when they have been invited onto the board directly

Without this shift by ISS, activists were often forced to engage in, or at least threaten to engage in, a proxy fight to secure the votes necessary to make director changes and/or business strategy adjustments. Even without this change, ISS calculated that activists were successful in 68% of their battles for board representation in 2013 (through November), which does not count the number of times when they have been invited onto the board directly. Successful proxy fights by activists in 2013 compares with only a 43% success rate in 2012. Investors are recognizing, and embracing, the positive contribution of activist hedge fund investors. Since activists focus on optimizing a company’s capital structure, they are often more willing to make strategic moves that can unlock undervalued assets or eliminate unprofitable business lines, thus boosting share values.

With the support of institutional shareholders anxious to cash in on the backs of activists and with ISS making it easier for them to win their battles, 2014 could be a challenging year for many energy companies

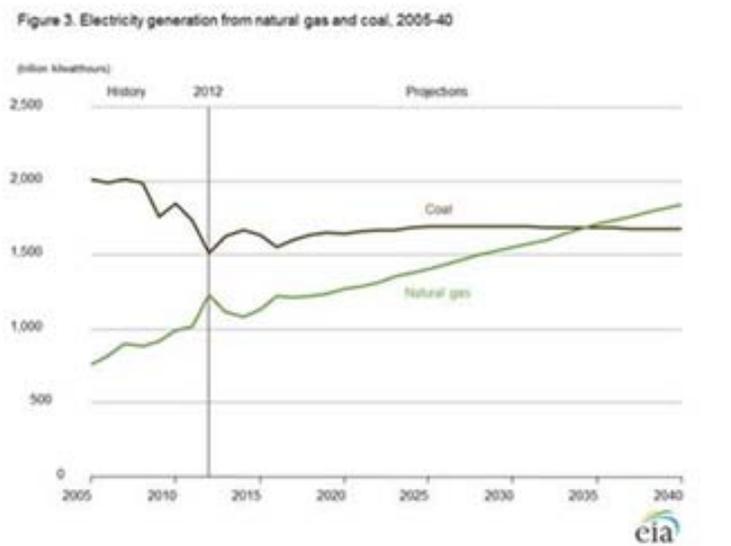
Given that energy shares have underperformed the stock market for the past couple of years, and that the shale revolution has contributed to a number of exploration and production companies accumulating substantial debt loads as a result of their need to spend considerably more than their current cash flows to develop their shale properties, this sector offers numerous targets for activist investors. The shale revolution has also forced significant strategy shifts among oilfield service companies, and is creating tiers of companies capable of maximizing shale business opportunities. The result has been that the financial performance of many E&P and service companies remains poor, contributing to their shares underperforming. With the support of institutional shareholders anxious to cash in on the backs of activists and with ISS making it easier for them to win their battles, 2014 could be a challenging year for many energy companies. It also could be financially rewarding for their shareholders as activists target the industry.

Two Charts That Caught Our Attention In The Past Week

We were researching a note we had read referencing the continuing loss of electric generation market share by natural gas

We found the chart below from the Energy Information Administration’s (EIA) web site to be quite interesting. We were researching a note we had read referencing the continuing loss of electric generation market share by natural gas. The chart came from the EIA’s 2014 Annual Energy Outlook. We thought back to an article we had written when the percentage of electric power in the United States generated by coal equaled that from natural gas – a rare event given the inherently low cost of coal and the large share of the power plant market it served. The comparable market shares occurred in the fall of 2012 and reflected the cost advantage natural

Exhibit 11. Coal Regains Electricity Market Share



Source: EIA

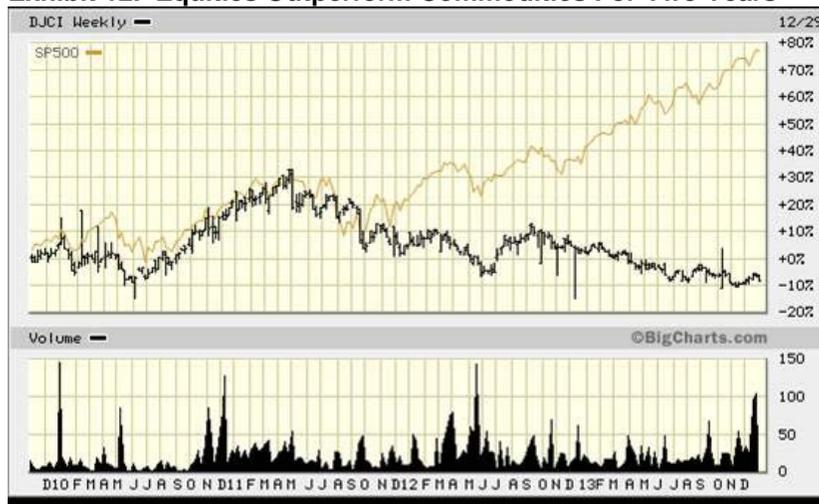
What has changed, however, is that natural gas prices have rebounded, at least sufficiently to make coal once again the cheapest fossil fuel for generating electricity

gas had over coal and the fears utility managers had that coal emissions would be targeted by the federal government, something that has come to pass. What has changed, however, is that natural gas prices have rebounded, at least sufficiently to make coal once again the cheapest fossil fuel for generating electricity. The EIA's forecast suggests coal's cost advantage will only last for a short while as it projects electric power from natural gas plants will continue to grow. As the chart demonstrates, beginning in about 2015, tighter restrictions on carbon emissions will start and only the newest, cleanest and most efficient coal-fired power plants will continue to operate, which they will for many years – the reason why coal consumption will eventually plateau.

At some point trends change and these two are certainly aging

On New Year's Eve we were watching a technical analyst from Oppenheimer & Co. discuss the relationship between stocks and commodities during a segment on CNBC. Unfortunately, he never indicated which indices he was using, and he has access to considerably more data than we do, but his point was that the wide spread between the two indices would likely not last forever. His chart showed a historical period when commodities were outperforming equities – a situation that has been completely reversed today. Equities (the yellow line in Exhibit 12) have gone up virtually continuously since late fall of 2010. At the same time, the downtrend for commodities (the black line) that started in the spring of 2010 has continued almost unabated. At some point trends change and these two are certainly aging. That doesn't mean they can't continue to exist for much longer than anyone anticipates, but an ending of the Federal Reserve Bank's quantitative easing monetary policy would certainly suggest a possible scenario for a trend shift. Likewise a stronger global economy, as investors and Fed officials seem to be anticipating, could provide a boost to demand for commodities and their prices.

Exhibit 12. Equities Outperform Commodities For Two Years



Source: Yahoo Finance, Big Charts

In the power market, it is hard to believe that coal can regain much of its lost market share given the push against carbon emissions

As they say, a picture is worth a thousand words and for us the chance to step back and look at long-term trends often points out situations one is not fully aware of because of being caught up in the action. In the power market, it is hard to believe that coal can regain much of its lost market share given the push against carbon emissions. On the other hand, there are so many economic and geopolitical forces at work in the investment world that it is hard to see people abandoning equities and once again becoming euphoric over commodities. More often than not, however, what we expect is not what we get.

Survey Says Fracking Knowledge Lacking; Book Unhelpful

More than half of the 1,061 respondents said they did not know how much they had heard about fracking, with about 39% saying they had heard nothing at all

A new study focused on communication and the “fracking” controversy in America was recently published by a team of researchers from Oregon State, George Mason and Yale universities. The study, based on a national survey undertaken in early September 2012, showed that more than half of the 1,061 respondents said they did not know how much they had heard about fracking, with about 39% saying they had heard nothing at all. That conclusion surprised us, but appears possible given that the survey was conducted 15 months ago, and we believe the media coverage of issues dealing with hydraulic fracturing since then has raised public awareness. That said, after reading the study we understand that the value in the results provides the researchers with confirmation of certain assumptions about how people gain an understanding about complex issues such as fracturing. After analyzing the survey responses, some of the researchers’ conclusions are predictable, while others left us shaking our head.

For those close to the industry, or who have actively followed the evolution of hydraulic fracturing and its role in helping spur the great American shale revolution, there isn’t much new in the book

Reading the study and the media’s coverage of the study’s conclusions, we were thinking about the latest book on fracturing by *Wall Street Journal* writer, George Zuckerman, entitled [The Frackers: The Outrageous Inside Story of The New Billionaire Wildcatters](#). For those close to the industry, or who have actively followed the evolution of hydraulic fracturing and its role in helping spur the great American shale revolution, there isn’t much new in the book. The author writes about the trials and tribulations of George Mitchell of Mitchell Energy and his staff in perfecting the technological marriage of horizontal drilling and hydraulic fracturing to unlock the gas resources trapped in the shale formation underlying the Barnett basin in North Central Texas. Mr. Zuckerman also focuses on other key pioneers in the business such as Aubrey McClendon and Tom Ward at Chesapeake Energy (CHK-NYSE), and Harold Hamm of Continental Resources (CLR-NYSE) in his pursuit of the crude oil locked in the Bakken shale in North Dakota. Other shale players written about included Robert Hauptfuhner of Oryx Energy and Mark Papa at EOG Resources (EOG-NYSE). Another entrepreneur with an up and down career dealing with the changing fortunes of the U.S. natural gas industry was Charif Souki who founded Cheniere Energy (LNG-NYSE) to exploit the country’s

Mr. Zuckerman's book is an easy read with lots of color about the leading characters involved in the shale revolution and the role fracking played in creating it

“people more likely to support fracking tend to be older, hold a bachelor's degree or higher, politically conservative, watch TV news more than once a week, and associate the process with positive economic or energy supply outcomes”

Ohio residents believed that the economic benefits of hydraulic fracturing outweighed the environmental risks, and 85% believed it would bring jobs to the state”

gas supply deficit, only to complete his new, large liquefied natural gas (LNG) import terminal on the Gulf Coast just as the industry shifted into a huge supply surplus that cut natural gas prices by 75%, forcing him to switch and convert the plant into an LNG liquefaction facility to export domestic gas to international markets.

Mr. Zuckerman's book is an easy read with lots of color about the leading characters involved in the shale revolution and the role fracking played in creating it. There isn't a lot of detail about the business or an in-depth investigation of the business practices of these colorful wildcatters. The book is more in the genre of the Ewings and Carringtons of television shows Dallas and Dynasty, or maybe the characters in Edna Ferber's Giant, or Harry Hurt's Texas Rich, the colorful story of H.L. Hunt and his oil fortune and multiple families. While all good reads or fun viewings, they do little to educate the public about the hard work, high risk and persistence required of those entrepreneurs who built the domestic oil and gas industry. These books and television shows all contribute to the public's view of the caricature of America's oilmen, which is largely unfavorable and helps explain why the petroleum industry has a poor image in the eyes of the public that makes it difficult to convey positive messages about its contribution to the high living standards of Americans.

The conclusions of the fracking controversy and communication study are “that women, those holding egalitarian worldviews, those who read newspapers more than once a week, those more familiar with hydraulic fracturing, and those who associate the process with environmental impacts are more likely to oppose fracking.” On the other hand, “people more likely to support fracking tend to be older, hold a bachelor's degree or higher, politically conservative, watch TV news more than once a week, and associate the process with positive economic or energy supply outcomes.” We assume many of our readers will puzzle over the basic conclusions about who is likely to support or oppose fracking based on the information above.

The researchers examined numerous polls and surveys dealing with public attitudes toward energy and fracturing along with various studies about how people form their opinions about issues in general. They pointed to three surveys of attitudes toward fracking in the Northeast with markedly different results. Based on a 2011 survey of Pennsylvania residents, “Forty-one percent felt that it was generating more benefits than problems; 33% said the problems were exceeding the benefits; and 26% said the problems were emerging in equal proportions. For perceptions of future benefits and problems, the figures were 50% expecting more benefits than problems, 32% more problems than benefits, and 17% about equal.” From a 2012 survey of attitudes in Ohio, the “poll found that 64% of Ohio residents believed that the economic benefits of hydraulic fracturing outweighed the environmental risks, and 85% believed it would bring jobs to the state.” In New York state where the issue of

Higher education and income are associated with opposition to natural gas drilling while supporting wind power

allowing fracturing remains on hold pending further government environmental studies, “Forty-four percent of New Yorkers were opposed and 43% in favor. Also, 45% believed that the economic benefits would outweigh environmental concerns; 81% felt drilling would create jobs; and 48% thought it would damage the environment.”

Another issue the researchers dealt with was trying to understand what forces shape public perceptions of hydraulic fracturing. They found several interesting trends. Women tend to have a higher perception of risks and are less supportive of emerging technologies than males. Older people are more opposed to new energy technologies, such as wind power. Higher education and income are associated with opposition to natural gas drilling while supporting wind power. Finally, 80% of those with college degrees have heard of fracking versus 64% with some college and 51% with only a high school diploma or less. From a political perspective, Republicans/conservatives are more supportive of fracking and fossil fuel development, while Democrats/liberals are more opposed. While many of these conclusions do not appear surprising on the surface, we were intrigued by the results of a survey conducted by consultant Navigant Research on energy and environment that support some of the survey’s conclusions while finding totally different results with other topics. For example, in the survey question dealing with consumer favorability for wind energy by demographics, the Very Favorable/Favorable split for men was 47%/30% compared to 38%/30% for females, which would support the fracking study’s conclusion about receptivity to new energy technologies. On the other hand, those 65+ years old favored wind power 50%/32% compared to 45-64 with 48%/28%, 30-44 at 38%/31%, and those under 30 at 34%/32%, which is exactly opposite to the fracking study conclusions. While Navigant’s study did not question respondents about natural gas drilling, top income and education categories ranked highest in support of wind power.

The researchers did admit that an analysis of newspaper coverage of fracking has shown it to be largely negative and focused on environmental issues

What surprised us was the distinction between the reliance on newspapers and television news as a predictor of whether people support or oppose fracking and fossil fuel development. The researchers have an interesting take on the issue. They wrote, “Scholars contend that television coverage provides less in-depth, more emotional coverage based on particular events, and an orientation toward individual episodes or situations. In contrast, newspapers provide more information and analysis, presenting coverage with an orientation toward broader themes and processes.” The researchers did admit that an analysis of newspaper coverage of fracking has shown it to be largely negative and focused on environmental issues. Our reaction to these conclusions is mixed. We understand the view about television news coverage, largely because of the amount of time devoted to any particular news story and the ability to selectively convey images that stir emotions while presumably the reporter is

We remember the day when The New York Times proclaimed it published “All the news that’s fit to print”

presenting un-biased commentary about the event. On the other hand, newspaper articles often do provide more information and analysis, although increasingly most of the news is coming from a small, select number of news organizations that have their own biases that are never disclosed. As a result, you can read a long, detailed article thinking you are getting an un-biased analysis only to find out later that important information was left out or assumptions not disclosed. We remember the day when *The New York Times* proclaimed it published “All the news that’s fit to print.” Now one can no longer trust the *NY Times* as a source because of so many proven episodes of distortions published as fact.

Although the survey data may be dated, the analysis of the data provides much food for thought, further research and possible action

The key conclusion of the study was that “both our own survey data, as well other public opinion and academic survey findings, suggest that the majority of Americans lack a clear understanding of hydraulic fracturing and remain unaware, if not uncertain, about its potential impacts.” If true, then the oil and gas industry needs to develop a more robust public education program. There are many important energy policy issues to be decided in 2014 that will impact the pace of fossil fuel development and the degree of increased regulation the industry faces in the future. Although the survey data may be dated, the analysis of the data provides much food for thought, further research and possible action. Our energy industry is too important to have the policies regulating its operation and future controlled by people who can easily exploit the public’s low level of understanding through emotional appeals or factual distortions.

The Amazing Race For First Offshore Wind Farm Continues

The AWEA representative pointed out that the Internal Revenue Service was allowing projects that were 5% or greater completed by year-end to claim the tax credit

As we ushered in the New Year last week, we thought of the fact that America was supposed to have had wind turbines whirling offshore by now. We were reminded of this prediction by an article discussing the end of the federal production tax credit for wind power generation that died at year-end, along with some 54 other tax breaks Congress couldn’t find time to renew. An interview with an American Wind Energy Association (AWEA) representative lamented the death of the tax break, which has had a history of expiring periodically during its 20-year life, only to be resurrected the following year. The AWEA representative pointed out that the Internal Revenue Service was allowing projects that were 5% or greater completed by year-end to claim the tax credit helping the economics of their projects. That meant by having spent 5% of the total cost of the project or that they can demonstrate continuous construction activity, the credit can be claimed and retained for the life of the credit. That generous ruling was made because the tax credit had barely survived the previous year-end termination, which had disrupted investment in ongoing and planned wind power projects, so the government wanted to make sure that all the projects launched late in the year could still achieve the tax credit threshold so as not to discourage wind farm developers from moving forward with new projects during 2013. One of those projects

Last Friday, Cape Wind's largest source of financing recommitted to the project even though the developers missed the year-end deadline established by the lender to identify other investors

Are lenders worried about demand trends in the power market, or the bad experiences being reported by some of the European wind farms, or are the economics of this project questionable?

benefitting from this ruling is Cape Wind's offshore Massachusetts wind farm located in Nantucket Sound.

Cape Wind, which will have 130 of the 3.6 megawatt (MW) state-of-the-art Siemens AG (SI-NYSE) offshore wind turbines capable of generating 420 MW of power, will cost an estimated \$2.6 billion to construct. The contract to purchase the wind turbines was signed December 23rd. Last Friday, Cape Wind's largest source of financing recommitted to the project even though the developers missed the year-end deadline established by the lender to identify other investors. PensionDanmark had offered to provide a mezzanine loan commitment of \$200 million, which it is willing to keep in place. According to Christian Skakkebaek, a senior partner at Copenhagen Infrastructure Partners, which PensionDanmark is using to invest in the project, "We are keen to see the project being realized and reaching financial close later in 2014."

The controversial offshore wind farm that still expects to be the first in the nation, filed its initial permit application in 2001. It would now appear to be sometime in 2014 before the financing to construct the project will be finalized. The Cape Wind web site suggests start-up of the wind farm during 2016. We remain fascinated that a green-energy project with a 25-year contract to sell its power to a local utility at a price substantially above the current market price for alternative green energy supplies, and at a multiple of the cost of natural gas-fired power, which also possesses a guaranteed annual price escalation built into the contract terms, continues struggling to arrange financing. Are lenders worried about demand trends in the power market, or the bad experiences being reported by some of the European wind farms, or are the economics of this project questionable? Mr. Skakkebaek stated there is "still some work to be done before our mezzanine loan commitment of \$200 million can be made unconditional." Since he did not specify what work remained to be done, we are only left with our questions and no answers.

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

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