

MUSINGS FROM THE OIL PATCH

November 28, 2006

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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 oilfield service companies. The newsletter currently anticipates a semi-monthly publishing schedule, but periodically the event and news flow may dictate a more frequent schedule. As always, I welcome your comments and observations. Allen Brooks

The Peak Oil Debate Rages On

It seems that hardly an issue of *Musings From the Oil Patch* goes without some discussion of the Peak Oil phenomenon. On November 14 Cambridge Energy Research Associates (CERA) released a new analysis of peak oil suggesting that it is based on faulty analysis. The CERA analysis concludes that the world's remaining resource base of conventional and unconventional oil is 3.74 trillion barrels, some three times as large as the 1.2 trillion barrels estimated by the proponents of peak oil.

While touted as a new analysis, there appears to be little new in this analysis that was not contained in CERA's August 2006 report

Immediately after CERA issued its press release denouncing Peak Oil as being based on faulty analysis, the proponents challenged the CERA analysis as having weak arguments and being based on unrealistic assumptions. While touted as a new analysis, there appears to be little new in this analysis that was not contained in CERA's August 2006 report. Great umbrage was taken with the fact that CERA uses both its and its parent IHS Inc.'s (IHS-NYSE) proprietary databases to supposedly refute the Peak Oil theory. CERA is charging its clients \$1,000 to receive a copy of its study, so it felt compelled to release a four-page detailed press release announcing its new study and the criticism of Peak Oil.

"This is the fifth time that the world is said to be running out of oil"

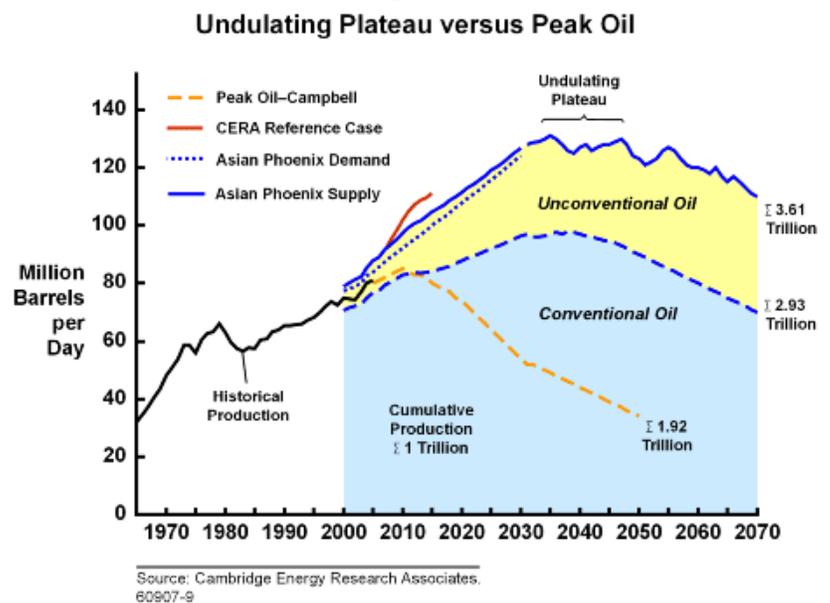
What is interesting is that the press release quotes CERA Chairman Daniel Yergin saying, "This is the fifth time that the world is said to be running out of oil." In reality, this report had to be issued to rebut the Association for the Study of Peak Oil (ASPO) conference in Boston in late October, since there have not been any other Peak Oil studies issued recently. The press release quote has become Mr. Yergin's 30-second media sound bite. We have heard it when he has been interviewed on CNN and CNBC. We have seen it quoted in virtually every interview of Mr. Yergin. We are not sure that it adds anything to the debate.

CERA acknowledges an eventual peaking in crude oil production

What is interesting is that CERA acknowledges an eventual peaking in crude oil production, which it then believes will be followed by a period marked by an “undulating plateau” of production before it begins a steady decline. CERA talks about the confusion in the peak oil debate caused by confusing reserves and production. However, CERA has to make a number of questionable assumptions about future discoveries in order to support its future oil production scenario.

Exhibit 1. CERA’s Outlook for Global Oil Supply

Figure 1



Source: CERA

CERA still holds to its view that the world can sustain 50% growth in global oil production before a peak is reached at sometime after 2030

It seems that CERA is beginning to make more of its argument about when peak oil will arrive and what happens to global production after the peak than really trying to challenge the peak oil concept. However, CERA still holds to its view that the world can sustain 50% growth in global oil production before a peak is reached at sometime after 2030. They are counting on technology and unconventional oil resources to supply the needed new oil production. The biggest problem with the CERA analysis is that they are counting on “yet to find” oil resources to meet their forecast. According to CERA, about 20% (0.758 trillion of the estimated 3.74 trillion barrels) of their estimated oil still to be exploited will come from “exploration potential.” i.e., it has not yet been discovered but, presumably, is recoverable despite unknown geological, technological and economic constraints on production of a non-existent resource.

The most interesting observation that comes from the CERA press release is the last half of their observation, which began with the view “that the ‘peak oil’ argument is based on faulty analysis.” CERA said, “...which could, if accepted, distort critical policy and

Has the election of a Democratic Congress hastened the timing of these new rules and regulations?

investment decisions and clouds the debate over the energy future.” Does this suggest that CERA has become concerned that growing interest in peak oil may produce legislation or government policies that could hurt the business plans and outlook of its clients who are following its consulting advice? Has the election of a Democratic Congress hastened the timing of these new rules and regulations? If so, then expect to see more CERA studies refuting peak oil as its momentum appears to be gaining steam.

OPEC’s Dilemma: Is \$40 Oil Next?

Based on the forecast, the call on OPEC crude oil is projected to decline to 28.2 million barrels per day (b/d) from the 28.9 million b/d estimated for 2006

We spoke at a private equity investor conference in Norway the week before Thanksgiving. Also on the program was an analyst with OPEC who is involved in forecasting non-OPEC supply for the Secretariat. Since the presentation has not been distributed we cannot make it available to our readers, but based on what we saw, we were left with the feeling that the outlook for OPEC through the rest of this decade will be challenging at best and bleak at worst.

The conference was held on the same day that the November OPEC monthly report was issued. In reviewing that report we looked at the 2007 forecast for global oil demand and non-OPEC oil and OPEC NGL supply. Based on the forecast, the call on OPEC crude oil is projected to decline to 28.2 million barrels per day (b/d) from the 28.9 million b/d estimated for 2006. Within the 2007 forecast there is a challenge for OPEC. Demand for OPEC oil in the second quarter of 2007 is projected at 27.1 million b/d down from 29.3 million b/d in the first quarter. That quarterly change is 2.2 million b/d, which is a huge quarterly change. For example, between the first and second quarters of this year, the call on OPEC oil only fell by 1.5 million b/d. If not managed properly, a glut of oil in the spring of 2007 could undermine commodity prices for the balance of the year.

The more ominous issue for OPEC appeared in several of the presentation slides. One slide depicted the annual world oil demand growth historically from 2000 to 2005 with the OPEC forecast through 2010. Also displayed on the graph was the range of demand forecasts from the IEA and other oil market analysts. The annual range of these other forecasts was considerably above OPEC’s forecasts. As a result, one has to be concerned about the impact of growing OPEC and non-OPEC oil supply in response to the era of high oil prices.

OPEC is forecasting 1.8 million b/d growth in 2007 and 1.4 million b/d in 2008

OPEC is looking for annual non-OPEC oil supply growth to average 1.2 million b/d per year for the second half of this decade. But more ominous is that OPEC is forecasting 1.8 million b/d growth in 2007 and 1.4 million b/d in 2008. These supply increases are well in excess of OPEC’s global oil demand forecast. If economic activity proves weaker than OPEC is assuming and/or non-OPEC supply growth is greater, then world oil prices will be under pressure.

According to the forecast, OPEC will not be called upon to supply more oil in 2008 and 2009 than will be needed in 2007

The last chart with an ominous message for OPEC was one that showed the required call on OPEC crude oil over the 2000 to 2010 period. According to the forecast, OPEC will not be called upon to supply more oil in 2008 and 2009 than will be needed in 2007. In fact, the forecast calls for the upper end of the annual projection to be the 2007 forecast, or in other words, no growth for OPEC. The 2010 projection does show an increase in the call on OPEC crude oil, but little more than it supplied in 2006.

OPEC appears to be more pessimistic about global economic growth and its impact on energy demand growth

Now we get to the glass half empty or half full debate. If the OPEC forecast through 2010 proves correct, then the world's supply cushion should build, thereby reducing concern about the impact of supply disruptions causing serious oil shortages. That means the risk premium in current crude oil prices should shrink. Additionally, if the OPEC forecast is correct, then the recent agreed to reduction in OPEC supply needs not only to be implemented, but strictly adhered to also, otherwise oil prices will be under substantial downward pressure from current levels.

The critical issues with the forecast, as with all forecasts, are the assumptions about demand growth and non-OPEC supply growth. OPEC appears to be more pessimistic about global economic growth and its impact on energy demand growth. They point out that the largest component of demand growth, and the most consistent, has been transportation fuel. Here they comment on the possibility that historical relationships are shifting. How fast and how much they may change is unknown, but we found this observation intriguing. They also keep mentioning the growth of ethanol-based transportation fuel volumes.

OPEC is facing serious challenges for the balance of the decade

OPEC's supply growth assumption depends upon its accuracy in forecasting critical issues such as the timing of the startup and buildup of new crude oil supplies as well as the rate of decline in production in mature fields due to depletion. When we questioned the presenter about production decline rates and depletion, the answer reflected the complexity of those subjects and demonstrated a sophisticated knowledge about them. We were told that OPEC does both top down regional analyses and bottom up forecasts to help establish the impact of these trends on the supply forecast.

Our take away from the presentation was that OPEC is facing serious challenges for the balance of the decade. We were reminded of the forecasts about non-OPEC oil supply growth and the impact on OPEC that were offered in the 1980s. Those forecasts showed how non-OPEC supply would grow for the foreseeable future, but then that growth would stop and all subsequent oil demand growth would have to be met by OPEC. For the past several years we have lived with similar long-term oil market forecasts. But as OPEC knows, the long-term is made up of many short-term periods. Getting through these short-term periods is probably more important than worrying about the long-term at the present time.

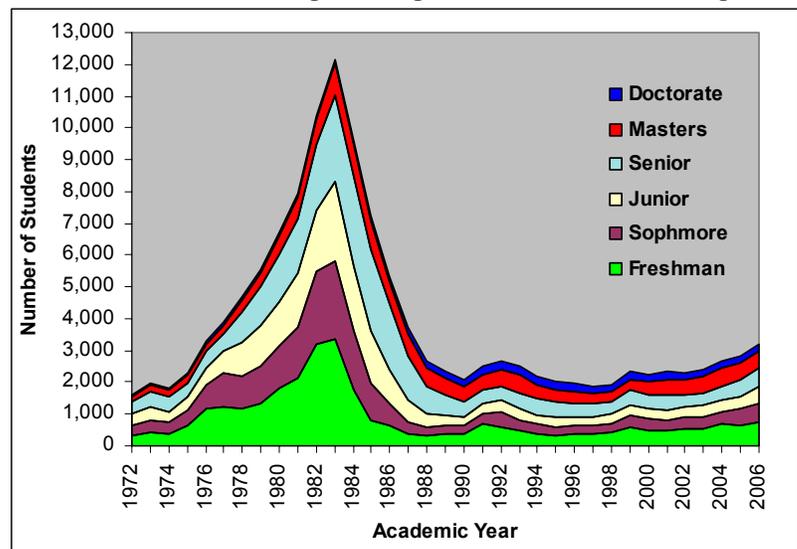
Petroleum Employment Trends Encouraging

One of the most important challenges for the petroleum industry over the past decade has been figuring out where the future brainpower to drive the business will come from. The cyclical nature of the petroleum industry, coupled with intense focus by producers on costs in recent years, has led to multiple restructurings and employee downsizings. Each time the turmoil hit the industry, talented employees were let go. The dismal industry 20-year environment spanning the 1980s and 1990s caused students to avoid petroleum engineering careers. As a result, the petroleum industry is now faced with a shortage of highly educated workers.

High oil prices and improved petroleum fortunes have begun to boost petroleum engineering enrollment

The good news is that high oil prices and improved petroleum fortunes have begun to boost petroleum engineering enrollment. Statistics for students enrolled in petroleum engineering programs in the United States compiled by Dr. Lloyd R. Heinze of Texas Tech University and the Society of Petroleum Engineers are showing a decided upward trend. Unless the petroleum industry crashes, which appears unlikely, the improved career outlook and high wages should continue to attract new students. As analysts and managements said when the hand-wringing about the shortage of employees began, give it time and money and the problem would be corrected. The new data would appear to suggest the correction is underway.

Exhibit 2. Petroleum Engineering Students Are Returning



Source: Texas Tech, SPE, PPHB

Oil Industry and Bill Clinton Make Strange Bedfellows

A recent *Wall Street Journal* (WSJ) column on advertising carried a story about a new public relations campaign the American

The campaign is designed to “educate” consumers and policy makers about how the energy industry works

Petroleum Institute (API) is about to launch designed to improve the poor image of the oil business. While the column was focused on the work of the lobbying and market-research firm hired, a few of the beliefs underlying the rationale for the campaign appear somewhat naive – at least in our opinion.

In January 2007 the API will launch its first-ever major advertising campaign. The campaign is designed to “educate” consumers and policy makers about how the energy industry works. That’s a good start, but we suspect that there are many oil industry employees who don’t understand how their industry works. Additionally, the advertising campaign is designed to persuade policy makers, i.e., politicians, that today’s high energy prices are due to the lack of significant spare global oil production capacity rather than from a conspiracy among the oil companies. That may be more important given a new Associated Press study on the performance of the domestic oil industry showing it drilled fewer wells, grew oil inventories slower and expanded gasoline supply less during 1999-2006 compared to 1992-1999.

The WSJ columnist had attended an oil-industry conference recently where Jean Statler of Wirthlin Worldwide, a unit of Harris Interactive, Inc. (HPOL-OTC) and the firm hired to mastermind the effort, talked to the members about the advertising campaign. According to the article, she told the assembled oil men that the industry’s image was “in a free-fall.” Moreover, she said that, “Things are really as low as they’ve been in a long-time – maybe ever.” While we aren’t so sure about that characterization, we will give her a pass in using hyperbole to make her point. We wonder what the image of the industry was during the Tea Pot Dome scandal days, or when the government was breaking up the Standard Oil Trust. In more modern times, the oil industry supposed-conspiracy of keeping fully-loaded oil tankers off New York Harbor until gasoline prices went up during the early 1970s must be considered a low-point for the industry’s image. You can add to that list the unpopular view of the LoVaca Gas Gathering Company, the subsidiary of Oscar Wyatt’s Coastal Corp. that oversold its natural gas production to South Texas cities and utilities and then couldn’t deliver the supply leaving consumers scrambling for high-priced gas, which produced one of the largest U.S. bankruptcies in the early 1970s.

The biggest problems the oil industry usually has to confront are supply and price disruptions caused by meddling politicians and regulators

The truth is that the biggest problems the oil industry usually has to confront are supply and price disruptions caused by meddling politicians and regulators. Whether it was the gasoline rationing schemes of 1973-75 or the logistical challenge of handling the change-over following the introduction of ethanol as a replacement gasoline additive for MTBE, poor data or a lack of understanding of the requirements of different fuels has created shortages and spikes in retail gasoline prices. The resulting consumer backlash is always directed at the oil companies or, in some cases, the poor clerks at the stations.

What she was saying is that oil and gas companies need to move beyond the oil and gas business and into alternative fuels if they want to improve their public image

The WSJ advertising column was written to showcase the opportunity for the API to change its image if the campaign performs as well as others undertaken by Wirthlin. The article pointed to past Wirthlin successes with industry groups such as the American Plastics Council efforts to block anti-plastics legislation, and the bread industry's efforts to forestall an adjustment by U.S. government health agencies in bread's location within the food pyramid that would have reduced the recommended number of daily servings to be eaten. Possibly the biggest consumer attitude change was the result of the dairy industry's milk campaign – Got Milk? Ms. Statler admits that oil presents a “much bigger challenge” than plastics, bread or milk.

What was most disturbing, yet enlightening, was seeing Ms. Statler's comments at the oil-industry conference about what the companies should be doing. She was quoted as saying, “I know and you all know that you're in the oil and gas business. But the fact of the matter is there is just a driving, overwhelming desire for the industry to start diversifying.” What she was saying is that oil and gas companies need to move beyond the oil and gas business and into alternative fuels if they want to improve their public image. So how's that for strategic planning advice?

It is possible that Ms. Statler's advice may have more truth than many in the industry might believe as the recent election results have elevated the “green agenda” of the Democratic Party. Oil company strategic planning will need to factor in an expanded role for environmental policy considerations in light of the climate change/global warming social movement. No one yet knows what that environmental policy will require, but any company that fails to consider the potential that mandated economic and social changes will have on energy consumption and the types of fuels favored will be guilty of corporate malfeasance.

We wonder if ExxonMobil (XOM-NYSE) will incorporate Ms. Statler's advice into its corporate strategy, especially after its new chairman Rex Tillerson repeatedly has said that the company is an oil and gas company. That advice on how to run your business reminds us of what life was like during the eight-year poll-driven-administration of former-President Bill Clinton. The White House polled often and in depth on every conceivable topic in order that President Clinton could know which way the political wind was blowing to not get his hair messed up. What a way to run a country!

We were reminded of the ill-fated strategic moves by Big Oil company managements and the shareholder value destroyed by these diversification efforts in the 1970s and 1980s

In reading Ms. Statler's advice to the oil and gas companies, we were reminded of the ill-fated strategic moves by Big Oil company managements and the shareholder value destroyed by these diversification efforts in the 1970s and 1980s coming in response to the last “bad” time for the business. Does anyone remember Montgomery Ward, or “Monkey Ward” as my mother called it, which certainly altered the public perception of Mobil, or the office equipment, hard-rock minerals and electric motor businesses of then newly-named Exxon? How about the “almost” purchase of Ringling

Brothers, Barnum and Bailey circus in December 1973 by Gulf Oil Corporation? How many people remember that the most profitable part of Boone Pickens' Mesa Petroleum at the time it went public was its cattle feedlot operations?

Could today's oil company public relations challenges be worse than they were in the 1970s?

During that mid-1970s period, we remember having lunch one day with Ken Jamison, the recently-retired chairman of Exxon who lectured us about the long-term future for the company being based on its hard-rock minerals businesses. Given the demise of the oil-market-controlling power of the Seven Sisters coupled with the generally accepted view that the global oil industry had reached its Malthusian growth limits, the outlook for Big Oil in the mid 1970s was not bright. Today's negative outlook for the major international oil companies seems reminiscent of that 1970s view. Could today's oil company public relations challenges be worse than they were in the 1970s? Or are we merely hearing from someone who doesn't know the history. And if the old saying is correct, she may be about to repeat that history.

Energy in the Changing Stock Market Landscape

Several weeks ago *The Wall Street Journal* published an interesting chart of 18 broad industry sectors of the stock market, including oil and gas, ranked by market capitalization at two points in time. The first period was December 9, 1998, when the value of the stock market was \$11,263.9 billion and crude oil was fetching \$11.16 per barrel. The second time was November 10, 2006, when the market was worth \$15,738.4 billion and crude oil was trading on the NYMEX at \$59.59.

The chart was designed to show how the oil and gas sector was valued within the stock market at these high and low prices for crude oil

The chart was designed to show how the oil and gas sector was valued within the stock market at these high and low prices for crude oil. Oil was cheap in 1998 as a result of the fallout from the Asian financial crisis that caused a collapse in economic growth in the region and a subsequent drop in demand for all natural resources including crude oil. The demand drop coincided with OPEC's decision to boost its oil output to meet the seemingly insatiable demand for energy in the region.

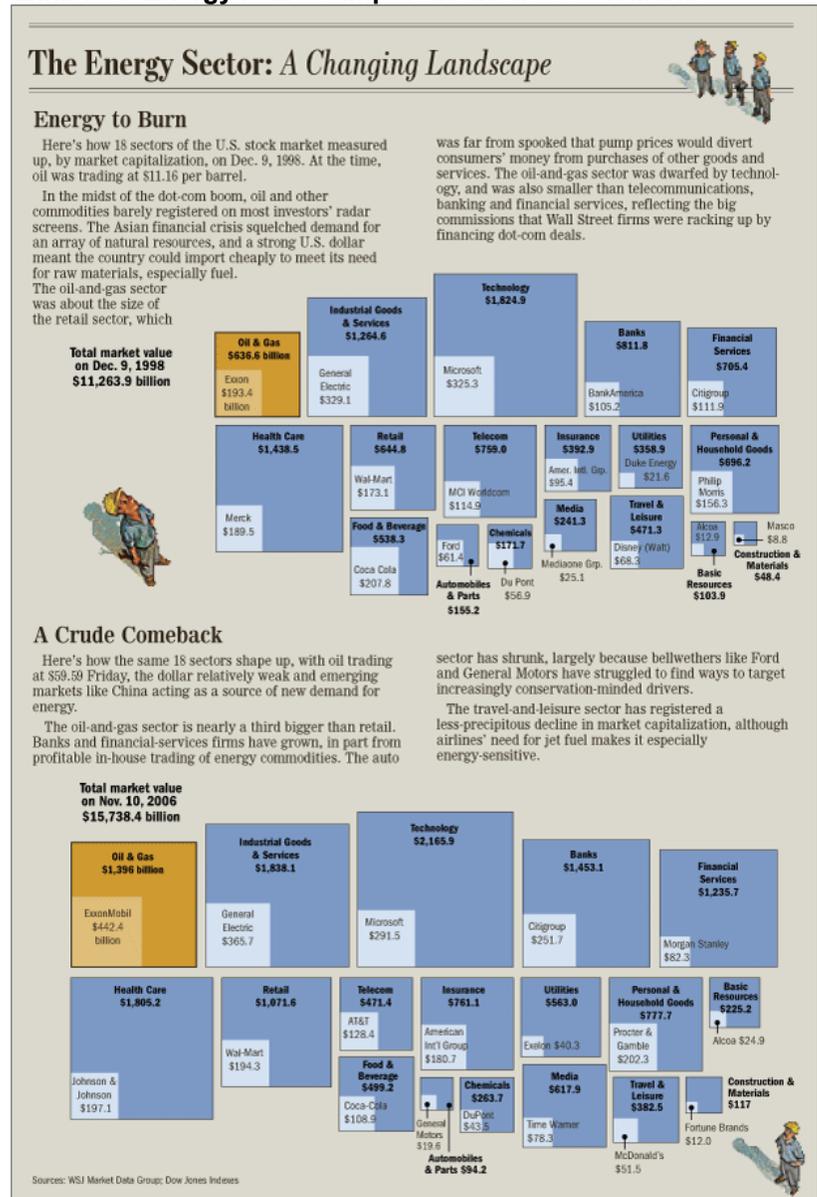
In 1998, there were eight market sectors that were larger than oil and gas, although the retail sector was very similar in size. Between 1998 and 2006, the value of the stock market increased by 39.7%, while oil and gas expanded by 119.3%. Both technology and health care, the two largest market sectors in 1998, grew by less than the overall market (+18.7% and +25.5%, respectively). The retail sector that was about the size of the oil and gas sector grew over this time period two-thirds faster than the overall market.

Now only four stock market sectors are larger than oil and gas

In 2006, the impact of high energy prices had boosted the value of the oil and gas sector to almost \$1.4 billion from the \$637 million of eight years earlier. Now only four stock market sectors are larger than oil and gas. During this period of market growth, ExxonMobil

(XOM-NYSE), the largest company in the oil and gas sector, grew in value more than the sector (+128.8%) and increased its significance within the industry sector from 30.4% to 31.7%. This greater relative performance within the oil and gas sector may be reflecting that many investors are seeking industry representation via the most easily traded name in the sector. However, ExxonMobil's financial performance, dividend growth and current yield have made it an attractive investment despite the fact the company is seen as conservative, risk-averse and even stodgy.

Exhibit 3. Energy Is More Important in the Stock Market



Source: *The Wall Street Journal*

The increase in the value of the oil and gas sector expanded its market share from 5.7% to 8.9% now

It was also interesting to see the change in relative importance of the oil and gas sector in the stock market over time as compared to other stock market sectors. The increase in the value of the oil and gas sector expanded its market share from 5.7% to 8.9% now. The two largest 1998 market sectors, technology and health care, which were number 1 and 3 in size in the 2006 market, saw their share of the pie decline from 16.2% to 13.8% and from 12.8% to 11.5%, respectively. The retail sector, which was about the same size as the oil and gas sector in 1998 but now about 30% smaller, saw its relative share of the market expand from 5.7% to 6.8%.

Even with the softening in oil prices and growing investor concern about slowing U.S. economic activity, energy investments appear to be rallying as we head into the winter energy demand period

The performance of the oil and gas sector over this time period was certainly helped by the sharp rise in crude oil and natural gas prices and the resulting investor clamoring for participation. What would have been interesting is to have seen displayed the same stock market data as of last spring when energy and commodities prices were roaring ahead spurring talk of \$80 and \$100 per barrel oil. Even with the softening in oil prices and growing investor concern about slowing U.S. economic activity, energy investments appear to be rallying as we head into the winter energy demand period. Enjoy the ride as 2007 could prove more challenging than this year has been.

The IEA Meets the Wizard of Oz

Venezuela claims it produces about 3.3 million b/d of oil

A week ago Sunday, Venezuela's state oil company, Petroleos de Venezuela SA (PdVSA), issued a press release about its oil production and to "alert public opinion about figures from secondary sources, like the International Energy Agency (IEA), whose figures are clearly incorrect." Venezuela claims it produces about 3.3 million b/d of oil, but most outside sources, including the IEA, the U.S. Energy Information Agency (EIA), OPEC and various tanker reporting services, put actual production closer to 2.5 million b/d.

So why has this debate surfaced again? It may be due to the upcoming presidential election in Venezuela scheduled for December 3. Or, it may be due to the struggle OPEC appears to be having in implementing its October 20 agreed-upon production cut. Which explanation is correct is really immaterial.

PdVSA says that to clear up the discrepancy, it has invited IEA officials to come to Venezuela to review the figures

The PdVSA press release responded to critics of its oil resource management denying any mismanagement and reaffirming its goal of doubling oil production by 2012. PdVSA says that to clear up the discrepancy in the oil production figures, it has invited IEA officials including Executive Director Claude Mandil to come to Venezuela to review the figures.

According to PdVSA, "As of now, these invitations have not been responded to, which demonstrates the lack of will to arrive at the bottom of this matter." Lawrence Eagles, head of short- and medium-term oil market analysis at the IEA, acknowledged that "there has been a divergence between official Venezuelan data and

data that is used by a large proportion of the analytical community.” The discrepancy amounts to about 1 million b/d. Mr. Eagles said that the IEA “would be interested to see the comprehensive data, which shows us exactly where this discrepancy comes from.” He said he was not aware of any official invitation to review the Venezuelan data, but he mentioned that the IEA had visited Venezuela a few months ago for an energy statistics workshop aimed at improving the quality of reserves and production data from South America.

If the IEA has a bias, it would appear that they would be inclined to overstate oil supplies

PdVSA continues to claim that the IEA has a vested interest in deliberately underestimating Venezuelan oil production, although the logic of why is unclear. The IEA was established in 1974 following the oil embargo of certain western countries after the 1973 Arab-Israeli War. The IEA is the energy-policy advisor for its 26 member countries including most of the OECD countries. It is charged with helping these countries manage their oil supplies including the coordination of the release of supplies from the various member strategic oil reserves in the event of a global oil supply shortage. If the IEA has a bias, it would appear that they would be inclined to overstate oil supplies to try to convince the global oil market to lower oil prices that would help boost economic growth in the member countries and minimize their balance of trade issues.

Now if the IEA’s figures provide ammunition for the political opponents of Hugo Chavez, then one can see why PdVSA makes the claim about the IEA’s vested interest in underestimating oil production. According to the November 11, 2006, issue of the *Economist*, the political opposition to Mr. Chavez in the upcoming election has finally organized and is mounting a much stronger political campaign. No one is expecting the opposition to win, but a strong showing could solidify future opposition and make Mr. Chavez’s tenure more difficult.

As the oil industry recovered from the strike, government critics, mostly former PdVSA employees, began to point out how oil production growth was lagging

The debate over the correct Venezuelan oil production figure started following the oil workers strike in 2002-2003. In 2002, the Venezuelan economy fell into a recession that many blamed on the leadership of President Hugo Chavez. In late 2002 a nationwide strike commenced and was joined by the PdVSA workers in defiance of government orders not to. The striking oil workers effectively shut down a substantial portion of the country’s petroleum industry limiting domestic and export sales. President Chavez declared the workers’ demands unconstitutional and dismissed about half of PdVSA’s work force. As the oil industry recovered from the strike, government critics, mostly former PdVSA employees, began to point out how oil production growth was lagging against its prior levels, which they attributed to mismanagement and a lack of adequate investment.

The debate with the IEA over Venezuela’s oil production figures became more public earlier this year. In March a special section of the IEA’s monthly report acknowledged that Venezuela’s oil production was close to 3.1 million b/d in 2005. But throughout the

He stated that when the Orinoco oil production is added to the previous production of 2.6 million b/d it equals the officially stated figure of 3.3 million b/d

spring, the IEA continued to use monthly Venezuelan production figures of between 2.6-2.7 million b/d. The controversy over the production figure appears to be rooted in the issue of what types of oil are counted and what ones are not.

In early May, Venezuelan Minister of Petroleum and Energy, Rafael Ramirez, noted the IEA's recognition of the country's higher oil production figure. But he said in an interview with *Union Radio* that the 3.1 million b/d figure included 600,000 barrels of extra-heavy crude oil extracted from the Orinoco Oil Belt, which had not previously been included. He stated that when the Orinoco oil production is added to the previous production of 2.6 million b/d it equals the officially stated figure of 3.3 million b/d.

The information Rafael Ramirez acknowledged helps to explain the challenge analysts have in determining the amount of oil Venezuela is producing. There are all types of oil that can be, and likely are being, counted. They include crude and derivatives such as condensates, natural gas liquids, synthetic crude and Orimulsion. Venezuela's official statistics generally include all of these, while analysts' reports often do not.

Counting Venezuela's oil production is further confused by the growth of synthetic crude oil production

Correctly counting Venezuela's oil production is further confused by the growth of synthetic crude oil production following the oil workers' strike and the restart of the country's production. In 2001, Venezuela only produced about 125,000 b/d of synthetic crude oil as reported by the IEA. However, as cited above, synthetic crude oil production is now running at about 600,000 b/d.

The controversy is also clouded by the fact that Venezuela's Orinoco Oil Belt reserves, from which the synthetic oil is produced, are not counted as part of the country's official oil reserves as reported by OPEC and other databases. OPEC lists Venezuelan total crude oil reserves at 80 billion barrels in its 2005 Annual Report. High global oil prices are making production of this Orinoco heavy-oil more economical. If these heavy-oil reserves were included in Venezuela's total reserves they would lift them to roughly 315 billion barrels. However, one can question how production from Venezuela heavy oil reserves can be counted in the country's production estimates when the reserves are not included.

The 2005 OPEC Annual Report lists Venezuelan oil production at 3.128 million b/d, some 95,000 b/d below the country's official OPEC production quota

According to the IEA's March monthly oil report, "This Report will henceforward include Orinoco heavy crude production in its estimates of Venezuelan monthly crude oil..." The IEA continues to list this footnote in its production tables. But as of the IEA's November Monthly oil report, Venezuelan production was reported at 2.52 million b/d, which included an estimated 595,000 b/d of Orinoco heavy oil production. In contrast, the 2005 OPEC Annual Report lists Venezuelan oil production at 3.128 million b/d, some 95,000 b/d below the country's official OPEC production quota. But in the November OPEC Monthly Report, it reports Venezuelan production at 2.519 million b/d, but attributes the production figure, like all OPEC member production numbers, to third-party estimates.

One would believe that OPEC should be able to command accurate data from its members

One would think that if OPEC reports Venezuela's oil production at over 3.1 million b/d in its annual report, but then uses lower production estimates in its monthly reports and presumably the analyses of the oil market it provides to the oil ministers, PdVSA should take issue with OPEC's estimates. On the other hand, one would believe that OPEC should be able to command accurate data from its members since the organization is trying to help them to maximize their oil revenue, which means keeping production sufficient to supply the market's needs while attaining the highest price possible. If OPEC can't get true production numbers from member Venezuela, then who can? Likewise, rather than charge the IEA with 'deliberately underestimating Venezuelan oil production' why doesn't PdVSA get the accurate numbers to OPEC to report? More and more it appears this controversy is all about the upcoming presidential election.

Consumers Demanding More Efficient Vehicles

90% of respondents expect a resumption of higher gasoline prices in the future

A new survey released by Opinion Research Corporation on November 21, 2006, says that three out of four Americans want Detroit and Washington to impose a 40-miles-per-gallon fuel-efficiency standard on American vehicles. The key findings of the survey, which also focused on attitudes by political affiliation, found that 90% of respondents expect a resumption of higher gasoline prices in the future. More important for the automakers was the finding that 70% of Americans are factoring in anticipated higher future fuel prices in their consideration of the type of new vehicle they may purchase. The respite in gasoline prices does not appear to be changing consumer attitudes toward more fuel-efficient vehicles. About 45% of Americans are now more likely to buy a "hybrid or other fuel-efficient vehicle" than they were six months ago. This compares with 30% who are unchanged in their plans and 24% who are less likely to make such a vehicle purchase.

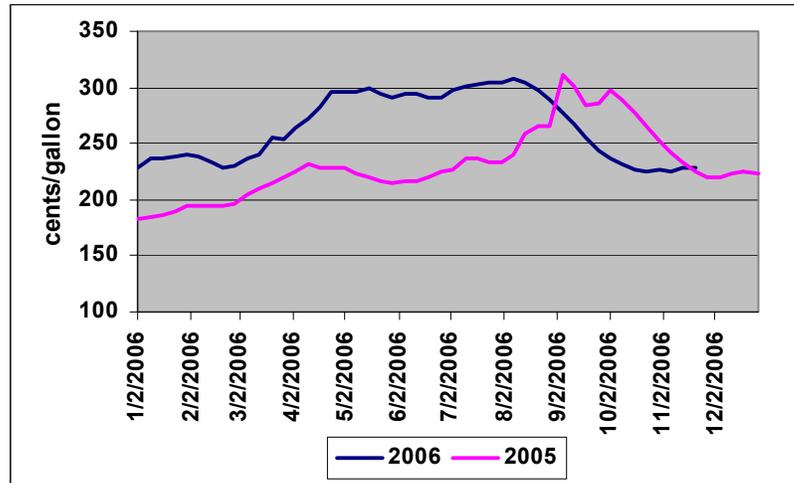
"It's official: Reducing America's dependence on foreign oil through tougher fuel efficiency standards is a bona fide national security issue."

The conclusions from this survey would suggest the nation has reached or passed a tipping point on energy conservation and potentially on climate change and global warming. According to Opinion Research Corp. Vice President Wayne Russum, "It's official: Reducing America's dependence on foreign oil through tougher fuel efficiency standards is a bona fide national security issue." Four out of five respondents agreed with that position, including half who did so strongly.

Our only question is now that gasoline pump prices have retreated from their summer highs, has the shift in consumer attitudes reflected by this survey been cast in concrete? In the past we have seen consumers outraged by sharply rising gasoline pump prices only to relax and return to their profligate energy consumption ways once prices retreated and demonstrated a period of stability at the new, lower price level. For the weekly period ending November 20, 2006, the average retail price for all grades of gasoline was \$2.285 per gallon. Gasoline prices peaked the week of August 7, 2006, at

\$3.083, some three months ago. The latest weekly average price is up from the low for the year (\$2.246) established the week of November 6, and is line with gasoline pump prices at the start of the year when they averaged \$2.281 for the week ending January 2, 2006.

Exhibit 4. Gasoline Prices Are Way Down



Source: EIA, PPHB

What will happen to American consumer and politician attitudes toward energy conservation if we go through a period of several years of lower oil prices?

In this context, we saw an interesting question posed in one of the presentations given during the recent Association for the Study of Peak Oil & Gas (ASPO) seminar in Boston at the end of October. The question was what will happen to American consumer and politician attitudes toward energy conservation if we go through a period of several years of lower oil prices? The results of the Opinion Research poll are encouraging, but we must remember that polls are merely snapshots of attitudes at a point in time. If the phenomena surrounding peak oil, global warming and climate change concerns have carried beyond a tipping point, then we may be presented with a pleasant period (lower oil prices) in which to implement steps to address these issues without significantly disrupting U.S. and global economic activity. On the other hand, if what we are seeing and hearing reflects more emotions generated in response to high oil and gas prices and less from conviction about the seriousness of the underlying causes of high prices, then the respite may produce a backsliding in people's willingness to alter their lifestyles.

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