

PARKS PATON HOEPFL & BROWN

E N E R G Y I N V E S T M E N T B A N K I N G , L P

MUSINGS FROM THE OIL PATCH

December 22, 2009

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 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

Recession Is Over – Optimism Returns To The Oil Patch

The petroleum industry anticipates spending \$439 billion in 2010, up 11% from the \$395 billion estimated to be spent this year

On September 15th, Federal Reserve Chairman Ben Bernanke remarked following a speech marking the one-year anniversary of the failure of Lehman Brothers that the recession was “very likely over.” That view has also been embraced by the global oil and gas industry as revealed in a recent survey conducted by Barclays Capital’s oilfield service team headed by Jim Crandall. According to the results of the survey forecasting global exploration and production (E&P) spending plans, the petroleum industry anticipates spending \$439 billion in 2010, up 11% from the \$395 billion estimated to be spent this year. The gain marks a sharp reversal from the approximately 15% drop in E&P spending endured this year.

Looking back on the past 18 months, the global petroleum industry is likely to be surprised by the accuracy of the projections on the spending drop expected for 2009. Barclays Capital does their E&P spending survey twice a year – at the start of the year and at mid-year – and obviously wraps up the year with its next year survey in December. If we think back to a year ago, the global economy had just been hit by the exploding credit crisis that had claimed Lehman Brothers, led to the fire-sale acquisition of Merrill Lynch by Bank of America (BAC-NYSE), the government bailout of global insurer AIG (AIG-NYSE) and most of the nation’s largest commercial banks and literally shut down credit markets. The financial turmoil underway in the U.S. was also happening everywhere else in the world.

With fears the world was headed for a repeat of the 1930s Great Depression, forecasting oil company E&P spending was an almost impossible exercise

Without access to credit, the economic recession accelerated amid collapsing business and consumer confidence. Global trade plummeted. With fears the world was headed for a repeat of the 1930s Great Depression, forecasting oil company E&P spending was an almost impossible exercise. As a result, last year’s Barclays’

Last week's survey puts the 2009 spending cut at a hair under 15%

survey suggested E&P spending would only fall by slightly under 12%. This was at a time when crude prices had just collapsed from \$147 to \$33 in less than six months. Everyone knew the survey's results included forecasts made by companies either before or early in the credit crisis panic and therefore were likely overstated. By the time of the mid-year survey, those early planners had adjusted their spending and as a result, that survey projected a slightly over 15% cut in E&P spending. Last week's survey puts the 2009 spending cut at a hair under 15%, or completely consistent with the mid-year survey. Clearly the early recovery in global oil prices helped company cash flows this year, which in turn supported a solid level of spending albeit lower than earlier anticipated.

Exhibit 1. Final 2009 E&P Cut Consistent With June Survey

	December 2008 Survey	June 2009 Survey	December 2009 Survey
U.S. Spending	-26.0%	-37.7%	-31.4%
Canadian Spending	-23.3%	-35.6%	-33.0%
International Spending	-6.0%	-5.7%	-6.1%
Worldwide Spending	-11.8%	-15.2%	-14.9%

Source: Barclays Capital, PPHB

Canada's 2010 plans will only restore industry spending to an amount slightly below that spent in 2005

In light of the 2008-2009 environment, one has to view the latest survey results as extremely bullish for the industry. On a percentage basis, the largest gain in E&P spending will be experienced in Canada where operators are signaling they will spend over 23% more than in 2009. While a nice recovery, 2010 plans will only restore industry spending to an amount slightly below that spent in 2005 and well below spending levels in the 2006-2008 period when the industry averaged slightly over \$28 billion per year.

According to the survey, U.S. E&P spending should increase 11.7% to \$79.5 billion. This is slightly above the amount spent in 2007 and about 25% below the record spending of 2008. (We should note that while the surveys attempt to be complete, they do show variations in the number of companies surveyed due to the dynamic nature of the industry. As a result, making exact comparisons with historic periods is not totally correct, but it is generally correct with respect to trends and magnitudes.)

Exhibit 2. E&P Spending To Rise In All Regions

(\$ in millions)	2010E	2009E	Year-to-Year % Change	Companies Surveyed
U.S. Spending	79,495	71,185	11.7%	197
Canadian Spending	22,847	18,514	23.4%	126
International Spending	337,039	305,072	10.5%	134
Worldwide Spending	439,381	394,771	11.3%	387

Source: Barclays Capital, PPHB

They were surprised by the magnitude of the increase in 2010 U.S. spending plans given the low level of natural gas prices

The Barclays' oil service analysts admitted they were surprised by the magnitude of the increase in 2010 U.S. spending plans given the low level of natural gas prices. In their conference call to review the survey findings, they pointed to a number of major independent producers with large domestic budget increases planned as possibly contributing to a double-dip in the drilling rig count later next year.

A group of 32 national oil companies are projected to boost their spending next year by 15%

International spending next year will be 3.3 times the combined spending in North America

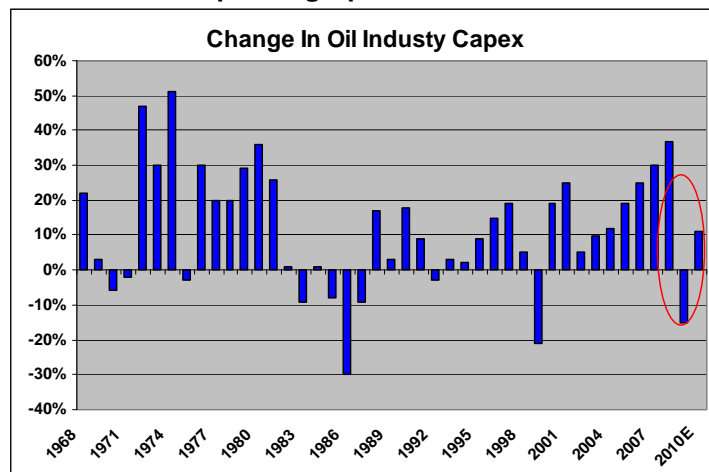
They see heightened risk associated with the planned spending as it will produce greater new supplies that will depress natural gas prices once we are past the winter heating demand period. The surge in gas production these analysts envision from the stepped up E&P spending will depress gas prices making many drilling projects financially uneconomic. Might that then lead to a gas price spike in late 2010 or 2011?

The bright spot for the petroleum industry continues to be international as rapidly growing spending is driven by national oil companies. In their comments, the Barclays' analysts pointed out that in 2010, the six super-major oil company international spending plans are estimated to rise on average by only about one percentage point, while at the same time, a group of 32 national oil companies are projected to boost their spending next year by 15%.

To put into perspective the importance of international markets to overall petroleum E&P spending and the activity and profit levels of the oilfield service industry we only need to compare their relative size. While the U.S. and Canadian markets are targeted for healthy year-over-year increases, the international markets dominate industry spending. The increase in total dollars to be spent internationally in 2010 will be two and a half times the combined spending increases for Canada and the United States. In sheer size, international spending next year will be 3.3 times the combined spending in North America.

When we look at the pattern of spending increases and decreases over a long period of petroleum industry history, we find that this correction looks similar to that experienced in 1999-2000. In that recessionary period, which was driven by the explosion in currency-related economic turmoil in Southeast Asia, petroleum industry E&P spending fell by 21% in 1999 but rebounded by 15% the next year. This time the drop in spending is more moderate – 15% - while the expected spending rebound is also less strong – 11%.

Exhibit 3. E&P Spending Upturn Consistent With History



Source: Citibank, Lehman, Barclays, PPHB

Will the spending pace accelerate in 2010? We hope so, but there appear to be many strong headwinds to be encountered

Is it possible in forecasting their company E&P spending plans that petroleum executives have taken to heart the full text of what Mr. Bernanke said following that September speech? At the time he said, "Even though from a technical perspective the recession is very likely over at this point, it is still going to feel like a very weak economy for some time as many people still find their job security and their employment status is not what they wish it was." In the past 90+ days, Mr. Bernanke's view about the pace of the economic recovery, and its need for more energy supplies, appears to be proving correct. Will the pace accelerate in 2010? We hope so, but there appear to be many strong headwinds to be encountered.

The Significance of ExxonMobil's Buy of XTO Energy

A week ago Monday, Exxon Mobil Corp. (XOM-NYSE) announced it had agreed to purchase XTO Energy Inc. (XTO-NYSE) for \$31 billion in stock and the assumption of \$10 billion of debt. This was judged in energy markets as a significant move by the ultra-conservative integrated oil giant. So why did ExxonMobil make this move and what might it mean for US natural gas and oilfield service markets?

In 1968, CBS anchorman Walter Cronkite went to Vietnam to cover the Tet offensive that ultimately marked the turning point in America's support for the Southeast Asia campaign and the starting point for this country's journey on the road to extrication from the conflict. Upon Mr. Cronkite's return from Vietnam he hosted a 30-minute show about the battle. He began the show saying, "I think that it is time for us to face the facts in Vietnam that we are in a no-win situation and it's time for us to get out." President Lyndon B. Johnson watched the show with his press secretary George Christian and his aide, Bill Moyers. According to Mr. Cronkite's 1996 memoir, *A Reporter's Life*, and quoting Mr. Moyers description, "The president flipped off the set, "Mr. Moyers recalled, "and said, 'If I've lost Cronkite, I've lost middle America.'" Mr. Cronkite was considered the litmus test for support for the war effort and with his comments indicated that the tide of public support had shifted against the government and the president.

ExxonMobil's move to acquire XTO may mark a similar validation of a national trend that being the effort to extract natural gas from the shale formations

ExxonMobil's move to acquire XTO may mark a similar validation of a national trend that being the effort to extract natural gas from the shale formations that underlie many of the oil and gas producing basins in this country, and even around the world. Wall Street was elated at ExxonMobil's buy and analysts and others have waded in with their views of the significance of the transaction. The purchase price represented a 25% premium over what XTO's stock had been trading for before the deal was announced. As a result, XTO's stock price on that Monday traded up nearly 15% to close the gap with the purchase price while leaving room to reflect the risk to the timing of the deal's completion.

In the middle of last week, more details of the transaction were

According to *The New York Times*, there has been only one bill introduced into Congress to address regulation of fracturing under the Safe Drinking Water Act

announced. A condition for closing the transaction is that the U.S. Congress does not pass legislation restricting the application of fracturing technology, which has proven critically important to the harvesting of these gas reserves, in gas-shale formations. Concerns have been raised, especially in the Northeast (Marcellus formation) that some drinking water wells have been contaminated by chemicals used in fracturing gas shale wells. There have been a couple of other claims about water well contamination in Wyoming, but these events appear to be isolated. In the 60+ year history of oil and gas well stimulation by fracturing, there has been no evidence that it contributes to drinking water contamination from the fracturing fluids injected into the formations. The primary reason there has not been a problem is that oil and gas wells are located some distance from drinking water wells and the formations fractured lie much deeper than the aquifers from which the water is drawn. According to *The New York Times*, there has been only one bill introduced into Congress to address regulation of fracturing under the Safe Drinking Water Act. However, Representative Ed Markey (D-MA), chairman of the House Energy and Environment Subcommittee of the Energy and Commerce Committee said that he plans to hold hearings early next year into ExxonMobil's acquisition of XTO. He is particularly interested in examining the environmental concerns related to air pollution and water contamination from hydraulic fracturing. The insertion of this deal-breaking language into the merger agreement more likely reflects concern about the publicity risk from the issue rather than a real fear of banning the use of this technology. Of course, if fracturing were to be banned or its use made subject to greater regulation such that it increased the cost of developing the gas-shale resources, there would likely be a significant stock market revaluation of those oil and gas companies most exposed to the regulations.

One school holds that XTO management don't hold out much hope for significant price improvement in natural gas prices – at least in the near term

There appear to be two schools of thought about the significance of the XTO transaction. One school holds that for XTO management to elect to sell out for only a 25% premium after having rewarded original investors since 1993 with an average annual price appreciation in their share value of 24.3% according to Credit Suisse analyst Jonathan Wolff, means they don't hold out much hope for significant price improvement in natural gas prices – at least in the near term.

Others have suggested that when XTO's probable and possible reserves are included, the purchase price is about \$1.00 per Mcfe

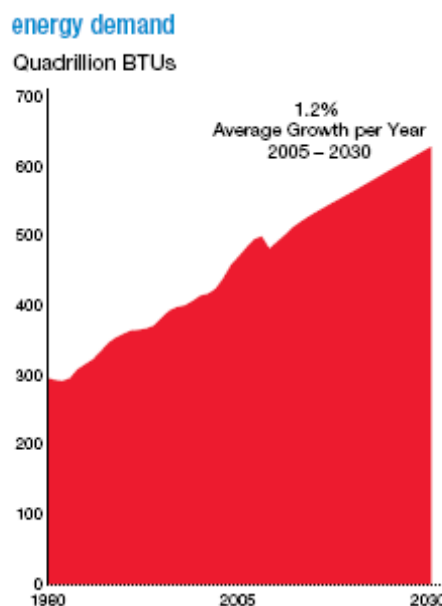
Another analysis suggested that XTO sold at a share price equivalent to \$2.89 per thousand cubic feet equivalent (Mcfe) of proven reserves. That price is more than twice what other U.S. unconventional natural gas reserves on average have sold for this year according to IHS Herold, meaning they earned a significant premium for the shareholders. Others have suggested that when XTO's probable and possible reserves are included, the purchase price is about \$1.00 per Mcfe. Based on this transaction valuation, Morgan Stanley says the transaction price implies a long-range North American gas price of \$7/Mcf, which is interesting given that the 12-month strip price of natural gas futures prices averages about \$5.96/Mcf. But as ExxonMobil Chairman and CEO Rex W. Tillerson

It sees further population and economic growth driving global energy consumption

said, "This is not a near-term decision: this is about the next 10, 20, 30 years." He went on to say in a conference call with investors following the purchase announcement, "We think there will be significant demand for natural gas in the future."

A few weeks ago, ExxonMobil released its latest world energy demand forecast. The company remains bullish about future energy demand growth as it sees further population and economic growth driving global energy consumption. The company is projecting that the world population will grow at an average annual rate of 0.9% per year over 2005-2030. That growth will help drive global gross domestic production (GDP) by 2.7% per year on average. To handle the additional people in the world and the expanded economic activity, ExxonMobil believes total energy consumption needs to grow at a 1.2% annual average rate. This growth suggests that over the 25 year time period, global energy demand will rise by more than 35%.

Exhibit 4. Demand Growth To Recover



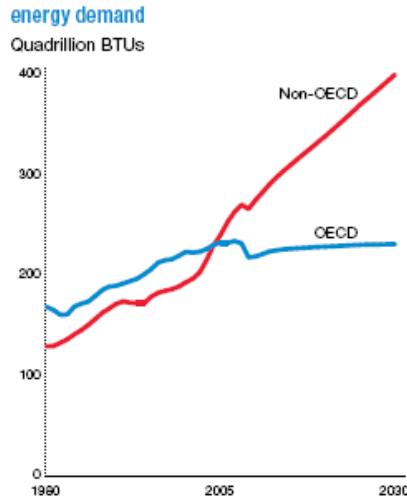
Source: ExxonMobil

The industrialized economies will show no growth or even a decline in energy consumption in the future

The company makes an interesting point in its forecast, which is that the world is undergoing a significant shift in energy consumption. The industrialized economies will show no growth or even a decline in energy consumption in the future. This means all the world's energy consumption increase will come from developing economies. The impact of the shift in global energy consumption patterns is best illustrated by the accompanying chart. As can be seen, as the OECD (industrialized economies) recovers from the energy consumption dip we are currently experiencing, the pace of growth will be very modest. As a result, we will likely never return to the level of our energy consumption in 2007. On the other hand, developing economies (non-OECD) show only a minor dip in energy

consumption in the current recession and then resume a steadily increasing demand growth pattern.

Exhibit 5. OECD Demand Shrinks In Future

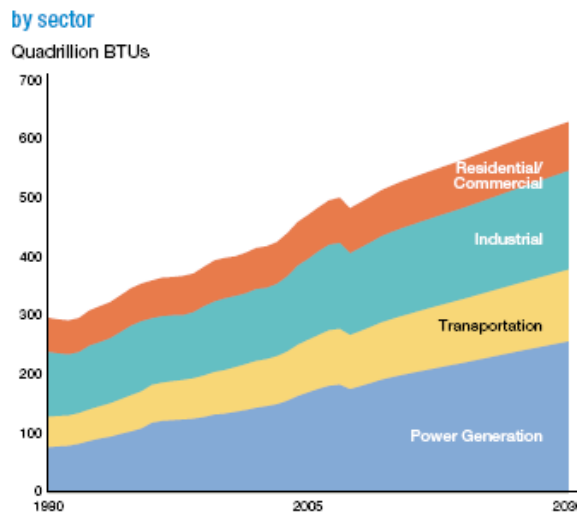


Source: ExxonMobil

Within the four broad economic sectors – residential/commercial, industrial, transportation and power generation – there are significant shifts in demand growth

Globally, ExxonMobil expects all economic sectors to show increased energy consumption. Within the four broad economic sectors – residential/commercial, industrial, transportation and power generation – there are significant shifts in demand growth. Power generation shows the fastest growth even though it begins as the largest energy consuming sector. Transportation shows a relatively healthy increase, albeit in the face of determined efforts to improve vehicle efficiency and reduce fuel consumption growth. Residential/commercial shows the smallest growth rate over the forecast period with industrial demand growing significantly faster.

Exhibit 6. All Sectors To Use More Energy

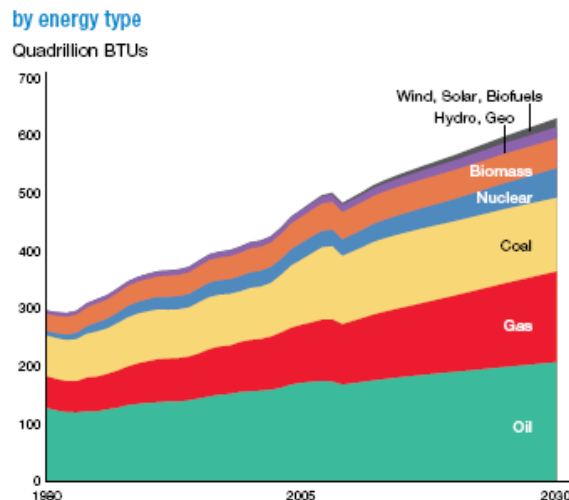


Source: ExxonMobil

ExxonMobil believes the global energy industry will need to develop all sources of supply as a result of the maturing of global oil production, the increased pressure to substitute cleaner fuels for dirtier ones and the shear growth in consumption

The challenge for ExxonMobil and the rest of the energy industry is to find and develop the appropriate energy supplies to best meet this growth profile while doing so at the least cost and with the cleanest fuels. ExxonMobil believes the global energy industry will need to develop all sources of supply as a result of the maturing of global oil production, the increased pressure to substitute cleaner fuels for dirtier ones and the shear growth in consumption. As a result, ExxonMobil's forecast suggests a continued dominance of supply coming from fossil fuels – oil, natural gas and coal – with some help from increased nuclear power and small contributions from renewable power supplies. Within the fossil fuel category, the company believes natural gas will be the primary beneficiary of the macro industry trends.

Exhibit 7. Natural Gas To Gain Market Share



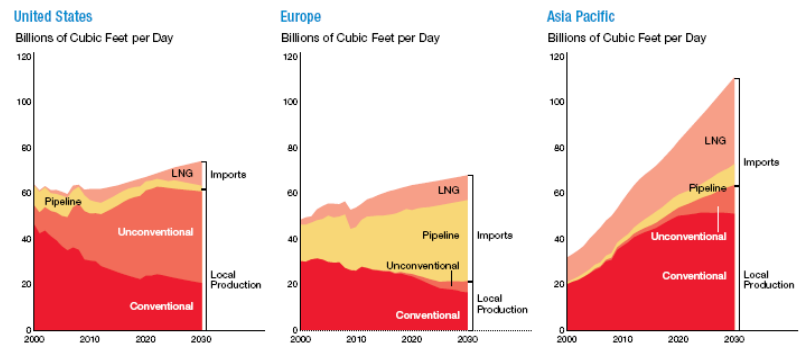
Source: ExxonMobil

Global natural gas demand is projected to rise by over 55% by 2030 compared to 2005

According to the ExxonMobil forecast, it sees natural gas showing the fastest demand growth of all fossil fuels due to it being the cleanest fuel. Global natural gas demand is projected to rise by over 55% by 2030 compared to 2005. When one looks at the forecast charts for natural gas by region of the world published in the ExxonMobil energy outlook, one sees healthy gas consumption in each area with the Asia Pacific region showing the most dramatic growth.

LNG plays a much greater role in the gas supply mix in Asia Pacific and Europe than in the United States

What also is interesting in the gas supply charts is the dramatic growth in unconventional gas production projected for the United States. While both Europe and Asia Pacific show growth in unconventional gas production in their regions, it is more significant for the latter than the former. What is also interesting is that liquefied natural gas (LNG) plays a much greater role in the gas supply mix in Asia Pacific and Europe than in the United States. What is not shown in the ExxonMobil charts are other areas of the world such as the Middle East, Africa and South America where there are potential unconventional gas resources to be exploited and

Exhibit 8. Unconventional Gas Key To U.S. Market

Source: ExxonMobil

natural gas will be exported as LNG. This all plays into the rationale for ExxonMobil's acquisition of XTO.

It is interesting that ExxonMobil plans to incorporate its gas-shale R&D into the XTO office in Ft. Worth and establish it as its unconventional gas business unit

XTO has emerged as the second-largest independent gas producer in this country while trying to stay below the radar screen. It has a large stake in the unconventional gas-shale plays and offers ExxonMobil a solid base of opportunity in this development. Additionally, it offers ExxonMobil the opportunity to bring to bear some of its research and development technology in helping to exploit the gas shale resource and lower costs in the future. It is interesting that ExxonMobil plans to incorporate its gas-shale R&D into the XTO office in Ft. Worth and establish it as its unconventional gas business unit. ExxonMobil has developed some new technologies to help unlock this unconventional gas resource, which it is testing in the Horn River deposits in Canada's British Columbia province. The company has not acquired much acreage in the gas shale plays in the United States, but rather has built stakes in countries such as Poland, Germany and Argentina. We would not be surprised to find that ExxonMobil has additional gas-shale acreage in other countries around the world that have not yet been identified as potentially leading candidates for shale development.

Low natural gas prices may prove to be a problem for many large and small independent gas producers since almost every company swept up in the leasing frenzy of the gas-shale plays is outspending its cash flow

When looking at this transaction, we find it interesting that ExxonMobil was willing to do an all-stock merger that has the potential of diluting the company's earnings per share in 2010, albeit contributing to higher cash flow. Low natural gas prices may prove to be a problem for many large and small independent gas producers since almost every company swept up in the leasing frenzy of the gas-shale plays is outspending its cash flow. They are relying on tapping Wall Street, harvesting prior higher-priced gas hedges, selling assets or finding joint venture partners to help finance the capital needed to advance these gas-shale development projects. For example, the joint venture partners of Chesapeake Energy (CHK-NYSE) have deep pockets to fund the company's drilling work. Another strategy is Devon Energy's (DVN-NYSE) decision to sell its international and offshore assets and concentrate almost exclusively on its North America gas shale assets. We also saw producer, Carrizo Oil & Gas (CRZO-OTC), sell a 12.5%

Has ExxonMobil recognized a problem that may befall the independent gas producers in 2010

interest in 16 Barnett shale drilling units for \$15.7 million to Japanese industrial company, Sumitomo Corp.

Has ExxonMobil recognized a problem that may befall the independent gas producers in 2010 – rapid development of their gas shale leases contributing to weak natural gas prices and premature exhaustion of cash flow and loss of ability to tap outside financial sources causing financial distress? That is not a pretty picture for investors. Could this scenario force a reordering of the domestic gas producer sector? Will ExxonMobil, with its XTO assets, be ahead of the industry curve and better positioned to act as a culture in the chaos that might befall the domestic natural gas industry? The following table shows the impact on ExxonMobil's oil and gas reserve and production ranking after the XTO merger is completed in the first half of 2010.

Exhibit 9. ExxonMobil/XTO Deal Analysis

	Exxon Mobil	XTO	ExxonMobil/ XTO Total	U.S. Total	Share of U.S. Total		
					Exxon Mobil	XTO	ExxonMobil/ XTO Total
Oil and Natural Gas Liquids	(million barrels)				(percent)		
Production	104	26.2	130.2	2,464.60	4.2	1.1	5.3
Reserves	1,644.00	343.3	1,987.30	28,396.00	5.8	1.2	7
Dry Natural Gas	(billion cubic feet)				(percent)		
Production	555	697.4	1,252.40	20,377.00	2.7	3.4	6.1
Reserves	11,778.00	11,802.90	23,580.90	244,656.00	4.8	4.8	9.6

Note: Reserves are at year-end.

Sources: Company information: Exxon Mobil Corporation, 2009 report to the Securities and Exchange Commission on Form 10-K (February 27, 2009); XTO Energy Inc, 2008 report to the Securities and Exchange Commission on Form 10-K (February 25, 2009); U.S. liquids production: Energy Information Administration (EIA), *Petroleum Supply Annual*, Volume 1 (June 29, 2009), Table 1; U.S. natural gas production: EIA, *Monthly Energy Review* (November 29, 2009), Table 4.1; and U.S. Reserves: EIA, *U.S. Crude Oil, Natural Gas, and Natural Gas Liquids Proved Reserves: 2008* (October 29, 2009), Table 3.

Source: EIA

With XTO's acreage position and production profile combined with the conservative ExxonMobil's balance sheet, cash resources and R&D technology, the combined company will be well-placed to exploit unconventional natural gas resources anywhere in the world

One cannot underestimate the potential significance of the impact the XTO/ExxonMobil merger could have on the domestic gas business. With XTO's acreage position and production profile combined with the conservative ExxonMobil's balance sheet, cash resources and R&D technology, the combined company will be well-placed to exploit unconventional natural gas resources anywhere in the world. Regardless of whether domestic gas-shale plays are economic today or in 2010, or whether domestic gas producers run into financial problems down the road, the combined company should be able to solve the puzzle of gas shale formations and enhance ExxonMobil's position for the long-term. The XTO buy could be a major game-changer for the global natural gas industry.

Making Climate Policy With Hidden Agendas

The UN conference on global warming in Copenhagen ended Friday evening with an agreement between the United States and four other important countries dealing with controlling carbon emissions. The agreement was ratified early Saturday morning by the plenary session, although the meeting was characterized as contentious. As

The key tenant of the agreement is that industrial countries must list their individual targets and developing countries must list the actions they will take to cut emissions by specific amounts

every news service characterized Friday's agreement, it even disappointed people who had already had their expectations lowered for what would be agreed to by delegates. According to various news reports, the three page agreement included a \$30 billion promise of emergency aid to developing countries in the next three years. There is also a goal of reaching \$100 billion in annual aid for these countries by 2020 although there were no guarantees. There is supposedly an agreement on a method for verifying the reduction of greenhouse gases (GHG) but no details have been released. The key tenant of the agreement is that industrial countries must list their individual targets and developing countries must list the actions they will take to cut emissions by specific amounts. The agreement said carbon emissions should be reduced enough to keep the increase in average temperatures below 2°C (3.6°F) by 2050. While this appears to be an impressive agreement given the disagreements between industrialized and developing countries, it offers no legally binding treaty, promising only another year of negotiations. It leaves open a myriad of details to be decided in the future.

President Barack Obama called the agreement a "meaningful breakthrough." Some might call it kicking the can down the road. Others were not impressed by the agreement. "The deal is a triumph of spin over substance. It recognizes the need to keep warming below two degrees but does not commit to do so. It kicks back the big decisions on emissions cuts and fudges the issue of climate cash," said Jeremy Hobbs, executive director of Oxfam International, an organization that works with developing countries. This statement highlights just one of the hidden agendas at work in the climate change movement that became highly visible in Copenhagen. Redistribution of wealth from industrialized countries to developing countries was a prime mover behind the Copenhagen meeting.

We have spent time trying to devise a moniker for this group of countries and have settled on ICSABUS (India, China, South Africa, Brazil and United States)

The agreement brokered by President Obama involved four other countries besides the United States. They included China, the globe's number one emissions generating country, India, Brazil and South Africa. We have spent time trying to devise a moniker for this group of countries and have settled on ICSABUS (India, China, South Africa, Brazil and United States). While it does not roll off the tongue as easily as BRIC (Brazil, Russia, India and China), it offers a shortcut for designating the parties behind the climate agreement. (If anyone has a better name let us know.)

One aspect of the negotiations we found interesting was the story about the final day of negotiations when Mr. Obama was in Copenhagen written by *The New York Times*. To quote from the story, "The deal came after a dramatic moment in which Mr. Obama burst into a meeting of the Chinese, Indian and Brazilian leaders, according to senior administration officials. Chinese protocol officers protested, and Mr. Obama said he did not want them negotiating in secret." Brazil's senior climate negotiator confirmed that Mr. Obama had "joined" the meeting, although he did not say that he walked in uninvited. So Mr. Obama is troubled by people negotiating climate

deals behind closed doors, but in Washington he has no problem doing that over health care. A double standard?

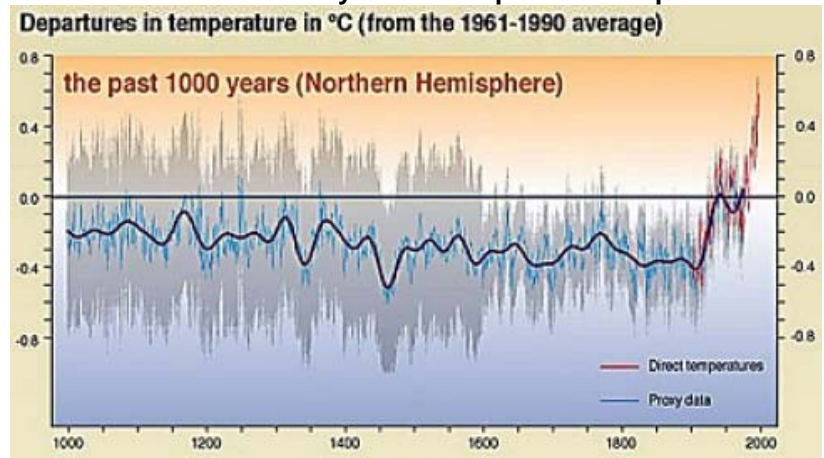
Based on the news coverage of the COP15 conference over the past two weeks, it has become obvious that the hacking of the University of East Anglia's computer server to make available to the public some 1,000 emails and other global warming research data that exposed some of the efforts of climate researchers to distort and hide data from critics did serve to slow the momentum for an agreement about a radical climate change treaty. As questions about the veracity of the science underlying the global warming research were resurrected and climate skeptics were afforded an equal platform with climate change scientists, public support for the radical solutions being proposed to "fix" the global warming problem was eroded.

This was clearly an effort to suppress criticism and to un-level the peer research playing field

While the apologists for the authors of the emails described them as merely engaging in academic bickering, our discussions with several scientists, and reading articles and letters to the editors by scientists, supports a contrary conclusion. This was clearly an effort to suppress criticism and to un-level the peer research playing field. If critical research was prevented from being published in peer-reviewed journals and critics were prevented from reviewing global warming research, one can conclude this was the equivalent of an academic "garbage in, garbage out" program. We do not intend to condemn all the global warming science, but by not allowing it to stand up to critical examination, one has to conclude that flaws, mistakes and errors in the research that supported the party-line were allowed to become acceptable facts.

One of the classic issues exposed by the hijacked emails was Dr. Michael Mann's "hockey stick" chart of global temperatures that created the alarm about how rapidly the planet was warming. That famous chart is presented in the adjacent exhibit.

Exhibit 10. Mann's Hockey Stock Temperature Graph



source: IPCC 2001

Source: IPCC

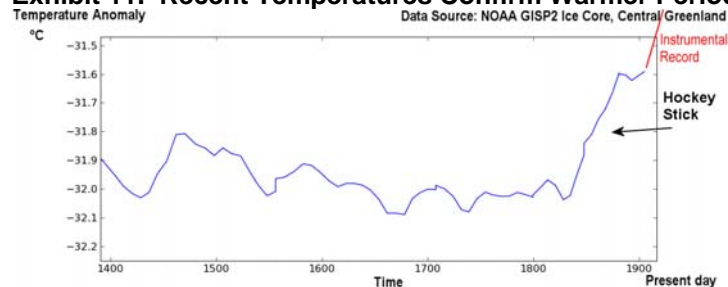
Global warming supporters would have us believe this recent temperature rise is driven by man-made activities (CO2) and that without a radical restructuring of our economy and daily lives, the planet will continue to warm destroying our civilization

What we know about this chart is that recent temperature data was compared against temperature data for the past 1,000 years in the Northern Hemisphere, which was constructed from various alternative sources. The red line on the chart reflects temperature measurements added for the most recent period. The actual temperature measurements show sharply higher and positive changes from the 1961-1990 average compared to the negative and lower temperature changes in 1000-1900. Global warming supporters would have us believe this recent temperature rise is driven by man-made activities (CO₂) and that without a radical restructuring of our economy and daily lives, the planet will continue to warm destroying our civilization.

This data was posted by NOAA on its web site several years ago

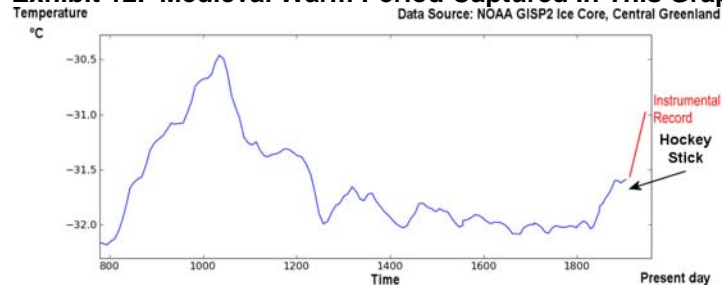
We found the following set of charts that utilize National Oceanic and Atmospheric Administration (NOAA) data derived from ice cores taken in central Greenland. This data was posted by NOAA on its web site several years ago. The ice core data from Greenland doesn't go past 1900 due to problems with measuring recent ice core data. Ice is formed from snow. Young snow requires time to transition into ice through compaction so it is not a reliable temperature indicator for some period of time. Therefore, the creator of the charts elected to add to the ice core temperatures the instrument readings for the last century, or approximately 0.7°C, which is shown in red on each chart. This was exactly what Dr. Mann and the UN's Intergovernmental Panel on Climate Change (IPCC) did for their chart. Each successive graph extends the data series further into the past, which has the impact of significantly altering the relevance of the latest warming period. The data for these charts was not manipulated as in Dr. Mann's so they capture the Medieval Warming period and the Little Ice Age that followed.

Exhibit 11. Recent Temperatures Confirm Warmer Period



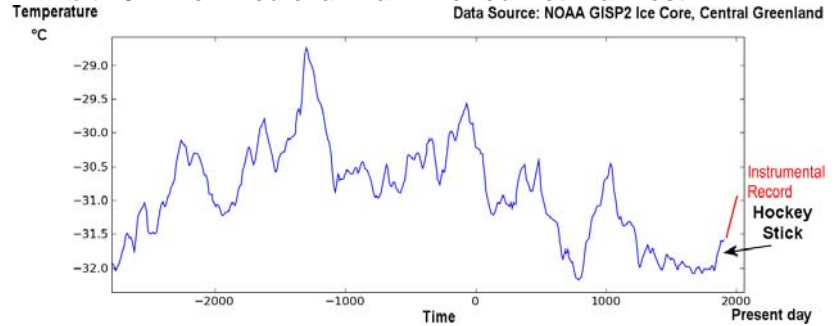
Source: Foresight Institute

Exhibit 12. Medieval Warm Period Captured In This Graph



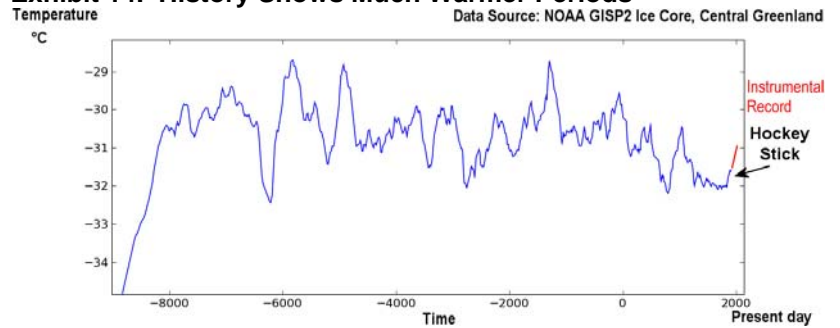
Source: Foresight Institute

Exhibit 13. Even Medieval Warm Period Not Warmest



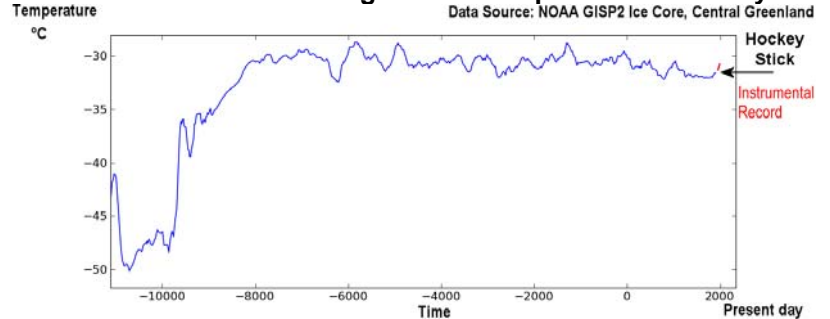
Source: Foresight Institute

Exhibit 14. History Shows Much Warmer Periods



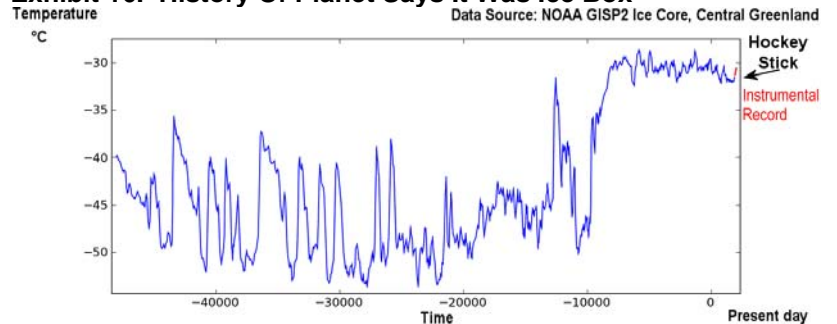
Source: Foresight Institute

Exhibit 15. Current Warming Period A Blip In Planet History



Source: Foresight Institute

Exhibit 16. History Of Planet Says It Was Ice Box



Source: Foresight Institute

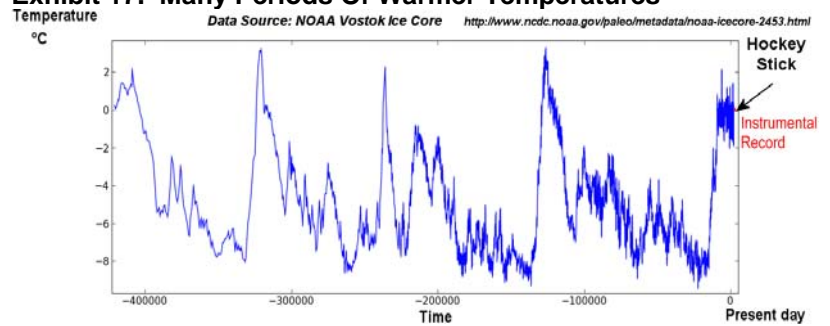
In the past 10,000 years the planet has been in a warmer phase

The data clearly shows many prior periods when temperatures were substantially warmer and man could not have been the cause

When we examine the last temperature chart above, it appears that throughout the planet's history it has been an ice box. In the past 10,000 years the planet has been in a warmer phase. But if one actually constructs a trend line for this period, it shows a downward trend. More important may be that we know there have been major time periods with warmer than current temperatures and higher CO₂ concentrations.

The last chart shows historical temperature data derived from the NOAA ice cores taken at the Vostok weather station in the Antarctic in a joint atmospheric research effort of U.S., Russian and French scientists. While current temperature changes are at a high level, the data clearly shows many prior periods when temperatures were substantially warmer and man could not have been the cause.

Exhibit 17. Many Periods Of Warmer Temperatures



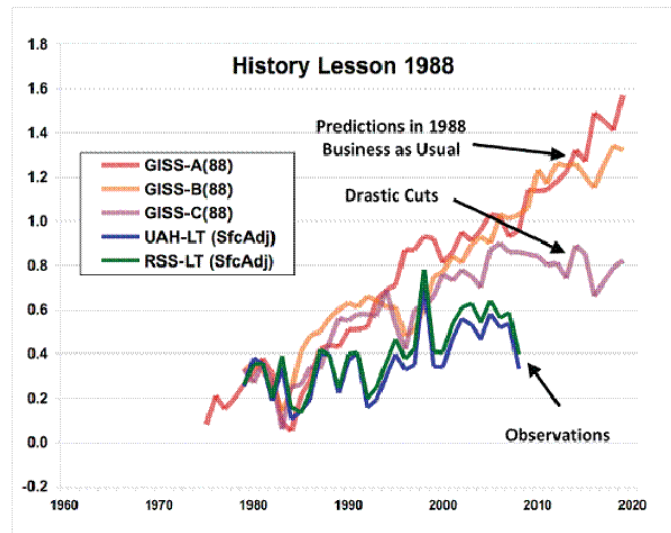
Source: Foresight Institute

In judging the significance of these charts, we found the following chart quite interesting. It was taken from written testimony submitted to the House Ways and Means Committee on Feb. 2, 2009, by Dr. John R. Christy, a professor of atmospheric science at the University of Alabama Huntsville. The chart shows the global temperature projections made by models of James Hansen, the head of NASA's Goddard center and presented to a Senate committee in 1988.

GISS-A and B are "business-as-usual" model projections of temperatures assuming emissions remain similar to what had happened up to that point

GISS-A, B and C are Mr. Hansen's projections of global surface temperatures. GISS-A and B are "business-as-usual" model projections of temperatures assuming emissions remain similar to what had happened up to that point. Model GISS-C is a projection with drastic CO₂ cuts assumed. The UAH and RSS are two independent global satellite atmospheric temperature measurements (1979-2008) adjusted to mimic surface temperature variations. What these two satellite measurements show is a sharp divergence from the projections of the computer models, which were used initially to push the case for action to slow global warming.

Does any of this matter after the Copenhagen agreement? We don't think so. As the expression goes, "the genie is out of the bottle" and while Climategate slowed the global movement to redesign the world's economy, that effort in the U.S. is well underway. To bolster the Obama's administration's dedication to the climate change

Exhibit 18. Hansen's Temperature Projections Way Off Base

Source: Dr. John R. Christy

As often happens in public policy measures, the people who will make money off this EPA action over the next few years will be lawyers

If the government determines that it is necessary to artificially boost ethanol demand by increasing the blending ratio in gasoline from 10% to 15% it will reduce gasoline volumes by roughly 450,000 barrels per day

movement, on the day the Copenhagen conference began, EPA Chairman Lisa Jackson announced that her organization would regulate American industry's CO₂ emissions as harmful to the public health under the provisions of the Clean Air Act as allowed by the U.S. Supreme Court. By stating that the EPA would use its authority to only regulate certain emitters determined by the annual amount of CO₂ released, she is inviting legal action to challenge the ruling. The Clean Air Act is clear that the regulation must address all emitters of whatever emission is being regulated. There cannot be selective enforcement. As often happens in public policy measures, the people who will make money off this EPA action over the next few years will be lawyers.

While the drama at the EPA unfolds, the challenge for the domestic energy industry is to figure out how to operate in a world with no clear rules or guidelines other than the philosophy that fossil fuels are bad, and their owners and producers represent a piggy bank to be tapped to fund government operations. Gasoline demand in this country has likely peaked. If the government determines that it is necessary to artificially boost ethanol demand by increasing the blending ratio in gasoline from 10% to 15% it will reduce gasoline volumes by roughly 450,000 barrels per day. At the same time the federal government is raising the vehicle fleet fuel-efficiency standards and will likely be pushing for a larger percentage of vehicles powered by alternative fuels – electricity and natural gas – that will also trim gasoline demand. Is it any wonder that ExxonMobil finds the gas shale assets of XTO attractive in today's commodity price environment?

We already know state governments have mandated that a certain percentage of the electricity sold in their states must come from renewable fuel sources even if they are nowhere close to being cost-

So for those of us in the energy industry who thought the past 18 months were challenging or harrowing, the next 12 months could be just as exciting or fearful

competitive with power derived from fossil fuels. This will be a big boost for natural gas as the best near-term solution to the rapidly shifting energy demand mix that will remain in a state of flux for some time. Next year is likely to be a critically important year for the energy business as the decks in Washington are cleared of stimulus, health care and climate change issues. Politicians and the Obama administration will be free to move forward on cap-and-trade and other energy measures along with various other social legislation. So for those of us in the energy industry who thought the past 18 months were challenging or harrowing, the next 12 months could be just as exciting or fearful.

Global Warming Solution Is The Electric Car – Britain

This makes Britain the only country in the world to have in place a binding framework for getting its CO2 emissions down

The effort to reduce global greenhouse gas emissions (GHG) has taken, and will take, many forms. In Britain, a year ago, the government enacted a law – the Climate Change Act – that mandates a 34% reduction from the country's 1990 level by 2020. There are three five-year-long budget periods where progress on the reduction can be monitored and actions taken. This makes Britain the only country in the world to have in place a binding framework for getting its CO2 emissions down. Ministers are now legally committed to reducing the UK's GHG emissions.

As result of this slow pace of emissions reductions, the report says that efforts will have to be stepped up

The Climate Change Committee – chaired by Lord Turner of Ecchinswell, who as Adair Turner was director general of the Confederation of British Industry – is engaged in the process of establishing the country's baseline GHG measure and devising the first plan to meet the government's goal. While it has yet to determine the precise CO2 emissions figures for 2008, the committee has already warned in its first report published in October that not enough is being done to reach the government's target reduction figure.

The Climate Change Committee's report proposes a number of radical measures to make even deeper cuts in emissions

The report states, "In the five years before the first budget period (i.e., 2003 to 2007), greenhouse gas emissions were falling at less than 1 per cent annually." As the report also points out, CO2 emissions were only falling at 0.5 percent per year. As result of this slow pace of emissions reductions, the report says that efforts will have to be stepped up. The report stated, "They now need to fall at 2 per cent annually on average in the first budget and thereafter, and 3 per cent following a global deal at Copenhagen." Clearly the report was written when optimism for an agreement at the UN COP15 conference in Copenhagen was higher.

The Climate Change Committee's report proposes a number of radical measures to make even deeper cuts in emissions from homes, transportation and electricity generation throughout Britain. The report says the country's housing stock should be systematically attacked, neighborhood by neighborhood, so that 10 million lofts and 7.5 million cavity walls are insulated by 2015 and 2.3 million solid walls by 2022.

The committee wants to see a national electric charging system built so that 240,000 electric cars can be on the road by 2015 growing to 1.7 million cars by 2020

To reduce emissions from electric power generation, the committee is mandating that two new nuclear power plants be constructed by 2020 along with four coal-fired power plants with carbon capture and storage technology – a yet unproven technology. There are also plans for the country to install 8,000 wind turbines capable of generating 23 megawatts of electricity.

In the transportation sector, the committee wants to see a national electric charging system built so that 240,000 electric cars can be on the road by 2015 growing to 1.7 million cars by 2020. It is estimated that there are approximately 30 million vehicles on the road in Britain, thus adding 240,000 electric vehicles would represent less than one percent of the existing fleet. The government has reported that about one percent of new vehicle sales are electric cars and they are almost totally committed to the London region.

To kick-start the electric car effort, the UK government's Technology Strategy Board has begun a £25 million (\$40 million) ultra-low carbon vehicle demonstration project. Last June the board picked eight innovative, industry-led consortiums and charged them with introducing and testing 340 new electric vehicles (EVs) throughout the country over the next 6-18 months. Last week the teams began rolling out the first of the test vehicles.

One team, the Coventry and Birmingham Low Emission Demonstrators (CABLED), is charged with introducing and testing 110 EVs in the two cities over the next 12 months. Its fleet includes 40 Smart ed cars, 25 Tata Indicas, 25 Mitsubishi i-MiEVs, 10 Microcab hydrogen fuel cell vehicles, five Land Rover Range_e plug-ins and five LTI taxis. Pictured below are some of the vehicles being tested.

Exhibit 19. Mitsubishi's Electric Vehicle For British Test



Source: CarAdvice.com.au

Mitsubishi Motors (MTU-NYSE) has built its first i-MiEV, a zero emissions city vehicle. It made 1,400 for the Japanese market in 2009 and has orders for 1,500 in 2010. European production will

commence later in 2010. The car has a range of 160 kilometers (km) (99 miles), costs under \$2 for a full battery charge and can be fast-charged to 80% of capacity in 30 minutes.

Exhibit 20. BMW EV With Range But Few Passengers



Source: CarAdvice.com.au

The batteries will produce a maximum of 35 kWh giving the car a theoretical range of 240 km (99 miles), but the extra room required for the batteries reduces the car to a two-seater

The MINI E series car built by a consortium of BMW (BMW-DE) and five others has three battery elements with a total of 5,088 cells grouped into 48 modules. The batteries will produce a maximum of 35 kWh giving the car a theoretical range of 240 km (149 miles), but the extra room required for the batteries reduces the car to a two-seater. It is being leased for \$590 a month and a full battery charge will cost about \$2.70. The consortium plans to build 40 of these demonstration cars in the next year.

As the Climate Change Committee issues its annual reports and demands progressively stronger measures to reduce GHG emissions, Britons will be learning more about the cost of EVs. Whether they like them or not, it appears the government is determined that Britons will be driving vehicles such as those pictured above or similar ones. This 'command and control' form of government seems to be what the current U.S. administration wants, also. So watch for an EV coming to your garage soon.

MIMBY Or NIMBY? Wind Energy In Rhode Island

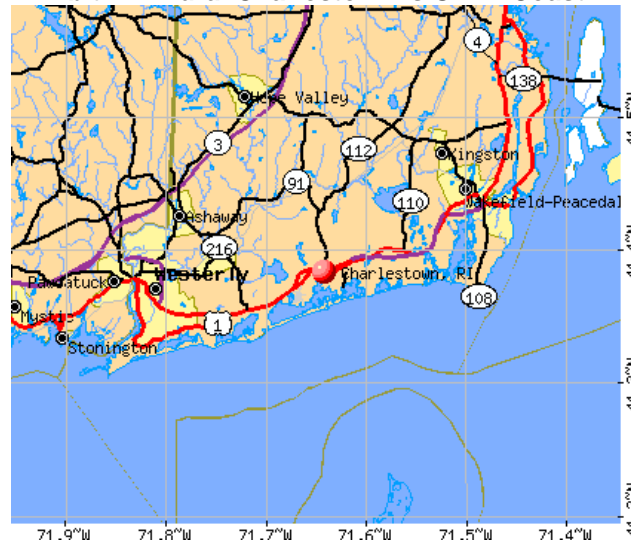
Northeasterners have embraced the “Not In My Back Yard” approach to wind, solar power and LNG terminal developments in the region

Wind power in Rhode Island has received significant attention in the past couple of years as the state has moved forward with plans to exploit its offshore wind resource. Besides that, there are several long-standing wind turbines operating onshore. While many Northeasterners have embraced the “Not In My Back Yard” (NIMBY) approach to wind, solar power and LNG terminal developments in the region as demonstrated by the Massachusetts battle over Cape Wind in Nantucket Sound and the Weaver’s Cove LNG receiving terminal in New Bedford, Rhode Islanders seem to be embracing the “Maybe In My Back Yard” (MIMBY) approach to wind power.

The language of the proposed ordinance required one and a half pages of a traditional newspaper format where pages are roughly 11” x 23” in size

Last September, town officials in Charlestown, Rhode Island, where we have our second home, proposed a new town ordinance that would allow the installation of wind turbines. We remember the publication of the official notice proposing the new ordinance in the local newspapers. The language of the proposed ordinance required one and a half pages of a traditional newspaper format where pages are roughly 11” x 23” in size. As one can imagine there were lots of words covering many specifics about these turbines such as where they could be situated, how large they could be, what color they could be, etc. The proposed ordinance drew considerable debate in the town as citizens anticipated a development to quickly follow any rule enactment. In fact, there was a plan being proposed to go before the Charlestown zoning board that would involve the installation of two wind turbines on a hill.

Exhibit 21. Rural Charlestown Is On RI Coast



Source: Google Map

There is significant division among citizens who favor “no growth” and those that want to see “moderate development” for the town

Charlestown is a town of 8,034 (2008) citizens located in South County, which is in the southwest corner of the state close to the Connecticut state line. It is largely a rural town with numerous farms and woods, but also an extensive shoreline that is drawing a growing population of second-home owners building and renovating homes located near the saltwater ponds that populate the coastal region of the town. Without getting into a discussion about the local politics, suffice it to say that there is significant division among citizens who favor “no growth” and those that want to see “moderate development” for the town. Second-home owners, while having a significant economic interest in the development of the town, are disenfranchised from expressing our views at the ballot box even if it involves the town budget.

One of the political action organizations in town, the Charlestown Citizens Alliance, sent out a 15-question email survey about wind power to its members and received 244 responses. The responses

Some 64% of respondents said they would not be concerned about being able to see wind turbines from the beach or the road

provide an interesting political perspective. There was strong support on the broad questions of clean energy and reducing our foreign oil dependency with 82% and 89%, respectively, considering these issues are very important. Yet on the idea of employing wind turbines to reduce municipal building electricity bills, only two-thirds of respondents voted yes and a quarter said it made no difference.

On the issues of visual and noise pollution from wind turbines the findings were quite interesting. Some 64% of respondents said they would not be concerned about being able to see wind turbines from the beach or the road. That view was reinforced as only 36% responded that they “Do not support” or “Strongly do not support” placement of wind turbines in town if they can be seen from their house. On the other hand, 57% were opposed to wind turbine placement if they can be heard. So noise pollution was more important than visual pollution.

Over three-quarters of the people support the town in hiring a well known consultant to provide guidance on developing wind power in the town

On the issue of the proposal to install two 492-foot tall wind turbines in town, there appears to be no consensus as an almost equal number of respondents supported as opposed the plan. The proposal drew 42% of respondents who either “Strongly support” or “Support” the idea as against 40% who either “Do not support” or “Strongly do not support” it. Interestingly there were 8% of respondents who neither supported nor opposed the idea while 9% said they didn’t know. This is about as even a distribution on a question as one can imagine. While there were pages and pages of comments offered by respondents to the survey and many areas of concern expressed, over three-quarters of the people support the town in hiring a well known consultant to provide guidance on developing wind power in the town. This sounds like MIMBY.

Rhode Island Wind Power Moves Another Step Forward

The agreement calls for a price of 24.4¢ per kilowatt hour (kWh) starting in 2013

Deepwater Wind, the developer of the wind farm to be situated near Block Island offshore the coast of Rhode Island, has reached an agreement for the price for surplus electric power it will sell to National Grid (NGG-NYSE). The agreement calls for a price of 24.4¢ per kilowatt hour (kWh) starting in 2013. The price will escalate at 3.5% per year during the 20-year life of the contract. This contract price marks the third negotiation under the legislatively mandated process for stimulating development of electric power from renewable fuel sources in the state. Because of the failure of the two earlier attempts, the Rhode Island legislature revised the law to clarify exactly how many wind turbines would be involved in this demonstration project and lengthened the timetable for reaching a power price agreement.

National Grid pointed out it was currently paying only 9.2¢/kWh for other power supplies

The first negotiation attempt in early October involved a figure of 30.7¢/kWh that supposedly did not include the estimated cost of the underwater power cable. At the time the negotiations broke down, National Grid pointed out it was currently paying only 9.2¢/kWh for other power supplies coming from nuclear and natural gas-fired

The company is paying slightly over two and a half times its current wholesale gas purchase price

plants. In the second negotiating session in early November, the price was reduced to 25.3¢/kWh but still failed to win approval.

Based on the final agreement and comments from the two parties about the negotiations, getting a price below 25¢/kWh was critical to win National Grid's approval. At that price, the company is paying slightly over two and a half times its current wholesale gas purchase price. We suspect that National Grid's wholesale price is heading higher so that ratio may move closer to two times by the start of the wind farm contract.

It projects that the bill will increase by \$16.20 due to the Deepwater Wind agreement

According to National Grid, the typical Rhode Island family currently pays an annual electric bill of \$957. It projects that the bill will increase by \$16.20 due to the Deepwater Wind agreement. The cost increase reflects the 2.75% markup allowed National Grid under the law. The cost estimate also includes an estimate for the cost of the cable to be installed to ship the surplus electric power from Block Island to the Rhode Island mainland.

There was an 8¢/kWh spread between the prices being discussed by National Grid and Deepwater Wind (30¢ versus 22¢), which supposedly reflected the cable's cost

Deepwater Wind, on the other hand, estimates the annual impact on Rhode Islanders electricity bills will only be \$7 a year. Reportedly the difference between these two cost estimates is the impact of the recovery of the cost of the electric power cable since Deepwater Wind does not know who will be responsible for installing and owning the cable so it did not factor that cost into its estimate. At one point during earlier negotiations, there was an 8¢/kWh spread between the prices being discussed by National Grid and Deepwater Wind (30¢ versus 22¢), which supposedly reflected the cable's cost.

If Deepwater Wind stays on schedule, it expects to be the first offshore U.S. wind farm in operation in 2013

The wind farm will consist of eight wind turbines generating 29 megawatts of power. The project is estimated to cost between \$160 million and \$200 million. We do not know whether the cost spread reflects an estimate of the cost of the underwater power cable. The project is designed to test the feasibility of constructing a larger wind farm with 100 turbines and a capacity of 385 megawatts at a cost of \$1.3 billion. Deepwater Wind believes it needs the demonstration project to substantiate the cost economics of the larger project since it will need to raise substantial funds to construct the bigger wind farm. If Deepwater Wind stays on schedule, it expects to be the first offshore U.S. wind farm in operation in 2013. This suggests that for all the potential of offshore East Coast wind power, it could be a long time before it impacts the nation's electricity supply.

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

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