PPHB
ENERGY INVESTMENT BANKING

MUSINGS FROM THE OIL PATCH

October 11, 2011

Allen Brooks
Managing Director

Note*: Musings from the Oil Patch reflects an eclectic collection of stories and analyses dealing with issues and developments within the energy industry that I feel have potentially significant implications for executives operating and planning for the future. The newsletter is published every two weeks, but periodically events and travel may alter that schedule. As always, I welcome your comments and observations.* Allen Brooks

What The World Needs Now Is Not Love, But A Bio-bike!

The World Health Organization estimates that three billion people cook and heat their homes with biomass (wood, animal dung and crop waste) and coal

One of the newsletters we read included this item in a recent edition. We had a hard time not laughing and felt *Musings* readers need to be aware of a new technology(!) designed to solve not only our environmental issues but our energy supply challenges, too. The humor in this invention is based on sound science – biomass fuel! The World Health Organization estimates that three billion people cook and heat their homes with biomass (wood, animal dung and crop waste) and coal. So who best to package the concept of biomass and transportation but the Korean-based Toto, the world's largest plumbing equipment manufacturer according to its profile on LinkedIn. (We acknowledge Agora Financial.)

"From Japan comes an, er, innovation that truly would have never occurred to us. Near as we can tell, this is not a joke...

"Toto, the nation's biggest toilet maker, is launching the Toilet Bike Neo — a three-wheel motorcycle powered by human waste. "The bike runs on biogas," reports the TreeHugger website, "converted from feces that is harvested directly from the driver — who sits on the bike's toilet-styled seat."

"Is that a giant roll of toilet paper on top?

"Toto is taking the bike on a 600-mile tour of the country, starting tomorrow. One of the stops will be in Nakatsu, home to a boulder that's well known around the country, and uniquely appropriate for the occasion...

"No comment...

"Here's what tipped us off that this is for real: It's a production model only, not destined for the showroom. It's part of Toto's campaign to reduce bathroom CO2 emissions 50% by 2017, in line with the Kyoto climate treaty.

"Best of luck with that...

There is little left to say other than to marvel at the technological innovation of toilet engineers. And we thought toilets were only for flushing things down the drain!

NPC Is Extremely Optimistic About Natural Gas, If…

The message is that North America could become energy self-sufficient, and possibly even an exporter of natural gas

The National Petroleum Council (NPC) produced a draft report in mid September about the potential of North America's energy markets. The report titled: 'Prudent Development: Realizing the Potential of North America's Abundant Natural Gas and Oil Resources' highlights the prolific oil and gas resources available that may dramatically change the trend in domestic energy markets. Although the report has not been officially reviewed by the NPC, which reserves the right to make significant changes to the draft report's conclusions (something we are not aware the NPC has ever done with previous reports), the message is that North America could become energy self-sufficient, and possibly even an exporter of natural gas.

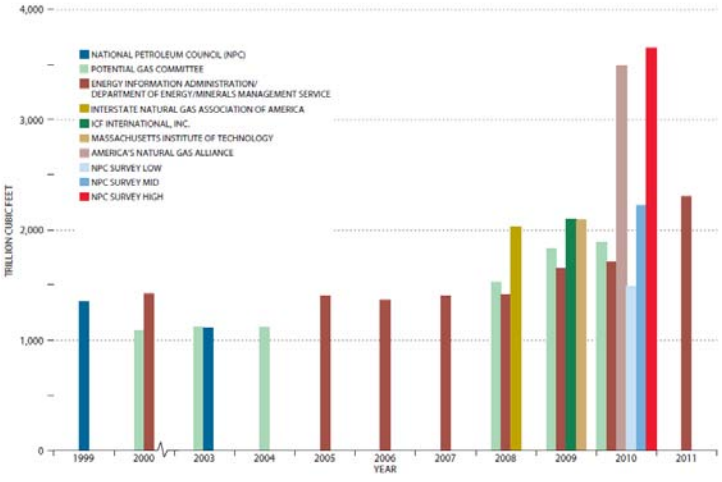
"Realizing the benefits of natural gas and oil depends on environmentally responsible development"

The report contained four conclusions about natural gas and oil and their impact on America's energy future. The conclusions were: 1) "the potential supply of North American natural gas is far bigger than was thought even a few years ago;" 2) "perhaps surprising to many – America's oil resources are also proving to be much larger than previously thought;" 3) "we need these natural gas and oil resources even as efficiency reduces energy demand and alternatives become more economically available on a large scale;" and 4) "realizing the benefits of natural gas and oil depends on environmentally responsible development." It is this latter conclusion that becomes the big "IF" in how America's and North America's energy market evolves.

It is clear that the estimates have increased since the gas shale revolution began

The NPC study's conclusions are based on an analysis of a number of market outlooks and forecasts prepared by others. The NPC did not actually do its own analysis of the market. Based on the assimilation of all these prior studies, the report takes an extremely optimistic stand about the future for the North American natural gas market. The report begins with a review of the growth in estimates of the technically recoverable natural gas resources in the United States over the past 12 years. As shown by a chart of the estimates of the gas resource potential since 1999, it is clear that the estimates have increased since the gas shale revolution began.

Exhibit 1. Gas Shale Revolution Drives Estimates Up

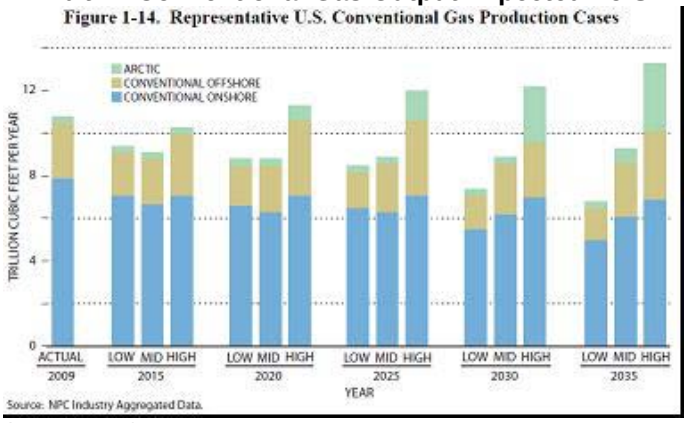


Note: Minerals Management Service (MMS) no longer exists; its functions are now administered by the Bureau of Ocean Energy Management, Regulation and Enforcement (BOEMRE). For a detailed discussion of the survey that the NPC used to prepare these "low," "mid," and "high" estimates, see the Preface.
Sources: Potential Gas Committee; Energy Information Administration; Department of Energy; Minerals Management Service; Interstate Natural Gas Association of America; ICF International, Inc.; Massachusetts Institute of Technology; and America's Natural Gas Alliance.

Source: NPC

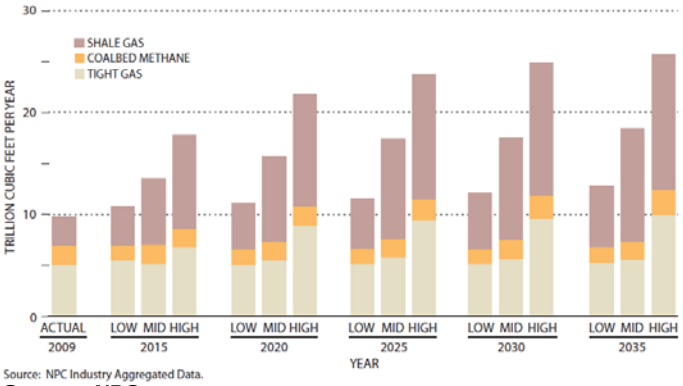
After going through extensive discussion and analysis of the gas shale potential, the NPC looks at future production scenarios for conventional and unconventional gas both in the United States and Canada. We have only shown the charts for the U.S. gas production outlooks. We did, however, produce the chart the NPC study prepared of the range of production outlooks for North America based on three different production scenarios in each country.

Exhibit 2. Conventional Gas Output Expected To Shrink



Source: NPC

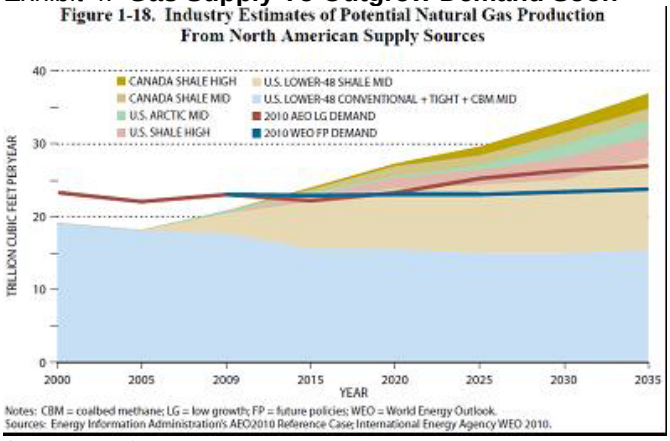
Exhibit 3. Unconventional Gas Production To Grow



Source: NPC

When one looks at Exhibit 4, which contains all the forecasts, there is a clear upward trend for the nearly 25-year outlook period. More

Exhibit 4. **Gas Supply To Outgrow Demand Soon**



Source: NPC

importantly, forecasted demand for natural gas is plotted against supply growth. The plot shows that sometime within the next several years North American natural gas production is likely to outpace demand, a scenario that is projected to continue to the end of the forecast period in 2035. This suggests a limit on how high natural gas prices can rise.

Sometime within the next several years North American natural gas production is likely to outpace demand

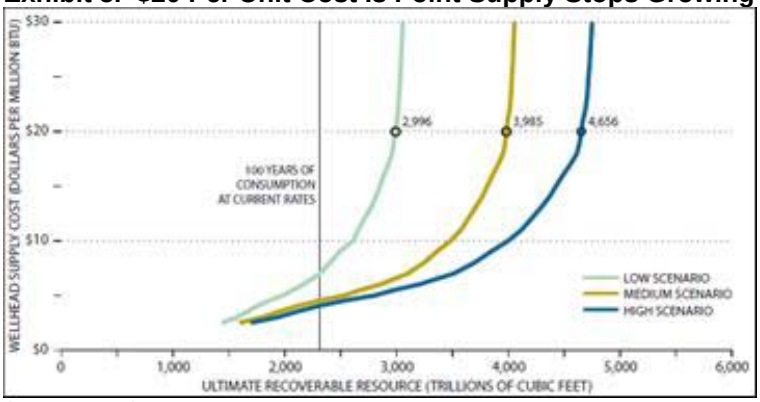
The NPC examined estimates of recoverable gas resources versus the cost of supply at the wellhead. The three scenarios show that there is little additional resource potential added when the cost goes above $20 per million British thermal units. As a result, the study concludes that ultimate recoverable onshore gas resources, including cumulative production to date, range from 3,000 trillion cubic feet (Tcf) up to 4,700 Tcf.

Ultimate recoverable onshore gas resources, including cumulative production to date, range from 3,000 Tcf up to 4,700 Tcf

With a very optimistic outlook for supply, the NPC turns its attention to how long this ultimate recoverable gas supply can meet demand. In order to do that, the study developed three scenarios: flat supply, supply growth and restricted supply and compared each demand scenario against the three potential supply forecasts. In the flat supply, a constant 24 Tcf/year consumption equal to existing production is assumed. Based on that production there will be a plateau extending from five to nine decades.

Based on a constant 24 Tcf/year consumption, production will create a plateau extending from five to nine decades

Exhibit 5. $20 Per Unit Cost Is Point Supply Stops Growing



Source: NPC

In the supply growth scenario, production is assumed to increase by 50% from 24 Tcf/year to 36.5 Tcf/year. The increase takes place over a one decade period. The study projects that after 2020 the supply plateau can be maintained for from two to four decades. The NPC says that should market needs be greater, other supply sources such as offshore gas, Arctic gas or imported LNG would be added to the supply mix to meet the increased demand.

The study projects that after 2020 the supply plateau can be maintained for from two to four decades after a 50% increase in consumption

The restricted supply scenario highlights the "IF" issue. The scenario attempts to analyze the impact of supply restrictions such as limitations on hydraulic fracturing and resource access. In one of the scenarios, extreme limitations such as totally banning the use of

Totally banning the use of hydraulic fracturing; the potential supply plateau would be eliminated entirely

hydraulic fracturing, the potential supply plateau would be eliminated entirely. In the moderate limitation scenario where the restrictions cut unconventional supply by one-third, the plateau would be cut from 80-90 years in duration to approximately 40-50 years. All three scenarios were combined into one chart showing how the North American gas market might develop.

Exhibit 6. Boom Or Bust Can Be Predicted For Gas

Figure 1-57. Comparison of Three Supply Scenarios: Mean Resource Base, Advanced Technology, and 2007 Cost Index

Notes: Year-end 2009 cumulative = 1,095 TCFG.
Sources: Canadian Association of Petroleum Producers; Cedigaz; Energy Information Administration; National Energy Board of Canada; and United States Geological Survey.

Source: NPC

The draft NPC report is extremely bullish about the long-term outlook for North American gas and oil markets

While we have yet to study the report and its appendix in depth, there is little doubt but the draft NPC report is extremely bullish about the long-term outlook for North American gas and oil markets. In effect, the report sees a game-changing outlook for these markets due to the huge shale resource base and the technology to tap it. We will be interested to see whether the final report of the NPC alters any of these conclusions. We also are awaiting critical studies of the report from skeptics of the economics of oil and gas shale developments. In reality, costs and prices for oil and gas will ultimately determine how these markets develop, although further drilling and completion technological improvements could offset any negative impact on the long-term potential for the markets.

How Green Energy Can Be Used To Hammer Business

Without buyer commitments, Cape Wind will have a problem securing the necessary funds to build the wind farm, or at least the one originally proposed

Cape Wind, potentially the nation's first offshore wind power project located offshore Massachusetts, is having a problem finding buyers for all its output. Without buyer commitments, Cape Wind will have a problem securing the necessary funds to build the wind farm, or at least the one originally proposed. The project has battled for nearly ten years to secure federal, state and local approvals to build the 130-turbine wind farm in Nantucket Sound located off the coast of Massachusetts between Cape Cod and the islands of Nantucket and Martha's Vineyard at a cost of $2.6 billion.

Exhibit 7. Cape Wind Farm Location

Source: EIA; *AP*

The reason NStar resisted Cape Wind is that it was able to secure its green-power at less than half the price National Grid is contracted to pay under its PPA.

Since the project gained support from Interior Secretary Kenneth Salazar last year, Cape Wind has successfully negotiated a power purchase agreement (PPA) with the state's largest electric utility, National Grid (NGG-NYSE). The utility has agreed to buy half the output at a starting price of 24-cents per kilowatt-hour. The PPA provides for a 15-year term with a guaranteed 3% per year escalation in the contract price. Once that PPA was approved by the Massachusetts Public Utility Commission, Cape Wind began pursuing other buyers for the balance of its output. The next logical target was NStar (NST-NYSE), the second largest electricity provider in Massachusetts. Unfortunately, NStar demurred signing on to the high-cost offshore electricity, opting instead for multiple power agreements with onshore wind farms. The reason NStar resisted Cape Wind is that it was able to secure its green-power at less than half the price National Grid is contracted to pay under its PPA.

The battle to secure power agreements to enable Cape Wind to begin building its project has now become very political, with rate payers the likely loser. Last year, NStar announced an agreement to acquire Northeast Utilities (NU-NYSE) in a merger. That merger requires the approval of the various regulators in the states where the two companies operate. The merger review, coupled with NStar's reluctance to step up to the bar and help the Cape Wind

project, which is a key green energy target of the current Massachusetts government, has led to interesting questions about the objectivity of the regulators.

Since the merger was announced, regulators have added a requirement that such deals must advance the state's clean energy goals

Since the merger was announced, regulators have added a requirement that such deals must advance the state's clean energy goals, which includes developing offshore wind power. The state also requested to stay the merger approval process until there was a full review of the impact of the merger on rates, which can extend the review for a year or more, and likely beyond the April 2012 termination date of the merger agreement when either party can withdraw without financial costs. That request is still pending.

Republican state Rep. Brad Jones, minority leader in the Massachusetts House called these maneuvers "the great administration shakedown of NStar." Even environmental attorney Robert F. Kennedy, Jr. accused Governor Deval Patrick's (D-MA) administration of "trying to hold hostage the proposed NStar-Northeast Utilities merger unless the two electric companies agree to buy Cape Wind's power." Of course the Kennedy family has vigorously opposed the Cape Wind project, throwing up all sorts of legal and political road blocks along its regulatory approval process.

Utility rate cases are normally the purview of the state's attorney general, but the DER became involved according to Mr. Sylvia because "it's our responsibility to be aware of what the (merger's) impacts are to customers"

The response from Massachusetts Department of Energy Resources (DER) Commissioner Mark Sylvia was that this was not the case. He offered up the view that the state is just upholding the law and protecting the public interest. The Cape Wind project helps the state meet various clean energy goals, including installing 2,000 megawatts of wind energy by 2020. Mr. Sylvia said that the state is now in discussions with NStar about the utility buying Cape Wind's power. When asked whether a purchase would affect the state's decision to pursue the merger stay, he said, "We'd drop our motion to stay, ultimately, if NStar could demonstrate how the proposed merger would result in a net benefit to ratepayers and the commonwealth's clean energy goals." Utility rate cases are normally the purview of the state's attorney general, but the DER became involved according to Mr. Sylvia because "it's our responsibility to be aware of what the (merger's) impacts are to customers."

Under the 2008 law, electric companies in Massachusetts must purchase 3% of their power from renewable sources by 2020

He added that the standard for reviewing utility mergers had to be changed after Massachusetts passed the 2008 law that set new renewable energy goals. He said it just happened that the NStar-Northeast Utilities merger was the first to be reviewed since the law as instituted. Under the 2008 law, electric companies in Massachusetts must purchase 3% of their power from renewable sources by 2020. National Grid was able to satisfy the requirement with its PPA with Cape Wind, although the cost was high and ratepayers will pay more for their power once the wind farm is operational. On the other hand, NStar has already met half the requirement with its three onshore wind power contracts at a considerably lower cost for its ratepayers.

An interesting twist for Cape Wind is that if it cannot sell all its power and raise the necessary money to build the project it could downsize. However, if Cape Wind builds only 110 or fewer turbines, the cost of power for National Grid will be higher, something we doubt they want to see, or regulators for that matter.

What we had in Rhode Island and now have in Massachusetts is government altering long-established rules in order to tilt the economic playing field in favor of offshore wind power developers at the expense of ratepayers

An investment analyst with Morningstar made the point that it would be easy for NStar to appease regulators by buying the power, but that doesn't benefit the customers the regulators are supposed to be protecting. The Massachusetts saga reminds us of the Rhode Island legislature's amendment of the regulation governing PPA reviews of offshore wind power in the state, which specified that the utility commissioners could only consider the employment and environmental benefits of the wind power project and not its cost-impact on ratepayers. What we had in Rhode Island and now have in Massachusetts is government altering long-established rules in order to tilt the economic playing field in favor of offshore wind power developers at the expense of ratepayers who supposedly are the ones to be protected by the regulators. But as an observer of the Massachusetts process put it, "One person's interference is another person's public policy."

Italian Scientists On Trial; Should All Scientists Worry?

The trial finds six scientists and one government official accused of manslaughter in the deaths of 300 citizens of L'Aquila from an earthquake in 2009

Two weeks ago, a trial began in the medieval city of L'Aquila located in central Italy. The trial finds six scientists, members of the National Commission for Forecasting and Predicting Great Risks, and one government official (the vice-director of the Department of Civil Protection) accused of manslaughter in the deaths of 300 citizens of L'Aquila from an earthquake in 2009. When the charges were first aired in June 2010, the case was likened to a frivolous attempt by an

Exhibit 8. L'Aquila In Quake Zone

Source: ***The Guardian***

overzealous local prosecutor to find a scapegoat to satisfy the anger of the local population. The charges aroused a heated reaction from scientists around the world incensed that their fellow scientists were being charged for their inability to predict an earthquake – a science that is known not to exist. The reality is that the scientists are being charged, not because they failed to forecast the earthquake, but because they failed to adequately evaluate and then communicate the potential *"risk"* of an earthquake to the local population causing many of those who died to ignore standard earthquake preparations.

The scientists are being charged, not because they failed to forecast the earthquake, but because they failed to adequately evaluate and then communicate the potential *"risk"* of an earthquake

This case is really about risk assessment and public communication, something that should have all scientists, even social scientists and government officials, worried. L'Aquila is in the middle of one of the most seismically dangerous zones in Italy. The city, the capital of the Abruzzo region, sits amidst massive peaks of the Apennine mountain range. The city was largely destroyed by earthquakes in 1461 and 1703. This earthquake actually began in October 2008 when dozens of low-magnitude tremors hit the city and surrounding areas. The tremors continued intermittently over the first three months of 2009. According to the records, there were 69 tremors in January, 78 in February and 100 in March, with an additional 57 in the first five days of April.

This earthquake actually began in October 2008 when dozens of low-magnitude tremors hit the city and surrounding areas

This series of tremors is referred to as a "seismic swarm" but experts agree that it seldom precedes a major earthquake. A research paper prepared by a now professor emeritus at the Polytechnic of Milan and some colleagues demonstrated that a seismic swarm forecasts a major earthquake within several days about 2% of the time. In the case of L'Aquila, however, there was a wild card in earthquake predicting – Giampaolo Giuliani, a local resident with a 40-year career as a laboratory technician including 20 years at the nearby Gran Sasso National Laboratory. Mr. Giuliani had deployed four home-made radon detectors throughout the region. The idea behind measuring radon is the belief that the emissions of the gas fluctuate significantly in the 24 hours before an earthquake. A recent review of his findings by the International Commission on Earthquake Forecasting (ICEF) dismissed them as "unsatisfactory" and he has yet to publish a peer-reviewed paper on the technique. However, news of Mr. Giuliani's work and forecasts was scaring the locals. On March 30th, national civil protection officials cited Mr. Giuliani for essentially instigating public alarm or panic and ordered him to cease making pronouncements. That same day L'Aquila was hit by a magnitude 4.1 shock.

A research paper demonstrated that a seismic swarm forecasts a major earthquake within several days about 2% of the time

For months Italian seismologists had been monitoring the tremors in the Abruzzo region and notifying civil protection officials of every tremor with a magnitude greater than 2.5. In response to the growing nervousness of L'Aquila citizens, Guido Bertolaso, head of Italy's Department of Civil Protection, decided to convene an unusual meeting of the risks commission. The commission normally meets in Rome to assess the probability of earthquakes, volcanoes

and other natural disasters, but this meeting was called for the next day in L'Aquila. The goal of the meeting, according to a press release from the agency, was to furnish citizens in the Abruzzo region "with all the information available to the scientific community about the seismic activity of recent weeks."

The commission meeting was convened on the evening of March 31st, and was unusual in that a number of local government officials and other non-scientists attended what is traditionally a private meeting. During the one-hour meeting, the six scientists assessed whether the seismic swarm could be a precursor to a major earthquake such as the one that had destroyed the city in 1703. Enzo Boschi, then-president of Italy's National Institute of Geophysics and Volcanology in Rome, said, according to meeting minutes, "It is unlikely that an earthquake like the one in 1703 could occur in the short term, but the possibility cannot be totally excluded." He later said that "the point of the meeting was to calm the population. We [scientists] didn't understand that until later on."

Enzo Boschi said, according to meeting minutes, "It is unlikely that an earthquake like the one in 1703 could occur in the short term, but the possibility cannot be totally excluded"

Two members of the commission along with the mayor and an official from the Abruzzo civil protection department held a press conference to discuss the findings of the meeting. One of the commission members stated that the seismic activity was "certainly normal" and posed "no danger." He added that "the scientific community continues to assure me that, to the contrary, it's a favorable situation because of the continuous discharge of energy." Two other commission members said that the statement about the discharge of energy reducing the probability of a major earthquake was wrong and they strongly dissented from that assertion. Unfortunately, this concept became a mantra among the citizens: the more tremors, the less danger.

The prosecutors in the case place special emphasis on the statements made at the press conference as they were the only public comments to emerge following the meeting. At the press conference there were no specific recommendations given for community preparedness, which the prosecutors point to as the commission failing to meeting its legal obligation "to avoid death, injury and damage, or at least to minimize them." The prosecutor also argues that the fragility of local housing and other buildings should have been a special focus of the commission's risk assessment. One of the commission members in 1999 had compiled a census of every seismically-vulnerable public building in southern Italy. The survey, according to prosecutors, indicated that more than 550 masonry buildings in L'Aquila were at medium-high risk of collapsing in the event of a major earthquake.

At the press conference there were no specific recommendations given for community preparedness, which the prosecutors point to as the commission failing to meeting its legal obligation

If convicted, the scientists could face up to 15 years in jail. In addition, plaintiffs in a separate civil suit are seeking damages in the order of €22.5 million ($31.6 million). The case has prompted a serious review of the role of risk assessment and public

communication in an age of social media and instantaneous communication. A recent report from the ICEF argues that frequently updated hazard probabilities are the best way to communicate risk information to the public – the equivalent of "seismic weather reports."

This trial should remind all scientists that they need to be very careful making comments regarding scientific conclusions beyond their scope of expertise

It was the failure of the commission members to remind L'Aquila residents of the necessity to follow earthquake preparedness procedures that prevented at least one prominent U.S, seismologist from signing an open letter signed by 5,000 scientists supporting the beleaguered scientists. This trial should remind all scientists that they need to be very careful making comments regarding scientific conclusions beyond their scope of expertise. And even then, scientists need to remember that the public often does not have the necessary scientific understanding to correctly interpret the results being addressed, so the risks need to be clearly stated but not presented in a way to scare people. This may be the greatest failing of the climate change movement that has adopted a cataclysmic scenario approach for risks that cannot be quantified or demonstrated to cause such outcomes. Moderation in language is the safest course but often the most easily ignored.

Our Favorite Energy Indicators In The News

Those who are long-time readers of the *Musings* know that we often focus on the state of the housing and automobile sectors. We know these sectors heavily influence energy demand trends in the United States, and globally. Last week there were three articles in the media on the same day dealing with these two sectors, something we found to be interesting. Two of the stories dealt with the automobile sector – one dealing with interesting vehicle use trends that have auto executives concerned while the other captured what has been and is happening to gasoline demand. The third article dealt with challenges one city in Maryland is having in recovering from the housing collapse, and the resulting economic fallout on employment and in turn energy consumption.

The impact of this role reversal is that workers who gained jobs due to the housing boom and consumption spree fostered by the inflation in home values and the equity withdrawals have now lost them with little hope of regaining employment anytime soon

Hagerstown, Maryland was a huge beneficiary of the housing boom according to the article in the *Wall Street Journal*. The town was ranked among the highest for positive mortgage equity withdrawal during the boom – meaning that people pulled cash out of their inflating home values during the housing boom. Today, Hagerstown ranks among the most negative – meaning mortgage holders are defaulting or paying down debt. These rankings were according to Moody's Analytics. The impact of this role reversal is that workers who gained jobs due to the housing boom and consumption spree fostered by the inflation in home values and the equity withdrawals have now lost them with little hope of regaining employment anytime soon.

Does anyone find it interesting that so many of our current economic lows are matching those experienced in the early 1980s recession that followed the inflation-driven economic boom of the late 1970s?

According to the *Wall Street Journal*, in the past 10 years, housing and related sectors grew to represent about 16.8% of the nation's gross domestic product (GDP) in 2005. That portion is equivalent to the importance of all our healthcare spending. Today, after the housing bubble burst, the sector only accounts for 13% of GDP, its lowest share since 1982. Does anyone find it interesting that so many of our current economic lows are matching those experienced in the early 1980s recession that followed the inflation-driven economic boom of the late 1970s? Equally interesting is that the U.S. economic recovery following that deep recession was very sharp and set off the longest un-interrupted economic expansion in the post-depression era. That recovery was driven by reduced interest rates, tax reductions and lowered energy prices. Today, only one of those three catalysts is able to help drive an economic recovery – lower energy prices.

Turning to the automobile industry, the more intriguing of the two articles dealt with the growing number of Americans who are more interested in borrowing cars for when they need them rather than owning cars. The article discussed the recent alliance between General Motors (GM-NYSE) and RelayRides, a start-up company that helps car owners rent their cars when they don't need them. GM's interest is a play on market trends similar to what prompted companies such as Zipcar, Getaround, Car2Go and other services being offered by car rental companies designed to meet the short-term mobility needs of young adults and city-dwellers. Daimler AG (DDAIY.PK) runs Car2Go that rents out its tiny Smart cars in Austin, Texas, Vancouver, British Columbia, and several cities in Germany. BMW (BMW.DE) also has started a short-term rental service in Munich and has created a fund to invest in companies developing alternatives to traditional car ownership, or technology to help people get around in congested cities.

There is a growing apathy among young people about driving and cars

GM's interest in RelayRides is the result of looking at developing trends in the automobile market. There is a growing apathy among young people about driving and cars. This is compounded by the smaller number of new drivers due to demographic changes. Urban congestion is making driving and parking a car in cities costly and inconvenient. And lastly, technology is making it easier for urban dwellers to find alternative ways to address their need for a vehicle when they need it.

The weekly survey has shown declines of 2% to 3% in the four-week moving average of gasoline consumption every week since the week ending August 5th, or nearly two full months

Against those long-term negative trends in the auto sector is the current decline in gasoline consumption in this country. According to the MasterCard Spending Plus survey, gasoline consumption was down 2.5% in September from a year ago. But maybe more important for the near term health of the economy is that the weekly survey has shown declines of 2% to 3% in the four-week moving average of gasoline consumption every week since the week ending August 5th, or nearly two full months. As gasoline pump prices have been moderating during that time, it is likely that the decline in

gasoline consumption reflects current economic weakness rather than a reaction to high prices. That consumption decline does not bode well for third quarter GDP numbers.

We continue to marvel at how little traffic we experience driving the length of Mississippi on I-59

As we returned a week ago from our fall visit to our second home in Rhode Island, we can attest to the decline in both gasoline pump prices and reduced driving. Although at times there seemed to be large numbers of trucks on the highway, the further south we drove in Virginia, the fewer trucks we encountered. Since the trucks traffic we observed was on a Friday, we attributed some of it to the desire for drivers to get to their destinations before the weekend. Automobile traffic was quite light, and became even lighter (at times almost non-existent) on Saturday. We continue to marvel at how little traffic we experience driving the length of Mississippi on I-59. It makes us wonder whether there was a boycott of the state underway we were unaware of.

That suggested to us that Cracker Barrel must be one of the better places to eat for the locals

Our Friday night hotel was quite full – forcing us to reserve a less-than-conventional room. There were lots of kids at the hotel, which we found out was due to the fall school break in the Tennessee area. Earlier that evening we ran into a large crowd of diners at 7:30 pm when we stopped at one of our favorite chain restaurants in the southern tip of Virginia. We did see a tour bus when we entered, which was one reason for the large number of diners, but when we questioned our waitress about the crowd, we were told it was normal for Friday and Saturday nights. That suggested to us that Cracker Barrel must be one of the better places to eat for the locals.

With both of these large economic sectors struggling, energy demand in the U.S. is not apt to grow much, if at all, in the near-term

As we pondered the meaning of the newspaper articles and our own traffic observations, we are left with the feeling that America's economy is struggling and likely to continue to struggle until something is done about our housing market. The automobile market in the U.S. will likely never return to the level of new car sales experienced in the early and mid-2000s due to demographic and social trends. With both of these large economic sectors struggling, energy demand in the U.S. is not apt to grow much, if at all, in the near-term. That probably doesn't bode well for crude oil prices short-term.

Rhode Island Pushes To Expand Renewable Energy Sector

Whether these new rules will really kick-start growth of the renewable energy sector in the state remains to be seen

After attending the Rhode Island Foundation sponsored broadcast on Rhode Island Public Radio of a discussion about offshore wind power (we wrote about it in a recent *Musings*), we were intrigued by an in-depth local newspaper article about renewable energy in the state and its changing outlook. The article focused on the new rules signed into law this summer by Gov. Lincoln Chafee (I-RI). Whether these new rules will really kick-start growth of the renewable energy sector in the state remains to be seen, especially since Rhode Island has one of the worst rankings of all the states. According to 2009 data reported by the Energy Information Administration (EIA), Rhode

Island ranked 49th in renewable-energy installed capacity. Updated numbers as of February, which were released by the American Council on Renewable Energy (ACORE), the state was in 45th place with two megawatts (MW) of wind energy, 0.6 MW of solar power and 12 MW of biomass generated energy.

Rhode Island's low standing is partially attributed to how poorly the state did in accessing federal stimulus money over the past three years

Rhode Island's low standing is partially attributed to how poorly the state did in accessing federal stimulus money over the past three years – maybe because it had a Republican governor. Based on the total value of projects in the state funded by the stimulus program, Rhode Island ranked 47th according to the chief financial officer of NERC Solar. As measured by these various statistics, Rhode Island doesn't stack up well but maybe that is because it is such a small state. Maybe the state should be measured on the basis of its renewable energy as a share of overall energy capacity. *The Providence Journal* compiled the state's ranking based on data from ACORE and the EIA, which put it in 38th place. That study excluded large-scale hydropower, a very clean energy source. If hydropower had been included, Rhode Island would have fallen into 48th place.

Under the distributed generation policy, the state energy office will set ceiling prices that developers can charge for renewable energy

New wind and solar projects starting up or underway may help boost the state's standing, but the key to long-term improvement in its ranking depends on a new statute governing distributed generation. That is at the heart of the energy package signed into law this summer by the governor. Under the distributed generation policy, the state energy office will set ceiling prices that developers can charge for renewable energy. The prices will vary based on the type of system and its size after taking into consideration the costs of the individual technologies, returns on investment and economies of scale. Under this program, a 1.5-MW wind turbine would have a lower price cap than that for a 100-kilowatt turbine. Due to its costs, a 1-MW solar farm will have a higher cap.

The belief, according to the head of the state's energy office, is that prices for wind projects will be close to the retail price of electricity charged by National Grid

Distributed generation projects will bid within their classes with prices that come under their respective ceiling. The winning bids will be rewarded with long-term contracts with National Grid (NGG-NYSE), the state's primary electric utility company. The contracts will guarantee pricing for renewable energy projects for 15 years. The belief, according to the head of the state's energy office, is that prices for wind projects will be close to the retail price of electricity charged by National Grid. The price for solar power will be higher, but the official believes there will be room for lower prices through increased competition. Still, expectations for the program are relatively modest as the plan calls for constructing only 40 MW of renewable energy capacity over the next five years.

Renewable energy has struggled in Rhode Island because of its cost and lack of comparative advantage. The state is small so there are few large land parcels remote from the population for siting wind or solar farms. Additionally, the strongest winds in the state are either offshore or along the coast, areas subject to extensive tourism and

The farm is supposed to generate 375 kilowatts, but that is less than 1% of the total power consumed by the company's plant

objections from citizens. Recently, Toray Plastics (America), the largest industrial user of electricity in the state put a solar farm in service. The 1,650 photovoltaic panels span three acres of land adjacent to the company's plant in the Quonset Business Park in North Kingston. The farm is supposed to generate 375 kilowatts, but that is less than 1% of the total power consumed by the company's plant. The farm cost $2.1 million.

Exhibit 9. Largest Solar Farm In Rhode Island

Source: Toray Plastics; *Providence Journal*

The key, however, was that Toray received significant financial help from state and federal subsidies

Shigeru Osada, senior vice president in charge of building the solar farm was quoted as saying, "We spend a lot of money to save even a small amount of energy." The key, however, was that Toray received significant financial help from state and federal subsidies. The Rhode Island Office of Energy Resources gave Toray a $500,000 grant from the federal stimulus program. The Rhode Island Economic Development Corporation decided initially to give the company a $250,000 grant plus a $500,000 no-interest loan, which was replaced in August with the award of a $1 million grant. When asked whether without these subsidies Toray would have been able to build this solar farm, Mr. Osada responded, "One hundred percent impossible."

Since then, the state has only built an additional four!

At the present time, Rhode Island has very little solar generating capacity. The two other notable solar projects besides Toray include a 142-kilowatt system at United Natural Foods and a 179-kilowatt system for Bio-Detek. Wind power is even worse. The first wind turbine in the state was installed at the Portsmouth Abbey in 2006. Since then, the state has only built an additional four! Three of the turbines are rated at only 100 kilowatts. This number may double by early next year, but we are still talking peanuts of electricity generated by wind.

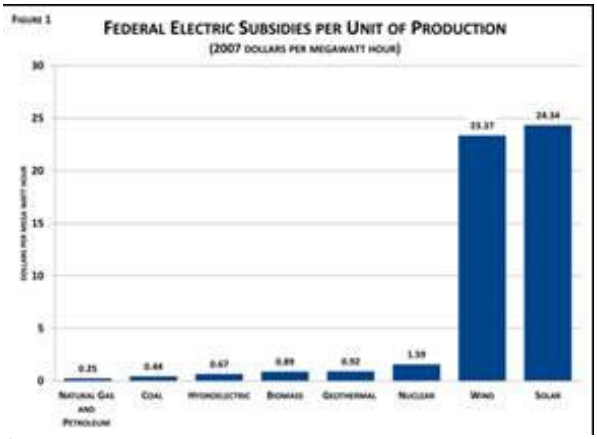
To understand the challenge facing the renewable energy business in Rhode Island, the state's Renewable Energy Standard calls for increasing the supply to 16% by 2019. Electricity suppliers can meet this obligation by purchasing certificates supporting the development

of clean energy supplies in and out of state. Only 1.3% of those certificates came from Rhode Island generators in 2009, the last year this data is available. As we have reported before, the 1.3% of clean energy is lower than it was in the mid-1990s, even though power consumption in the state has tripled.

Lost in this entire discussion about renewables is the role of federal and state subsidies for clean power. Rhode Island, like most states, has focused on wind and solar as the renewable fuels of choice despite the fact that these are among the most expensive alternative energy sources and thus require the largest federal government subsidies according to data from the EIA. Natural gas and petroleum receive $0.23 in federal subsidies per unit of electricity produced, or about 1% of the subsidy for wind ($23.27) and slightly less than 1% of solar's subsidy ($24.34). The reason for the subsidies is to lower the cost to the consumer. Interestingly, coal receives nearly twice the subsidy of natural gas at $0.44 per unit. Hydroelectric received $0.67 in subsidy, while biomass got $0.89, geothermal $0.92 and nuclear $1.39. For Rhode Island where there are numerous streams, many with old dams used to provide power to the early textile mills and other manufacturing businesses in colonial America, one would think the state might exploit this existing resource as a cheaper alternative to wind or solar power. Unfortunately, political thinking is that hydroelectric is so 1700s, when wind and solar are leading edge power supplies. In reality, these clean power sources are based on the oldest energy technologies, and the least capable of scaling up to deliver the amount of energy modern societies requires.

Rhode Island, like most states, has focused on wind and solar as the renewable fuels of choice despite the fact that these are among the most expensive alternative energy sources and thus require the largest federal government subsidies according to data from the EIA

Exhibit 10. Wind And Solar Most Subsidized Power



Source: EIA

The lack of progress reflects both poor policies and weak administration

So far, Rhode Island has accomplished very little in the realm of clean energy. The lack of progress reflects both poor policies and weak administration. That seems to be changing, but at the expense of ratepayers who are facing one of the highest unemployment rates in the nation, bankrupt cities, huge government

pension obligations that need to be restructured, rising property and sales taxes and a youth outmigration wave. While many politicians and investment people point to Greece as our future, maybe they should take a look at Rhode Island.

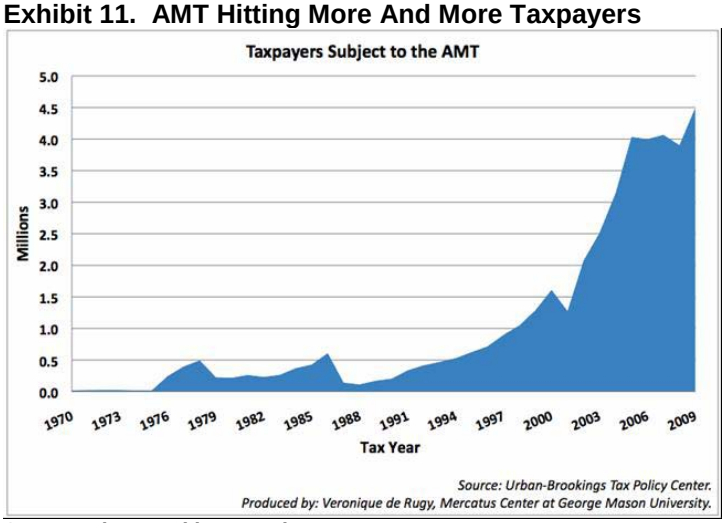
Energy And Private Equity – Targets Of Politicians Globally

President Barack Obama has targeted energy company "tax breaks" along with "millionaires and billionaires" and "corporate jet owners" as people he believes are not paying their "fare share" of U.S. income taxes. This is a key part of his attempt to promote class warfare among voters with the aim of motivating his supporters to re-elect him next fall. This electioneering platform of soaking the rich because they have been un-American in not paying higher taxes has taken on a unique political life. Aided by Berkshire Hathaway's chairman, Warren Buffett, who is promoting the idea that those among the super-rich who pay less effective tax rates than their secretaries should be forced to pay a minimum tax rate that would erase the disparity, the class warfare battle is escalating.

This revelation from the shortest serving Treasury Secretary in history set off a fire-storm across the country and led to the creation of the Alternative Minimum Tax in 1970

In a Capitol Hill hearing room in January 1969, U.S. Treasury Secretary Joseph W. Barr told a legislative committee that 155 wealthy taxpayers with incomes of $200,000 or greater (>$1 million in 2011 dollars) did not pay any federal income tax in 1966. This revelation from the shortest serving Treasury Secretary in history set off a fire-storm across the country and led to the creation of the Alternative Minimum Tax (AMT) in 1970. In 1970, about 19,000 taxpayers paid some AMT tax. According to the Congressional Budget Office, in 2009 4.5 million taxpayers were hit by the AMT. With the current patches to the AMT due to expire at the end of this year, estimates are that there could be as many as 20 million taxpayers subject to the tax beginning in 2012.

Exhibit 11. AMT Hitting More And More Taxpayers



Source: The Brookings Institute

From an add-on tax the AMT was switched into a parallel tax system

Under the original AMT, taxpayers with substantial tax-free income or large tax deductions that eliminated their federal tax obligation were assessed an additional tax. The tax was essentially a surcharge. That taxing structure remained in place until the overhaul of the tax code in 1982 under President Ronald Regan. From an add-on tax the AMT was switched into a parallel tax system requiring that taxpayers subject to the tax must figure their tax under both systems and pay the greater amount.

His speech exposed a philosophy similar that of the class warfare rhetoric of President Obama, but it also challenged sectors within the British economy that could equally become targets in the United States

Class warfare and income tax attacks are not unique to the United States, although they are getting greater press attention here than elsewhere. Nearly every country on the globe is searching for new or expanded sources of income as best depicted by the cover story of the latest issue of the *Economist* highlighting the "hunt for the wealthy." A little over a week ago, at the British Labor Party annual conference in Liverpool, England, British Labor Party leader Ed Miliband delivered a speech to his party's faithful that revealed a lot about a politician who has had limited impact on that nation's economic policies. His speech exposed a philosophy similar that of the class warfare rhetoric of President Obama, but it also challenged sectors within the British economy that could equally become targets in the United States with negative implications for capital formation in the private sector, especially for energy and oilfield service companies.

According to Mr. Miliband, the citizens of the United Kingdom "need a new bargain." Below is the relevant section of his speech devoted to his vision of this new bargain.

"We need a new bargain. Based on Britain's values. Britain's values in our economy, in our society, and in the way our country is run. Let's confront head on the big challenge we face of building a new bargain in our economy. Built on values of hard work, something for something, the long-term.

"We need a new era of wealth creation in this country. But it will not happen with the old set of rules."

"We need a new era of wealth creation in this country. But it will not happen with the old set of rules. And we can't spend our way to a new economy. We are competing not just with Germany and Japan, but with China, India and Brazil. Don't believe those who would tell you that the kind of economy we have now will help us to compete in that world. We can't pay our way unless as a country we invent things, make things, and sell real services and products.

"Britain's future will be built not on credit default swaps but on creative industries. Not low wages and high finance, but low carbon and high tech. Not financial engineering, but real engineering. Of course, the banks and financial services are important to Britain. They employ people right across the country. They will still be important to Britain in the future. But they must change so that they are part of the solution to our economic future, not part of the problem.

"You've been told all growth is the same, all ways of doing business are the same. But it's not. You've been told that the choice in politics is whether parties are pro-business or anti-business. But all parties must be pro-business today. If it ever was, that's not the real choice any more. Let me tell you what the 21st century choice is:

"It's about different ways of doing business, ways that the rules of our economy can favor or discourage."

"Are you on the side of the wealth creators or the asset strippers? The producers or the predators? Producers train, invest, invent, sell. Things Britain does brilliantly. Predators are just interested in the fast buck, taking what they can out of the business. This isn't about one industry that's good and another that isn't. Or one firm always destined to be a predator and another to be a producer. It's about different ways of doing business, ways that the rules of our economy can favor or discourage. Look at what a private equity firm did to the Southern Cross care homes. Stripping assets for a quick buck and treating tens of thousands of elderly people like commodities to be bought and sold.

"They may not have sold their own grandmothers for a fast buck. But they certainly sold yours. They aren't the values of British business. It must change. It must never happen again in the new economy we build. We must learn the lesson that growth is built on sand if it comes from our predators and not our producers."

Mr. Miliband view is that his country's economy is being driven by people interested more in how to milk the system rather than grow it. With that business bias, it was not surprising that Mr. Miliband went on to attack energy companies. He said the following about them.

"Prices go up but they never seem to come down."

"We need investment in energy here in Britain. But our energy companies have defied the laws of gravity for too long. Prices go up but they never seem to come down. I believe our environment and climate change is a crucial issue for our future.

"An essential part of the new bargain. Responsibility, commitment for the long term: That's what my kids will want from us on the environment when they grow up and ask whether we were the first generation to get it or the last generation not to.

"So over time there is going to be upward pressure on energy prices."

"So over time there is going to be upward pressure on energy prices. But that makes it all the more important we get the best possible deal for customers. So let's break the dominance of the big energy companies. Let's call a rigged market what it is. And get a fairer deal for the people of Britain."

From these two sections of Mr. Miliband's speech, it is clear that the wealthy – represented by private equity managers – are clearly his target and presumably the Labor Party, too, along with the energy companies. What is interesting in his characterization of the wealthy asset strippers is that the example he cited – Southern Cross, a company falling under the weight of its debt – is not suffering due to

private equity owners. Southern Cross was owned by The Blackstone Group (BX-NYSE), which exited via an initial public offering in 2006. The Southern Cross business model Mr. Miliband described existed before Blackstone became involved and continues to the present. Tagging Blackstone with the asset-stripper label five years after it exited is akin to blaming Mike Shanahan, former head coach, for the past three losing years of the NFL's Denver Broncos.

We don't know how he envisions creating a better deal for consumers, but our guess is it will be through strong-arm tactics like price fixing

Equally interesting was Mr. Miliband's view of energy companies. He believes they collude and fix high prices. At the same time, he holds them responsible for the environment and whatever damage has been caused by climate change. But he does acknowledge that solving environmental issues will put upward pressure on oil and gas prices so government's job should be to knock down those high prices. Unfortunately, we don't know how he envisions creating a better deal for consumers, but our guess is it will be through strong-arm tactics like price fixing.

In the face of a slowing global economy and the potential for weaker energy demand and lower commodity prices, the high interest in energy companies from private equity buyers may begin to wane

With politicians on both sides of the Atlantic attacking the wealthy and energy companies, it is fair to say that private equity players may be less inclined to become involved with this sector. In the face of a slowing global economy and the potential for weaker energy demand and lower commodity prices, the high interest in energy companies from private equity buyers may begin to wane. The first hint may be whether the premiums private equity buyers are willing to pay for companies remain as strong as they have been in recent years and also whether they demand high premiums when they sell portfolio companies. The game of seeking top dollar in every transaction may fade as more reasonable transaction values become more acceptable.

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

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